GOVERNMENT OF INDIA.

India METEOROLOGICAL DEPARTMENT.

THE

INDIA WEATHER REVIEW

QC
990
.I39
I52
1903

FOR THE YEAR

1903.

Published by authority of the Government of India.

UNDER THE DIRECTION OF

GILBERT T. WALKER, M.A., Sc.D., F.R.S.,

METEOROLOGICAL REPORTER TO THE GOVERNMENT OF INDIA AND DIRECTOR GENERAL OF INDIAN OBSERVATORIES.

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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, JANUARY, 1903.

INTRODUCTION.

THE monthly review of the weather in India for the month of January, 1903, is based on observations taken daily at 8 A.M. at 221 stations, and on additional observations recorded at 10 A.M. and 4 P.M. at 64 stations. In the case of the rainfall section of the review there are utilized the data of meteorological observatories and of 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 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, 1903.

The first half of the month of January, 1903, was fairly quiet and undisturbed. The low temperatures which had prevailed over India during the last ten days of December, 1902, were still present, though only in a modified degree, during the first three days of January, during which time the minima or night temperatures were considerably below the normal over nearly the whole country. During these three days light snow fell in Kashmir and some light showers were received in the west and centre of the Punjab, but elsewhere the weather was fine and clear. During the next week the temperature rose very generally and was higher than usual over the Peninsula and the central parts of the country, though it was generally low over north-west and north-east India. The following table gives the variations of the mean temperature from the normal for all divisions on the 8th and shows the prevailing distribution of this interval:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 8th January.	Mean minimum temperature, 8th January.	Mean daily temperature, 8th January.
	°	°	°
Burma	—2·7	+1·9	—0·4
Assam	+0·5	—3·0	—1·3
Bengal	+0·4	—0·4	°
Orissa	—2·1	—1·3	—1·7
Bihar	+1·2	+1·4	+1·3

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 8th January.	Mean minimum temperature, 8th January.	Mean daily temperature, 8th January.
	°	°	°
Chota Nagpur	+2·1	+4·0	+3·1
United Provinces of Agra and Oudh	+3·5	+1·3	+2·4
Punjab	+3·2	—5·4	—1·1
North-West Frontier Province	+1·6	—3·0	—0·7
Sind	—0·1	—1·9	—1·0
Rajputana	+0·9	+5·3	+3·1
Gujarat	+1·4	+4·1	+2·8
Central India	+3·7	+8·0	+5·9
Central Provinces	+1·7	+6·4	+4·1
Berar	—1·0	+5·6	+2·8
West Coast	+2·8	+4·6	+3·7
Bombay Deccan	—1·3	+6·4	+2·6
Mysore	—0·2	+1·7	+0·8
Madras Coast	—1·5	+1·4	—0·1
Madras Deccan	—1·9	+1·4	—0·3
South India	—0·8	+1·8	+0·5

During this time the weather was affected by a slight low pressure area over Gujarat and the Gulf of Cambay. This depression drew the wind into south-east over the Peninsula and into east over northern and central India, and rain fell over the Peninsula, the central parts of the country and north-west India, and light snow at Mussooree, Ranikhet, Chakrata and Simla. The following were the falls exceeding 1″ in 24 hours during this period (the 4th to 11th):—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
CUDDAPAH	Sidhout	5th January	1·11
	Chitvel	6th „	2·70
SHOLAPUR	Akluj	„ „	2·27
KOLHAPUR, ETC.	Jamkhandi	„ „	2·12
CUDDAPAH	Piler	„ „	2·02
	Badvel	„ „	1·95
SHOLAPUR	Madha	„ „	1·80
CUDDAPAH	Sidhout	„ „	1·34
SHOLAPUR	Sangola	„ „	1·05
	Sholapur	„ „	1·01
AKOLA	Khamgaon	7th „	2·93
POONA	Poona	„ „	1·95
NASIK	Nandgaon	„ „	1·79
NAGPUR	Katal	„ „	1·20
JUMMOO	Ram Nagar	10th „	1·08

Between the 12th and the 20th the weather over India remained generally quiet. On the 12th or 13th a decrease of temperature appeared in Baluchistan and north-west India, and this decrease spread eastward across northern India till it joined in north-east India with an area of low temperature already existing over that region, occasioned, apparently, by showers which were received there between the 17th and 20th. The following gives temperature variation data for Baluchistan and all the divisions of northern India for each alternate day from the 12th to the 20th:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	12th January.	14th January.	16th January.	18th January.	20th January.
	°	°	°	°	°
Assam	—1·2	—2·4	—3·6	—0·9	—1·3
Bengal	+1·5	+1·0	—1·1	+2·1	—0·8
Bihar	+2·4	+0·5	—4·3	—0·9	—2·3
Chota Nagpur	+3·1	+2·4	—0·2	+3·3	—3·5
United Provinces of Agra and Oudh	+1·6	—2·6	—2·5	—0·7	—3·4
Punjab	—1·0	—2·4	—1·7	—0·8	+0·6
North-West Frontier Province	—0·9	—3·1	—1·2	—1·2	—0·5
Sind	—1·5	—4·3	—3·1	—3·4	—2·5
Baluchistan	—8·0	—7·2	—7·1	—4·1	+5·9
Rajputana	+2·1	—2·7	—1·0	—3·1	—3·5
Gujarat	+0·9	—3·8	—2·9	—4·1	—3·3
Central India	+2·7	—1·2	+0·7	—2·1	—4·3

During this period the mean temperature was steadily high over the Peninsula and the central parts of the country, as is shown by the following table which gives variation data for alternate days from the 12th to the 20th:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	12th January.	14th January.	16th January.	18th January.	20th January.
	°	°	°	°	°
Orissa	+3·6	+5·8	+4·1	+3·9	+0·5
Central Provinces	+2·8	+3·4	+4·1	+2·6	—1·0
Berar	+2·1	+3·3	+4·6	+1·6	—0·8
West Coast	+1·0	+0·5	+0·7	+0·4	+0·2
Bombay Deccan	+0·9	+2·3	+2·6	+1·5	+1·0
Mysore	+0·8	+3·3	+3·8	+3·5	+4·8
Madras Coast	+1·6	+2·0	+1·5	+2·7	+2·6
Madras Deccan	+0·3	+2·5	+2·8	+2·7	+4·3
South India	—0·1	+1·6	+0·8	+0·9	+2·5

About this time the weather changed. On the 18th pressure gave way rapidly in western Persia and rain commenced at Teheran. The barometer continued to fall in Persia between the 18th and 20th and rain was received over that country. Snow began to fall in Kashmir on the 21st and rain in Baluchistan on the 22nd, on which day a storm or storms appeared on the north-west frontier. These storms advanced eastward into India, but had to a large extent filled up by the 24th. They had occasioned widespread, but not heavy, rain over north-western India and moderate snow in Kashmir and on the hills around the north-west frontier. As a result of this precipitation a sudden fall of temperature commenced over Baluchistan and the Indus valley on the 23rd. This cold wave spread eastward across northern India. On the 25th a fresh storm was shown over the north Punjab, and on that and the following day further rain fell over the plains and further snow over the hills of north-west India. As a result the already existing deficiency of temperature in north-west India was intensified and the cold wave continued to advance eastward across northern India. On the 27th another storm appeared over the Persian area. This storm entered north-west India on the 30th, and on the 30th and 31st fresh snow and rain fell in the north-west, occasioning a further fall of temperature. The preceding summary shows that from the 18th on to the end of the month the weather was disturbed and stormy over Persia, Baluchistan and northern India, and that during that time a series of storms occasioned rain on the plains and snow on the hills of that region. As a consequence the temperature was unsteady and generally low throughout that period. The following gives comparative temperature data for the divisions of northern India for each alternate day from the 23rd to the 31st:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	23rd January.	25th January.	27th January.	29th January.	31st January.
	°	°	°	°	°
Assam	−2·7	−1·7	+0·4	−1·9	−3·6
Bengal	−1·9	+0·6	+4·4	−1·9	0
Bihar	−1·8	+2·8	+4·9	−4·0	−1·5
Chota Nagpur	0	+4·6	+6·1	−3·0	−0·8
United Provinces of Agra and Oudh.	+1·2	+4·4	0	−4·6	−3·1
Punjab	−0·4	−3·0	−5·7	−3·7	−5·6
North-West Frontier Province	+3·9	+1·3	−4·2	−3·3	−7·6
Sind	−0·4	−2·8	−8·2	−3·4	−5·3
Rajputana	+6·4	+1·2	−6·4	−6·9	−5·5
Gujarat	+3·2	−1·3	−8·4	−5·9	−2·4
Central India	+3·8	+7·0	−2·3	−5·8	−2·8

The mean temperature was normal at the commencement and in slight excess at the close of this period over the greater part of the Peninsula, but along part of the west coast the heat was steadily slightly lower than usual. The following gives temperature variation data for the Peninsular divisions for each alternate day from the 23rd to the 31st:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	23rd January.	25th January.	27th January.	29th January.	31st January.
	°	°	°	°	°
West Coast	+2·5	+1·9	−0·7	0	−1·6
Bombay Deccan	+1·6	+1·3	−0·5	+0·2	−0·2
Mysore	+0·8	−0·6	+0·7	+1·8	+2·7
Orissa	−1·6	−0·5	+2·3	+2·3	+3·7
Madras Coast	+2·2	+0·4	+0·6	+3·2	+3·0
Madras Deccan	+1·3	−0·5	+1·4	+3·7	+2·1
South India	+1·7	+0·7	−0·4	+2·8	+1·0

Pressure.—The mean pressure of the Indian land area exceeded the normal by ·016″. Pressure was about normal over the central parts of the country, but exceeded the average over north-west and north-east India, Burma and the coasts of the Peninsula. Compared with the general condition pressure was in slight to moderate defect over the interior of the country, and was in slight to moderate excess over the western desert, the greater part of the coasts of the Peninsula, north-east India and Burma. The largest negative anomaly was ·028″ at Jubbulpore and the largest positive anomaly ·031″ at Bhamo. At the hill stations on the outer Himalayas and in Baluchistan the pressure, on the mean of the month, was in excess of the normal, while on the hills in Kashmir and in the central parts of India it was in defect. The vertical pressure anomalies were generally slightly negative.

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, 1903.	Pressure anomaly, January, 1903.
	″	″
Burma Coast and Bay Islands	+·021	+·005
Burma, Inland	+·037	+·021
Assam	+·024	+·008
Bengal and Orissa	+·020	+·004
Gangetic Plain and Chota Nagpur	+·017	+·001
Upper Sub-Himalayas	+·022	+·006
Indus Valley and North-West Rajputana	+·018	+·002
East Rajputana, Central India and Gujarat	+·007	−·009
Deccan	+·006	−·010
West Coast	+·013	−·003
South India	+·015	−·001

Temperature.—On the mean of the month the maxima or day temperatures were excessive over the greater part of the Punjab, the North-West Frontier Province, the central parts of the country, the south of the Peninsula and the Burma coast and Tenasserim. The excess was more than 2° at Umballa (+2°·4), Hazaribagh (+2°·5), Jubbulpore (+2°·1), Chanda (+2°·6), Raipur (+2°·8), and Cochin (+3°·1), but was generally small and unimportant elsewhere. Over the remainder of India the mean maximum temperature was lower than usual. The deficiency was considerable in Gujarat (Bhuj and Rajkot each −3°·1), on the mid-west coast (Goa −4°·0), in south-west Bengal (Chaibassa −2°·9) and in inland Burma (Bhamo −2°·4 and Toungoo −2°·3).

The mean minimum or night temperature of the month was in general excess over the Peninsula, the central parts of India, the greater part of Bengal and the Burma coast. It was more than 4° in excess at Goa (+4°·2), at Bijapur (+4°·2), at Ahmednagar (+4°·4), at Chanda (+4°·6), at Sambalpur (+4°·7), at Cuttack (+4°·1) and at Mergui (+4°·1), and was in moderate excess all over the Peninsula. It was in defect over the interior of Burma and north-eastern, northern and north-western India, but the deficiency was small, except in the Assam valley (Dhubri −3°·7) and over the western desert (Jacobabad −5°·1). On the north-west Himalayas the mean minimum temperature was generally lower than usual, but the absolute minima reported have, except in parts of Kashmir, been exceeded in previous years.

The variations of the mean temperature of the month exhibited an excess over the Peninsula, the central parts of India, western and deltaic Bengal and the Burma coast, and a deficiency elsewhere. The excess was greatest and between 2°·2 and 3°·6 over the centre of the country, while the deficiency was greatest and between 2°·2 and 2°·9 over the western desert. At most of the hill stations the mean temperature, owing to low night temperatures, was below the normal of the month.

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

Meteorological Province.	Variation of actual from normal of		
	Mean maximum temperature, January, 1903.	Mean minimum temperature, January, 1903.	Mean daily temperature, January, 1903.
	°	°	°
Burma Coast and Bay Islands	+0·1	+0·9	+0·6
Burma, Inland	−0·9	−0·5	−0·7
Assam	−1·4	−2·6	−2·0
Bengal and Orissa	−0·4	+0·7	+0·2
Gangetic Plain and Chota Nagpur	+0·8	0	+0·4
Upper Sub-Himalayas	−0·1	−1·0	−0·6
Indus Valley and North-West Rajputana.	−0·4	−3·0	−1·7
East Rajputana, Central India and Gujarat.	−0·6	+0·5	−0·1
Deccan	+0·4	+3·0	+1·7
West Coast	−0·7	+2·2	+0·8
South India	0	+2·8	+1·4

Winds.—The general conditions of pressure, on the mean of the month, having been approximately normal, the winds over India exhibited comparatively slight and unimportant variations from the average over the greater part of the country. The only important exceptions were Burma and the east of the Bay, where the direction was more northerly than usual, and the interior of the Peninsula, where the winds were somewhat more southerly than the average. The wind was somewhat more northerly than the normal at some of the Himalayan stations, and a similar deflection was shown by the winds over the equatorial belt and south-east Trades region.

Humidity.—The air was damper than usual in all parts of the Peninsula, except the west coast. This area of increased dampness extended eastward over the Bay as far as Port Blair and north-eastward as far as lower Bengal. The excess was most marked over Mysore (Chitaldroog +15), and the Bombay Deccan (Belgaum +13), but was likewise considerable over Orissa and at the head of the Bay. Over Burma and northern India, with the exception noted above, the relative humidity was lower than usual, the deficiency having been most marked in Rajputana (Jaipur −11), the west of the United Provinces (Dehra Dun −11), and the east Punjab (Ludhiana −10). Except at Quetta and Srinagar, the relative humidity at the hill stations was, on the mean of the month, lower than usual.

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, 1903.	Variation of actual from normal, January, 1903.	Average actual, January, 1903.	Variation of actual from normal, January, 1903.
	"	"	%	
Burma Coast and Bay Islands	·661	+·005	68	−2
Bengal and Orissa	·531	+·050	76	+3
Gangetic Plain and Chota Nagpur.	·318	−·016	58	−4
Upper Sub-Himalayas	·243	−·040	39	−7
Indus Valley and North-West Rajputana.	·239	−·030	52	−4
East Rajputana, Central India and Gujarat.	·224	−·039	38	−7
Deccan	·395	+·045	53	+4
West Coast	·588	+·005	67	−2
South India	·535	+·073	66	+6

Cloud.—Skies were unusually thickly clouded over nearly the whole of the Peninsula, the east Gangetic plain, lower Bengal and the Burma coast. The excess was large (between 2·2 and 2·8) over parts of the inland districts of the Peninsula and was very large (between 3·1 and 3·4) over Orissa and the Sandheads. The sky was, on the contrary, clearer of cloud than usual over Bihar and the whole of north-west India, both on the hills and plains. The deficiency was considerable over the Indus valley and the south-east Punjab. The sky was

more cloudy than usual at Aden and in the south-east Trades region.

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

METEOROLOGICAL PROVINCE.	MEAN CLOUD AMOUNT.	
	Average actual, January, 1903.	Variation of actual from normal, January 1903.
Burma Coast and Bay Islands	2·5	+0·3
Bengal and Orissa	4·1	+2·6
Gangetic Plain and Chota Nagpur	2·4	+0·5
Upper Sub-Himalayas	2·5	—1·2
Indus Valley and North-West Rajputana	2·0	—1·5
East Rajputana, Central India and Gujarat	2·5	—0·3
Deccan	3·6	+1·9
West Coast	1·9	+0·8
South India	4·3	+1·5

Rainfall.—There was little or no rain during the month of January, 1903, over the west of the Peninsula, the head of the Peninsula, Gujarat, the western desert or Burma. From these regions the rainfall increased and amounted to between 1″ and 2″ in the submontane region of north-west India (Umballa 2·27), to over 2″ in parts of Assam (Silchar 2·64″) and of south-east Bengal (Chittagong 2·71″), and to between 2″ and 4″ over Ceylon and the Carnatic (Madras 4·53″). The total rainfall of the month exceeded the normal over parts of north-east India, including the Surma valley, east and deltaic Bengal, Orissa and Chota Nagpur, as well as over a considerable part of the Peninsula, including the central and south divisions of the east coast, south, central and south-central Madras, the Bombay Deccan, Khandesh and Berar. Over the remainder of India the month's rainfall was lighter than usual except in the submontane division of the Punjab where the fall was in trifling excess.

The following table gives rainfall data of the eleven meteorological provinces of the Empire:—

METEOROLOGICAL PROVINCE.	RAINFALL.			
	Mean actual, January, 1903.	Mean normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Burma Coast and Bay Islands	0	0·26	—0·26	—100
Burma, Inland	0·01	0·15	—0·14	—93
Assam	1·15	0·89	+0·26	+29
Bengal and Orissa	0·55	0·43	+0·12	+28
Gangetic Plain and Chota Nagpur	0·40	0·65	—0·25	—38
Upper Sub-Himalayas	1·09	1·67	—0·59*	—35
Indus Valley and North-West Rajputana.	0·25	0·57	—0·32	—5
East Rajputana, Central India and Gujarat.	0·05	0·26	—0·20*	—77
Deccan	0·33	0·23	+0·07*	+30
West Coast	0·05	0·22	—0·17	—77
South India	0·82	0·37	+0·45	+122

* 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 of the 1st column. The sum of the figures in columns 2 and 3 will, therefore, not agree with the figures in column.

Turning next to the larger changes which have affected the whole monsoon area. Under this heading the general meteorological features of the month may be considered under two periods. It will be seen from the table at the close of this section that from the 1st to the 13th the general pressure of the whole monsoon area exceeded the normal and during this period the weather was generally quiet and settled, while from the 14th to the 29th the pressure was more or less in defect, and it was during this period that most of the rainfall and most of the unsettled weather were experienced.

The observations of western Siberia, derived from the Russian daily weather reports, are somewhat less interrupted than usual, but there was, as in previous months, very little evidence that the barometric changes occurring over this area extended into the Indian region. There was, however, on the 8th a remarkable barometric fall over western Siberia, amounting to ·712″ at Tomsk, to ·540″ at Omsk and to ·468″ at Barnaul. Accompanying this change there occurred a fall of ·304″ at Gilgit, of ·125″ at Chitral, of ·164″ at Skardu and of ·140″ at Leh and a general fall of somewhat less amount over nearly the whole of India. There was thus at this time a general fall of the barometer over the whole of this part of the world, the change being at a maximum in western Siberia and at a minimum over the Trades region, but it is important to notice that this change was unaccompanied with any alteration in the general weather and hence, though of scientific interest, was not of practical importance. Other large general changes of pressure were reported over western Siberia on the 16th, the 19th and 28th, but, though these falls were accompanied with similar changes over parts of the monsoon area, it is impossible to establish any direct connection between the two. To the westward of India the weather during the first half of the month under review was quiet and settled. The Russian and European weather reports show that pressure was high over the Mediterranean and Caspian areas, and that depressions were passing from west to east through Scandinavia and north Russia. The high pressure area over the Mediterranean, etc., apparently extended eastward over Asiatic Turkey, and the distribution of pressure between that region and the Indian area is shown in the following table

giving data for January 9th, illustrating the conditions of this period :—

STATION.	Baghdad.	Bushire.	Jask.	Kurrachee.	Jacobabad.
8 A.M. pressure . . .	30·502″	30·270″	30·262″	30·170″	30·167″

There was thus a steady increase of pressure from the Indian frontier to Asiatic Turkey, so that conditions were unfavourable for the production of storms over the Persian plateau and the weather was quiet over the whole of this area.

On the 12th these general conditions changed. An anti-cyclone appeared over the British Isles and travelling eastward advanced into central Europe by the 14th. Here it intensified, and on the 17th and 18th the barometer read as high as 30″·90 over central Europe. When this occurred, the whole conditions of pressure changed. The barometer fell all over the Mediterranean, the Black Sea and the Caspian areas and pressure became low over these regions. Directly this change was accomplished (16th to 17th), the weather changed. Cold, rainy, wintry weather was reported from Egypt between the 18th and 25th and a cyclonic storm was reported from Assuit, while the pressure distribution between Asiatic Turkey and the Indian frontier became the reverse of that previously prevailing. The following gives data for the 9th and 18th in illustration :—

STATION.	Baghdad.	Bushire.	Jask.	Kurrachee.	Jacobabad.
January 9th	30·502″	30·270″	30·262″	30·170″	30·167″
January 18th	29·954″	30·004″	30·103″	30·106″	30·101″

Conditions were now favourable for the production of storms in low latitudes and, as mentioned above, they appeared over Egypt and Asiatic Turkey and from the latter region advanced eastward to the Indian frontier. This general distribution of pressure was maintained until the 28th, when the barometer rose again in the south of the Eur-Asian continent, and high pressures were re-established over southern Europe, the Mediterranean and the Caspian areas. A slight storm appeared over north-west India on the 30th, but it was very feeble and did not affect the weather to any important extent.

The preceding summary has shown, so far as can be judged from the available data, that the appearance of unsettled weather over Egypt, Asiatic Turkey, Persia, and hence over north-west India is connected with the position of anti-cyclonic or high pressure areas over the Eur-Asian continent. When the anti-cyclone occupies a southern position over southern Europe, the Mediterranean, Black Sea and Caspian areas, the storms advance eastward encircling its northern boundaries passing across the British Isles and northern Europe and thus lying completely outside the Indian region ; when, on the contrary, an anti-cyclone appears in a more northern position and covers central and northern Europe pressure, falls over the Mediterranean and Caspian areas, storms are developed on the southern limits of the anti-cyclone and advance eastward encircling its southern boundaries.

In Egypt, as in Asiatic Turkey, Persia and India, the mean pressure of the month was above the average at all stations, while both at Alexandria and Abbassia the rainfall was decidedly below the normal.

The following table gives the daily variations of pressure from the normal for certain selected stations within the monsoon area :—

VARIATION FROM NORMAL, JANUARY, 1903.

Date.	Bushire.	Muscat	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	″	″	″	″	″	″	″	″	″
1 .	+·226	+·138	+·151	+·089	+·066	+·092	+·055	+·072	+·113
2 .	+·133	+·139	+·105	+·050	+·061	+·051	+·049	+·040	+·079
3 .	+·103	+·095	+·080	+·049	+·060	+·035	+·019	+·057	+·063
4 .	+·093	+·077	—·058	+·054	+·060	+·065	+·001	+·043	+·038
5 .	—·019	+·076	—·030	+·043	+·051	+·064	+·011	+·026	+·030
6 .	+·031	+·083	+·110	+·044	+·052	+·050	+·053	+·079	+·061
7 .	+·128	+·102	+·107	+·037	+·071	+·022	+·073	+·090	+·076
8 .	+·110	+·089	+·077	+·031	+·071	+·015	+·070	+·096	+·066
9 .	+·155	+·101	+·151	+·045	+·072	+·015	+·049	+·077	+·080
10 .	+·180	+·131	+·128	+·044	+·071	+·033	+·040	+·051	+·081
11 .	+·129	+·113	+·098	+·048	+·039	+·007	+·003	+·007	+·055
12 .	+·096	+·074	+·096	+·035	+·005	—·021	—·034	—·033	+·026
13 .	+·052	+·019	+·019	+·028	—·015	—·041	—·036	—·037	+·005
14 .	+·032	—·063	—·033	+·037	—·004	—·025	—·049	—·047	—·013
15 .	+·004	—·068	—·032	+·027	—·035	+·004	—·006	—·012	—·011
16 .	+·013	—·002	—·008	+·017	—·026	0	+·032	+·010	+·007
17 .	—·007	+·017	+·011	+·026	—·014	—·028	+·015	—·007	+·005
18 .	—·101	—·005	0	+·004	—·024	—·022	+·011	—·027	—·019
19 .	—·152	—·042	—·039	+·020	+·001	—·013	—·033	—·029	—·033
20	—·318	—·158	—·141	—·080	—	—·008	—·060	—·038	—·114
21 .	—·248	—·288	—·278	—·124	+·007	—·050	—·041	—·017	—·128
22 .	—·030	—·202	—·163	—·134	+·005	—·064	+·021	+·013	—·073
23 .	+·104	+·015	+·034	—·050	—·007	—·088	—·009	—·009	—·006
24 .	+·155	+·053	+·076	—·041	—·021	—·022	+·014	+·006	+·022
25 .	+·183	+·113	+·152	+·022	—·008	+·007	+·042	+·036	+·063
26 .	+·052	+·096	+·120	+·053	+·037	+·016	+·052	+·033	+·056
27 .	—·128	—·013	+·016	—·022	—·010	—·027	—·027	—·072	—·035
28 .	—·009	—·062	—·037	—·049	—·025	—·016	—·021	—·069	—·037
29 .	+·074	—·078	—·040	—·024	—·028	—·028	—·023	—·055	—·027
30 .	+·103	+·047	+·080	+·014	+·013	—·017	+·010	—·049	+·025
31 .	+·141	+·030	+·031	+·030	+·051	—·008	+·048	—·041	+·040

The preceding data show that the mean pressure of the whole area was above the normal from the 1st to the 13th, the periods of maximum excess occurring on the 1st and 2nd and the 9th and 10th. Between the 14th and the 18th the variations from the normal were small and unimportant, forming the transition period between the two portions of the month. On the 19th the general deficiency increased, and between the 20th and 22nd it was large. On the 23rd pressure increased and by the 26th had become excessive in all parts of the monsoon area. A sudden and large general fall occurred on the 27th, and the barometer read below the normal until the 29th, when a rise occurred, and during the last two days of the month the pressure exceeded the average at all places, except the Seychelles and Madras.

Magnetic and Solar Disturbances.

The Director of the Royal Alfred Observatory, Mauritius, reports small disturbances in the horizontal force on the following days in January :—the 2nd, 3rd, 4th and 5th, the 18th, the 23rd and the 26th and 27th.

Groups of spots were observed on the surface of the Sun, from Mauritius, on the 4th, 5th and 6th and on the 24th, while a single spot was recorded on the 28th.

Magnetic disturbances thus preceded the appearance of spots on three out of four occasions during the month.

Faculæ were present on the 5th and the 11th to 13th.

The following statement as to magnetic disturbances observed at Colaba Observatory (Bombay) has been supplied by the Director of the observatory :—

The magnetic traces for the month do not show any unusually large disturbance. There were 10 calm days, 19 days of small, and 2 of moderate, disturbances, the last being recorded on the 26th and 27th. Seven movements suspected to be due to seismic disturbances were noted as shown in the table, that of the 13th being specially well-marked, a seismic disturbance following it after about 8 hours of its commencement :—

Number of disturbances.	Date.	Commencing at	Lasting for
1	2nd	16 hours	11 hours
2	3rd	22 ,,	8 ,,
3	5th	22 ,,	9 ,,
4	6th	23 ,,	10 ,,
5	13th	23 ,,	11 ,,
6	24th	18 ,,	6 ,,
7	26th	14 ,,	16 ,,

Small period movements—20 rhythmic (serrated) movements, the oscillations continuing for some time, and 38 abrupt movements, appearing as if suddenly damped in their propagation, have been recorded in the month.

The selected quiet days of the month were 7th, 12th, 15th, 21st and 25th.

The means of the observed absolute values of the several elements for the month were as follow :—

	January.	
Declination	0°	18′ 17″E
Horizontal Force	0·37430	C.G.S. units.
Dip	21°	40′·7

There were seven well-marked earthquakes recorded at Colaba during the month, *viz.*, on 4th, 5th, 6th, 14th, 17th, 22nd and 24th. The disturbance on the 14th was the largest in the month, the amplitude being 12·1 mm. The distance of the origin of the earthquake, as indicated by the seismogram, presumably appeared to be about 10,000 miles from Colaba. The Society Islands were reported to have been destroyed by a huge tidal wave on that date, which wave was probably the result of an earthquake of sub-oceanic origin in the vicinity of the Islands. It is interesting to note that the earthwaves, as they passed Sind and Kutch, the formations of which are known to be unstable, set up the perceptible shocks reported from these places (see p. 16).

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.	Mangalore.	Tavoy.
Cocos Island.	Midnapore.	Toungoo.
Comilla.	Monywa.	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, Dibrugarh, Chaibassa, Daltonganj, Patiala, Bikaner, Pachpadra, Kotah, Veraval, Dwarka, Bijapur, Chanda, Bidar, Mormugao, Waltair, Astor, Kailang, Mussooree, Raichur, Udaipur, Baghdad and Kashgar 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 5 to 12, 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 stations, except Jamnagar, Muktesar, Mysore, Udaipur, Waltair, Ootacamund, 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 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 $\frac{1}{20}$ 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 twenty-two 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 nine 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 8 A.M. pressure of the Indian land area was above the normal in nearly all parts of the country, but the variations were generally small, and for the whole country the mean excess was 0·016″.

Pressure, on the mean of the month, was highest in the north Punjab, relatively high over the Assam valley, and lowest on the Malabar coast and in west Ceylon. The mean monthly pressure was 30·170″ at Peshawar and 29·924″ at Colombo, and the total range of pressure was ·246″; hence the general distribution of pressure and the range of pressure were very nearly normal, the only important exception having been the slightly higher pressures reported over Assam and north-east India. During the first two-thirds of the month the weather was generally quiet, and the changes of pressure, in the absence of any important storms, were generally slight or small, but after the 20th the character of the weather changed, a series of storms entered north-west India from countries to the westward and the barometric changes from day to day became large and irregular. The slight excess of pressure which, on the mean of the month, was general over the Indian land area appears to have extended over the countries to the westward and to the Arabian Sea. Thus, at Muscat, the mean pressure of the month was 0·020″ above the normal, at Baghdad 0·023″ above, and at Aden 0·010″ above. On proceeding southward, however, this general excess disappeared. At Colombo the variation of the mean monthly pressure from the normal was only +0·008″, at the Seychelles —0·002″ and at Mauritius —0·053″, so that the excess had not only disappeared, but had been replaced by a considerable deficiency in Lat. 20°S.

Over the Indian land area the pressure, relatively to the general condition (+0·016″), was in local defect over the south-west and inland parts of the Peninsula, over the whole of the central divisions of India, over the Indus valley and over the Burma coast. The anomalies were slight or small for all stations within these areas, except Malegaon (—·025″), Poona (—·022″), Jubbulpore (—·028″) and Nowgong (—·023″).

Pressure was in relative excess over the remainder of India. The excess was small and less than ·02″, except over part of Upper Burma and locally at Bogra (+·022″) and Umballa (+·023″), where, however, the variations are not altogether reliable.

Pressure was in slight excess at the hill stations in Baluchistan, and in slight excess at those on the outer ranges of the Himalayas, but at Srinagar and Leh the mean pressure was in trifling defect. In the case of the Baluchistan stations the excess of the mean pressure was somewhat greater, and in the case of the Himalayan stations somewhat less than that at the neighbouring plains stations. This is illustrated in the following table, which gives comparative data for seven pairs of stations:—

Hill Station.	Variation from normal pressure, January 1903.	Plain Station.	Variation from normal pressure, January, 1903.	Vertical pressure anomaly (Hill—Plain).
	″		″	″
Quetta	+·030	Jacobabad	+·017	+·013
Leh	—·002	Lahore	+·017	—·019
Murree	+·002	Peshawar	0	+·002
Simla	+·012	Ludhiana	+·018	—·006
Chakrata	+·013	Roorkee	+·030	—·017
Ranikhet	+·028	Bareilly	+·016	+·012
Darjeeling	+·002	Dhubri	+·022	—·020

The above shows that the vertical pressure anomalies were positive in the case of the Baluchistan-Sind area and generally negative in the case of the Himalayan area. The following table gives similar data for the central and southern hill stations, and shows that the vertical pressure anomalies were slightly negative over the central districts:—

Hill Station.	Variation from normal pressure, January, 1903.	Plain Station.	Variation from normal pressure, January, 1903.	Vertical pressure anomaly (Hill—Plain).
	″		″	″
Mount Abu	—·009	Deesa	—·001	—·008
Pachmarhi	—·006	Khandwa	0	—·006
Wellington	+·023	Coimbatore	+·019	+·004

The chief features of the pressure conditions of the month may be summed up as follows:—

(1) Pressure was in slight general excess over the Indian area.

(2) The local pressure anomalies were generally small and unimportant, but there was a moderate local deficiency over the central parts of the country and a moderate local excess over Upper Burma.

(3) The vertical pressure anomalies were positive in the case of the Baluchistan, and generally negative in the case of the Himalayan areas.

Barometric depressions and cyclonic storms of the month.

No cyclonic storm appeared over the Indian seas during the month under review, but the weather was disturbed over northern India during the latter half of the month and a series of storms advanced to that area from the countries to the westward.

On the 4th the barometer was falling briskly over Gujarat and the surrounding regions, and a shallow depression was developing over that area. Pressure was normal or in trifling defect over parts of Kathiawar and Gujarat, while it was in excess in all other parts of the Indian region, the excess having been more than 0·10″ over the Gangetic plain. The reports of the 5th showed that the barometer was falling slightly to briskly over a considerable part of north-west India, and that the depression over the Gulf of Cambay and Gujarat had continued to develop. Pressure was below the normal within the depression area (Bhavnagar Para —·041″), while it was more than 0·125″ above the normal over the Gangetic plain. Gradients were hence considerably steeper than usual all over northern India and easterly winds were reported over the whole of that area, where also the sky had clouded over. On the 6th the barometer was rising everywhere and the depression over Gujarat was filling up. The easterly winds induced by the storm had, however, occasioned rain over a considerable area of country. Moderate rain had been received over the Deccan and showers at Roorkee, Umballa, Meerut, Delhi, Indore, Neemuch, Ajmer and Sambhar, while snow had fallen at Mussooree, Ranikhet, Chakrata and Simla. Pressure was very high over northern India, the barometer reading above 30·40″ at Peshawar, where it was more than 0·20″ above the average. On the 7th pressure was still rising over western India and the depression over Gujarat continuing to fill up, but scattered showers were again reported from a few places in north-western and central India and from the centre and east of the Peninsula.

Between the 8th and the 20th normal, quiet, fine weather prevailed over the greater part of the Indian area, though in parts of north-east India and of Assam the weather during that period was somewhat more showery than usual. On the 20th the weather became unsettled in the north-west and so continued until the close of the month.

Cold weather storm of January 18th to 23rd:—

January 18th.—On the 18th the barometer was falling briskly to rapidly over Asiatic Turkey, western Persia and the Persian Gulf with strong southerly winds at Baghdad and rain at Teheran. 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	29·954	—·125	—·292	S	5	10		Strong wind.
Busrah	...	—·021	...	...	...	...		Cloudy.
Teheran	...	—·075	...	ENE	0	10	0·02	Raining.
Ispahan	...	—·030	...	Calm.	3	4		
Bushire	30·004	—·095	—·101	SSE	5	0		Slight sea.
Bahrein	·025	—·044	...	S	...	...		Clear.
Jask	·103	—·014	0	NNW	9	0		

January 19th.—On this day the barometric reading at Baghdad was probably incorrect, as except at this station, pressure continued to give way over this area. The following gives 8 A.M. data for the stations in this region:—

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	30·150	+·196	—·108	Calm	4	10	0·02	Foggy.
Busrah	...	—·032	...	...	...	...		Cloudy.
Teheran	...	—·075	...	Calm	1	10	0·03	Raining.
Ispahan	...	—·050	...	N	6	7		
Bushire	29·952	—·052	—·152	SSE	10	8		Rough sea.
Bahrein	·975	—·048	...	S	...	...		Clear.
Jask	30·061	—·042	—·039	N	6	0		

The wind was steady at Bushire and Bahrein, and the depression was hence still probably over the west of Persia. Rain had fallen at Teheran and Baghdad.

January 20th.—The barometer was falling at Baghdad and in Persia, and pressure was 0·3″ below the normal

at Baghdad and Bushire. The following gives 8 A.M. data for the Persian and Baluchistan areas :—

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	29·971	—·179	—·297	Calm	0	8	...	
Teheran	...	—·190	...	SW	1	10	0·68	
Busrah	...	—·035	...	...	...	...	...	Cloudy.
Ispahan	...	—·160	...	SW	4	0	...	
Bushire	29·785	—·167	—·318	SSE	11	9	0·02	Slight sea.
Bahrein	·831	—·144	...	N	...	...	0·09	Cloudy.
Jask	·956	—·105	—·141	NE	7	1	...	
Quetta	...	—·091	—·048	SE	2	2	...	Frosty.
Chaman	...	—·084	—·095	Calm	4	9	...	

Rain had fallen at Bushire, Teheran and Bahrein, and cloudy weather had extended to Baluchistan. The wind continued south-south-easterly at the head of the Persian Gulf and the storm was still over the Persian area.

January 21st.—The barometer had risen very rapidly at Bahrein and briskly at Busrah, Teheran and Bushire, but had been steady at Baghdad and in Baluchistan. The following gives 8 A.M. data for 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	29·993	+·022	—·287	Calm	1	0	...	
Busrah	...	+·086	...	...	...	...	...	Dusthaze.
Teheran	...	+·125	...	Calm	1	10	0·14	Snowing.
Ispahan	...	—·090	...	Calm	4	10	0·33	Drizzling.
Bahrein	30·090	+·259	...	W	...	...	...	Clear.
Bushire	29·854	+·069	—·248	NW	19	0	0·05	Rough sea.
Jask	·816	—·140	—·278	E	19	5	...	
Quetta	...	+·007	—·040	SE	8	4	...	Gale of wind.
Chaman	...	—·030	—·123	SE	9	8	...	Duststorm.

Showers had fallen at Bushire, Ispahan and Teheran, a gale of wind was reported from Quetta and a duststorm from Chaman, and snow had commenced in Kashmir.

January 22nd.—The barometer had risen nearly one-quarter of an inch at Baghdad and 0·22″ at Bushire, while it had fallen 0·22″ at Chaman and 0·11″ at Quetta. The depression was thus passing through Baluchistan, where a severe gale was blowing and the sky was cloudy to overcast, though very little rain had fallen. The following gives 8 A.M. data for Persia, Baluchistan and the north-west of 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.	
Baghdad	30·236	+·243	—·025	Calm	1	0	...	Dusthaze.
Busrah	...	+·206	...	...	...	...	...	Clear.
Teheran	...	+·025	...	Calm	0	3	0·04	
Ispahan	...	+·090	...	W	7	0	0·04	
Bushire	·071	+·217	—·030	N	15	0	0·05	Rough sea and nor'-wester.
Bahrein	·095	+·005	...	WNW	...	...	...	Clear.
Jask	29·928	+·112	—·163	WNW	21	2	0·33	Nor'-wester with rain and severe gale.
Quetta	...	—·110	—·148	WSW	9	10	0·03	Severe gale of wind.
Chaman	...	—·224	—·344	SSE	4	8	...	Duststorm.
Kurrachee	29·933	—·054	—·121	NE	4	0	...	
Hyderabad	·925	—·070	—·134	NW	15	6	...	
Jacobabad	·966	—·079	—·104	Calm	0	5	...	
Bikaner	·991	—·113	—·069	ESE	7	6	...	
Mooltan	30·028	—·053	—·056	NE	1	8	...	
Montgomery	·054	—·040	—·097	ENE	7	7	...	
D. I. Khan	·095	—·009	+·013	Calm	1	10	...	
Khushab	·105	+·005	+·035	ENE	4	9	...	
Peshawar	·149	+·026	+·017	W	2	10	...	
Murree	...	+·064	+·089	SE	6	10	...	Strong wind.
Srinagar	...	+·025	+·075	SSE	4	10	...	Frosty.
Skardu	...	—·008	...	Calm	2	10	...	
Dras	...	+·015	...	Calm	1	10	0·13	
Sonemarg	...	—·028	...	Calm	1	10	0·28	Snowing.

January 23rd.—The following gives 8 A.M. data for the Persian and Baluchistan areas 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.
	"	"	"				Inches.	
Baghdad	30·329	+·093	+·049	Calm	0	0	...	
Busrah	...	+·070	...	...	...	...	...	Clear.
Teheran	...	+·235	...	ENE	0	4	...	
Ispahan	...	+·210	...	Calm	3	9	...	
Bushire	·204	+·133	+·104	N	10	0	...	Smooth sea.
Bahrein	·088	—·007	...	WNW	...	...	...	Clear.
Jask	·122	+·194	+·034	N	27	0	...	
Quetta	...	+·108	—·039	Calm	8	0	0·48	Snowstorm.
Chaman	...	+·348	+·007	ESE	8	0	0·26	Duststorm.
Mooltan	29·970	—·058	—·112	Calm	3	0	0·08	Duststorm.
Montgomery	·954	—·100	—·106	SW	12	3	..	Severe gale.
D. I. Khan	·943	—·152	—·133	NW	4	2	0·12	
Khushab	·901	—·204	—·163	NNE	11	4	0·06	Showery.
Peshawar	·956	—·193	—·177	Calm	2	10	0·62	Raining.
Lahore	·953	—·150	—·095	SE	6	8	0·02	
Sialkot	·965	—·141	—·072	ESE	3	8	0·15	
Rawalpindi	·933	—·208	—·129	ESE	3	10	0·31	
Cherat	...	—·236	—·153	SW	12	7	0·60	Raining.
Murree	...	—·214	—·122	SSE	...	10	0·95	Duststorm with rain.
Srinagar	...	—·157	—·080	Calm	4	10	1·25	Snowing.
Sonemarg	...	—·181	...	S	1	10	3·12	Do.
Skardu	...	—·252	...	Calm	1	10	0·50	Do.
Leh	...	—·197	—·130	S	3	10	0·01	Do.
Simla	...	—·072	+·066	S	...	10	0·28	Thunder-storm with hail.
Mussooree	...	—·004	+·107	W	...	10	0·24	Showery.
Chakrata	...	—·009	+·107	Calm	9	9	0·29	Raining.

The preceding data show that the barometer had continued to rise briskly to very rapidly over Persia, and that, the recovery had extended very rapidly to Baluchistan, where the change amounted to +·348". A rapid fall of the barometer had taken place over the plains of north-west India and Kashmir, and a well-marked depression was shown over the north Punjab. Heavy snow had been received over Kashmir and rain over Baluchistan and north-west India.

On the following day the storm had practically disappeared.

During the 24th and the night of the 25th the barometer fell rapidly to very rapidly over the Punjab, and on the morning of the 25th a small local depression was shown with its centre near Sialkot. This storm occasioned a heavy fall of snow over the north-west Himalayas and a good deal of rain over northern India, and was followed by a very rapid rise of the barometer.

Cold weather storm of the 27th to 30th January.

January 27th.—The following gives 8 A.M. data for the Persian and Baluchistan areas:—

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	30·223	—·075	—·026	Calm	1	0	0·20	
Busrah	...	—·008	...	...	...	...	...	Cloudy.
Teheran	...	—·200	...	Calm	1	10	0·07	Snowing.
Ispahan	...	—·180	...	Calm	2	9	...	
Bushire	29·968	—·181	—·128	SE	6	9	0·12	Rough sea.
Bahrein	30·035	—·155	...	WNW	...	...	...	Clear.
Jask	·092	—·107	+·016	E	12	6	...	
Quetta	...	—·115	—·023	Calm	2	2	...	Frosty.
Chaman	...	—·155	—·014	Calm	1	2	...	

The preceding data show that the barometer was falling briskly to rapidly over the whole of the above area. The sky was cloudy, rain had been received at Baghdad and Bushire and snow at Teheran. The wind was west-north-westerly at Bahrein and south-easterly at Bushire, and the storm lay apparently over the head of the Persian Gulf.

January 28th.—The following gives 8 A.M. data for the Persian and Baluchistan areas:—

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	+·042	+·017	W	1	0	...	
Busrah	...	+·062	..	...	...	..	...	Clear.
Teheran	...	—·045	...	Calm	0	10	0·08	
Ispahan	...	—·060	...	Calm	2	0	...	
Bushire	·086	+·118	—·009	N	8	0	...	Slight sea.
Bahrein	·085	+·050	...	NNE	...	...	...	Clear.
Jask	·036	—·056	—·037	NE	13	4	...	Smooth sea.
Quetta	...	+·027	—·001	Calm	1	0	...	Frosty.
Chaman	...	+·021	+·008	ESE	1	0	...	

The observations show that pressure was recovering at Baghdad, Busrah, Bahrein and Bushire, but was still giving way at Jask, Teheran and Ispahan, while it had been steady in Baluchistan. The only rainfall reported was at Teheran, but the winds had shifted to west at Baghdad and to north at Bushire and Bahrein, showing that the storm was advancing eastward.

January 29th.—The following gives 8 A.M. data for the Persian and Baluchistan stations and for north-west India:—

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	30·300	+·035	+·051	Calm	1	0	...	
Busrah	...	+·058	...	...	...	...	...	Clear.
Teheran	...	+·115	...	Calm	1	0	0·03	
Ispahan	...	+·130	...	NW	5	0	...	
Bushire	·168	+·082	+·074	NNW	14	0	...	Rough sea
Bahrein	·134	+·049	...	N	...	...	...	Clear.
Jask	·030	—·006	—·040	N	10	7	0·29	Drizzling rain.
Quetta	...	—·050	—·051	Calm	1	10	...	Snowing.
Chaman	...	—·110	—·101	SE	3	8	...	Duststorm.
Kurrachee	·005	—·061	—·035	Calm	4	5	...	
Hyderabad	·000	—·093	—·049	SE	3	8	...	
Jacobabad	·022	—·025	—·031	Calm	0	10	...	
Mooltan	·060	+·023	—·014	NE	1	8	...	
Montgomery	·041	+·033	—·018	W	3	3	...	
D. I. Khan	·065	+·048	—·020	WNW	1	0	...	
Khushab	·055	+·024	—·018	Calm	2	0	...	
Peshawar	·085	+·031	—·061	Calm	1	0	...	
Rawalpindi	·071	+·016	—·042	Calm	1	0	...	Frosty.
Murree	...	+·003	—·076	Calm	4	0	...	
Cherat	...	+·030	—·035	N	16	0	...	
Srinagar	...	+·010	—·042	S	2	10	...	
Sonemarg	...	—·022	...	E	3	0	0·15	Snowstorm.
Skardu	...	—·023	...	Calm	0	6	...	
Dras	...	—·004	...	Calm	0	4	...	

The barometer was rising over Persia, while it was falling over Baluchistan and Sind. Snow had commenced at Quetta, and the sky was overcast to cloudy in Sind.

January 30th.—The following gives 8 A.M. data for the stations in Persia, Baluchistan and north-west India:—

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	30·247	—·053	+·002	Calm	1	0	...	
Busrah	...	+·062	...	...	...	...	...	Clear.
Teheran	...	+·085	...	NNE	2	0	...	
Ispahan	...	+·090	...	Calm	3	0	...	
Bushire	·196	+·028	+·103	NE	11	0	...	Slight sea.
Bahrein	·253	+·119	...	WNW	...	...	...	Clear.
Jask	·147	+·117	+·080	NNE	14	0	...	Nor'-wester.
Quetta	...	+·026	—·024	Calm	5	8	0·44	Snow-storm.
Chaman	...	+·114	+·014	SSW	13	8	0·05	Duststorm.
Kurrachee	29·994	—·011	—·044	Calm	9	0	0·11	
Hyderabad	30·033	+·033	—·015	NW	7	2	...	
Jacobabad	29·976	—·046	—·077	Calm	0	0	0·05	
Bikaner	·952	—·119	—·097	Calm	4	9	...	
Sirsa	·926	—·135	—·108	NNW	2	10	...	
Montgomery.	·936	—·105	—·109	Calm	5	10	0·02	Drizzling.
Mooltan	·948	—·112	—·117	Calm	1	10	0·06	
D. I. Khan	·953	—·112	—·112	Calm	2	4	...	
Khushab	·989	—·066	—·071	W	4	10	0·09	Raining.
Peshawar	·996	—·089	—·127	Calm	1	10	...	
Lahore	·962	—·065	—·081	Calm	1	10	0·05	Drizzling.
Sialkot	·958	—·061	—·080	Calm	1	8	...	
Rawalpindi.	·967	—·104	—·103	Calm	1	10	...	
Murree	...	—·092	—·166	SSE	9	0	...	Snowing.
Cherat	...	—·078	—·111	NNW	8	0	...	Do.
Srinagar	...	—·120	—·161	Calm	2	10	0·10	Do.
Sonemarg	...	—·114	...	Calm	1	10	0·04	Do.
Skardu	...	—·169	...	N	1	10	...	
Dras	...	—·170	...	Calm	0	10	0·01	
Simla	...	—·034	—·101	S	...	10	0·04	Snowing.
Chakrata	...	+·008	—·091	N	8	0	0·03	Do.

The barometer continued to rise in Persia, and the recovery had extended to Baluchistan, where, however, the sky was still cloudy and snow was falling. The storm had entered north-west India and light scattered showers had fallen in the Punjab and Sind and light snow in Baluchistan, further Kashmir and the west Himalayas.

On the 31st the barometer was rising everywhere and 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.

The snowfall has, apparently, been severe around the north-west frontier of India, but it appears to have been more or less local, as in the United Provinces Himalayas the month's snowfall was, at least in some places, apparently lighter than usual.

The following reports of the snowfall during January have been received :—

(*A*) *Central Asia.*

Correspondence from central Asia states that the winter in the Pamir region has been the severest within living memory.—*Englishman.*

I.—AFGHAN MOUNTAIN DISTRICTS.

(*a*) *Kabul.*—Snow fell as under—

9th	January	1½ inches.
10th	„	1 inch.
20th	„	3 inches.
21st	„	3½ „
22nd	„	2½ „
23rd	„	1¾ „
30th	„	3½ „

(*1*) *Wano.*—Snow fell as under—

January 9th and 10th—

Marwattai	3 feet.
Bosh	3 „
Pirghal	3 „
Karkaro	3 „
Dre Nashtar	4 „
Kundighar	2 „
Janimela	2 „
Kotkun	1 foot.
Ghat	1 „
Ozbasta	1 „
Kaniguram	9 inches.

January 21st.—The snowfall was the same as on the 9th and 10th.

„ *22nd.*—Slight falls of snow measuring about 1 inch occurred on the Wano plain and down to about 5,000 feet, and the snowfall on the surrounding hills was similar to that of the 9th and 10th.

„ *23rd.*—Snow fell on the Wano plain to a depth of between 2 and 3 inches and on all the higher hills to between 2 and 3 feet.

„ *29th and 30th.*—Heavy snow fell on the Wano plain to a depth of 4 inches and on the hills to a depth of between 3 and 4 feet.

On the 31st January about 2 inches of snow was lying in sheltered places on the Wano plain and to a depth of about 2 feet on the highest hills. The snowfall of the year has been heavier than that of last year.

The Officer Commanding the XVII B. I. at Wano reports that the minimum thermometer on the grass fell to 4° on the 14th, to 7° on the 26th, and to 6° on the 27th. Snow fell steadily from 9 P.M. on the 29th to 7 A.M. on the 30th, when the whole post was under snow to a depth of about 1 inch. The surrounding hills were thickly covered.

(*2*) *Kurram.*—Snow fell on the 22nd, 23rd, 25th and 30th January on the Sufed Koh and the adjacent hills. The fall on the 22nd and 23rd was the heaviest during the year and is reported to have extended to Maru Khel, which is about 3,400 feet above mean sea-level. It was estimated by the inhabitants of the valley to be about 1½ feet deep at Para Chinar. The falls of the 25th and 30th January were light. The passes are all closed and the snow is reported to be deep on the higher passes. The inhabitants of Kurram state that there has not been such a snowfall in January for the past three years.

(*3*) *Kohat.*—On the Samana Range snowfalls were recorded on the following dates :—

January	22nd	2 feet.
„	26th	½ foot.
„	30th	⅛ „

The snowline along the southern side of the Samana Range was roughly about 5,700 feet above mean sea-level. The snowfall has been heavier than usual.

During the month of January eleven falls of snow were reported on the hills on the border. The heaviest fall was on the 23rd of January.

(*4*) *Chitral.*—On the 20th, 21st and 22nd snowfalls occurred in the Chitral valley, the fall averaging from 2 to 3 inches. On the 23rd there was a heavy snowstorm, the snow falling to a depth of from 12 to 18 inches. On the 24th snow fell to a depth of 2 inches, and on the 30th January a fall of 1 inch occurred.

The snowfall of the present year is said to be much heavier than that of the three or four preceding years.

(*5*) *D. I. Khan.*—Snow fell to a depth of 1 foot on the Nawa Teza, Chosni Ghar, Gat, Ubashta and Suleman peaks and to a depth of 1½ feet on the Maro Masar and Marzai Ghar peaks on the 9th, 23rd, 29th and 30th January. The accumulation of snow at the close of the month was 4½ feet.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(*1*) *Murree.*—Snow fell as under at Murree and on the hills adjacent to Kahuta—

	Murree,		Kahuta.	
	ft.	ins.	ft.	ins.
January 1st	0	5	January . . . 0	9
„ 23rd	0	10		
„ 24th	0	10		
„ 25th	0	7		
„ 26th	0	10		
„ 27th	0	1		
„ 31st	0	2		
TOTAL	3	9		

(2) *Leh*—Snow fell as under—

January	1st	¾ inch.
„	2nd	1 „
„	23rd	½ „
„	26th	½ „
„	30th	¼ „

(3) *Kashmir.*—The following reports as to the depth of snow lying around the observatories have been received from stations in Kashmir:—

	January 13th.		January 20th.		January 27th.	
	ft.	ins.	ft.	ins.	ft.	ins.
Sonemarg	1	6	1	1	7	9
Minimarg	1	6	1	6	4	0
Dras	1	3	1	3	2	9

The above shows that there was a considerable accumulation of snow at the close of the month.

(4) *Dalhousie.*—There fell 2 inches of snow on the 30th and 1 foot 1 inch on the 31st January.

(5) *Kulu.*—Snow fell on the 6th, the 23rd to the 25th, the 26th, 27th and 31st of January. The snowline descended to an elevation of 5,718 feet on the 6th and to 4,080 feet on the 25th January. The snow accumulation on the 27th January on the different passes was as follows:—

Kulu.		Plach.	
Rotang	8 feet.	Sirikhand	10 feet.
Hamta	8 „	Chul	8 „
Chandar Khani	4½ „	Hingan	6 „
Barsai	5 „	Dundku	8 „
Buja Dhar	2 „	Tikkar	6 „
Kohri Jari	9 „	Tuhnun	3 „
Bhubu	2 „	Jalori	5 „
Minjhag	1½ „	Raghopur	6 „
Bisnari	2 „	Bhimri	6 „
Sairi	2 „	Sakiram	6 „
		Gargasan	8 „
		Sopakun	6 „
		Bishleu	5 „
		Placha	8 „
		Tirath	8 „

The snowfall this year has been much more than last year and about equal to that of 1898.

(6) *Pangi.*—Snow fell on the 1st January.

(7) *Kilba.*—Snow fell during the month as under—

6th.—Snow fell as low as 7,050 feet, where it equalled ½ inch. On the peaks it was 8″ deep and at Kilba 1″.

23rd.—Snow fell down to 7,000 feet, where it measured 6″ and on the peaks 1½′.

24th.—Snow fell down to 7,000 feet, where it equalled 6″ and on the peaks 1′.

25th.—Snow fell down to 7,000 feet, where it was 6″ in depth and on the peaks 1′.

26th.—Snow fell down to 5,750 feet, where it was 4″ in depth and on the peaks 4′.

27th.—Snow fell down to 5,750 feet, where it was 1½″ in depth and on the peaks 1½′.

The accumulated snow measured—

On Rupin Pass	12 feet.
„ Burenda Pass	12 „
„ Harang „	6 „
„ Shatul „	11 „
„ Balder „	12 „
„ Runang „	9 „

The snowfall was above the average.

(8). *Chamba.*—Snow fell on eight days during January, *viz.*, on the 16th, 22nd, 23rd, 24th, 25th, 26th, 29th and 30th. The fall on some occasions descended as low as 2,800 feet. The accumulation at the close of the month on the higher passes was as follows:—

Barmaur	28 inches.
Olansa	23 „
Chitrarie	12 „

The snowfall was heavier than last year, though late in commencing.

(9) *Kailang.*—Snow fell as follows:—

January	20th and 21st	2 inches.
„	22nd and 23rd	15 „
„	24th and 25th	10 „
„	30th	¾ inch.

The snowfall was less than usual.

III.—UNITED PROVINCES HIMALAYAS.

(1). *Almora.*—Snow fell as under:—

MALLA JOHAR.

January	23rd	6 feet.
„	24th	8 „
„	25th	5 „
„	30th	5 „
		24 feet.

MALLA DANPUR.

January	9th	1 foot.
„	12th	½ „
„	23rd to 25th	3 feet.
„	27th to 31st	4 „
		8½ feet.

BYANS, CHANDAS AND DARMA.

January	23rd	2 feet.
„	26th	3 „
„	30th	2½ „
		7½ feet.

The snowfall was greater than in the previous year.

(2). *Garhwal.*—Snow fell throughout the last week of the month, the snowline descending to about 5,000 feet. The passes are all closed, but the falls of snow were light.

Summary of Special Storm Reports.

The weather during January was of the ordinary quiet character, and the local storms were generally of small importance. The following is a record of the storm reports which have been received up to date :—

January 15th.—A thunder storm with lightning and some rain occurred at Nagpur at 6-30 P.M.

" *17th.*—A dust storm occurred at Nagpur at 3 P.M., coming up from south-west.

" *22nd.*—A duststorm giving light rain passed over Lahore at 6 P.M.

" *24th.*—A storm occurred at Srinagar in the afternoon.

" " A thunderstorm giving about 1 inch of rain occurred at Gonda on the 24th and 25th.

" *25th.*—A thunderstorm occurred at Lucknow.

" *30th.*—A storm occasioning moderate rain passed over Lahore.

" " A dust storm occurred at 2-55 P.M. at Nagpur, coming up from south-west.

" *31st.*—A dust storm passed over Nagpur at 3-25 P.M.

Earthquake Reports.

" *14th.*—At Bhuj at 8-40 A.M an earthquake was felt, the shock lasting about 10 seconds.

January 14th.—At Jodhpur an earthquake was felt at 8-10 A.M. (Railway time), the shocks lasting for 30 seconds and travelling from west to east.

" " At Deesa at 7-43 A.M. a severe shock of earthquake was felt lasting from 15 to 20 seconds. No noise was heard. The shocks appeared to travel from NE to SW. The anemograph clock was stopped.

The earthquake of the 14th was apparently felt all over Gujarat and Sind. The Assistant Collector, Tando, visited the Dehs, Baharki and Sinatri and found a large number of holes had appeared, the holes varying from 15 to 20 feet in diameter to a few inches. From these holes large quantities of water and mud had been thrown up during the earthquake. This ejected matter was at the time milk white and hot, and boiled and bubbled in the holes.

" *20th.*—A slight shock of earthquake was felt at Srinagar at 1-47 P.M., lasting 2 seconds; the direction was from SW to NE.

Hail storm report.

" *7th.*—There occurred a slight hailstorm in the Pargana Tonk, Shajapur district of the Gwalior State, but inflicted no injury upon the crops.

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

Arabian Sea.—The winds were approximately normal in direction over the greater part of the Arabian Sea at the commencement of the month, but between the 6th and the 9th the weather became squally and rainy with strong easterly winds over the south-east and south of the sea. On the 10th ordinary north-east winds were established all over the sea, and these conditions continued until the 20th when the weather became unsettled and stormy over the Persian area and southerly and south-easterly winds appeared off the Arabian coast and in the Persian Gulf. These conditions prevailed during the 21st and 22nd, but on the 23rd the ordinary north-east winds of the cold weather re-appeared and continued till the 31st, when the wind's direction veered towards east, and the winds continued unusually easterly until the close of the month.

The daily air movement, on the mean of the month, averaged 3·4, the normal for the period being 3·3. It ranged between 3·0 on the 21st, 29th and 30th to 4·6 on the 26th.

Bay of Bengal:—As in the Arabian Sea, ordinary north-east winds prevailed over the Bay at the commencement of the month. Squally and unsettled weather with easterly winds was reported in the south-west of the Ba on the 4th and 5th. These winds died down on the 6t and ordinary north-east winds prevailed over the Bay from the 6th to the 10th. In the north and centre of the Bay these north-easterly winds took off about the 11th, and from that day till the 20th variable southerly breezes and calms were reported over that area. Between the 21st and the 27th normal north-east winds were again general, but on the 28th variable and light southerly breezes re-appeared over the north of the Bay and continued till the close of the month.

The mean daily air movement over the Bay averaged 3·1, the normal for the month being 3·0. The force was lowest on the 27th, when it averaged only 2·0 and was highest on the 6th, 22nd and 23rd, when it was 4·2.

Equatorial Belt.—North-westerly winds of the cross or north-west monsoon prevailed over the western half of the equatorial belt from the 1st to the 9th. On the 10th and 11th the winds fell off and became variable, but on the 12th the north-west winds re-appeared and continued till the 15th. On the 16th north-east winds from the Arabian Sea extended over the belt, and these winds continued till the 21st, when they fell off, and after a brief period of light variable winds northerly and north-westerly winds again appeared and continued till the close of the month.

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 twenty-two years' trustworthy temperature observations are available. With few 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 a thermograph.

The methods of exposing thermometers will be found fully described in the handbook 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 9 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 under review were unsettled and changeable, agreeing to a certain extent with the somewhat disturbed weather prevailing over northern India during the second half of the month.

The mean maximum temperature of the month was in slight to moderate excess of the normal over the North-West Frontier Province, the west Punjab, the United Provinces, west Bengal, the whole of the central parts of the country, the south and south-west of the Peninsula, Tenasserim and the Burma coast. The excess was, however, generally slight. It was more than 2° over the east

of the Central Provinces and part of Chota Nagpur. The following gives data for the stations in this area:—

Province.	Station.	Mean maximum temperature. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
		°	°	°
East of Central Provinces.	Raipur	84·4	81·6	+2·8
	Chanda	88·0	85·4	+2·6
Chota Nagpur.	Hazaribagh	75·6	73·1	+2·5

It was in local excess at Cochin and Umballa, as is shown by the following comparative data:—

Station.	Mean maximum temperature. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January 1903.
	°	°	°
Cochin	92·2	89·1	+3·1
Umballa	70·2	67·8	+2·4

The mean day or maximum temperature was in defect in all other parts of India and over Baluchistan. The deficiency was, however, also generally small and unimportant, but exceeded 2° over Baluchistan, Gujarat, at some stations on the west coast and over parts of Chota Nagpur and of Burma. The following gives comparative data for the stations in these areas:—

Province or Division.	Hill or Plain Station.	Mean maximum temperature. Actual, January 1903.	Normal, January.	Variation of actual from normal, January, 1903.
		°	°	°
Baluchistan.	Quetta	47·3	51·3	−4·0
	Chaman	50·8	53·4	−2·6
Gujarat.	Bhuj	77·3	80·4	−3·1
	Rajkot	80·9	84·0	−3·1
West Coast.	Goa	82·9	86·9	−4·0
	Ratnagiri	85·0	87·8	−2·8
Chota Nagpur.	Chaibassa	78·2	81·1	−2·9
Burma.	Bhamo	74·8	77·2	−2·4
	Toungoo	83·0	85·3	−2·3

On the hills the variations of the mean maximum temperature of the month from the normal were irregular. This is shown below:—

Hill Station.	Mean maximum temperature. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January 1903.
	°	°	°
Gilgit	44·0	45·2	−1·2
Srinagar	45·8	39·0	+6·8
Leh	27·5	29·8	−2·3
Murree	45·7	47·2	−1·5
Cherat	49·5	49·2	+0·3
Simla	46·4	44·5	+1·9
Chakrata	51·6	50·8	+0·8
Mussooree	46·7	48·9	−2·2
Ranikhet	53·2	54·5	−1·3
Darjeeling	46·4	46·8	−0·4
Pachmarhi	73·0	71·3	+1·7
Mount Abu	64·1	66·6	−2·5
Wellington	69·1	67·6	+1·5

The principal variations were thus the large excess at Srinagar and the moderate deficiency at Leh, Mussooree and Mount Abu.

The mean minimum temperature of the month was generally below the normal over Baluchistan, on the hills and plains of northern India, over part of north Bengal, Assam and the inland parts of Burma, and generally above the normal on the Burma coast, in Tenasserim, over the Peninsula and over the central parts of India. The deficiency was moderate to large over the extreme north-west of India and Baluchistan and moderate over Kathiawar and over the Assam valley and part of north Bengal. The following gives comparative data for those stations at which the mean deficiency exceeded 2°:—

Hill or Plain Station.	Mean minimum temperature. Actual, January 1903.	Normal, January.	Variation of actual from normal, January 1903.
	°	°	°
Quetta	23·6	29·3	−5·7
Chaman	31·5	34·7	−3·2
Jacobabad	38·2	43·3	−5·1
Dhubri	49·4	53·1	−3·7
D. I. Khan	36·9	40·4	−3·5
Montgomery	38·7	42·2	−3·5
Hyderabad (Sind)	47·9	51·1	−3·2
Roorkee	41·3	44·4	−3·1
Bikaner	46·3	49·4	−3·1
Dinajpur	46·9	49·4	−2·5
Purnea	45·9	48·3	−2·4
Sibsagar	47·1	49·5	−2·4
Kurrachee	52·2	54·5	−2·3
Bhavnagar Para	54·0	56·1	−2·1

At the Himalayan and other hill stations the mean minimum temperature was generally lower than usual, but,

except at Murree and Mussooree, the variations from the normal were not large or important. The following gives comparative data for the hill stations:—

Hill Station.	Mean Minimum Temperature.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	°	°	°
Gilgit	31·7	31·6	+0·1
Srinagar	24·9	26·4	—1·5
Leh	7·4	8·8	—1·4
Murree	32·1	35·2	—3·1
Cherat	38·8	37·9	+0·9
Simla	34·9	34·5	+0·4
Chakrata	34·8	36·2	—1·4
Mussooree	34·8	37·6	—2·8
Ranikhet	39·6	40·0	—0·4
Darjeeling	33·6	34·8	—1·2
Pachmarhi	50·1	47·5	+2·6
Mount Abu	50·8	51·2	—0·4
Wellington	46·6	45·2	+1·4

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:—

Hill or Plain Station.	Lowest minimum temperature recorded in January, 1903.	Date on which recorded.	Lowest minimum temperature recorded in January previous to 1903.	Year in which recorded.
	°		°	
Dras	−30·4	27th	−35·5	1899
Minimarg	−10·0	,,	− 7·0	1901
Sonemarg	− 5·6	,,	− 5·4	1902
Skardu	− 1·9	,,	−10·0	1897
Leh	0·9	27th & 31st	−19·0	1899
Astor	5·0	31st	2·0	1901
Quetta	9·3	,,	3·3	1900
Pishin	10·0	11th & 14th	2·4	1899
Poo	11·7	29th	9·0	1895
Parachinar	17·0	24th	11·8	1900
Srinagar	17·6	14th	6·1	1893
Chaman	20·6	27th	15·1	1897
Murree	22·0	31st	18·0	1897
Rawalpindi	30·0	14th	24·9	1879
Peshawar	30·9	13th	28·8	1878, 1880
Montgomery	32·0	13th	30·5	1902
Jacobabad	32·0	27th	30·3	1885
D. I. Khan	33·0	9th	26·0	1876
Roorkee	33·2	14th	30·7	1869
Khushab	33·4	14th	27·4	1902
Lahore	34·0	13th	29·2	1889

The above shows that at a few few places in Kashmir the minimum temperatures recorded in January, 1903, were the lowest on record, but that elsewhere the readings were in no way remarkable.

Over the whole of the Peninsula and northward over the Central India plateau, Chota Nagpur and deltaic Bengal, as well as over the Burma coast and Tenasserim, the mean minimum or night temperature was in excess. The excess was moderate to considerable over the Peninsula and Tenasserim, and was more than 3° at the following large number of stations:—

Station.	Mean Minimum Temperature.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	°	°	°
Sambalpur	59·5	54·8	+4·7
Chanda	58·7	54·1	+4·6
Ahmednagar	55·1	50·7	+4·4
Bijapur	62·8	58·6	+4·2
Goa	72·0	67·8	+4·2
Cuttack	63·9	59·8	+4·1
Mergui	71·0	66·9	+4·1
Chaibassa	57·1	53·1	+4·0
Hassan	58·0	54·1	+3·9
Negapatam	74·7	70·8	+3·9
Balasore	59·6	55·7	+3·9
Bellary	64·2	60·5	+3·7
Akola	57·0	53·4	+3·6
Bangalore	60·3	56·8	+3·5
Sholapur	61·7	58·2	+3·5
Coimbatore	67·2	63·9	+3·3
Hyderabad (Deccan)	61·4	58·1	+3·3
Secunderabad	61·4	58·1	+3·3
Gulbarga	61·9	58·6	+3·3
Nagpur	58·9	55·6	+3·3
False Point	61·6	58·3	+3·3
Kurnool	61·9	58·7	+3·2
Nellore	69·4	66·3	+3·1
Gopalpur	64·3	61·2	+3·1
Khandwa	54·9	51·8	+3·1

The mean temperature of the month was in excess over the Peninsula (except the Bombay coast) and northward over the Central India plateau, the south Gangetic plain, Chota Nagpur and deltaic Bengal, as well as over the Burma coast and Tenasserim. The excess was greatest and more than 2° over the most inland districts,

over the south coast of the Peninsula and over Tenasserim. The following gives comparative data for the stations in these three areas :—

Area.	Station.	Mean daily temperature. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
		°	°	°
First Area	Chanda	73·4	69·8	+3·6
	Sambalpur	71·2	68·5	+2·7
	Jubbulpore	65·3	62·8	+2·5
	Nagpur	72·0	69·5	+2·5
	Sutna	63·7	61·3	+2·4
	Hazaribagh	64·1	61·8	+2·3
	Bellary	76·4	74·1	+2·3
	Bijapur	74·1	71·9	+2·2
	Akola	71·5	69·3	+2·2
	Seoni	67·5	65·3	+2·2
Second Area	Cochin	83·1	80·3	+2·8
	Negapatam	79·0	66·3	+2·7
	Trivandrum	79·5	77·3	+2·2
Third Area	Mergui	80·1	77·5	+2·6

The mean temperature of the month was in defect over north-west India, over the submontane regions of northern India and over north-east India and the inland parts of Burma. The deficiency was unimportant, except over the western desert and the Assam valley, where it amounted to 2° or more; this is shown below :—

Province or Division.	Station.	Mean daily temperature. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
		°	°	°
Western Desert	Jacobabad	55·6	58·5	−2·9
	Hyderabad (Sind)	61·4	64·0	−2·6
	Rajkot	65·0	67·6	−2·6
	Bhuj	65·3	67·5	−2·2
	Bikaner	58·7	60·7	−2·0
Assam Valley	Dhubri	61·2	63·6	−2·4
	Sibsagar	57·8	59·9	−2·1

The mean temperature of the month was below the normal over Baluchistan, at most of the Himalayan stations and at Mount Abu, but was higher than usual at the central and southern hill stations. This is shown in the following table :—

Hill Station.	Mean daily temperature. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	°	°	°
Quetta	35·5	40·4	−4·9
Chaman	41·2	44·1	−2·9
Gilgit	37·8	38·4	−0·6
Srinagar	35·4	32·7	+2·7
Leh	17·5	19·4	−1·9
Murree	38·9	41·2	−2·3
Cherat	44·3	43·7	+0·6
Simla	40·7	39·5	+1·2
Chakrata	43·4	43·7	−0·3
Mussooree	40·8	43·3	−2·5
Ranikhet	46·4	47·3	−0·9
Darjeeling	40·0	40·8	−0·8
Pachmarhi	61·6	59·4	+2·2
Mount Abu	57·5	59·0	−1·5
Wellington	57·9	56·4	+1·5

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

(1) The mean day, the mean night, and consequently the mean temperature were below the normal over Baluchistan and the greater part of north-west India.

(2) The mean day temperature was in irregular excess and the mean night temperature was in considerable excess over the Peninsula and the central parts of the country, so that the mean temperature was in general excess over that area.

(3) Both the mean day and mean night temperatures, and consequently also the mean temperature, were in defect over north-east India and the interior of Burma.

(4) Both the mean day and mean night temperatures, and hence also the mean temperature, were in excess over Tenasserim.

The following gives temperature data for the extra-Indian stations:—

Station.	Mean daily temperature. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	°	°	°
Trincomalee	80·1	78·9	+1·2
Colombo	81·6	79·8	+1·8
Kabul	31·6	31·3	+0·3
Kashgar	20·7	22·5	−1·8
Teheran	35·3	34·2	+1·1
Ispahan	32·0	34·8	−2·8
Bushire	54·9	57·9	−3·0
Jask	64·6	67·1	−2·5
Muscat	69·1	69·8	−0·7
Baghdad	46·4	49·0	−2·6
Aden	75·0	76·7	−1·7
Perim	77·5	78·2	−0·7
Zanzibar	83·2	82·9	+0·3
Seychelles	79·1	79·7	−0·6
Mauritius	78·9	78·9	0

The above shows that the deficiency in the temperature noticed over north-west India extended westward over Persia and Arabia, but that over the intervening region of Afghanistan the mean temperature was about normal. In Ceylon the heat was somewhat greater than usual, while over the south-east Trades region as far south as Mauritius the mean temperature was normal.

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	89·6	68·0	78·8	21·6	31·9	+0·9	+2·5	−1·6
	Lower Burma (Deltaic)	87·6	63·4	75·5	24·2	32·9	+0·2	+0·4	−0·2
	Central do.	84·9	53·7	69·3	31·2	44·1	−0·8	−1·9	+1·1
	Upper do.	81·9	54·2	68·1	27·8	38·6	−1·4	−0·3	−1·1
	Arakan	81·6	56·5	69·1	25·1	34·3	?	?	?
Bengal and Assam	Eastern Bengal	77·1	53·8	65·5	23·2	34·2	−0·2	+0·3	−0·5
	Assam (Surma)	76·3	50·7	63·5	25·6	35·4	−1·5	−1·6	+0·1
	Do. (Brahmaputra)	70·8	48·3	59·6	22·5	30·3	−1·4	−3·1	+1·7
	Deltaic Bengal	77·5	55·9	66·7	21·7	34·7	−0·1	+1·5	−1·6
	Central do.	77·0	53·0	65·0	24·0	34·1	0	+0·4	−0·4
	North do.	73·6	48·8	61·3	24·8	32·9	+0·1	−2·0	+2·1
	Bengal Hills	46·4	33·6	40·0	12·8	24·3	−0·4	−1·2	+0·8
	Orissa	80·0	63·0	71·5	17·0	29·7	−1·5	+3·8	−5·3
	Chota Nagpur	76·9	53·2	65·1	23·7	38·5	+0·1	+3·0	−2·9
	Bihar (South)	75·7	50·8	63·3	24·9	35·5	+0·9	+0·3	+0·6
	Do. (North)	73·9	47·9	60·9	26·1	36·1	−0·1	−2·0	+1·9
United Provinces of Agra and Oudh.	United Provinces (East)	76·3	46·6	61·5	29·7	42·5	+1·9	−1·5	+3·4
	Oudh (South)	74·6	45·8	60·3	28·8	40·1	+0·7	−0·9	+1·6
	Do. (North)	73·6	46·4	60·0	27·2	38·1	+1·2	−0·7	+1·9
	United Provinces (Central)	75·1	48·0	61·6	27·1	39·2	+1·1	−0·1	+1·2
	Do. do. (West)	71·8	46·8	59·3	25·0	35·7	−0·2	0	−0·2
	Do. do. (East Sub-montane)	73·2	47·4	60·3	25·8	34·8	+0·3	−1·8	+2·1
	Do. do. (West Sub-montane)	69·1	43·4	56·3	25·7	36·7	+0·3	−1·7	+2·0
	Do. do. (Hills)	50·4	36·0	43·2	14·4	33·9	−0·9	−1·5	−0·6
Punjab	Punjab (South-East)	69·4	47·7	58·6	21·7	29·1	−1·3	−0·2	−1·1
	Do. (South)	69·1	42·0	55·6	27·1	38·8	−1·3	−1·5	+0·2
	Do. (Central)	68·9	41·2	55·1	27·7	41·3	−0·1	+0·5	−0·6
	Do. (Sub-montane)	65·5	40·8	53·2	24·6	36·8	0	−0·8	+0·8
	Do. (Hills)	39·4	21·2	30·3	18·2	38·7	+0·7	−0·8	+1·5
	Do. (West)	69·5	40·0	54·7	29·5	39·9	+0·7	−2·5	+3·2
N.-W. F. Province	North-West Frontier Province	66·5	37·5	52·0	29·1	40·8	+0·2	−2·6	+2·8

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.
		°	°	°	°	°	°	°	°
Bombay and Malabar Coast Districts (Madras).	Malabar	88·2	73·0	80·7	15·2	22·0	+1·1	+2·6	−1·5
	Madras (South Central)	87·1	66·5	76·8	21·6	31·0	−0·5	+2·7	−3·2
	Coorg	77·0	57·9	67·5	19·1	24·9	−0·7	+1·3	−2·0
	Mysore	82·6	60·8	71·7	21·8	33·7	+0·2	+3·3	−3·1
	Konkan	84·1	69·2	76·7	14·8	25·8	−1·9	+2·0	−3·9
	Bombay Deccan	84·8	59·6	72·2	25·2	36·7	−0·8	+2·5	−3·3
	Hyderabad (North)	83·7	59·1	71·4	24·6	38·1	...	...	...
	Khandesh	84·0	55·0	69·5	29·0	44·1	−0·9	+3·7	−4·6
Central Provinces and Berar.	Berar	85·5	58·6	72·1	27·0	40·9	+0·6	+3·0	−2·4
	Central Provinces (West)	83·3	56·0	69·7	27·3	42·0	+0·8	+2·8	−2·0
	Do. (Central)	81·7	54·1	68·0	27·6	42·1	+1·9	+2·8	−0·9
	Do. (East)	83·6	57·3	70·5	26·4	41·5	+0·6	+4·7	−4·1
Bombay (North)	Gujarat	84·5	57·2	70·9	27·3	42·2	−1·0	+0·4	−1·4
	Kathiawar and Cutch	78·8	55·4	67·2	23·4	38·1	−2·2	−0·7	−1·5
	Sind	74·7	46·1	60·5	28·6	39·7	−1·0	−3·5	+2·5
	Baluchistan Hills	49·0	24·4	36·7	24·5	46·8	−3·3	−4·5	+1·2
Rajputana and Central India.	Central India (East)	77·4	49·4	63·4	28·0	44·6	+0·6	+1·1	−0·5
	Rajputana (East), Central India (West)	75·8	49·0	62·5	26·8	43·9	−0·4	+0·8	−1·2
	Do. (West)	73·7	49·0	61·4	24·7	41·8	−0·8	−3·1	+2·3
Madras	East Coast (North)	80·7	66·7	73·8	14·0	27·6	+0·3	+2·6	−2·3
	Hyderabad (South)	85·4	62·8	74·1	22·7	37·2	−0·3	+3·1	−3·4
	Madras (Central)	88·1	64·2	76·2	23·9	37·4	−0·1	+3·0	−3·1
	East Coast (Central)	84·0	68·2	76·1	15·8	25·3	−0·6	+3·1	−3·7
	Do. (South)	84·3	70·1	77·3	14·3	23·0	0	+2·9	−2·9
	Madras (South)	86·2	71·5	78·7	14·7	22·9	−0·1	+1·7	−1·8

The preceding data show that the mean maximum temperature was highest (89°·6) in Tenasserim and was lowest (65°·5) in the submontane Punjab. The mean minimum temperature was below 40° in the North-West Frontier Province. The mean daily range of temperature was greater than usual over upper India, while over the Peninsula and the central parts of the country, owing to the excess in the night temperature, the mean daily range was less than the normal, and in some divisions was less than 15°.

The following gives a brief sketch of the more important changes of the temperature conditions of the month over the Indian region.

It will be remembered that at the close of the previous month, December, 1902, the temperature over India was recovering from a prolonged and rather severe depression. For the first four days of the month under review this recovery was more or less maintained over the greater part of India and the relatively low temperatures with which the month opened gradually disappeared under the influence of this rise. The following gives comparative data of mean temperature for all divisions for the 1st and the 4th showing the effect of the increase:—

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

On the 5th the general temperature of the whole country was approximately normal, but a brisk decrease had commenced in Baluchistan, where the night temperature was between 5° and 9° below the normal. This decrease never extended into India and was not maintained over Baluchistan, but light showers of rain occurred over north-west India and of snow on the Simla and Mussooree hills on the 6th and on the Mussooree hills on the 7th, which reduced temperature and kept it unsteady and generally slightly below the normal until the 11th. The following gives comparative data for the Punjab, the North-West Frontier Province and Sind from the 5th to the 11th:—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	5th Jan.	6th Jan.	7th Jan.	8th Jan.	9th Jan.	10th Jan.	11th Jan.
	°	°	°	°	°	°	°
Punjab	+0·9	+1·6	+0·4	−0·7	−0·4	−0·3	+0·4
North-West Frontier Province	+0·8	−1·4	−1·4	−1·1	−2·4	−2·1	+0·7
Sind	−1·7	+0·8	+0·3	−1·0	+0·1	+2·0	+1·0

In north-east India, though no rain was received there, the temperature conditions were generally similar. In Burma, Assam, Bengal and Orissa the mean temperature was generally low throughout this period. The following gives comparative data for these four divisions from the 5th to the 11th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	5th Jan.	6th Jan.	7th Jan.	8th Jan.	9th Jan.	10th Jan.	11th Jan.
	°	°	°	°	°	°	°
Burma	−0·2	+1·2	−1·0	−0·4	+0·3	−0·2	0
Assam	−2·4	−1·8	−2·8	−1·3	−1·8	−1·5	+0·9
Bengal	+0·2	−1·0	−1·9	0	+0·9	+0·9	+2·9
Orissa	−0·9	−2·7	−3·7	−1·7	+0·8	+2·2	+2·6

The Madras coast and part of south India received rain on the 5th, 6th and 7th, and the mean temperature in these divisions also was generally below the normal from the 5th to the 11th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	5th Jan.	6th Jan.	7th Jan.	8th Jan.	9th Jan.	10th Jan.	11th Jan.
	°	°	°	°	°	°	°
Madras Coast	−0·8	+0·4	+0·2	−0·1	+0·1	−0·3	+1·2
South India	+0·1	−0·4	−0·1	+0·5	+1·5	−0·1	−0·1

Over the remainder of India the mean temperature was in excess, more particularly over the central divisions, where the excess on some days and at some stations was between 8° and 10°. The following gives comparative data for the remaining divisions from the 5th to the 11th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	5th Jan.	6th Jan.	7th Jan.	8th Jan.	9th Jan.	10th Jan.	11th Jan.
	°	°	°	°	°	°	°
Bihar	+0·1	−0·2	+0·5	+1·3	+1·7	+2·5	+2·6
Chota Nagpur	+0·7	+1·0	+0·2	+3·1	+5·2	+4·5	+4·5
United Provinces	+1·4	+2·8	+1·7	+2·4	+3·0	+4·3	+3·5
Rajputana	+3·1	+6·5	+2·7	+3·1	+2·8	+2·8	+4·1
Gujarat	+2·9	+3·3	+2·1	+2·8	+2·6	+1·9	+2·7
Central India	+3·0	+5·1	+5·2	+5·9	+5·0	+4·1	+2·9
Central Provinces	+0·3	+3·3	+3·5	+4·1	+6·0	+6·1	+3·1
Berar	−0·7	+4·7	+6·3	+2·8	+4·4	+5·3	+4·4
West Coast	+1·9	+1·9	+3·3	+3·7	+2·8	+2·7	+1·5
Bombay Deccan	+0·1	+3·0	+3·4	+2·6	+3·0	+3·5	0
Mysore	+3·4	+3·2	+0·3	+0·8	+1·5	+1·0	+0·4
Madras Deccan	+2·2	+1·4	−1·5	−0·3	+0·3	−0·2	+0·3

The excess at this time over the central divisions was due principally to the high night or minimum temperatures which were more than 10° above the normal at the following places on the following dates:—

Date.	Station.	Minimum temperature.		
		Actual, of date.	Normal, of date.	Variation of actual from normal, of date.
		°	°	°
6th January	Ajmer	59·7	44·6	+15·1
	Jaipur	61·1	47·3	+13·8
	Sambhar	56·9	44·3	+12·6
	Deesa	63·5	51·2	+12·3
	Indore	60·1	49·3	+10·8
	Malegaon	62·1	51·4	+10·7
	Akola	62·8	52·5	+10·3
	Ahmednagar	64·5	50·0	+14·5
7th ,,	Akola	65·3	52·6	+12·7
	Khandwa	62·6	51·1	+11·5
	Indore	60·1	49·4	+10·7
	Nowgong	56·5	46·0	+10·5
	Surat	67·0	56·6	+10·4
	Sutna	57·2	46·9	+10·3

Date.	Station.	Minimum temperature. Actual, of date.	Normal, of date.	Variation of actual from normal, of date.
		°	°	°
8th January	Malegaon	63·1	51·5	+11·6
	Sutna	57·7	46·9	+10·8
9th "	Jubbulpore	62·3	47·4	+14·9
	Khandwa	65·6	51·4	+14·2
	Jaipur	60·0	47·5	+12·5
	Hoshangabad	63·2	52·0	+11·2
	Sutna	57·7	46·9	+10·8
	Saugor	62·1	51·5	+10·6
	Seoni	61·0	50·6	+10·4
	Pachmarhi	57·3	47·1	+10·2
10th "	Ahmednagar	63·0	50·0	+13·0
	Jubbulpore	59·8	47·5	+12·3
	Akola	63·8	53·1	+10·7
	Malegaon	62·1	51·7	+10·4
	Seoni	61·0	50·7	+10·3
	Chanda	63·5	53·3	+10·2
11th "	Jaipur	58·0	47·6	+10·4

From the 6th to the 10th the mean temperature was steadily high over Baluchistan and Afghanistan, but on the 11th a rapid fall occurred over this area, though, so far as can be judged from the information available, no snow fell at this time over the mountain area. The following gives comparative data for Kabul and the Baluchistan stations from the 6th to the 11th and shows the sudden fall on the latter date:—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 6th January.	7th January.	8th January.	9th January.	10th January.	11th January.
	°	°	°	°	°	°
Kabul	+4·9	+4·0	+5·6	+9·6	+6·2	−0·3
Quetta	+0·1	+0·4	−0·8	+4·1	+4·1	−9·2
Chaman	+1·0	+8·1	+6·0	+7·4	+3·4	−7·8

The above fall extended over the Punjab and Sind on the 12th, reached Gujarat, Rajputana and west of the United Provinces on the 13th, Central India and the east of the United Provinces on the 14th, and extended right across northern India on the 15th. From the 13th to the 20th there occurred light showers of rain over north-east India, and on the 16th and 17th there was some snow in Kashmir and Baluchistan. This precipitation helped to emphasize the already existing depression of temperature over northern India, so that from the 15th to the 20th the mean temperature was steadily low over northern India. The following gives comparative data from the 12th to the 20th for the different divisions of northern India showing the advance of the cold wave from the westward and the establishment of low temperatures over the whole of northern India:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 12th Jan.	13th Jan.	14th Jan.	15th Jan.	16th Jan.	17th Jan.	18th Jan.	19th Jan.	20th Jan.
	°	°	°	°	°	°	°	°	°
Baluchistan	−8·2	−10·2	−7·2	+1·7	−7·1	−6·4	−4·1	+0·6	+5·9
Punjab	−0·9	−2·6	−3·1	−1·3	−1·2	−0·1	−1·2	−1·1	−0·5
North-West Frontier Province.	−1·0	−2·4	−2·4	+0·4	−1·7	−1·4	−0·8	−0·2	+0·6
Sind	−1·5	−4·1	−4·3	−5·8	−3·1	−1·3	−3·4	−2·9	−2·5
Rajputana	+2·1	+0·2	−2·7	−2·5	−1·0	−1·0	−3·1	−4·0	−3·5
Gujarat	+0·9	−2·8	−3·8	−2·1	−2·9	−2·0	−4·1	−4·3	−3·3
United Provinces	+1·6	+1·1	−2·6	−3·7	−2·5	−0·5	−0·7	−1·5	−3·4
Central India	+2·7	+1·4	−1·2	−0·6	+0·7	−1·2	−2·1	−3·2	−4·3
Chota Nagpur	+3·1	+3·9	+2·4	+0·5	−0·2	+2·7	+3·3	+1·2	−3·5
Bihar	+2·4	+3·0	+0·5	−2·8	−4·3	−2·8	−0·9	−0·6	−2·3
Bengal	+1·5	+2·8	+1·0	−0·2	−1·1	+0·4	+2·1	+2·2	−0·8
Assam	−1·2	−1·1	−2·4	−4·5	−3·6	−2·7	−0·9	−2·2	−1·3

During this period temperature was steadily excessive over the Peninsula and the Central Provinces. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 12th Jan.	13th Jan	14th Jan.	15th Jan.	16th Jan.	17th Jan.	18th Jan.	19th Jan.	20th Jan.
	°	°	°	°	°	°	°	°	°
Orissa	+3·6	+6·5	+5·8	+4·8	+4·1	+4·4	+3·9	+4·4	+0·5
Central Provinces	+2·8	+4·5	+3·4	+3·7	+4·1	+4·5	+2·6	+1·3	−1·0
Berar	+2·1	+3·6	+3·3	+5·5	+4·6	+3·6	+1·6	−0·6	−0·8
West Coast	+1·0	+0·7	+0·5	+0·6	+0·7	+1·6	+0·4	+0·6	+0·2
Bombay Deccan	+0·9	+0·7	+2·3	+2·7	+2·6	+3·4	+1·5	+0·7	+1·0
Mysore	+0·8	+2·9	+3·3	+3·3	+3·8	+3·0	+3·5	+4·1	+4·8
Madras Coast	+1·6	+2·5	+2·0	+1·9	+1·5	+2·4	+2·7	+2·7	+2·0
Madras Deccan	+0·3	+2·3	+2·5	+3·3	+2·8	+4·3	+2·7	+4·8	+4·3
South India	−0·1	+1·6	+1·6	+1·5	+0·8	+0·7	+0·9	+1·7	+2·5

As during the previous period, the excess now noticed was mainly attributable to high night temperatures, but on

this occasion the variations were much less than those recorded between the 5th and the 11th. At the following places, on the following dates, however, the minimum temperatures were more than 10° above the normal :—

Date.	Station.	Minimum temperature.		
		Actual, of date.	Normal, of date.	Variation of actual from normal, of date.
		°	°	°
13th January	False Point	70·1	57·8	+12·3
	Gopalpur	72·1	60·3	+11·8
	Balasore	66·3	55·0	+11·3
	Cuttack	70·2	59·4	+10·8
14th ,,	False Point	70·1	57·9	+12·2
	Cuttack	70·2	59·5	+10·7
	Chaibassa	63·5	52·8	+10·7
15th ,,	Chanda	67·0	54·1	+12·9
	Cuttack	71·2	59·7	+11·5
	Sambalpur	65·2	54·7	+10·5
	Nagpur	66·1	55·6	+10·5
	Akola	63·8	53·6	+10·2
16th ,,	Cuttack	71·7	59·8	+11·9
17th	Chanda	65·5	54·4	+11·1
	Sambalpur	66·1	55·1	+11·0
18th ,,	Cuttack	70·2	60·1	+10·1
19th ,,	Balasore	67·8	56·0	+11·8
	Chaibassa	64·5	53·5	+11·0
	Sambalpur	66·1	55·3	+10·8

After the 20th the weather became unsettled in north-west India owing to depressions advancing from Persia eastward to the Indian frontier. On the 20th and 21st temperature rose briskly in Baluchistan, and on the 22nd this rise spread over north-west India, changes which ordinarily precede the advance of a disturbance from the westward. The following gives comparative data for Afghanistan, Baluchistan and the Punjab in illusrtation :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	20th January.	21st January.	22nd January.
	°	°	°
Afghanistan	+7·3	+4·7	+3·4
Baluchistan	+6·0	+8·5	+7·4
Punjab	−0·5	+0·7	+2·4
North-West Frontier Province	+0·6	−0·1	+3·7

On the 21st, 22nd and 23rd, rain and snow from the advancing depression occurred over Baluchistan, the north-west frontier and Kashmir, and on the 23rd a fresh cold wave appeared in the Indus valley. On this day temperature was below the normal over Baluchistan, very high over the eastern Punjab, Rajputana, Central India, Gujarat, Berar and the Central Provinces, and low over north-east India and Burma. The following gives data for all divisions in illustration :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 23rd January.	Mean minimum temperature, 23rd January.	Mean daily temperature, 23rd January.
	°	°	°
Burma	−2·3	−2·4	−2·4
Assam	+0·4	−5·7	−2·7
Bengal	−0·4	−3·3	−1·9
Orissa	−2·6	−0·5	−1·6
Bihar	−0·4	−3·1	−1·8
Chota Nagpur	−0·7	+0·7	0
United Provinces of Agra and Oudh	+2·0	+0·3	+1·2
Punjab	+0·7	+7·0	+3·9
North-West Frontier Province	−5·4	+4·7	−0·4
Baluchistan	−2·3	−7·7	−5·0
Sind	−2·2	+1·4	−0·4
Rajputana	+5·8	+6·9	+6·4
Gujarat	+0·4	+5·9	+3·2
Central India	+3·4	+4·2	+3·8
Central Provinces	+3·1	+3·0	+3·1
Berar	+3·1	+6·1	+4·6
West Coast	+1·9	+3·1	+2·5
Bombay Deccan	−0·8	+3·9	+1·6
Mysore	−0·7	+2·2	+0·8
Madras Coast	+0·2	+4·2	+2·2
Madras Deccan	−1·3	+3·9	+1·3
South India	+0·6	+2·8	+1·7

The cold wave extended eastward and intensified on the 24th, and on the 25th and 26th a fresh fall of snow and rain occurred in the north-west. This was followed by a brisk extension of the cold wave eastward and southward, and by the 29th lower temperatures than usual prevailed in all parts of the country, except the east of the Peninsula. On the 29th and 30th there occurred another fall of snow over the north-west mountain region and showers over the plains of north-west India, so that the already existing deficiency was further intensified. The following gives comparative temperature data for all

divisions for each alternate day from the 23rd to the 31st :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	23rd January.	25th January.	27th January.	29th January.	31st January.
	°	°	°	°	°
Burma	−2·4	−1·0	−0·1	+1·2	+0·4
Assam	−2·7	−1·7	+0·4	−1·9	−2·6
Bengal	−1·9	+0·6	+4·4	−1·9	0
Orissa	−1·6	−0·5	+2·3	+2·3	+3·7
Bihar	−1·8	+2·8	+4·9	−4·0	−1·5
Chota Nagpur	0	+4·6	+6·1	−3·0	−0·8
United Provinces of Agra and Oudh.	+1·2	+4·4	0	−4·6	−3·1
Punjab	+3·9	+1·3	−4·2	−3·3	−7·6
N.-W. F. Province	−0·4	−3·0	−5·7	−3·7	−5·6
Sind	−0·4	−2·8	−8·2	−3·4	−5·3
Rajputana	+6·4	+1·2	−6·4	−6·9	−5·5
Gujarat	+3·2	−1·3	−8·4	−5·9	−2·4
Central India	+3·8	+7·0	−2·3	−5·8	−2·8
Central Provinces	+3·1	+4·7	+0·7	−2·4	+0·9
Berar	+4·6	+3·4	+0·4	−1·5	−0·8
West Coast	+2·5	+1·9	−0·7	0	−1·6
Bombay Deccan	+1·6	+1·3	−0·5	+0·2	−0·2
Mysore	+0·8	−0·6	+0·7	+1·8	+2·7
Madras Coast	+2·2	+0·4	+0·6	+3·2	+3·0
Madras Deccan	+1·3	−0·5	+1·4	+3·7	+2·1
South India	+1·7	+0·7	−0·4	+2·8	+1·0

During this cold period both the day and night temperatures were below the normal, but the principal deficiency was shown in the night temperatures, the following low minima having been recorded :—

Station.	Date.	Minimum temperature.	Variation from normal.
		°	°
Baghdad	30th January	29·5	−8·7
Ispahan	23rd ,,	10 6	−12·1
,,	30th ,,	11·1	−13·1
Teheran	24th ,,	17·0	− 8·9
Kabul	27th ,,	3·4	−14·0
,,	31st ,,	4·4	−13·8
Parachinar	24th ,,	17·0	...
Chitral	27th & 29th ,,	25·0	...
Killa Drosh	29th ,,	25·7	...
Quetta	31st ,,	9·3	−19·6
Chaman	27th ,,	20·6	−13·7
Jacobabad	27th ,,	32·0	−12·0
Peshawar	27th ,,	33·9	− 6·4
Murree	31st ,,	22·0	−11·3
Simla	27th ,,	26·2	− 7·9
Chakrata	31st ,,	27·4	− 7·2
Leh	27th ,,	0·9	− 6·8
Dras	27th ,,	−30·4	...
Kashgar	31st ,,	− 1·2	−15·6

The preceding data show that this cold wave was felt all over Persia, Afghanistan and northern India; as far north as Kashgar and as far west as Baghdad, where, it may be noted although the minimum temperature was recorded on the 30th, the fall of temperature disclosed itself as early as the 20th.

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 mean wind direction of the month was nearly northerly over Burma, but drew into north-east by north over the Bay Islands. It was thus more northerly than usual over this area, as is shown by the following data:—

Station.	Mean wind direction.		
	Actual, January, 1903.	Normal, January.	Northerly deflection.
	°	°	
Port Blair	N 36 E	N 41 E	+ 5
Rangoon	N 2 E	N 27 E	+25
Diamond Island	N 2 E	N 1 W	...
Akyab	N 3 W	N 19 W	+16

The velocity was much greater than usual at Diamond Island and the steadiness was greater than usual at Port Blair and Rangoon. The following gives comparative data:—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, January, 1903.	Normal percentage, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	"	"	"	%	%	
Port Blair	87	76	+11	138	162	−24
Diamond Island	61	71	−10	273	176	+97
Rangoon	56	36	+20	31	95	−64
Akyab	31	42	−11	59	67	− 8

At False Point the wind, on the mean of the month, was light and unsteady from south-by-east, while the normal direction is north-easterly. This is shown below:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, January, 1903.	Normal percentage, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
				°	°			
False Point	21	22	− 1	S 12 E	N 57 E	124	147	−23

In Bengal the wind, as in Burma, was generally more northerly than the average, but the velocity was lower than usual. The following gives data:—

Station.	Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual January, 1903.	Normal January.	Northerly deflection.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	°	°				
Chittagong	N 2 E	N 26 W	+26	67	75	− 8
Calcutta	N 11 W	N 36 W	+25	43	62	−19
Saugor Island	N 11 W	N 6 W	− 5	134	166	−32

At Hazaribagh and Darbhanga the wind was normal in direction, but was lighter and less steady than usual. At Allahabad, on the contrary, the wind's direction was very abnormal, as is shown below:—

Station.	Mean steadiness.			Mean Wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, January, 1903.	Normal percentage, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
				°	°			
Hazaribagh	32	49	−17	N 42 W	N 53 W	101	135	−34
Darbhanga	19	46	−27	S 82 W	S 80 W	21	63	−42
Allahabad	29	25	+ 4	N 54 E	N 40 W	74	81	− 7

In upper India the wind blew from the usual directions, while the velocity and steadiness varied irregularly and generally slightly from the average. The following gives data:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, January, 1903.	Normal percentage, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
				°	°			
Dehra Dun	33	18	+15	S 65 W	S 69 W	21	40	−19
Roorkee	21	19	+ 2	N 31 W	N 76 W	50	51	− 1
Meerut	35	42	− 7	N 64 W	N 56 W	31	49	−18
Lahore	23	20	+ 3	N 29 W	N 27 W	41	43	− 2
Ludhiana	40	29	+11	N 77 W	N 54 W	38	35	+ 3

Over the upper part of the Indus valley the wind was more westerly and in the lower part more easterly than the average. This is shown below :—

STATION.	MEAN WIND DIRECTION.	
	Actual, January, 1903.	Normal, January.
	°	°
Peshawar	S 67 W	S 2 W
Jacobabad	N 33 W	N 4 W
Kurrachee	N 70 E	N 23 E

The velocity of the wind over the whole of this area was much less than usual :—

STATION.	MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
Peshawar	23	64	−41
Jacobabad	16	51	−35
Kurrachee	158	239	−81

In Rajputana the wind was normal or slightly more easterly than usual. The following gives data for Jaipur and Deesa :—

STATION.	MEAN WIND DIRECTION.		
	Actual, January, 1903.	Normal, January.	Easterly deflection.
	°	°	
Jaipur	N 37 E	N 8 E	+29
Deesa	N 22 E	N 20 E	+ 2

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

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, January, 1903.	Normal percentage, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal January.	Variation of actual from normal, January, 1903.
Bay Islands	87	76	+11	138	162	−24
Burma	49	50	− 1	121	113	+ 8
Bengal	38	35	+ 3	81	101	−20
Bihar	19	46	−27	21	63	−42
Orissa	21	22	−1	124	147	−23
Chota Nagpur	32	49	−17	101	135	−34
N.-W. F. Province	8	5	+ 3	23	64	−41
Punjab	32	25	+ 7	40	39	+ 1
United Provinces	39	35	+ 4	59	74	−15
Sind	32	24	+ 8	87	145	−58
Rajputana	44	28	+16	127	146	−19

The principal abnormal feature here disclosed is the general lightness of the wind throughout this area.

At most of the stations in the Deccan the wind was more southerly than usual, but at Hyderabad the direction was approximately normal. This is shown below :—

STATION.	MEAN WIND DIRECTION.	
	Actual, January, 1903.	Normal, January.
	°	°
Belgaum	S 55 E	S 75 E
Sholapur	S 41 E	S 89 E
Akola	N 40 W	N 50 E
Buldana	N 85 W	N 75 E
Khandwa	S 2 E	N 21 E
Nagpur	S 17 W	N 71 E
Hyderabad	S 60 E	S 51 E

The winds were generally unsteady, even more so than usual, and, except at Sholapur, the velocity was normal

or below the normal. The following gives comparative data:—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, January, 1903.	Normal percentage, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
Belgaum	39	43	— 4	164	249	—85
Sholapur	65	55	+10	237	184	+53
Akola	17	28	—11	47	88	—41
Buldana	23	13	+10	125	132	— 7
Khandwa	8	21	—13	76	74	+ 2
Nagpur	7	30	—23	...	...	...
Hyderabad	39	60	—21	69	90	—21

Along the Bombay coast the wind blew from between north and north-north-west, and was slightly more westerly than usual, while the steadiness and velocity were about the average. This is shown below:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, January, 1903.	Normal percentage, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Westerly deflection.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
				°	°				
Bombay	55	58	—3	N 4 W	N 6 E	...	218	239	—21
Karwar	57	53	+4	N 30 W	N 19 W	+11	76	73	+ 3

In south India, as in the Deccan, the wind at many stations was more southerly than usual. At Salem the direction was exactly normal, while at Madras the wind blew from east-north-east instead of from north-east. The following gives comparative data:—

STATION.	MEAN WIND DIRECTION.	
	Actual, January, 1903.	Normal, January.
Salem	N 82° E	N 82° E
Chitaldroog	S 85 E	S 88 E
Bangalore	S 79 E	N 88 E
Hassan	S 88 E	N 87 E
Mysore	S 86 E	N 82 E
Madras	N 74 E	N 49 E
Bellary	S 45 E	S 68 E

The velocity was, except locally at Bangalore and Bellary, below the normal, while the steadiness varied irregularly from the average. The following gives data:—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, January, 1903.	Normal percentage, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal January.	Variation of actual from normal, January, 1903.
Salem	71	62	+ 9	99	117	—18
Chitaldroog	56	77	—21	109	175	—66
Bangalore	79	79	0	182	111	+71
Hassan	79	74	+ 5	54	75	—21
Mysore	64	83	—19	189	218	—29
Madras	79	78	+ 1	115	141	—26
Bellary	48	64	—16	86	81	+ 5

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, 1903.	Normal percentage, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
Central Provinces	8	26	—18	76	74	+ 2
Berar	20	21	— 1	86	110	—24
Bombay Deccan	52	49	+ 3	201	217	—16
West Coast	56	56	0	147	156	— 9
Madras Deccan	44	62	—18	78	86	— 8
Mysore	70	78	— 8	134	145	—11
Madras Coast	79	78	+ 1	115	141	—26
South India	71	62	+ 9	99	117	—18

As mentioned in the pressure section, the mean pressure of the month, though generally slightly higher than usual, differed very little in relative distribution from the normal, and accompanying this, there were farily normal winds over the greater part of the country. The only important exceptions were Burma, where the direction was unusually northerly, and the interior of the Peninsula where it was exceptionally southerly.

The wind, on the mean of the month, was unusually northerly at Quetta, Srinagar and Darjeeling, but at the remaining hill stations the variations from the

normal were neither large nor important. The wind was steadier than usual at the Himalayan stations and was exceptionally steady at Leh and Darjeeling. At Leh the wind direction was normal, and both the velocity and steadiness were above the average. The following gives comparative data for Quetta and the northern hill stations :—

Hill Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, January, 1903.	Normal percentage, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Actual, January, 1903.	Normal, January.	Variation of actual, from normal, January, 1903.
				°	°			
Quetta . .	14	25	—11	N 30 W	N 85 W	60	74	—14
Leh . .	64	29	+35	S 14 W	S 10 W	54	22	+32
Srinagar . .	11	10	+ 1	N 40 W	S 37 E	47	71	—24
Simla . . .	42	31	+11	S 5 E	S 7 E	...	...	...
Chakrata . .	16	5	+11	S 63 E	S 84 W	162	123	+39
Ranikhet . .	26	15	+11	S 89 W	S 51 W	39	44	— 5
Katmandu . .	66	49	+17	N 80 W	N 76 W	19	21	— 2
Darjeeling . .	56	22	+34	N 74 W	S 89 W	91	88	+ 3

At the central hill stations the wind was stronger than usual, but the directions varied irregularly from the average. This is shown below :—

Hill Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, January, 1903.	Normal, January.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	°	°			
Mount Abu . .	N 10 E	N 69 W	156	119	+37
Pachmarhi . .	S 79 W	N 79 W	94	78	+16
Chikalda . . .	S 57 W	S 40 W	168	123	+45

The wind was slightly less easterly than usual at Aden on the mean of the month, but was above the normal strength, while at Perim the direction was exactly normal and the velocity below the normal. The following gives data :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, January, 1903.	Normal, January.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	°	°			
Aden . . .	N 81 E	N 89 E	346	319	+27
Perim . . .	S 63 E	S 63 E	424	472	—48

At Mauritius, Zanzibar and the Seychelles the mean wind direction was a few degrees more northerly than the average, and at the Seychelles the wind was less steady than usual, though the velocity was above the normal. At both Zanzibar and Mauritius the wind's velocity was lower than usual. The following gives data for this area :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, January, 1903.	Normal percentage, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
				°	°			
Zanzibar . .	68	69	— 1	N 28 E	N 35 E	187	196	— 9
Seychelles . .	56	66	—10	N 36 W	N 43 W	163	144	+19
Mauritius . .	...	...	...	N 77 E	N 87 E	202	266	—64

Over the Indian seas the winds were about normal, the average force over the Arabian Sea having been 3·4 and over the Bay 3·1, while the normal forces are 3·3 and 3·0, respectively. It is interesting to note that the diminished velocity over the Indian land area and the normal force over the Indian Seas accompanied a greater pressure difference than usual over the Indian monsoon area.

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 mean 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 ofc loud 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 means for periods varying from 3 to 50 years of the available cloud data for the same hours.

During the past three months the air has been steadily damper than usual over the Peninsula. This condition continued to be shown during the month under review, the relative humidity of January 1903 having exceeded the normal over the Peninsula (except the west coast) and the north and west of the Bay. The greatest excess of the relative humidity occurred apparently in the month of December, as is shown by the following data:—

Station.	Variation of actual relative humidity from normal of		
	November, 1902.	December, 1902.	January, 1903.
Khandwa	+7	+8	−2
Belgaum	+8	+24	+13
Chitaldroog	+4	+12	+15
Bangalore	+4	+8	+4

But though the amount of the excess of the relative humidity, in relation to the normal, is thus apparently now decreasing, the extent of the area of excessive humidity is increasing, and in the present month covers a much larger portion of the Peninsula and of the Bay than in the two preceding months. Within this large area of excessive humidity there were two areas of maximum excess—the first covering the central parts of the Peninsula, the second covering Orissa and deltaic Bengal. The following gives comparative data for those stations at which the relative humidity was 5 or more in excess of the normal:—

Station.	Relative Humidity.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	%	%	
Chitaldroog	61	46	+15
Belgaum	60	47	+13
Hassan	65	57	+8
Madras	83	75	+8
Sholapur	51	44	+7
Saugor Island	82	75	+7
False Point	83	78	+5
Salem	70	65	+5

With a few exceptions the relative humidity over the west of the Peninsula, north-western and northern India and Burma was less than usual. The area of maximum deficiency covered the south-east Punjab, the north of Rajputana and the adjacent districts of the United Provinces, and it is remarkable that this region has been that of maximum humidity defect during the past three months. The following gives data:—

Station.	Variation of actual relative humidity from normal of		
	November, 1902.	December, 1902.	January, 1903.
Ludhiana	−5	−10	−10
Dehra Dun	+1	−9	−11
Roorkee	+3	−3	−2
Meerut	−2	−12	−9
Jaipur	−5	−14	−11

It will be noticed that just as the maximum excess of humidity was recorded over the Peninsula in December so also was the maximum defect of humidity over northern India recorded in the same month.

The mean pressure of aqueous vapour was greater than usual at Port Blair, at the coast stations of Diamond Island, Saugor Island, and False Point and at Calcutta, and the relative humidity was normal or above the normal at all these stations. On the other hand, the absolute humidity and the relative humidity were below the normal in all other parts of Burma and of northern India with the local exception of Jacobabad. The following table gives comparative data for the Bay islands and the different divisions of Burma and of northern India:—

Province or Division.	Absolute Humidity.			Relative Humidity.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	"	"	"	%	%	
Bay Islands	·831	·787	+·044	77	76	+1
Burma	·576	·591	−·015	64	67	−3
Bengal	·499	·462	+·037	74	72	+2
Bihar	·371	·396	−·025	68	71	−3
Chota Nagpur	·268	·268	0	47	51	−4
Orissa	·627	·537	+·090	83	78	+5
United Provinces	·263	·298	−·035	59	66	−7
N.-W. F. Province	·200	·225	−·025	55	62	−7
Punjab	·239	·281	−·042	59	66	−7
Sind	·258	·290	−·032	50	53	−3
Rajputana	·224	·263	−·039	38	45	−7

The deficiency was more than 5 at the stations for which data are given below :—

Station.	Relative Humidity.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	%	%	
Dehra Dun	56	67	—11
Jaipur	42	53	—11
Ludhiana	59	69	—10
Meerut	56	65	— 9
Kurrachee	48	56	— 8
Peshawar	55	62	— 7
Allahabad	60	66	— 6

With the single exception of the station of Bombay, the air was damper than usual over all the Peninsular divisions. Over the greater part of this area the excess in the absolute humidity was considerable to large, so that, notwithstanding the high temperature prevailing, the relative humidity was generally in excess of the normal. The following gives data for the Peninsular divisions :—

Province or Division.	Absolute Humidity.			Relative Humidity.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	"	"	"	%	%	
Central Provinces	·365	·342	+·023	50	51	—1
Berar	·352	·319	+·033	48	46	+2
Bombay Deccan	·423	·348	+·075	56	46	+10
Madras Deccan	·480	·432	+·048	60	56	+4
West Coast	·588	·583	+·005	67	69	—2
Mysore	·471	·398	+·073	63	56	+7
Madras Coast	·757	·654	+·103	83	75	+8
South India	·638	·564	+·074	70	65	+5

The excess was greatest in south India and was more than 5 at the following stations :—

Station.	Relative Humidity.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	%	%	
Chitaldroog	61	46	+15
Belgaum	60	47	+13
Hassan	65	57	+8
Madras	83	75	+ 8
Sholapur	51	44	+7

The air was drier than usual at Quetta, but the mean temperature having been very low the relative humidity was higher than usual. This is shown below :—

Hill Station.	Absolute Humidity.			Relative Humidity.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	"	"	"	%	%	
Quetta	·133	·158	—·025	70	67	+3

Both the absolute and relative humidities were above the normal at Srinagar. The following gives data :—

Hill Station.	Absolute Humidity.			Relative Humidity.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	"	"	"	%	%	
Srinagar	·175	·154	+·021	85	82	+3

At the remaining hill stations in northern India the relative humidity was lower than usual. The following gives data :—

Hill Station.	Relative Humidity.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	%	%	
Ranikhet	57	63	—6
Chakrata	56	62	—6
Simla	53	58	—5
Katmandu	68	73	—5
Darjeeling	76	81	—5

The driest area, on the mean of the month, included parts of Gujarat and of southern Rajputana, where the mean daily humidity was less than 40%. The following gives data for the two stations in this area :—

Station.	Relative Humidity.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
	%	%	
Mount Abu	39	43	—4
Deesa	34	37	—3

The driest period of the month was between the 26th and 29th, when the following low humidities were recorded:—

Station.	Date.	Hour.	Lowest humidity recorded during January, 1903.
			%
Udaipur	26th Jan.	4 P.M.	7
Deesa	,, ,,	Do.	9
Mount Abu	,, ,,	Do.	11
Jacobabad	,, ,,	Do.	13
Buldana	27th ,,	10 A.M.	5
Mount Abu	,, ,,	Do.	6
Do.	,, ,,	8 A.M.	8
Deesa	,, ,,	4 P.M.	9
Do.	,, ,,	10 A.M.	11
Jamnagar	,, ,,	10 A.M. and 4 P.M.	13
Mount Abu	28th ,,	10 A.M.	11
Deesa	,, ,,	4 P.M.	12
Khandwa	,, ,,	10 A.M.	13
Mount Abu	29th	Do.	12

The air was damper than usual over the Gulf of Aden and in the south-east Trades region.

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

(1) Excessive humidity over nearly the whole of the Peninsula, the west and south of the Bay, Orissa and deltaic Bengal, the increased humidity having been greatest in Mysore.

(2) Deficient humidity over Burma and the whole of northern India, with the exception of deltaic Bengal and Orissa and with the local exception of Jacobabad.

(3) Deficient humidity at most of the hill stations.

The mean cloud amount of the month was in slight to large excess of the normal over nearly the whole of the Peninsula, the east Gangetic plain lower Bengal and the Burma coast. The following gives data for these divisions:—

Division.	Mean cloud amount.		
	Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
Central Provinces	3·1	1·8	+1·3
Berar	4·1	1·7	+2·4
Bombay Deccan	3·6	1·7	+1·9
West Coast	1·9	1·1	+0·8
Madras Deccan	4·4	1·9	+2·5
Madras Coast	3·9	4·0	−0·1
Mysore	4·1	2·6	+1·5
South India	5·0	2·8	+2·2
Chota Nagpur	4·3	2·3	+2·0
Bengal	3·7	1·4	+2·3
Orissa	5·4	2·0	+3·4
Burma Coast	2·3	1·9	+0·4

The excess was very large in three areas where the variations were between + 2·2 and + 3·4. These areas included (1) the inland districts of the south of the Peninsula, (2) Berar and the Deccan districts, and (3) Orissa and deltaic Bengal. The following gives comparative data for the stations within these three areas:—

Station.		Mean cloud amount.		
		Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
South of the Peninsula.	Mysore	5·6	2·8	+2·8
	Salem	5·0	2·8	+2·2
Berar	Akola	3·8	1·4	+2·4
	Buldana	4·3	2·0	+2·3
Deccan	Bellary	4·7	2·2	+2·5
	Hyderabad	4·0	1·6	+2·4
	Sholapur	4·1	1·8	+2·3
Orissa and deltaic Bengal.	False Point	5·4	2·0	+3·4
	Saugor Island	4·7	1·6	+3·1
	Calcutta	3·5	1·3	+2·2

Around the coasts of the Peninsula, with the local exception of Bombay, the mean cloud amount of the month was about normal. The following gives data:—

Station.	Mean cloud amount.		
	Actual, January 1903.	Normal, January.	Variation of actual from normal, January, 1903.
Bombay	2·6	1·4	+1·2
Karwar	1·1	0·7	+0·4
Madras	3·9	4·0	−0·1

Over the remainder of India the cloud amount, on the mean of the month, was below the normal. The

following gives comparative data for the remaining divisions :—

Station.	Mean cloud amount. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
N.-W. F. Province	3·0	4·8	—1·8
Punjab	2·5	4·0	—1·5
Sind	1·5	2·8	—1·3
Bihar	0·4	1·4	—1·0
United Provinces	2·6	3·3	—0·7
Rajputana	2·5	2·8	—0·3

The deficiency was considerable in two areas—the first including the west of the United Provinces and the south-east of the Punjab, the second including the Indus valley and Baluchistan. Within these two areas the variations ranged between —1·2 and —2·1, as is shown by the following comparative data for the included stations :—

Division.	Station.	Mean cloud amount. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
South-East Punjab.	Ludhiana	2·3	4·4	—2·1
West of United Provinces.	Meerut	1·8	3·2	—1·4
Indus Valley	Peshawar	3·0	4·8	—1·8
	Jacobabad	1·6	3·0	—1·4
	Kurrachee	1·4	2·6	—1·2
Baluchistan	Quetta	2·5	4·1	—1·6

At the central hill stations the mean cloud amount of the month was in excess of the normal, while at all the Himalayan stations the sky was unusually clear. This is shown below :—

Hill Station.	Mean cloud amount. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
Chikalda	3·9	2·2	+1·7
Pachmarhi	3·9	2·3	+1·6
Mount Abu	2·9	2·4	+0·5
Srinagar	5·0	7·9	—2·9
Katmandu	1·4	3·3	—1·9
Leh	5·4	6·6	—1·2
Chakrata	3·6	4·6	—1·0
Simla	4·7	5·6	—0·9
Darjeeling	4·9	5·7	—0·8
Ranikhet	3·5	4·1	—0·6

Skies were most serene during the month at the stations for which data are given below :—

Station.	Mean cloud amount. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
Akyab	0·7	1·3	—0·6
Darbhanga	0·4	1·4	—1·0
Jamnagar	0·7	—	—

At Perim the mean cloud amount was very low and less than usual, while at Aden there was much more cloud than the average. This is shown below :—

Station.	Mean cloud amount. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
Perim	0·6	2·4	—1·8
Aden	5·9	3·8	+2·1

At the stations in the south-east Trades region there was more cloud than usual. The following gives data :—

Station.	Mean cloud amount. Actual, January, 1903.	Normal, January.	Variation of actual from normal, January, 1903.
Zanzibar	6·2	4·4	+1·8
Seychelles	7·8	7·0	+0·8
Mauritius	7·1	6·5	

The following is a summary of the chief features of the cloud distribution of the month :—

(1) Cloud was in excess over nearly the whole of the Peninsula, the east Gangetic plain, lower Bengal and the Burma coast.

(2) The excess was large over the interior parts of the Peninsula and very large over Bengal and Orissa.

(3) The sky was clearer than usual over Bihar and the whole of north-west India.

(4) The sky was clearer than usual at all the Himalayan hill stations.

(5) The sky was more cloudy than usual in the south-east Trades region.

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 200 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.

During the month under review the weather was finer and drier than usual over northern India, and the rainfall of the month was generally scanty. On the other hand, the Deccan, as was the case during December, received more rain than usual and the rainfall was excessive over a considerable part of north-east India. Plate IV shows the distribution of rainfall during the month according to the meteorological observatories. It shows that little or no rain fell over the west of the Peninsula, the head of the Peninsula, Gujarat, the western desert or Burma. From these regions the rainfall increased and measured between one and two inches in the submontane region of north-west India (Umballa 2·27″), over two inches in parts of Assam (Silchar 8·64″) and of south-east Bengal (Chittagong 2·71″) and between two and four inches in Ceylon and the Carnatic (Madras 4·53″).

The chief periods of rainfall over India were as follows :—

(1) The 1st and 2nd, when light showers occurred in the north-west.

(2) The 4th to the 9th, when rain commenced on the Madras coast and extended over the Deccan and the Central Provinces into north-west India, light snow falling on the central Himalayas.

(3) The 13th to the 20th, when light showers fell over north-east India.

(4) The 21st to the 27th, when rain and snow fell in the north-west.

(5) The 30th and 31st, when rain and snow again fell in the north-west.

The following table gives mean actual, mean normal, and variation rainfall data for the 57 meteorological divisions into which India is divided :—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, January, 1903.	Average normal, January.	Average actual, January, 1903.	Average normal, January.	Variation of actual, from normal, January, 1903.
				Inch.	Inch.	Inch.
Burma	Tenasserim	0	0·3	0	0·14	—0·14
	Lower Burma (Deltaic)	0	0·1	0	0·05	—0·05
	Central do.	0	0	0	0·02	—0·02
	Upper do.	0·1	0·3	0·03	0·11	—0·08
	Arakan	0·2	0·1	0·04	0·04	0
Bengal and Assam	Eastern Bengal	0·8	0·9	0·61	0·43	+0·18
	Assam (Surma)	1·3	1·2	0·66	0·45	+0·21
	Do. (Hills)	0·1	1·4	0·19	0·62	—0·43
	Do. (Brahmaputra)	1·8	2·2	0·75	0·86	—0·11
	Deltaic Bengal	1·7	0·8	0·73	0·37	+0·36
	Central do.	1·0	1·0	0·34	0·46	—0·12
	North do.	0·7	1·2	0·29	0·55	—0·26
	Bengal Hills	0·7	1·8	0·10	0·76	—0·66
	Orissa	1·6	0·5	0·84	0·24	+0·60
	Chota Nagpur	2·3	1·1	0·87	0·53	+0·34
	Bihar (South)	0·5	1·4	0·15	0·75	—0·60
	Do. (North)	0·7	1·3	0·22	0·66	—0·44

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, January, 1903.	Average normal, January.	Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.
				Inches.	Inches.	Inches.
United Provinces of Agra and Oudh.	United Provinces (East)	0·3	1·5	0·07	0·71	−0·64
	Oudh (South)	1·0	1·5	0·26	0·76	−0·50
	Do. (North)	1·7	1·6	0·62	0·79	−0·17
	United Provinces (Central)	0·5	1·4	0·14	0·62	−0·48
	Do. do. (West)	1·6	1·4	0·45	0·60	−0·15
	Do. do. (East Sub-montane)	0·9	1·3	0·26	0·71	−0·45
	Do. do. (West do.)	3·0	2·6	1·32	1·40	−0·08
	Do. do. (Hills)	3·9	3·9	2·26	2·32	−0·06
Punjab	Punjab (South-East)	1·5	1·7	0·45	0·77	−0·32
	Do. (South)	1·3	1·7	0·48	0·86	−0·38
	Do. (Central)	1·8	2·3	0·46	1·17	−0·71
	Do. (Sub-montane)	2·9	3·1	1·81	1·85	−0·04
	Do. (Hills)	5·6	4·8	3·44	3·45	−0·01
	Do. (West)	1·0	1·3	0·25	0·58	−0·33
North-West Frontier Province.	North-West Frontier Province.	2·4	2·5	1·10	1·38	−0·28
Bombay and Malabar Coast Districts (Madras).	Malabar	0·1	0	0·04	0·17	−0·13
	Travancore	0·4	...	0·19	...	...
	Madras (South-Central)	0·4	0·1	0·17	0·13	+0·04
	Coorg	0	...	0·01	...	...
	Mysore	0·1	0·2	0·03	0·11	−0·08
	Konkan	0	0·2	0	0·13	−0·13
	Bombay Deccan	0·2	0·2	0·16	0·08	+0·08
	Khandesh	0·7	0·3	0·35	0·13	+0·22
Central Provinces and Berar.	Berar	0·6	0·6	0·31	0·29	+0·02
	Central Provinces (West)	0·7	0·8	0·32	0·50	−0·18
	Do. (Central)	0·6	1·1	0·16	0·54	−0·38
	Do. (East)	0·3	0·9	0·20	0·38	−0·18
Bombay (North)	Gujarat	0	0·1	0	0·04	−0·04
	Kathiawar and Cutch	0·1	0·1	0·01	0·04	−0·03
	Sind	0·4	0·8	0·11	0·28	−0·17
	Baluchistan Hills	1·3	2·9	0·70	1·28	−0·58
Rajputana and Central India.	Central India (East)	0·5	1·1	0·15	0·46	−0·31
	Rajputana (East), Central India (West)	0·5	1·0	0·11	0·38	−0·27
	Do. (West)	0·2	0·5	0·05	0·16	−0·11
Madras	East Coast (North)	0·2	0·1	0·09	0·17	−0·08
	Madras (Central)	0·6	0	0·36	0·07	+0·29
	East Coast (Central)	2·2	0·7	1·98	0·38	+1·60
	Do. (South)	2·0	0·9	1·43	0·45	+0·98
	Madras (South)	1·5	1·1	0·87	0·56	+0·31

The preceding data show that actually or practically no rain fell during the month in fourteen divisions, *viz.*, all the Burma divisions, the United Provinces, east, Malabar, Coorg, Mysore, Konkan, Gujarat, Kathiawar and Cutch, west Rajputana and east coast, north, and that the total rainfall of the month was more or less in defect of the normal, except in the following thirteen divisions, *viz.*, the Surma valley (+0·21″), east Bengal (+0·18″), deltaic Bengal (+0·36″), Orissa (+0·60″), Chota Nagpur (+0·34″), south-central Madras (+0·04″), the Bombay Deccan (+0·08″), Khandesh″ (+0·22), Berar (+0·02″), central Madras (+0·29″), the central division of the east coast (+1·60″), the south division of the east coast (+0·98″) and south Madras (+0·31″).

The rainfall variation for the whole country derived from the last column of the table was—0·09″.

Showers giving a few cents of rain occurred over upper Burma and Arakan on the 29th, but with these exceptions Burma was rainless throughout the month.

Two showery periods occurred over Assam during the month, the first between the 12th and the 14th and the second between the 27th and the 29th. All parts of the province received rain during these two periods, and in the Brahmaputra valley the falls were moderate on the

28th and 29th. On the hills very little rain fell and the amounts were smaller than on the neighbouring plains. The following gives comparative data for the plains districts of the province :—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Cachar	0·74	0·50	+0·24	+48
Sylhet	0·55	0·41	+0·14	+34
Goalpara	0·56	0·75	—0·19	—25
Kamrup	0·58	0·48	+0·10	+21
Darrang	0·44	0·76	—0·32	—42
Nowgong	0·21	0·51	—0·30	—59
Sibsagar	0·88	0·95	—0·07	— 7
Lakhimpur	1·71	1·59	+0·12	+ 8

In south-west Bengal there were four showery periods—the first on the 13th and 14th, the second between the 17th and 20th, the third on the 27th and 28th, and the fourth on the 31st. The weather was thus more showery than usual and the total rainfall in excess of the average. The following gives comparative data for the districts in this division :—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inches.	Inch.	Inch.	
Burdwan	0·69	0·41	+0·28	+68
Birbhum	0·64	0·42	+0·22	+52
Bankura	0·20	0·30	—0·10	—33
Midnapore	1·05	0·24	+0·81	+337
Hooghly	0·38	0·36	+0·02	+ 6
Howrah	0·28	0·29	—0·01	— 3
24-Parganas	1·01	0·38	+0·63	+166
Calcutta	0·21	0·29	—0·08	—28
Nadia	0·37	0·40	—0·03	— 8
Murshidabad	0·18	0·45	—0·27	—60
Jessore	0·43	0·43	0	0
Khulna	0·96	0·34	+0·62	+182

In north Bengal only one showery period was experienced, *viz.*, between the 26th and 28th. The showers were generally light and the rainfall of the division was about half the normal. This is shown below :—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Rajshahi	0·28	0·46	—0·18	—39
Dinajpur	0·23	0·41	—0·18	—44
Jalpaiguri	0·24	0·63	—0·39	—62
Darjeeling	0·12	0·74	—06	—84
Cooch Behar	0·41	0·41	0	0
Rangpur	0·42	0·41	+0·01	+ 2
Bogra	0·30	0·49	—0·19	—39
Pabna	0·16	0·43	—0·27	—63

In east Bengal the only important rainfall was on the last day of the month when the following amounts exceeding 2·00″ in 24 hours were recorded :—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 31st January, 1903.
		Inches.
Backergunge	Patuakhali	3·76
Chittagong	Fenoa	3·02
,,	Chittagong	2·50
Noakhali	Harishpur	2·03

The rainfall was, except in Dacca, Mymensingh, Faridpur and Tippera, heavier than usual, as is shown by the following comparative data for the districts in the division :—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inches.	Inch.	Inch.	
Dacca	0·09	0·49	—0·40	—82
Mymensingh	0·29	0·47	—0·18	—38
Faridpur	0·10	0·51	—0·41	—80
Backergunge	1·29	0·42	+0·87	+207
Tippera	0·10	0·48	—0·38	—79
Noakhali	0·89	0·43	+0·46	+107
Chittagong	1·13	0·33	+0·80	+242
,, Hill Tracts	0·55	0·29	+0·26	+90

Over Bihar there was a showery period between the 25th and 28th, but the showers were light and the total rainfall of the month for this division was much below the normal. This is shown by the following district data :—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Patna	0·16	0·77	−0·61	−79
Gaya	0·22	0·70	−0·48	−69
Shahabad	0·06	0·76	−0·70	−92
Saran	0·08	0·72	−0·64	−89
Champaran	0·24	0·72	−0·48	−67
Muzaffarpur	0·09	0·77	−0·68	−88
Darbhanga	0·25	0·74	−0·49	−66
Monghyr	0·20	0·77	−0·57	−74
Bhagalpur	0·29	0·66	−0·37	−56
Purnea	0·30	0·46	−0·16	−35
Malda	0·32	0·64	−0·32	−50
Sonthal Parganas	0·37	0·62	−0·25	−40

The weather was very showery in Orissa during the second half of the month, and falls exceeding 1·50″ in 24 hours were recorded at the following places on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Balasore	Soro	18th January	2·26
Orissa Tributary Mahals	Keonjhar	19th „	1·60
„ „ „	Baisinga	20th „	1·60
Cuttack	Kendrapara	31st „	1·81

The total rainfall of the month was largely in excess of the normal, as is shown by the following comparative data of the different districts :—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Cuttack	0·83	0·30	+0·53	+177
Balasore	1·59	0·33	+1·26	+382
Puri	0·29	0·17	+0·12	+71

Chota Nagpur had a very showery period between the 13th and the 19th, and the month's rainfall was, except in Hazaribagh and Palamau, in excess of the normal, as is shown by the following data for the districts in this division :—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Hazaribagh	0·37	0·71	−0·34	−48
Ranchi	1·20	0·45	+0·75	+167
Palamau	0·45	0·82	−0·37	−45
Manbhum	0·56	0·47	+0·09	+19
Singhbhum	1·66	0·24	+1·42	+592

In the United Provinces a few local showers were received on the 6th, 7th and 13th, but the only general rain was between the 23rd and the 26th. This rainfall extended to all parts of the United Provinces and was moderately heavy in the sub-montane division, where the following amounts exceeding 1·50″ in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Garhwal	Joshimath	24th January	1·51
Dehra Dun	Rajpur	25th „	6·02
Almora	Champawat	26th „	1·85
Garhwal	Kotdwara	„ „	1·78

The month's rainfall was, however, less than usual in all the divisions of the United Provinces, as is shown by the following data :—

Division.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.	Number of rainy days. Average actual, January, 1903.	Average normal, January.
	Inches.	Inches.	Inch.			
United Provinces, East	0·07	0·71	−0·64	−90	0·3	1·5
South Oudh	0·26	0·76	−0·50	−66	1·0	1·3
North Oudh	0·62	0·79	−0·17	−22	1·7	1·6
United Provinces, Central.	0·14	0·62	−0·48	−77	0·5	1·4
„ „ West	0·45	0·60	−0·15	−25	1·6	1·4
„ „ East Sub-montane.	0·26	0·71	−0·45	−63	0·9	1·3
„ „ West Sub-montane.	1·32	1·40	−0·08	− 6	3·0	2·6
„ „ Hills	2.26	2·32	−0·06	− 3	3·9	3·9

In the Punjab the weather was fine with one or two passing showers between the 1st and the 21st. On the 22nd rain commenced and continued till the 27th. It then ceased for two days, but general showers were received on the 30th and 31st. The heaviest and most general rain was reported between the 24th and 26th, when the following amounts exceeding 2″·00 in 24 hours were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Gurdaspur	Dalhousie	25th January	2·88
Hoshiarpur	Hoshiarpur	,, ,,	2·76
Sialkot	Zafarwal	,, ,,	2·60
Hoshiarpur	Sadr Station	,, ,,	2·52
	Dasuya	,, ,,	2·34
Gurdaspur	Dalhousie	,, ,,	2·14
Jullundur	Jullundur	,, ,,	2·13
Kangra	Palampur	26th ,,	2·75
	Dharamsala	,, ,,	2·41
Umballa	Rupar	,, ,,	2·16

Notwithstanding this general fall, the rainfall of the province for the month was lighter than usual. The following gives comparative data:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.	Average actual, January, 1903.	Average normal, January.
	Inches.	Inches.	Inch.			
South-East Punjab	0·45	0·77	—0·32	—42	1·5	1·7
South Punjab	0·48	0·86	—0·38	—44	1·3	1·7
Central ,,	0·46	1·17	—0·71	—61	1·8	2·3
Punjab Sub-montane	1·81	1·85	—0·04	—2	2·9	3·1
,, Hills	3·44	3·45	—0·01	0	5·6	4·8
West ,,	0·25	0·58	—·033	—57	1·0	1·3

Rain occurred over the North-West Frontier Province between the 23rd and 27th and on the 31st. The falls were moderate or light, except in Hazara and Kohat, where they were a trifle heavier than usual. The following gives comparative data for the different districts:—

District.	Rainfall.			
	Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Peshawar	1·14	1·52	—0·38	—25
Hazara	2·79	2·76	+0·03	+1
Kohat	1·38	1·27	+0·11	+9
Bannu	0·43	0·69	—0·26	—38
Dera Ismail Khan	0·34	0·39	—0·05	—13

In Baluchistan rain and snow fell on the 15th and 16th, the 22nd and 23rd and the 29th and 30th. The total fall during the month was only little more than half the average, as is shown below:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.	Average actual, January, 1903.	Average normal, January.
	Inch.	Inches.	Inch.			
Baluchistan Hills	0·70	1·28	—0·58	—45	1·3	2·9

Snow and rain occurred in Kashmir between the 21st and 26th and again on the 30th and 31st. The falls were heavy on the 23rd and 24th, and at some stations the total fall of the month exceeded the normal.

No rain of importance occurred over Rajputana or Central India, where only about one-third of the small normal amount was received during the month. This is shown below:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.	Average actual, January, 1903.	Average normal, January.
	Inch.	Inch.	Inch.			
Rajputana, West	0·05	0·16	—0·11	—69	0·2	0·5
Rajputana East, Central India, West.	0·11	0·38	—0·27	—71	0·5	1·0
Central India, East	0·15	0·46	—0·31	—67	0·5	1·1

In Berar there were showers between the 6th and the 9th, the weather at other times having been rainless. The

showers were fairly general and the small normal fall of the month was exceeded. The following gives data:—

Division.	Rainfall. Average actual, January, 1903.	Rainfall. Average normal, January.	Rainfall. Variation of actual from normal, January, 1903.	Rainfall. Percentage variation from normal.	Number of rainy days. Average actual, January, 1903.	Number of rainy days. Average normal, January.
	Inch.	Inch.	Inch.			
Berar	0·31	0·29	+0·02	+7	0·6	0·6

Scattered showers occurred in the Central Provinces at different times during the month, the most general showery period having been, as in Berar, between the 6th and 9th. The showers were occasionally moderate and the rainfall exceeded 1″ at the following places on the following days:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Nagpur	Katol	7th January	1·20
Feudatory States	Rampur	19th "	1·55
Sambalpur	Sambalpur	20th "	1·43

Notwithstanding these showers, the total rainfall of the month was below the normal in all the divisions of the Central Provinces. This is shown below:—

Division.	Rainfall. Average actual, January, 1903.	Rainfall. Average normal, January.	Rainfall. Variation of actual from normal, January, 1903.	Rainfall. Percentage variation from normal.	Number of rainy days. Average actual, January, 1903.	Number of rainy days. Average normal, January.
	Inch.	Inch.	Inch.			
Central Provinces, Central.	0·16	0·54	—0·38	—70	0·6	1·1
Central Provinces, East.	0·20	0·38	—0·18	—47	0·3	0·9
Central Provinces, West.	0·32	0·50	—0·18	—36	0·7	0·8

Light to moderate rain occurred over the interior districts of the Bombay Presidency between the 5th and the 9th, and light scattered showers in Gujarat and Sind on the 23rd, 24th and 30th. In parts of the Deccan the showers were moderate 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.
Sholapur	Akluj	6th January	2·27
	Madha	" "	1·80
	Sangola	" "	1·05
	Sholapur	" "	1·01
Poona	Poona	7th "	1·95
Nasik	Nandgaon	" "	1·79

The following statement shows that in the Bombay Deccan and Khandesh the month's rainfall exceeded the normal, but that in other parts of the Presidency the weather was actually or practically rainless throughout the month:—

Division.	Rainfall. Average actual, January, 1903.	Rainfall. Average normal, January.	Rainfall. Variation of actual from normal, January, 1903.	Rainfall. Percentage variation from normal.	Number of rainy days. Average actual, January, 1903.	Number of rainy days. Average normal, January.
	Inch.	Inch.	Inch.			
Konkan	0	0·13	—0·13	—100	0	0·2
Bombay Deccan	0·16	0·08	+0·08	+100	0·2	0·2
Khandesh	0·35	0·13	+0·22	+169	0·7	0·3
Gujarat	0	0·04	—0·04	—100	0	0·1
Kathiawar and Cutch.	0·01	0·04	—0·03	— 75	0·1	0·1
Sind	0·11	0·28	—0·17	— 61	0·4	0·8

In Mysore there were a few light showers on the 6th.

Except in Malabar, the Madras rainfall exceeded the normal. In Malabar only a few scattered showers at the commencement and end of the month were received, and the total rainfall was only about one-quarter of the normal. The following gives data for the districts in this division:—

District.	Rainfall. Average actual, January, 1903.	Rainfall. Average normal, January.	Rainfall. Variation of actual from normal, January, 1903.	Rainfall. Percentage variation from normal.
	Inch.	Inch.	Inch.	
Malabar	0·03	0·19	—0·16	—84
South Canara	0·07	0·15	—0·08	—53

In Madras, south, there were showers between the 5th and the 7th, but the remainder of the month was rainless. The showers were, however, moderately heavy and the total rainfall of the month was heavier than usual. The following gives comparative data for the districts included in this division:—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Madura	0·88	0·39	+0·49	+126
Tinnevelly	0·87	0·76	+0·11	+ 14

In south-central Madras the rainfall occurred under similar conditions, but the amounts were lighter. The total rainfall was, however, heavier than usual, as is shown by the following comparative data for the two districts:—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Salem	0·21	0·14	+0·07	+50
Coimbatore	0·13	0·11	+0·02	+18

In central Madras the rainfall was practically confined to the Cuddapah district, where moderately heavy showers fell between the 5th and the 7th. The districts of Anantapur, Bellary and Kurnool were practically rainless, though the small normal was exceeded in Kurnool. The following gives data for these districts:—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Cuddapah	1·17	0·14	+1·03	+736
Anantapur	0·01	0·03	−0·02	−67
Bellary	0	0·04	−0·04	−100
Kurnool	0·08	0·06	+0·02	+33

The north division of the east coast received only a few scattered showers and the total rainfall on the whole was about the normal. This is shown below:—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Ganjam	0·22	0·18	+0·04	+22
Vizagapatam	0·23	0·07	+0·16	+229
Godavari	0·01	0·11	−0·10	−91
Kistna	0·08	0·22	−0·14	−64

Moderately heavy showers were received in the central division of the east coast between the 4th and the 7th. The showers were heavy on the 6th, and the following amounts exceeding 2·00″ in 24 hours were recorded at this time:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 6th January 1903.
		Inches.
Nellore	Gudur	3·54
	Udayagiri	3·08
	Tada	2·90
	Nellore	2·10

The total rainfall of the division was about five times as heavy as usual, as is shown by the following comparative data:—

District.	Rainfall. Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Nellore	1·98	0·38	+1·60	+421

In the south division of the east coast practically the whole of the rainfall of the month fell between the 4th and the 7th. The falls were heavy and amounted to more than 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.
Chingleput	Poonamallee	5th January	3·90
Madras	Madras	,, ,,	3·26
Tanjore	Tiruppundi	,, ,,	3·00
Chingleput	Kovelong	,, ,,	2·93
South Arcot	Bhuvanagiri	,, ,,	2·10
Chingleput	Sathiavedu	,, ,,	2·07
North Arcot	Tirrupati	6th ,,	2·38

The total rainfall considerably exceeded the normal, as is shown by the following comparative statement for the different districts :—

DISTRICT.	RAINFALL.			
	Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Madras	4·53	0·86	+3·67	+427
Chingleput	1·95	0·42	+1·53	+364
North Arcot	1·54	0·25	+1·29	+516
South Arcot	1·48	0·46	+1·02	+222
Tanjore	1·49	0·72	+0·77	+107
Trichinopoly	0·32	0·24	+0·08	+ 33

The following table gives the rainfall data for the month of January, 1903, at the extra-Indian stations.

STATION.	RAINFALL.			
	Average actual, January, 1903.	Average normal, January.	Variation of actual from normal, January, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Meshed	1·73	0·41	+1·32	+322
Teheran	1·09	1·29	—0·20	— 16
Ispahan	0·47	0·26	+0·21	+ 81
Bushire	0·29	3·12	—2·83	— 91
Jask	1·51	0·87	+0·64	+ 74
Muscat	0·40	1·28	—0·88	— 69
Baghdad	0·72	1·38	—0·66	— 48
Aden	3·17	0·32	+2·85	+891
Perim	0·67	0·34	+0·33	+ 97
Kabul	1·68	1·24	+0·44	+ 36
Kashgar	0·09	0·27	—0·18	— 67
Trincomalee	4·86	5·38	—0·52	— 10
Colombo	4·16	3·20	+0·96	+ 30
Minicoy	2·50	2·09	+0·41	+ 20
Zanzibar	2·17	3·37	—1·20	— 36
Seychelles	18·44	18·57	—0·13	— 1
Mauritius	9·38	7·89	+1·49	+ 19

The rainfall varied irregularly from the average. At Meshed, Ispahan, Jask, Kabul, and Colombo there was some excess, while in the Gulf of Aden the month's rainfall was in large to very large excess. At Aden the normal rainfall of the month is 0·32″, while the actual amount received was 3·17″, or nearly ten times the usual amount. At Perim the raintall was twice as heavy as usual. This appears to have been a local peculiarity, as it will be remembered that over Egypt the rainfall was in decided defect, and at Muscat, on the other side of Arabia, the month's rainfall was only one-third of the normal. It is also interesting to note that while the rainfall and snowfall over Afghanistan and the Indian frontiers were heavy between the 20th and the end of the month, yet at Kashgar only 0·09″ fell. The preceding data appear to show that the heavy snowfall of the last ten days of the month was confined to north Persia (Meshed and Ispahan), Afghanistan, the north-west Himalayas, and the mountain ranges to the west of the Indus, and that it did not extend beyond the Himalayas into Kashgar. In the south-east Trades region the rainfall was normal or in defect at the Seychelles, in moderate defect at Zanzibar, and in slight excess at Mauritius. In a letter received from Zomba, British Central Africa, dated December 5th, it is stated that the rainfall in that region had been generally deficient since April 1902. Lake Nyasa was, at the date of writing, lower than it had ever been known to be, and it was with great difficulty that navigation was being carried on in the Lower Shire river.

Crop Report.

Madras.—There was some rain over Madras during the week ending the 10th, but at other times the weather was fine. The irrigation supplies during the month were, however, generally sufficient, and the ordinary agricultural operations of ploughing, sowing and transplanting continued throughout the month. Harvesting continued during the month, the outturn having been generally fair while the standing crops were in fair condition. Cattle were in good condition during the month, the supplies of pasture and fodder having been generally sufficient. Prices showed a general tendency to fall during the period under review, but in some districts during the second half of the month they were stationary or even increased for certain grains.

Bombay.—There was light rain at different times during the month. More was needed in parts of Kurrachee and Larkana, while, on the other hand, the rainfall and cloudy weather did some damage in parts of Dharwar, Ahmedabad, etc. The harvesting of autumn crops was practically completed during the month and spring

sowings continued. At the close of the month the standing crops were in good condition, except in parts of Nasik and Ahmedabad, where they had been damaged by rats or insects, and in parts of Hyderabad, Larkana and Broach where locusts and frost had done harm. The condition of cotton was good in Wadhwan and parts of Broach, Surat, Bijapur and Dharwar and fair elsewhere. Picking was completed in Khandesh during the month and continued in other districts. The water-supply was adequate, the fodder sufficient and agricultural stock in good condition. The price of wheat was slightly over normal in Gujarat and considerably over normal in the Deccan, the Konkan and the Carnatic, but, compared with 1902, the price was considerably easier.

Bengal.—Rain fell over Bengal during the second half of the month greatly benefiting the standing crops. More rain was, however, required in the districts of Nadia, Pubna, Faridpur, Patna, Gaya, Champaran, Darbhanga, Maldha and Hazaribagh. The harvesting of the winter rice crop was practically completed during January, while threshing commenced and continued throughout the month. The poppy crop did well during the month and the outturn of sugarcane was estimated at 92 per cent. of a normal crop. Fodder and water were sufficient and the variations of price of common rice were unimportant.

United Provinces.—The weather was dry during the first fortnight and rain was greatly needed, but during the second half of the month showers occurred generally and greatly benefited the standing crops. At the close of the month it was only in Aligarh, Allahabad and Banda that further rain was required. Pressing of sugarcane continued during the month. At the close of the month prospects were generally favourable and poppy was flourishing. Prices were stationary.

Punjab.—Rain was badly wanted throughout the province during the first three weeks of the month, during which period unirrigated crops were withering for want of moisture. Rain fell during the weeks ending the 24th and 31st, and, though more rain was wanted, the condition and prospects of the standing crops were, at the close of the month, generally good on irrigated and average on unirrigated lands. In a few places extra spring crops were sowed after the rainfall of the second and third weeks of the month. In some districts the supply of fodder was insufficient and in Sialkot sugarcane was being used as fodder. Caterpillars or locusts did some damage in the south and west Punjab.

North-West Frontier Province.—As in the Punjab, there was no rain over the North-West Frontier Province for the first three weeks of the month. On the 17th rain was badly wanted everywhere as, although the condition of the irrigated crops was average, the unirrigated crops were beginning to wither away, while fodder, though still procurable, was scarce and dear. At this time prices, owing to the rains holding off, and to the large exports of grain to Afghanistan, where famine rates were prevailing, were rising quickly. During the weeks ending the 24th and 31st, however, general rain fell and, though more rain was wanted, prospects at once improved, and the standing crops on irrigated and unirrigated lands promised well at the end of the month, when also prices were falling again.

Burma.—The reaping and threshing of paddy in lower Burma were completed during January. The crops threshed out very light in places, and one-sixth of the crops had failed owing to the want of rain. The winter harvest in upper Burma was poor. The standing crops at the close of the month were fair, but the rainfall was very light.

Central Provinces.—The harvesting and threshing of the autumn crops were completed during January. The winter crops at the close of the month were generally in good condition, but damage to wheat and linseed in some places had resulted from the cloudy weather and insects. Prices showed a tendency to rise in Hoshangabad.

Assam.—Light rain fell during the month in Assam, but more was wanted, and the late rice harvest only amounted to about three-fourths of the normal. The outturn of sugarcane was good in Lakhimpur, bad in Cachar, Kamrup and Nowgong and fair in the remaining districts. The ordinary agricultural operations of hœing and pruning tea, pressing of sugarcane, gathering of mustard and pulse and ploughing for rice and jute progressed as usual during the month.

Mysore.—The general prospects were good and sufficient water and fodder were available.

Coorg.—Rice harvest and picking of coffee continued throughout the month. Water and fodder were sufficient.

Berar.—Cotton picking and reaping of juar were nearly completed during the month. The winter crops were growing satisfactorily, except wheat, tur and gram which were damaged by insects. Preparation of land for monsoon crops was in progress.

Hyderabad.—The early rice harvest was nearly completed during the month. At the end of the month the standing crops were in fairly good condition and the harvest had commenced in some places.

Rajputana.—The standing crops were fair to good, though there had been some damage from frost in Mewar and Ajmer and cotton was injured by frost in Kishengarh and Kotah. The condition of cattle was good and water was sufficient.

Central India.—At the close of the month the standing crops were generally in good condition, but had been slightly damaged by frost in parts of Baghelkhand, Gwalior and Dhar. The condition of the opium crop was good in Gwalior and Malwa and fair in Bhopal.

Kashmir.—Up to the 17th the condition of the crops in Jammu was unsatisfactory owing to want of rain, but thereafter good rain fell which greatly benefited the crops, and at the close of the month the outlook was favourable. Prices were falling and fodder was sufficient.

W. L. DALLAS.

Table I.—Abstract of Observations taken at 8 a.m. at 230 Stations in India, Burma, etc., in January, 1903.

Table

Abstract of Observations taken at 8 A.M. at 230

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.				+·022								87·5	+0·1	67·5	+0·9	77·5	+0·5	20·0					29·6
1	Tenasserim and Bay Islands.	Car Nicobar¶	25	29·956		29·938	30·085	6th	29·877	27th	·208	80·9	86·3		78·4		82·3		7·9	89·9	29th	75·1	15th	14·8
		Port Blair	61	29·968	+·031	29·960	30·058	7th	29·885	27th	·173	78·3	86·8	+0·4	76·0*	+0·4	81·4*	+0·4	10·8	89·7	24th & 26th	70·6	19th	19·1
		Mergui	96	29·991	+·034	29·969	30·092	7th	29·824	27th	·269	75·9	89·2	+1·1	71·0	+4·1	80·1	+2·6	18·2	92·6	30th	63·3	8th	29·3
		Tavoy	26	30·020	+·025	29·977	30·145	7th	29·906	27th	·239	71·5	90·6	+1·1	67·0	+2·8	78·8	+2·0	23·6	95·2	27th	59·0	9th	36·2
		Moulmein	94	29·949	+·016	29·983	30·104	6th	29·816	27th	·288	68·4	89·0	+0·6	65·9	+0·7	77·5	+0·7	23·1	92·5	4 days	62·3	9th	30·2
2	Lower Burma	Rangoon	57	30·003	+·009	29·983	30·150	6th	29·881	27th	·269	67·3	88·4	−0·7	63·5	−0·7	76·0	−0·7	24·9	93·1	4 days	59·3	23rd	33·8
		Bassein	27	30·020	+·018	29·983	30·162	6th	29·895	27th	·267	67·1	86·7	+1·0	63·2	+1·5	75·0	+1·3	23·5	90·7	28th	58·8	23rd & 24th.	31·9
		Diamond Island	41	30·003	+·016	29·979	30·135	6th	29·892	27th	·242	75·2	83·0	−1·0	73·1†	+2·1	78·1†	+0·6	9·9†	86·4	31st	71·2	12th & 24th	15·2
5	Arakan	Akyab	20	30·049	+·015	30·013	30·171	6th	29·924	27th	·247	62·9	81·6	+0·2	56·5	?	69·1	?	25·1	84·9	27th.	50·6	1st	34·3
3	Central Burma	Toungoo	183	29·879	+·034	30·013	30·042	6th	29·772	28th	·270	63·1	83·0	−2·3	54·8	−2·8	68·9	−2·6	28·2	88·3	28th	47·1	25th	41·2
	II.—Burma Inland				+·037								82·7	−0·9	53·9	−0·5	68·3	−0·7	28·8					40·0
3	Central Burma	Thayetmyo	130	29·943	+·032	30·020	30·123	6th	29·822	27th	·300	63·3	86·7	+0·8	52·6	−0·9	69·7	−0·1	34·1	93·5	29th	46·5	27th	47·0
4	Upper Burma	Minbu	165	29·917	+·030	30·032	30·088	6th	29·789	27th	·299	62·8	83·5	?	57·2	+1·1	70·4	?	26·3	91·2	30th	51·5	27th	39·7
		Yamethin	657	29·898	+·036	30·036	29·566	6th	29·266	27th	·300	61·3	86·4	−0·8	55·0	+0·4	70·7	−0·2	31·4	92·3	2 days	49·2	25th	43·1
		Monywa‡	...	29·812			29·992	6th	29·685	2 days	·307	61·1	81·9		55·1		68·7		26·5	86·8	28th	51·3	2 days	35·5
		Mandalay	250	29·821	+·028	30·034	30·010	6th	29·687	27th	·323	61·2	83·0	−1·1	55·4	−0·6	69·2	−0·9	27·6	88·0	2 days	51·9	3 days	37·0
		Bhamo	381	29·707	+·047	30·071	29·866	6th	29·536	27th	·330	53·0	74·8	−2·4	47·8	−0·7	61·3	−1·6	27·0	79·0	2 days	41·2	2 days	37·8
1(a)	Burma Hill Stations.	Maymyo		26·479			26·616	7th	26·394	12th	·222	50·3	70·9		39·5		55·2		31·4	76·0	25th	32·8	22nd	43·2
		Lashio		27·246	+·025		27·408	6th	27·140	27th	·268	51·4	73·9	−1·2	45·3	+0·3	59·6	−0·5	28·6	79·6	27th	41·1	3 days	38·5
	III.—Assam				+·024								71·7	−1·4	48·7	−2·6	60·2	−2·0	23·0	.				31·1
7	Surma	Silchar	104	30·011	+·031	30·074	30·141	6th	29·858	27th	·283	55·0	76·3	−1·5	50·7	−1·6	63·5	−1·6	25·6	79·9	27th	44·5	22nd	35·4
9	Brahmaputra	Sibsagar	333	29·788	+·019	30·104	29·960	6th	29·610	28th	·350	50·4	68·4	−1·7	47·1	−2·4	57·8	−2·1	21·3	72·3	3 days	42·9	23rd	29·4
		Dhubri	115	29·986	+·022	30·065	30·142	6th	29·832	27th	·311	52·8	73·0	−1·0	49·4	−3·7	61·2	−2·4	23·6	76·1	26th	45·8	3 days	30·3
		Gauhati	195	29·930		30·095	30·088	6th	29·783	27th	·305	51·8	72·7		47·2		60·0		25·5	76·1	25th	43·6	30th	32·5
		Tezpur	252	29·864		30·099	30·027	6th	29·685	28th	·342	51·7	70·3		49·8		60·1		20·5	74·0	2 days	46·0	7th	28·0
		Dibrugarh	352	29·784		30·124	29·918	6th	29·603	28th	·315	51·7	69·6		48·0		58·8		21·6	74·1	2 days	42·9	1st	31·2
	IV.—Bengal and Orissa				+·020								77·0	−0·4	54·3	+0·7	65·7	+0·2	22·7					33·7
6	East Bengal	Chittagong	87	29·999	+·023	30·039	30·121	6th	29·874	28th	·247	59·5	75·6	+1·3	54·9	−0·4	67·3	+0·5	24·7	84·4	27th	48·1	22nd	36·3
		Noakhali	42	30·034		30·026	30·166	6th	29·913	27th & 28th	·253	58·9	78·0		53·1		65·6		24·9	83·4	27th	46·1	22nd	37·3
		Comilla	36	30·056		30·041	30·151	6th	29·924	31st	·267	58·2	78·4		52·9		65·7		25·5	83·7	27th	46·3	22nd	37·4
		Sirajganj	49	30·046		30·048	30·176	6th	29·902	27th	·275	55·4	75·1		52·3		63·7		22·8	78·2	27th	47·7	29th	31·2
		Narayanganj	26	30·072	+·030	30·048	30·207	6th	29·947	31st	·260	59·5	76·3	−1·6	55·6	+0·4	66·0	−0·6	20·7	81·1	27th	50·2	22nd	30·9
		Barisal	13	30·073	+·016	30·032	30·210	6th	29·938	31st	·272	61·6	77·7	+0·1	55·9	+1·5	66·8	+0·8	21·8	83·3	27th	48·2	2 days	35·1
		Mymensingh	59	30·029	?	30·043	30·159	6th	29·873	27th	·286	55·7	74·4	−0·6	52·2	−0·3	63·2	−0·5	22·2	78·0	27th	46·8	21st	31·2
10	Deltaic Bengal	Faridpur	46	30·055		30·051	30·192	6th	29·918	31st	·274	57·2	75·7		52·0		63·8		23·7	80·1	27th	45·4	22nd	34·7
		Jessore	33	30·065	+·020	30·047	30·214	6th	29·924	31st	·290	58·7	76·8	−1·1	53·3	+0·3	65·1	−0·4	23·5	83·6	27th	46·1	22nd	37·5
		Calcutta	21	30·081	+·016	30·049	30·232	6th	29·930	27th	·302	61·4	77·8	+0·7	57·5	+2·2	67·7	+1·5	20·3	84·1	27th	49·1	1st	35·0
		Saugor Island	25	30·066	+·011	30·036	30·229	6th	29·911	31st	·318	64·9	76·7	+0·1	61·2	+2·0	69·0	+1·1	15·5	80·0	2 days	52·4	1st	27·6
		Krishnagar	47	30·072		30·071	30·222	6th	29·925	27th	·297	60·2	78·1		52·2		65·1		25·9	83·2	27th	46·3	22nd	36·9
		Midnapore	149	29·943		30·047	30·114	6th	29·778	27th	·336	62·3	80·0		58·9		69·5		21·1	86·3	27th	49·6	1st	36·7

* Mean of 26 days. † Mean of 29 days. ‡ Mean of 27 days. § Mean of 26 days. ¶ Mean of 25 days. ‡ Observation of 30 days.

I.

Stations in India, Burma, etc., in January, 1903.

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).	Normals.	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. up to 31st January incl.	Normal rainfall for period, 1st Dec. to 31st January.	Variation from normal of period, 1st Dec. 1902 to 31st January incl.	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
																				0·08	0·35	−0·29					I.—Burma Coast and Bay Islands.		
							1		N 21° E	6·4	6·4			78	·824	5·9	1			0·28			2·60			0·28	Car Nicobar§§	Tenasserim and Bay Islands.	1
	12	10		1			2	4	N 23° E	5·2	5·8	7·0	−17	84	·822	2·4	2			0·50	1·02	− 0·52	6·81	7·64	− 0·83	0·30	Port Blair		
1	5	17	1			1		2	N	2·6	2·3	2·0	+15	83	·735	3·5	0	1·40	−1·40	0	0·91	− 0·91	1·77	1·29	+ 0·48	0	Mergui.		
21	6	2							Calm.	1·1				91	·708	1·0	0	0·20	−0·20	0	0·21	− 0·21	0·04	0·27	− 0·23	0	Tavoy.		
31									N 45° E	1·6	1·8	2·4	−25	90	·627	1·1	0	0·40	−0·40	0	0·36	− 0·36	0·83	0·41	+ 0·42	0	Moulmein.		
20	3	5	1		2				N 26° E	2·5	2·1	4·3	−51	82	·545	1·5	0	0·20	−0·20	0	0·12	− 0·12	1·15	0·21	+ 0·94	0	Rangoon .	Lower Burma .	2
14	8	8	1						N 1° W	4·6		2·9	+59	86	·569	2·1	0	0·10	−0·10	0	0·14	− 0·14	0·21	0·27	− 0·06	0	Bassein.		
6	6	7	1	1		1		9	N 30° E	11·4	11·4	6·6	+73	74	·654	2·5	0	0·44	−0·44	0	0·21	− 0·21	1·57	0·91	+ 0·66	0	Diamond Island.		
	11	14	4					2	N 17° E	2·5	2·4	2·6	− 8	90	·523	0·4	0	0·10	−0·10	0	0·06	− 0·06	0	0·76	− 0·76	0	Akyab .	Arakan .	5
1	18	12							N 25° W	1·6	1·6	1·9	−16	88	·518	1·4	0	0·20	−0·20	0	0·08	− 0·08	0·94	0·25	+ 0·69	0	Toungoo .	Central Burma.	3
6	6	3	1	1	1	1	2	10												0·01	0·15	−0·14					II.—Burma Inland.		
									N 38° E	3·0		2·4	+25	73	·427	2·0	0	0·10	−0·10	0	0·02	− 0·02	0·19	0·17	+ 0·02	0	Thayetmyo .	Central Burma.	3
	4	14	5		2	1	3	2	N 49° W	3·7	4·4			71	·408	1·4	0	0·10	−0·10	0	0	0	0·03	0·63	− 0·60	0	Minbu .	Upper Burma .	4
9	1			2			3	16	N 21° W	8·5	8·9			75	·416	1·7	0	0·20	−0·20	0	0·08	− 0·08	0·15	0·57	− 0·42	0	Yamethin.		
20	6							5	N 33° W	1·2	1·2			81	·441	0·8	0			0			0			0	Monywa.		
15	2	2					1	10	N 34° E	3·4	3·4			81	·440	1·1	0	0·10	−0·10	0	0·05	− 0·05	0·05	0·34	− 0·29	0	Mandalay.		
	8	17	2	1		2		1	S 24° W	1·5	1·8			94	·383	0·4	0	1·20	−1·20	0·04	0·72	− 0·68	0·08	1·14	− 1·06	0·04	Bhamo.		
27			1		1	1	1		S 45° W	1·3				82	·301	5·5	0			0	0·06	− 0·06	0·03	0·51	− 0·48	0	Maymyo.	Burma Hill Stations.	4(a)
30						1			S 37° E	2·7				92	·317	3·1	0			0	0·39	− 0·39	0·80	1·05	− 0·25	0	Lashio.		
	1	3	3	12	4	4	1	3												1·15	0·89	+0·26					III.—Assam.		
22				5	4				S 69° E	0·9	1·5	2·0	−25	94	·406	1·1	3	1·90	+1·10	2·64	0·72	+ 1·92	2·61	1·18	+ 1·46	1·94	Silchar .	Surma.	7
27	2					2			N 65° W	1·6	1·5	1·8	−17	100	·370	7·1	3	3·70	−0·70	0·90	1·31	− 0·41	0·90	1·88	− 0·98	0·38	Sibsagar .	Brahmaputra .	9
5		7	16		1	1	1		N 77° E	2·2	2·6	3·9	−33	92	·378	1·1	2	0·90	+1·10	0·36	0·43	− 0·07	0·36	0·50	− 0·14	0·22	Dhubri.		
18	4	3	1	2	2	1			N 63° E	2·2	2·5			97	·378	1·0	1	1·70	−0·70	0·30	0·64	− 0·34	0·30	0·88	− 0·58	0·28	Gauhati.		
22		3	5	1					N 80° E	1·4	1·5			96	·365	2·8	2	1·80	+0·20	0·39	0·65	− 0·26	0·39	1·08	− 0·69	0·25	[illegible]gar.		
	4	13	5	5	2	2			N 69° E	1·1	1·0			91	·359	2·7	3	4·00	−1·00	2·28	1·57	+ 0·71	2·30	2·33	− 0·03	1·06	Dibrugarh.		
														**	**					0·55	0·43	+ 0·12					IV.—Bengal and Orissa.		
	5	25				1			N 38° E	2·8	2·8	3·7	−24	88	·450	1·5§	1	0·68	+0·32	2·71	0·30	+2·41	2·73	1·15	+ 1·58	2·71	Chittagong .	East Bengal .	6
	9	13	6				1	2	N 35° E	1·5	1·6			92	·462	2·4*	1	0·97	+0·03	1·24	0·41	+ 0·80	1·45	0·82	+ 0·63	1·17	Noakhali.		
									E	1·0	0·9			89	·435	1·0	0	1·29	−1·29	0·06	0·54	− 0·48	0·08	0·76	− 0·68	0·03	Comilla.		
23	1		1		1									[illegible]	·408	0·7†	1	1·07	−0·07	0·18	0·47	− 0·29	0·18	0·58	− 0·40	0·18	Sirajganj.		
25	2	2					1	1	N 4° W	0·8	0·9			90	·457	?	0	1·00	−1·00	0	0·38	− 0·38	0·03	0·54	− 0·51	0	Narayanganj.		
19		6	2	1			1	2	N 45° E	1·8		2·1	−14	89	·484	3·7	1	1·00	0	0·51	0·67	− 0·16	0·73	1·27	− 0·49	0·37	Barisal.		
										1·5				89	·399	?	2	1·00	+1·00	0·47	0·50	− 0·03	0·47	0·55	− 0·03	0·35	Mymensingh.		
28			1	2					S 62° E	0·8	0·8			93	·439	1·6‖	0	0·97	−0·97	0·09	0·49	− 0·40	0·11	0·57	− 0·46	0·06	Faridpur .	Deltaic Bengal.	10
19	7		1	1			1	2	N 7° W	1·3	1·1					‡‡													
29		1	1						N 63° E	1·1		1·6	−31	87	·433	1·7	2	0·90	+1·10	0·36	0·46	− 0·10	0·48	0·64	− 0·16	0·22	Jessore.		
17		6	3	1			1	3	N 40° E	1·8		3·0	−40	87	·476	2·7	1	0·78	+0·22	0·21	0·32	− 0·11	0·37	0·54	+ 0·33	0·16	Calcutta.		
3	4	15	3	1	2	3			N 50° E	5·5		6·3	−13	93	·582	4·7	4	0·74	+3·26	1·95	0·21	+ 1·74	3·45	0·54	+ 2·91	0·75	Saugor Island.		
6	3	7	3	1	1		3	7	N 5° E	1·4	1·5			81	·425	2·7*	2	0·81	+1·19	0·55	0·43	+ 0·12	0·60	0·53	+ 0·07	0·43	Krishnagar.		
8	17	2	1		2			1	N 7° E	2·0	1·8			82	·469	†† 3·0	1	0·94	+0·06	0·29	0·55	− 0·26	1·09	0·75	+ 0·34	0·17	Midnapore.		

** Mean of 24 days. †† Mean of 23 days. ‡‡ Mean of 22 days. ‖‖ Mean of 16 days. §§ Wind variable 7.

Table

Abstract of Observations taken at 8 A.M. at 230

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	29·783		30·051	29·935	6th	29·653	31st	·282	60·8	78·7		56·4		67·5		22·3	84·7	11th	48·3	1st	36·4
		Raniganj	334	29·761		30·068	29·911	6th	29·637	31st	·274	56·9	78·5		54·1		66·4		24·4	84·4	26th	48·6	1st	35·8
		Burdwan	99	30·001	+·812	30·054	30·156	6th	29·845	27th	·311	59·9	78·7	−0·1	56·0	+1·1	67·4	+0·5	22·7	83·8	27th	50·8	2 days	33·0
		Naya Dumka	489	29·602?		30·086?	29·755	6th	29·475	31st	·280	56·4	76·1		51·1		63·6		25·0	80·7	26th	46·0	1st	34·7
		Berhampore	67	30·041	+·023	30·060	30·190	6th	29·889	27th	·301	57·4	77·6	+0·8	54·6	+1·2	66·1	+1·0	23·0	82·2	27th	51·3	21st	30·9
		Rampur Boalia.	70	30·039		30·062	30·185	6th	29·909	31st	·276	56·8	75·9		52·0		64·0		23·9	79·9	27th	47·6	21st	32·3
		Malda	72	30·013?		30·042?	30·159	6th	29·848	27th	·311	55·4	75·2		49·4		62·3		25·8	79·1	26th	43·2	21st	35·9
		Bogra	61	30·031	+·038	30·049	30·161	6th	29·915	31st	·246	54·6	75·3	−0·8	50·7	−1·2	63·0	−1·0	24·6	79·3	27th	45·5	21st	33·8
12	North Bengal	Dinajpur	123	29·981	+·031	30·068	30·122	6th	29·838	27th	·284	52·6	75·1	−0·6	46·9	−2·5	61·1	−1·6	28·2	78·8	26th	40·5	16th	38·3
		Rangpur	123	29·991		30·077	30·136	6th	29·824	27th	·312	54·9	73·7		48·8		61·3		24·9	76·3	25th, 26th & 28th	41·8	16th.	34·5
		Jalpaiguri	284	29·814	+·025	30·076	29·970	6th	29·656	27th	·314	53·7	72·7	+0·7	49·4	−1·4	61·1	−0·4	23·3	75·4	3 days	46·1	29th	29·3
		Cooch Behar	156	29·953		30·077	30·104	6th	29·786	27th	·318	53·0	73·0		50·2		61·6		22·8	76·5	25th	47·2	29th & 30th.	29·3
17	North Bihar	Purnea	125	29·980	+·026	30·071	30·130	6th	29·822	27th	·308	49·7	74·3	−0·4	45·9	−2·4	60·1	−1·4	28·4	79·2	26th	38·5	16th	40·7
14	Orissa	Balasore	48	30·055	+·009	30·050	30·220	6th	29·905	27th	·315	63·6	79·3	−2·0	59·6	+3·9	69·5	+1·0	19·7	84·4	28th	50·5	1st	33·9
		False Point	21	30·070	+·009	30·033	30·235	6th	29·900	31st	·335	67·0	78·6	−0·5	61·6	+3·3	70·1	+1·4	17·0	81·4	30th	53·0	1st	28·4
		Cuttack	80	30·016	+·014	30·042	30·187	6th	29·833	31st	·354	66·4	82·6	−1·9	63·9*	+4·1*	73·2*	+1·1	18·7	87·4	28th & 29th.	55·6	1st	31·8
		Puri	24	30·070		30·033	30·232	6th	29·903	31st	·329	69·6	79·4		67·0		73·2		12·4	83·7	31st	59·1	1st	24·6
	V.—Gangetic Plain and Chota Nagpur.				+·017								75·2	+0·8	49·3	0	62·3	+0·4	25·9					37·5
15	Chota Nagpur	Hazaribagh	2,007	28·020	+·011	30·071	28·168	6th	27·880	31st	·288	57·5	75·6	+2·5	52·5	+2·0	64·1	+2·3	23·1	82·6	26th	45·2	21st	37·4
		Ranchi	2,128	27·894	+·011	30·062	28·038	6th	27·761	31st	·277	57·9	75·1	+0·7	53·8	+2·9	64·5	+1·8	21·3	80·1	25th & 27th,	48·0	30th	32·1
		Daltonganj	730?	29·364?		30·101?	29·524	6th	29·215	31st	·309	54·4	77·5		48·0		62·8		29·5	88·3	26th	39·2	1st	49·1
		Purulia		29·254		30·062	29·402	6th	29·130	27th	·272	59·6	78·1		54·6		66·4		23·5	84·5	26th & 27th.	48·8	1st	35·7
		Chaibassa	760	29·398	+·016	30·058	29·471	6th	29·156	27th	·315	60·0	78·2	−2·9	57·1	+4·0	67·7	+0·6	21·1	85·7	26th	47·5	1st	38·2
16	South Bihar	Gaya	375	29·725	+·018	30·081	29·868	6th	29·579	27th	·289	55·6	76·9	+1·0	51·3	−0·3	64·1	+0·4	25·6	81·5	26th	45·9	2 days	35·6
		Dehri	351	29·741		30·071	29·892	6th	29·601	27th	·291	57·0	76·8		53·0		64·9		23·8	80·6	10th	47·1	21st	33·5
		Patna	183	29·921	+·008	30·069	30·079	6th	29·763	27th	·316	57·1	73·7	+0·7	51·0	+0·8	62·4	+0·8	22·7	78·3	26th	44·7	2 days	33·6
		Arrah	190	29·918		30·075	30·076	6th	29·760	27th	·316	53·2	75·1		48·4		61·8		26·7	79·2	26th	42·6	21st	36·6
		Buxar	239	29·860		30·072	30·020	6th	29·712	27th	·308	55·9	75·9		50·4		63·2		25·5	80·8	26th	42·4	29th	38·4
17	North Bihar	Bhagalpur	160	29·948		30·071	30·113	6th	29·779	27th	·334	56·3	75·3		49·2		62·3		26·1	79·1	26th	41·7	22nd	37·4
		Darbhanga	166	29·931	+·018	30·063	30·093	6th	29·787	27th	·306	54·0	72·9	+0·2	50·6	−1·5	61·8	−0·7	22·3	75·6	26th	45·1	2 days	30·5
		Muzaffarpur	178	29·931		30·077	30·103	6th	29·774	27th	·329	53·1	72·6		47·4		60·1		25·2	77·2	13th	41·5	15th	35·7
		Motihari	224	29·889		30·086	30·036	6th	29·745	29th	·291	55·9	73·4		45·9		59·7		27·5	75·9	9th	39·6	16th	36·3
		Chapra	181	29·910		30·060	30·067	6th	29·757	27th	·310	51·7	75·0		48·1		61·5		26·9	79·3	26th	43·5	2nd	35·8
18	United Provinces (East).	Benares	267	29·821	+·007	30·064	29·978	6th	29·689	31st	·289	52·9	76·1	+1·8	46·6	−1·6	61·4	+0·1	29·5	81·1	26th	39·5	21st	41·6
		Allahabad	309	29·799	+·026	30·087	29·934	6th	29·679	30th	·255	53·2	76·4	+2·0	46·6	−1·3	61·5	+0·4	29·8	82·2	26th	38·9	21st	43·3
23	United Provinces (East Submontane).	Gorakhpur	257	29·831	+·022	30·067	29·986	6th	29·692	27th	·294	51·3	73·2	+0·3	47·4	−1·8	60·3	−0·8	25·8	76·3	13th & 27th	41·5	20th	34·8
19	South Oudh	Lucknow	368	29·725	+·026	30·082	29·892	6th	29·609	31st	·283	50·	74·5	+0·7	45·8	−0·9	60·3	−0·1	28·8	79·2	8th & 11th	39·1	21st & 22nd.	40·1
20	North Oudh	Bahraich	401	29·666	+·014	30·061	29·828	6th	29·536	30th	·292	51·2	73·6	+1·2	46·4	−0·7	60·0	+0·3	27·2	78·1	11th & 13th	40·0	14th	38·1
21	United Provinces (Central).	Cawnpore	416	29·672	+·024	30·077	29·817	6th	29·556	31st	·261	51·2	75·0	+1·1	45·6	−1·5	60·3	−0·2	29·4	79·7	10th	38·5	20th	41·2
		Mainpuri	516	29·567	+·024	30·083	29·749	6th	29·447	30th	·302	51·4	73·1	+1·4	45·8	−0·4	59·5	+0·5	27·3	77·3	9th & 10th	38·0	28th	39·3

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

I—*continued.*

Stations in India, Burma, etc., in January, 1903—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 1902 to 31st January 1903.	Normal rainfall for period, 1st December to 31st January.	Variation from normal of period, 1st Dec, 1902 to 31st January 1903.	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			1						E	0·5	0·6			67	·363	3·1*	0	1·06	−1·06	0·05	0·34	−0·29	0·16	0·47	− 0·31	0·05	Bankura	Central Bengal.	11
26	1	1						3	N 14° W	0·5				79	·367	2·3	3	0·97	+2·03	0·52	0·43	+0·09	0·55	0·51	+ 0·04	0·16	Raniganj.		
18	7	2				1		3	N 6° W	1·2		1·8	−33	78	·407	3·8‖	1	0·81	+0·19	0·22	0·29	−0·07	0·30	0·40	− 0·10	0·14	Burdwan.		
28		1			1			1	N	0·7	0·8			76	·350	3·5	1	1·17	−0·17	0·18	0·59	−0·41	0·18	0·75	− 0·57	0·15	Naya Dumka		
26			4				1		E	0·7	0·7	1·8	−61	85	·401	2·7*	2	1·06	+0·94	0·26	0·41	−0·15	0·26	0·52	− 0·26	0·15	Berhampore.		
29	1	1							N 27° E	0·3	0·3			84	·392	0·5*	1	0·85	+0·15	0·25	0·35	−0·10	0·25	0·41	− 0·16	0·19	Rampur Boalia.		
	1	3	2	1	1	5	10	8	N 74° W	1·3	1·2			89	·393	1·2	1	0·97	+0·03	0·45	0·68	−0·23	0·45	0·92	− 0·47	0·45	Maida.		
26	5								N	1·4	1·7			85	·369	?	2	1·06	+0·94	0·29	0·57	−0·28	0·29	0·59	− 0·30	0·18	Bogra.		
	7	5	3	1	1	7	4	3	N 34° W	1·2	1·2			89	·357	1·9†	1	0·84	+0·16	0·21	0·51	−0·30	0·21	0·55	− 0·34	0·18	Dinajpur	North Bengal	12
28		1	1			1			E	0·8	0·8			92	·395	1·6	2	0·90	+1·10	0·60	0·49	+0·11	0·60	0·58	+ 0·02	0·46	Rangpur.		
1	13	6	3	1		1		6	N 9° E	0·3	0·4			92	·381	1·9§	1	0·97	+0·03	0·18	0·50	−0·32	0·18	0·54	− 0·36	0·18	Jalpaiguri.		
24		2	4			1			N 79° E	1·0	1·1			93	·380	1·0‡	1	0·90	+0·10	0·32	0·43	−0·11	0·32	0·51	− 0·19	0·25	Cooch Behar.		
23		1	1			1	3	2	N 72° W	1·4	1·3	1·7	−24	90	·326	1·0 ††	1	0·90	+0·10	0·64	0·47	+0·17	0·64	0·57	+ 0·07	0·60	Purnea	North Bihar	17
15	7				2	2	1	4	N 40° W	1·3				85	·505	2·9* ††	4	0·61	+3·39	1·91	0·27	+1·64	3·36	0·45	+ 2·91	1·08	Balasore	Orissa	14
6	10				3	2	5	5	N 48° W	5·1	4·9	6·0	−18	94	·629	4·9	3	0·71	+2·29	1·42	0·46	+0·96	3·26	1·15	+ 2·11	0·60	False Point.		
29			1				1		Calm	1·0		1·4	−29	87	·575	4·0‡	1	0·55	+0·45	0·37	0·16	+0·21	2·72	0·43	+ 2·29	0·35	Cuttack.		
7	10	3			1	9	1		N 45° W	8·8	8·3			90	·662	2·9*	0	0·43	−0·43	0·09	0·26	−0·17	2·96	0·91	+2·05	0·09	Puri.		
																				0·40	0·65	−0·25					V.—Gangetic Plain and Chota Nagpur.		
9	2		2	2	4	9	2	1	S 34° W	4·8	4·2	4·9	−14	57	·272	5·1	2	1·45	+0·55	0·53	0·48	+0·05	0·53	0·68	− 0·15	0·18	Hazaribagh	Chota Nagpur	15
15	1	1	1	1		1	3	8	N 49° W	2·7	3·2			67	·329	3·5	3	1·35	+1·65	1·41	0·29	+1·12	1·51	0·38	+ 1·13	1·10	Ranchi.		
25			2	4					S 59° E	?				82*	·355*	1·7	3	1·63	+1·37	0·83	0·76	+0·07	0·83	1·05	− 0·22	0·29	Daltonganj.		
25	2	1					1	2	N 27° W	0·3	0·4			67	·346	3·2	3	1·35	+1·65	0·66	0·44	+0·22	0·77	0·62	+ 0·15	0·23	Purulia.		
25	1	1				1	1	2	N 45° W	0·5	0·5			86	·450	3·6	5	1·23	+3·77	1·91	0·14	+1·77	2·29	0·24	+ 2·05	0·77	Chaibassa.		
12		2	1	8	6		1	1	S 31° E	4·6	4·2	1·6	+163	74	·335	2·9	0	1·32	−1·32	0·09	0·59	−0·50	0·09	0·76	− 0·67	0·05	Gaya	South Bihar	16
7			1	1	5	12	5		S 41° W	2·9	2·5			75	·352	2·8 **	0	1·35	−1·35	0·07	0·59	−0·52	0·07	0·91	− 0·84	0·05	Dehri.		
		8	2	1	3	16		1	S 24° W	2·9	3·3	2·0	+65	81	·381	1·5	1	1·32	−0·32	0·24	0·56	−0·32	0·24	0·66	− 0·42	0·24	Patna.		
19		2				2	5	3	N 74° W	1·0	1·0			85	·349	0·9 ‡‡	0	1·58	−1·58	0	0·88	−0·88	0	1·01	− 1·01	0	Arrah.		
6		4	5	2	3	5	6		S 3° W	3·4	3·2			70	·319	2·2 ‡‡	0	1·65	−1·65	0·03	0·78	−0·75	0·03	0·98	− 0·95	0·03	Buxar.		
21			1	2	3	3	1		S 8° W	1·6	1·5			78	·355	0·5 ‡‡	1	1·32	−0·32	0·29	0·55	−0·26	0·29	0·62	− 0·33	0·29	Bhagalpur	North Bihar	17
25				1	1	1	2	1	S 56° W	0·9		2·3	−61	88	·370	1·3	1	1·30	−0·30	0·24	0·62	−0·38	0·24	0·69	− 0·45	0·24	Darbhanga.		
21			1	1		3	4	1	S 68° W	1·7				89	·367	0·7§	0	1·33	−1·33	0·04	0·79	−0·75	0·04	0·86	− 0·82	0·04	Muzaffarpur.		
13	2	6	4	1	1	1	2	1	N 50° E	2·0	1·9			85	·381	1·0* ¶	0	1·32	−1·32	0·08	0·59	−0·51	0·08	0·73	− 0·65	0·06	Motihari.		
25		1				4	1		S 56° W	1·4	1·2			87	·340	1·7	0	1·48	−1·48	0·08	0·74	−0·66	0·08	0·83	− 0·75	0·08	Chapra.		
26		1	1			1	2		W	0·6	0·7	2·9	−76	81	·333	1·3	1	1·40	−0·40	0·28	0·67	−0·39	0·28	0·88	− 0·60	0·24	Benares	United Provinces (East).	18
15		2	7	1	1	2	3		S 73° E	2·6	3·0	3·4	−12	79	·326	2·7	0	1·60	−1·60	0	0·76	−0·76	0	1·00	− 1·00	0	Allahabad.		
18	3	4	1			2	2	1	N 3° W	1·1		1·7	−35	88	·338	3·2	1	1·50	−0·50	0·26	0·76	−0·50	0·26	0·90	− 0·64	0·17	Gorakhpur	United Provinces (East Submontane).	23
19	3		1	1			6	1	N 59° W	1·0	1·1	2·4	−54	78	·289	1·6	2	1·90	+0·10	0·58	0·96	−0·38	0·58	1·34	− 0·76	0·24	Lucknow	South Oudh	19
16	2		1	3		1	1	7	N 41° W	1·4	1·3			81	·310	1·7	2	1·90	+0·10	0·75	0·92	−0·17	0·75	1·26	− 0·51	0·38	Bahraich	North Oudh	20
11	4	3	4	2	2	3	2		N 79° E	2·7				72	·278	1·1	0	1·60	−1·60	0·12	0·68	−0·56	0·12	0·85	− 0·73	0·07	Cawnpore	United Provinces (Central).	21
24	1	1	2	1		1		1	N 63° E	0·7	0·7			70	·170	4·2	1	1·50	−0·50	0·36	0·73	−0·37	0·36	1·07	− 0·71	0·33	Mainpuri.		

** Mean of 21 days. †† Mean of 23 days. ‡‡ Mean of 22 days. § Mean of 19 days. ‖ Mean of 26 days. ¶ Mean of 15 day.

Table

Abstract of Observations taken at 8 A.M. at 230

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				+·022								68·3	−0·1	42·7	−1·0	55·5	−0·6	25·6					36·9
24	United Provinces (West Submontane).	Bareilly	568	29·453	+·016	30·073	29·661	6th	29·327	30th	·334	49·5	70·8	+0·2	45·8	−0·3	58·3	−0·1	25·0	74·8	10th	39·7	16th	35·1
		Dehra Dun	2,233	27·781	+·019	30·114	27·987	6th	27·640	25th	·347	45·6	66·3	+0·4	43·1	−1·7	54·9	−0·7	23·5	71·5	3rd	37·5	14th	34·0
		Roorkee	899	29·158	+·030	30·105	29·371	6th	28·997	30th	·374	44·4	70·0	+0·4	41·3	−3·1	55·7	−1·4	28·7	74·3	4th, 10th & 23rd.	33·2	14th	41·1
22	United Provinces (West).	Meerut	738	29·316	+·008	30·085	29·506	6th	29·178	30th	·328	46·4	71·1	+0·7	44·1	−0·9	57·6	−0·1	27·0	74·9	1st & 10th	37·7	15th	37·2
26	South-East Punjab.	Delhi	718	29·356	+·020	30·095	29·526	6th	29·196	30th	·330	50·2	69·4	−1·3	47·7	−0·2	58·6	−0·7	21·7	73·2	1st	44·1	4 days	29·1
28	Central Punjab.	Lahore	702	29·366	+·017	30·107	29·568	6th	29·161	25th	·399	43·0	68·9	−0·1	41·2	+0·5	55·1	+0·2	27·7	75·3	22nd	34·0	13th	41·3
27	South Punjab	Sirsa	662	29·421	+·027	30·110	29·591	7th	29·240	25th	·351	45·7	69·7	−1·3	41·6	−1·5	55·7	−1·4	28·1	75·2	23rd	35·5	13th	39·7
		Patiala	818	29·242		30·098	29·427	6th	29·056	25th	·371	46·7	68·4		42·4		55·4		26·0	72·8	23rd	35·0	13th	37·8
29	Punjab (Submontane).	Ludhiana	812	29·244	+·018	30·097	29·437	6th	29·040	25th	·397	45·3	66·6	−0·6	43·5	−0·8	55·1	−0·7	23·1	71·1	23rd	37·0	13th	34·1
		Sialkot	830	29·230	+·027	30·107	29·428	6th	28·997	25th	·431	45·4	68·4	+0·2	42·5	−0·3	54·5	−0·1	23·9	71·5	17th	35·0	14th	36·5
		Umballa	892	29·166	+·039	30·103	29·367	6th	28·994	25th	·373	45·5	70·2	+2·4						75·5	4th			
31	North Punjab	Rawalpindi	1,674	28·362	+·016	30·156	28·581	6th	28·139	25th	·442	40·0	63·4	+0·3	36·5	−1·4	50·0	−0·6	26·9	69·9	4th	30·0	14th	39·9
	VII.—North-West Frontier Province, Indus Valley and North-West Rajputana.				+·018								71·3	−0·4	43·1	−3·0	57·2	−1·7	28·2					40·4
31	North Punjab	Peshawar	1,110	28·977	0	30·170	29·198	6th	28·744	25th	·454	42·0	63·7	+0·2	38·0	−1·6	50·9	−0·7	25·7	70·2	4th	30·9	13th	39·3
32	West Punjab	Khushab	612	29·485	+·030	30·129	29·696	6th	29·261	25th	·435	44·0	68·2	+0·6	39·8	−1·5	54·0	−0·5	28·4	74·2	3rd & 4th	33·4	14th	40·8
		Montgomery	558	29·524	+·016	30·104	29·719	6th	29·332	25th	·387	43·7	69·3	+0·8	38·7	−3·5	54·0	−1·4	30·6	74·0	5th & 22nd	32·0	13th	42·0
		D. I. Khan	590	29·520	+·013	30·120	29·713	6th	29·301	25th	·412	41·6	69·3	+0·2	36·9	−3·5	53·1	−1·7	32·4	75·3	3rd	33·0	9th	42·3
		Mooltan	420	29·683	+·0·9	30·112	29·880	6th	29·481	25th	·399	45·1	70·9	+0·7	41·5	?	56·2	?	29·4	74·8	5th	36·0	31st	36·8
47	Sind	Jacobabad	186	29·935	+·017	30·103	30·101	7th	29·803	22nd	·298	42·9	72·9	−0·7	38·2	−5·1	55·6	−2·9	34·7	75·9	6th	32·0	27th	43·9
		Hyderabad	96	30·026	+·015	30·088	30·153	7th	29·867	23rd	·286	52·4	74·8	−2·0	47·9	−3·2	61·4	−2·6	26·9	79·0	10th & 21st	39·0	28th	40·0
		Kurrachee	30	30·116	+·035	30·098	30·230	2nd	29·951	22nd	·279	57·1	76·5	−0·4	52·2	−2·3	64·4	−1·4	24·3	80·4	10th & 22nd.	45·2	27th	35·2
51	West Rajputana	Bikaner	771	29·309	+·021	30·110	29·460	7th	29·163	30th	·297	50·1	71·0	−0·8	46·3	−3·1	58·7	−2·0	24·7	81·2	23rd	39·6	31st	41·6
		Pachpadra	380	29·719	+·021	30·090	29·861	7th	29·593	30th	·268	50·8	77·3	−1·1	41·37	−0·8	60·8?	−1·0	33·0?	84·1	6th	36·0	19th & 27th	48·1
		Jodhpur	782	29·285		30·105	29·398	7th	29·146	30th	·252	54·8	76·4		51·7		64·1		24·7	83·1	22nd & 23rd.	41·1	27th	42·0
	VIII.—East Rajputana, Central India and Gujarat.				+·007								77·6	−0·6	51·6	+0·5	64·6	−0·1	26·0					41·2
50	East Rajputana	Jaipur	1,431	28·626	+·011	30·105	28·764	7th	28·489	25th	·275	54·3	73·9	−0·7	49·8	+1·8	61·9	+0·6	24·1	82·2	24th	37·0	28th	45·2
		Bharatpur	585	29·569		30·103	29·660	6th	29·353	25th	·307	50·4	73·5		45·3		59·4		28·2	79·4	18th	38·2	6th	41·2
		Kotah	819	29·237		30·112	29·361	7th	29·122	30th	·239	55·2	77·1		51·6		64·4		25·5	88·0	24th	45·0	28th	43·0
		Sambhar	1,254	28·801	+·014	30·112	28·931	7th	28·660	30th	·271	48·5	73·9	+0·3	45·7	+0·3	59·8	+0·3	28·2	81·4	23rd & 24th.	37·0	28th & 29th.	44·4
		Ajmer	1,611	28·440	−·002	30·125	28·567	7th	28·296	30th	·271	50·5	72·1	?	47·8	+2·3	60·6	?	24·3	79·9	23rd	39·1	28th	40·5
		Udaipur	1,925	28·121		30·111	28·223	7th	28·014	30th	·209	54·5	75·7		47·6		61·7		28·1	80·9	1st, 24th & 25th.	39·2	27th & 28th.	41·7
		Deesa	466	29·595	−·001	30·047	29·657	7th	29·527	30th	·140	57·6	82·3	−0·8	51·7	+0·2	67·0	−0·3	30·6	89·1	7th	40·5	27th	48·6
46	Kathiawar and Cutch.	Bhuj	395	29·693	+·016	30·065	29·783	2nd	29·560	22nd	·223	59·8	77·3	−3·1	53·2	−1·2	65·3	−2·2	24·1	86·3	22nd	45·0	28th	41·3
		Jamnagar	61	30·043		30·050	30·117	9th	29·944	21st	·173	58·3	77·3		52·8		65·3		25·1	83·5	23rd	43·2	27th	40·3
		Rajkot	429	29·641	+·011	30·050	29·711	9th	29·548	21st	·162	57·2	80·9	−3·1	49·1?	−2·0	65·0?	−2·6	31·8?	89·0	22nd	40·1	28th	48·9
		Veraval	18	30·059	+·018	30·019	30·117	7th	29·976	21st	·141	64·1	80·2	−1·3	58·7	−0·1	69·5	−0·7	21·5	84·6	4th	50·8	29th	33·8
		Dwarka	37	30·061		30·045	30·142	9th	29·961	21st	·181	64·2	75·9		58·5		67·2		17·4	81·4	7th	51·6	28th	29·8
		Bhavnagar Para.	55	30·041	0	30·044	30·110	9th	29·960	21st	·150	60·1	82·9	?	54·0	−2·1	68·5	?	23·0	89·1	8th & 22nd.	43·7	27th	45·4
55	Central India	Nowgong	757	29·309	−·007	30·080	29·443	6th	29·201	30th	·242	52·4	75·6	+0·5	48·1	+1·1	61·9	+0·8	27·5	83·0	24th	39·5	20th	43·5
		Indore	1,823	28·215	+·009	30·075	28·315	7th	28·115	30th	·200	57·8	79·6	+0·2	50·7	+0·9	65·2	+0·6	28·9	85·3	24th & 25th.	42·1	29th & 30th.	43·2
		Neemuch	1,630	28·420	+·010	30·106	28·515	7th	28·319	30th	·196	53·3	77·6	0	48·1	−0·6	62·9	−0·3	29·5	84·0	24th	38·6	28th	45·4

I—*continued.*

Stations in India, Burma, etc., in January, 1903—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. 1902 to 31st Jan. 1903.	Normal rainfall for period, 1st Dec. to 31st Jan. 1903.	Variation from normal of period, 1st Dec. to 31st Jan. 1903.	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	1·67	−0·59					VI.—Upper Sub-Himalayas.		
	2	1	2	1	3	4	11	7	N 82° W	0·7	0·7	2·8	− 75	80	·286	1·2	3	2·36	+ 0·64	1·54	1·05	+0·49	1·54	1·38	+ 0·16	0·71	Bareilly .	United Provinces (West Sub-montane).	24
24	1		3				2	1	N 12° E	1·0		1·8	− 44	72	·224	3·7	4	3·50	+ 0·50	1·66	2·38	−0·72	1·66	3·18	− 1·52	0·72	Debra Dun,		
21				2		1	1	6	N 56° W	2·3		2·2	+ 5	85	·254	2·8	3	2·80	+ 0·20	1·63	1·68	−0·05	1·63	2·29	− 0·66	0·79	Roorkee,		
17	3		1			4	4	2	N 78° W	1·3	1·3	2·1	− 38	72	·235	2·5	3	2·30	+ 0·70	0·61	1·35	−0·74	0·61	1·83	— 1·22	0·25	Meerut, .	United Provinces (West),	22
13	1	1		3	1		10	2	W	3·1	2·8	3·0	— 7	59	·222	3·5	2	2·40	− 0·40	0·70	1·23	−0·53	0·70	1·76	— 1·06	0·32	Delhi . .	South-East Punjab.	26
25	1			3			1	1	S 45° E	1·7		1·9	− 11	81	·229	3·5	2	1·90	+ 0·10	0·52	1·12	−0·60	0·52	1·50	− 0·98	0·20	Lahore .	Central Punjab	28
16	1		7				4	3	N 17° E	2·6	2·4	2·6	− 8	69	·215	2·5	0	1·50	− 1·50	0	0·81	−0·84	0	1·15	— 1·15	0	Sirsa .	South Punjab .	27
7	6	2	2	7			1	6	N 23° E	3·8	3·9			75	·242	3·8	3			1·14			1·14			0·46	Patiala,		
14		6	1	2		2	4	2	N 4° W	1·8	1·6	1·1	+ 45	74	·233	2·9	3	2·60	+ 0·40	0·96	1·84	−0·88	0·96	2·62	− 1·66	0·39	Ludhiana .	Punjab (Submontane),	29
17	2	5	4	1			2		N 22° E	1·0		1·4	— 29	71	·221	3·2	2	3·40	− 1·40	1·25	2·51	−1·26	1·25	3·03	— 1·78	0·93	Sialkot,		
24			1	2			2	2	W	1·6				80	·248	3·9	3	2·80	+ 0·20	2·27	1·62	+0·65	2·27	2·44	− 0·17	1·22	Umballa,		
28		1		1				1	N 45° E	1·4	1·3	1·9	− 32	74	·195	3·6	3	4·20	− 1·20	0·75	2·74	−1·99	0·75	3·48	− 2·73	0·31	Rawalpindi,	North Punjab .	31
																				0·25	0·57	−0·32					VII.—North-West Frontier Province, Indus Valley and North-West Rajputana.		
25					4		2		S 27° W	0·8	0·9	2·5	− 64	62	·170	3·8	3	2·90	+ 0·10	1·41	1·60	−0·19	1·41	1·93	− 0·52	0·65	Peshawar .	North Punjab .	31
12	3	5	2		3	4	2		N 45° E	3·9	3·3			54	·161	2·6	1	1·50	− 0·50	0·32	0·82	−0·50	0·32	1·36	— 1·04	0·12	Khushab .	West Punjab .	32
7	4	2	1	4	1	2	4	6	N 45° W	4·2	3·6			62	·180	1·4	0	1·30	− 1·30	0·07	0·84	−0·77	0·07	1·26	− 1·19	0·05	Montgomery,		
20	1							10	N 42° W	1·7	1·8	1·4	+ 29	67	·183	2·0	1	1·40	− 0·40	0·12	0·44	−0·32	0·12	0·65	− 0·53	0·12	D. I. Khan,		
23	1	5		2					N 59° E	1·1	1·4	1·7	− 18	65	·198	1·0	1	1·10	− 0·10	0·24	0·45	−0·21	0·24	0·64	− 0·40	0·10	Mooltan,		
28	1	1						1	N	0·5	0·5	2·1	− 76	69	·190	1·7	0	1·00	− 1·00	0·05	0·27	−0·22	0·06	0·36	− 0·30	0·05	Jacobabad .	Sind . .	47
4	23			1				3	N 2° E	7·1	7·4	7·2	+ 3	50	·196	1·6	0	0·70	− 0·70	0·01	0·24	−0·23	0·01	0·29	— 0·28	0·01	Hyderabad,		
4	2	17	4		1	1	1	1	N 46° E	5·2	6·5	10·0	− 35	52	·249	1·3	2	1·10	+ 0·90	0·35	0·66	−0·31	0·37	0·79	− 0·42	0·24	Kurrachee.		
5	2	2	3	4	2	2	5	6	N 72° W	5·0		2·9	+ 72	52	·200	2·4	1	1·10	− 0·10	0·17	0·39	−0·22	0·17	0·56	− 0·39	0·15	Bikaner .	West Rajputana	51
	7	4	9	1	3	2	4	1	N 50° E	6·3	5·5	2·8	+ 96	50	·191	0	0	1·00	− 1·00	0	0·38	−0·38	0	0·50	− 0·50	0	Pachpadra,		
4	4	20	2	1					N 44° E	5·7	5·1			41	·179	3·1	0	0·90	− 0·90	0·01	0·23	−0·22	0·01	0·38	− 0·37	0·01	Jodhpur,		
																				0·05	0·26	−0·20					VIII.—East Rajputana Central India and Gujarat		
7	1	11	5	1			4	2	N 41° E	3·1		3·9	− 21	51	·218	3·4	1	1·50	− 0·50	0·15	0·60	−0·45	0·15	0·79	− 0·64	0·14	Jaipur .	East Rajputana.	50
17	1			3	1	3	3	3	S 68° W	2·0	1·8			66	·245	2·9	1			0·12			0·12			0·10	Bharatpur .		
8	1	1	2	1	1		10	7	N 67° W	3·6	2·9			59	·261	0·2	0	0·70	− 0·70	0·08	0·15	−0·07	0·45	0·44	+ 0·01	0·08	Kotah,		
17	3	4	3	2	1			1	N 57° E	4·0		4·5	− 11	61	·216	2·9	2	1·10	+ 0·90	0·21	0·39	−0·18	0·21	0·74	− 0·53	0·11	Sambhar,		
18		6		2		1		4	N 23° E	2·4	2·1	1·9	+ 11	66	·252	3·1	0	1·30	− 1·30	0·08	0·44	−0·36	0·08	0·71	− 0·63	0·04	Ajmer,		
20		1					6	4	N 66° W	3·1	2·7			53	·229	1·5	0	0·30	− 0·30	0			0·19			0	Udaipur,		
	8	14	4		1	1	2	1	N 31° E	7·4		8·6	− 14	43	·228	2·0	0	0·36	− 0·36	0·02	0·15	−0·13	0·02	0·21	— 0·19	0·02	Deesa,		
	4	3	1	1	1	12	6	3	S 82° W	8·2	6·9	6·0	+ 15	66	·351	1·4	0	0·10	− 0·10	0	0·07	−0·07	0	0·14	− 0·14	0	Bhuj . .	Kathiawar and Cutch,	46
	2	9	6	2	2	2	5	3	N 43° E	8·6	10·2			60	·309	0·8	0			0			0			0	Jamnagar .		
8	2	5	5	2	4		2	2	N 69° E	8·4	8·3	5·2	+ 60	52	·252	1·7	0	0·20	− 0·20	0	0·04	− 0·04	0·08	0·08	0	0	Rajkot,		
	11	16	4						N 34° E	6·8	6·8	5·1	+ 33	53	·319	2·1	0	0	0	0	0	0	1·09	0·09	+ 1·00	0	Veraval,		
	16	8	1			1	2	3	N 4° E	12·3				64	·396	1·9	0			0·07			0·07			0·06	Dwarka,		
	3	1		2	1	3	4	17	N 56° W	4·4*	4·1*			45	·247	0·9	0	0·10	− 0·10	0	0·07	−0·07	0·47	0·14	+ 0·33	0	Bhavnagar Para,		
7	4		11	2		1	4	2	N 62° E	1·4	1·4	1·4	0	70	·283	3·0	0	1·70	− 1·70	0	0·71	−0·71	0	1·26	− 1·26	0	Nowgong .	Central India .	49
9	4	6	1	4	1		2	4	N 24° E	3·5	2·8	2·5	+ 12	73	·361	3·8	0	0·40	− 0·40	0·02	0·13	−0·11	1·18	0·33	+ 0·85	0·02	Indore,		
	7	15	3	2			1	3	N 38° E	6·1	5·5	8·1	− 32	64	·263	1·9	0	0·40	− 0·40	0·01	0·21	−0·20	0·14	0·49	− 0·35	0·01	Neemuch,		

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 230

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	30·033	+·021	30·016	30·100	8th & 9th.	29·960	21st	·140	62·9	85·4	−1·5	57·7	+1·2	71·6	−0·2	27·7	91·1	8th, 9th & 11th.	47·7	27th	43·4
		Ahmedabad	163	29·912	+·004	30·033	29·977	7th	29·854	21st	·123	62·0	83·5	−0·5	56·6	−0·4	70·1	−0·5	26·9	88·7	22nd	47·7	27th	41·0
22	United Provinces (West).	Agra	555	29·525	−·001	30·083	29·701	6th	29·379	25th	325	52·0	72·5	−1·0	49·5	+0·9	61·0	−0·1	23·0	76·5	10th	42·4	28th	34·1
21	United Provinces (Central).	Jhansi	858	29·222	+·008	30·095	29·347	7th	29·107	25th	·240	55·6	77·1	+0·7	52·6	+1·5	64·9	+1·1	24·5	84·2	2nd	47·2	20th & 21st.	37·0
	IX.—Deccan				+·006								83·7	+0·4	57·9	+3·0	70·9	+1·7	25·8					39·9
38	Bombay (Deccan)	Belgaum	2,539	27·487	+·012	30·007	27·578	8th	27·405	27th	·173	65·9	81·8	−1·7	59·0	+1·5	70·4	−0·1	22·8	86·3	31st	52·9	1st	33·4
		Sholapur	1,590	28·446	0	30·029	28·556	7th & 8th.	28·353	27th	·203	67·6	85·9	−1·8	61·7	+3·5	73·8	+0·9	24·2	91·7	30th	55·1	1st & 2nd	36·6
		Poona	1,840	28·190	−·006	30·055	28·284	7th	28·116	27th	·168	59·1	86·2	+0·3	54·9	+0·6	70·6	+0·5	31·3	91·0	28th	49·0	1st	42·0
		Bijapur	1,946	28·093	+·015	30·025	28·195	8th	28·007	27th	·188	68·6	85·3	+0·1	62·8	+4·2	74·1	+2·2	22·5	90·4	30th & 31st.	55·6	2nd & 3rd.	34·8
40	Khandesh	Malegaon	1,430	28·606	−·009	30·055	28·700	7th	28·535	28th	·165	60·1	84·8	−0·8	54·8	+2·9	69·8	+1·1	30·0	89·9	22nd	45·2	27th	44·7
		Ahmednagar	2,152	27·900	?	30·062	28·009	7th	27·834	28th	·175	63·0	83·1	−0·9	55·1	+4·4	69·1	+1·8	28·0	88·4	30th	44·9	1st	43·5
41	Berar	Akola	930	29·121	+·002	30·043	29·252	7th	29·044	27th & 30th.	·208	63·6	85·9	+0·7	57·0	+3·6	71·5	+2·2	28·9	90·5	25th	46.4	1st	44·1
		Amraoti	1,215	28·836	+·014	30·049	28·966	7th	28·752	30th	·214	65·6	85·1	+0·5	60·1	+2·3	72·6	+1·4	25·0	88·2	16th, 24th & 25th.	50·5	1st	37·7
42	Central Provinces (West).	Khandwa	1,044	29·001	0	30·053	29·108	7th	28·917	12th	·191	60·8	84·6	+0·7	54·9	+3·1	69·8	+1·9	29·7	90·2	24th	44·1	28th	46·1
		Hoshangabad	1,006	29·064	+·013	30·081	29·176	7th	28·958	30th	·218	59·3	80·3	0	54·3	+2·0	67·3	+1·0	26·0	85·7	24th	44·2	28th	41·5
		Nagpur	1,025	29·029	+·008	30·055	29·168	7th	28·929	30th	·239	62·8	85·1	+1·6	58·9	+3·3	72·0	+2·5	26·2	89·1	18th & 31st.	50·7	1st	38·4
43	Central Provinces (Central).	Chanda	634	29·434	+·012	30·041	29·581	7th	29·328	30th	·253	65·1	88·0	+2·6	58·7	+4·6	73·4	+3·6	29·3	92·2	31st	47·1	1st	45·1
		Seoni	2,033	28·006	+·004	30·063	28·132	6th	27·879	30th	·253	60·5	81·2	+2·0	53·7	+2·4	67·5	+2·2	27·5	84·8	24th	46·0	1st	38·8
		Jubbulpore	1,327	28·705	−·012	30·064	28·844	7th	28·601	30th	·243	56·0	79·7	+2·1	50·8	+2·8	65·3	+2·5	28·9	86·9	25th	41·9	21st	45·0
		Saugor	1,807	28·238	+·008	30·084	28·355	7th	28·121	30th.	·234	57·7	77·9	+1·0	53·3	+1·5	65·6	+1·3	24·6	86·4	24th	47·1	1st, 28th & 29th.	39·3
49	Central India	Sutna	1,040	29·014	+·002	30·081	29·136	7th	28·887	31st	·249	54·3	76·8	+1·7	50·6	+3·0	63·7	+2·4	26·2	86·9	25th	42·7	20th & 21st.	44·2
44	Central Provinces (East).	Raipur	970	29·078	−·002	30·041	29·223	6th	28·957	27th	·266	64·1	84·4	+2·8	55·0	?	69·7	?	29·4	87·8	19th	44·3	1st	43·5
		Sambalpur	486	29·597	+·009	30·056	29·750	6th	29·466	31st	·284	63·7	82·8	+0·6	59·5	+4·7	71·2	+2·7	23·3	87·1	17th & 31st.	47·7	1st	39·4
39	Hyderabad (North).	Aurangabad	1,905	28·141		30·042	28·237	7th	28·066	29th	·171	65·7	82·7		56·1		69·3		26·6	88·8	1st	48·7	28th & 20th.	40·1
		Indur		28·767			28·802	11th	28·682	30th	·120	68·7	85·1		59·6		72·3		25·5	89·8	31st	50·1	1st	39·7
		Bidar	2,165	27·872?		30·018?	27·976	8th	27·781	29th	·195	68·7	83·3		61·6		72·5		21·7	89·5	30th	55·0	1st	34·5
53	Hyderabad (South).	Gulbarga	1,503	28·548	+·017	30·034	28·655	7th	28·449	27th	·206	69·9	86·7	−0·1	61·9	+3·3	74·3	+1·6	24·8	92·8	30th	54·4	2nd	38·4
		Raichur	1,326	28·717	+·020	30·025	28·836	7th	28·616	29th	·220	70·5	85·8	−0·9	65·7	+2·3	75·8	+0·7	20·1	92·1	29th, 30th & 31st.	61·2	1st	30·9
		Hyderabad (Dn.)	1,690	28·356	+·010	30·046	28·480	6th	28·253	27th & 29th.	·227	65·4	84·1	−0·4	61·4	+3·3	72·8	+1·5	22·7	90·4	30th & 31st.	54·3	1st	36·1
		Secunderabad	1,787	28·260	+·005	30·048	28·375	6th	28·161	27th	·214	65·2	84·9	+0·4	61·4	+3·3	73·2	+1·9	23·5	92·6	30th & 31st.	53·7	1st	38·9
		Hanumkonda	871	29·178		30·025	29·304	6th & 7th.	29·065	30th	·239	68·2	85·7		63·4		74·6		22·3	94·0	31st.	52·2	2nd	41·8
	X.—West Coast				+·013								85·9	−0·7	70·9	+2·2	78·5	+0·8	15·0					24·1
37	Konkan	Bombay	37	30·021	+·010	29·999	30·092	7th	29·947	20th	145	70·0	81·7	−0·9	68·1	+0·2	74·9	−0·4	13·6	86·5	8th	61·5	27th	25·0
		Ratnagiri	110	29·933	+·02?	29·984	30·008	7th	29·877	27th	·131	71·8	85·0‡	−2·8‡	67·2	+1·0	76·3‡	−0·9	17·8	93·4	24th	62·9	20th, 21st & 31st.	30·5
		Mormugao	60	29·977	+·01?	29·973	30·053	8th	29·907	27th	·146	73·0	84·6	−1·2	71·2	+2·3	77·9	+0·6	13·4	89·0	24th	66·3	1st	22·7
		Goa	199									74·0	82·9	−4·0	72·0	+4·2	77·5	+0·1	10·9	88·0	8th & 10th.	66·0	31st	22·0
		Karwar	44	29·988	+·01·9	29·965	30·058	1st	29·923	27th	·136	74·2	86·1	−0·8	67·7	+2·2	76·9	+0·7	18·4	90·3	10th	62·0	1st	28·3
33	Malabar	Cochin	10	30·001	+·01·0	29·939	30·064	1st	29·932	27th	·132	77·0	92·2	+3·1	74·0	+2·5	83·1	+2·8	18·2	94·3	4 days	71·7	1st & 8th	22·6
		Calicut	27	29·990	+·00·	29·947	30·059	1st	29·927	27th	·132	76·1	88·3	+0·7	71·6	+2·0	80·0	+1·4	16·7	90·3	23rd & 24th.	67·0	1st	23·3
		Mangalore	65	29·944	−·010?	29·941	30·012	1st	29·890	27th	·122	76·7	87·7	−0·8	72·3	+2·8	80·0	+1·0	15·4	93·2	23rd	67·5	1st	25·7
		Trivandrum	198	29·795	?	29·927	29·869	1st	29·738	23rd	·131	76·6	84·7	+1·3	74·2	+3·0	79·5	+2·2	10·5	86·0	30th & 31st.	69·5	1st	16·5

* Mean of 30 days.

‡ Mean of 27 days.

I—*continued.*

Stations in India, Burma, etc., in January, 1903—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. 1902 to 31st Jan. 1903.	Normal rainfall for period, 1st Dec. to 31st January.	Variation from normal of period, 1st Dec. to 1903 31st Jan. 1903.	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	15	3	7	1				1	N 28° E	3·9	3·7	5·2	−29	67	·400	1·0	0	0·20	−0·20	0	0·05	−0·05	0·81	0·06	+0·78	0	Surat .	Gujarat . .	45
	7	10	4	1	1	2		6	N 22° E	3·5	5·7			49	·274	1·2	0	0·10	−0·10	0	0·03	−0·03	0·11	0·10	+0·01	0	Ahmedabad		
7	1	5		7		7		4	S 21° E	2·4	2·8	3·5	−20	64	·255	3·2	1	1·20	−0·20	0·23	0·53	−0·30	0·23	0·82	−0·59	0·23	Agra . .	United Provinces (West).	22
7	3	4	1	2	1	2	2	9	N 29° W	3·0	3·3	2·2	+50	70	·312	1·0	0	1·20	−1·20	0·09	0·62	−0·53	0·09	0·86	−0·77	0·06	Jhansi, .	United Provinces (Central).	21
																				0·33	0·23	+0·07					IX.—Deccan.		
17		1	6	6				1	S 73° E	7·1		10·9	−35	75	·476	3·2	0	0·20	−0·20	0	0·04	−0·04	7·60	0·16	+7·44	0	Belgaum .	Bombay Deccan.	38
		3	5	17	1	1	1	3	S 58° E	8·2	9·9	7·1	+39	61	414	3·7	1	0·20	+0·80	1·01	0·07	+0·94	5·15	0·50	+4·65	1·01	Sholapur,		
	1	4	3	1		2	9	11	N 51° W	6·2	7·0	5·7	+23	77	·352	2·9	1	0·20	+0·80	0·40	0·04	+0·36	2·42	0·23	+2·19	0·40	Poona.		
2	3	2	1	10	7	1	1	4	S 33° E					67	·472	3·9	0	0·20	−0·20	0	0	0	3·35	0·03	+3·32	0	Bijapur.		
	1				1	5	13	11	N 80° W	3·5	4·0	3·9	+3	59	·323	5·2	1	0·10	+0·90	0·38	0·11	+0·27	1·32	0·37	+0·95	0·32	Malegaon .	Khandesh . .	40
11	3	1		8	2		1	5	S 77° E	3·9	4·8			64	·371	4·5	0	0·20	−0·20	0	0·01	−0·01	1·96	0·51	+1·45	0	Ahmednagar.		
20		1	4	1			4	1	N 45° E	2·0	2·0	3·4	−41	60	·351	3·6	1	0·76	+0·30	0·48	0·33	+0·15	1·59	1·08	+0·51	0·48	Akola .	Berar . .	41
	3	7	9	2	2	4	1	3	N 68° E	6·4	5·7	3·2	+78	57	·367	3·2	0	0·90	−0·90	0·02	0·35	−0·33	0·60	0·92	−0·32	0·02	Amraoti,		
22			3	2			1	3	N 60° E	3·2		2·8	+14	58	·319	3·8	0	0·50	−0·50	0·01	0·26	−0·25	0·28	0·69	−0·41	0·01	Khandwa .	Central Provinces (West).	42
		21		4		6			N 59° E	3·3	3·4	2·5	+36	67	·314	3·2	0	0·80	−0·80	0·05	0·26	−0·21	1·64	0·79	+0·85	0·05	Hoshangabad		
15	2	4			6	2	2		S 13° W			2·9		64	·371	2·5	0	1·00	−1·00	0·01	0·43	−0·42	1·49	0·91	+0·58	0·01	Nagpur,		
15	1	1	5	3	2		1	3	S 87° E	1·8	1·6	2·1	−24	71	·447	2·4	0	0·60	−0·60	0	0·30	−0·30	0·26	0·64	−0·38	0	Chanda .	Central Provinces (Central).	43
	6	7	3	2	5	5	2	1	N 61° E	3·1		2·7	+15	63	·335	1·7	2	1·20	+0·80	0·38	0·53	−0·15	1·16	1·05	+0·11	0·23	Seoni.		
10	1	4	1	3	9		2	1	S 26° E	1·9	1·7	2·2	−23	80	·366	1·5	1	1·40	−0·40	0·32	0·72	−0·40	0·33	1·05	−0·72	0·25	Jubbulpore.		
		3	10	9	3	4	2		S 51° E	3·4	3·9	2·8	+39	52	·259	2·2	1	1·50	−0·50	0·28	0·64	−0·36	0·30	1·31	−1·04	0·25	Saugor.		
12		1	5	3		1	5	4	N 45° W	2·0	1·2	4·0	−55	67	·286	2·8	0	1·80	−1·80	0·29	0·92	−0·63	0·31	1·35	−1·04	0·09	Sutna .	Central India.	49
9	3	5	2		2	6		4	N 26° W	3·3	3·0	2·6	+15	61	·373	2·5	0	0·80	−0·80	0	0·20	−0·20	0·04	0·45	−0·41	0	Raipur .	Central Provinces (East).	44
	10	5		4	4	6		2	N 10° E	4·8	4·7	1·6	+194	78	·468	4·0	2	1·00	+1·00	1·62	0·28	+1·34	2·56	0·52	+2·04	1·43	Sambalpur.		
16		2	11	1			1		N 73° E	6·1	6·0			62	·404	2·0	0	0·20	−0·20	0	0·12	−0·12	2·87	0·73	+2·14	0	Aurangabad,	Hyderabad (North).	39
27				1				3	N 45° W	4·9	4·1			61	·423	2·4	2	0·20	+1·80	0·70	0·65	+0·65	1·12	0·38	+0·74	0·60	Indur.		
1	4		1	1	2	20	2		S 47° W	6·0	5·0			79	·554	0·7	1	0·10	+0·90	0·25	0·02	+0·23	0·80	0·54	+0·26	0·25	Bidar.		
17	1	3	2	4	2	2			S 63° E	5·5	5·3			67	·491	1·8	1	0·20	+0·80	0·38	0·07	+0·31	0·97	0·07	+0·90	0·38	Gulbarga .	Hyderabad (South).	53
3	1		7	13	2	5			S 41° E	7·2	6·8			69	·520	0·9	1	0·10	+0·90	0·12	0	+0·12	0·20	0	+0·20	0·12	Raichur,		
26			3	2					S 72° E	2·9	2·8			79	·498	2·3	1			0·38	0·06	+0·32	0·79	0·23	+0·56	0·30	Hyderabad (Dn.),		
15	1		9	6					N 76° E	4·6		3·5	+21	82	·501	2·2	1	0·20	+0·80	0·43	0·06	+0·37	0·68	0·23	+0·45	0·43	Secunderabad		
6				21	4				S 38° E	7·1*	6·0*			79	·552	5·1	1	0·20	+0·80	1·09			1·43			1·08	Hanumkonda		
																				0·05	0·22	−0·17					X.—West Coast.		
	8	12	11						N 50° E	8·9		10·1	−12	74	·562	3·0	0	0·10	−0·10	0	0·10	−0·10	0·81	0·16	+0·65	0	Bombay .	Konkan . .	37
2	1	6	18	4					N 85° E	8·8	8·7	9·8	−11	70	·544	1·8	0	0·20	−0·20	0	0·15	−0·15	1·90	0·20	+1·70	0	Ratnagiri,		
5	5	3	13	2			1	2	N 63° E	7·7				83	·677	2·5	0			0	0	0	3·46	0	+3·46	0	Mormugao.		
1	1	11	18						N 71° E					76	·643	2·1	0			0	0·19	−0·19	2·72	0·25	+2·47	0	Goa.		
6		5	20						N 81° E	3·1				77	·588	0·9	0	0·10	−0·10	0	0·09	−0·09	3·21	0·16	+3·05	0	Karwar.		
2	1	26	2						N 46° E	5·4				75	·701	1·8	0	1·00	−1·00	0	0·51	−0·54	2·60	2·20	+0·40	0	Cochin .	Malabar . .	33
		14	16	1					N 71° E	7·4	9·3			80	·722	3·0	0	0·30	−0·30	0	0·19	−0·19	4·68	1·16	+3·52	0	Calicut.		
16			9	6					S 72° E	1·7		3·9	−56	75	·694	3·4	0	0·10	−0·10	0	0·05	−0·05	2·27	0·50	+1·77	0	Mangalore.		
18	2	5	3			2		1	N 43° E	3·2				86	·741	2·9	2	1·30	+0·70	0·44	0·63	−0·19	5·65	2·87	+2·78	0·33	Trivandrum.		

Table

Abstract of Observations taken at 8 A.M. at 230

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				+·015																			28·3
57	Madras (South)	Pamban	37	30·012			30·080	7th	29·943	28th	·137	78·9	83·5	0	67·0	+2·8	75·8	+1·4	17·6			86·3	30th	72·7	5th	13·6
		Tinnevelly	168	29·885	+·014	29·976	29·958	7th	29·814	28th	·144	76·7	87·8	+0·1	73·3	+1·7	80·6	+0·9	14·5	93·2	30th & 31st.	71·9	4 days	21·3
		Madura	447	29·603	+·019	29·985	29·681	7th	29·533	28th	·148	75·8	87·2	−0·3	70·3	+1·7	78·8	+0·7	16·9	91·4	30th & 31st.	65·6	1st	25·8
		Periyakulam	945	29·103		29·995	29·137	7th	29·035	27th & 28th	·152	71·5	86·1		66·3		75·7		19·8	91·4	31st	60·6	31st	30·8
34	Madras (South-Central).	Salem	940	29·126	0		29·208	7th	29·056	27th	·152	73·0	87·9	−0·4	65·8	+2·1	76·9	+0·9	22·1	93·5	1st	60·9	1st, 2nd	32·6
		Coimbatore	1,348	28·702	+·019	30·027	28·780	8th	28·627	27th	·153	72·1	86·4	−0·4	67·2	+3·3	76·8	+1·5	19·2	92·4	31st	61·8	1st	30·6
35	Coorg	Mercara	3,781	26·315	+·022	30·020	26·377	8th	26·245	13th	·132	62·4	77·0	−0·7	57·9	+1·3	67·5	+0·3	19·1	80·0	16th, 21st, 30th.	55·1	1st, 27th	24·9
36	Mysore	Chitaldroog	2,405	27·633?	+·014?		27·730	8th	27·564	27th	·166	69·6	48·0	+0·2	62·8	?	73·4	?	21·2	89·1	20th, 30th	54·4	1st	34·7
		Bangalore	3,021	27·053	+·015	29·996?	27·135	8th	26·989	27th	·146	65·0	81·5	+1·3	60·3	+3·5	70·9	+2·4	21·2	88·3	30th	54·9	1st	33·4
		Hassan	3,091	26·982	+·022	30·028	27·058	8th	26·913	28th	·145	66·7	80·4	−1·1	58·0	+3·9	69·2	+1·4	22·4	84·1	30th	50·5	1st	33·6
		Mysore	2,518	27·535	+·013	30·027	27·607	8th	27·474	27th	·133	68·2	84·4	+0·4	61·9	+2·6	73·2	+1·5	22·5	88·6	31st	55·4	1st	33·2
56	Madras, East Coast, South.	Negapatam	31	30·016	+·014	30·014	30·089	7th	29·943	27th	·146	78·2	83·2	+1·4	74·7	+3·9	79·0	+2·7	8·5	88·2	31st	69·0	1st	19·2
		Cuddalore	12	30·054	+·022	29·976	30·143	7th	29·975	27th	·168	74·4	83·1	−0·2	70·0	+2·7	76·6	+1·3	13·1	85·6	30th	66·7	1st. 30th	18·9
		Trichinopoly	255	29·799	+·011	29·996	29·872	7th	29·736	28th	·136	74·8	87·0	−0·4	69·7	+2·5	78·4	+1·1	17·3	92·5	29th	64·9	1st	27·6
		Madras	22	30·048	+·007	29·993	30·141	8th	29·964	27th	·177	75·2	84·0	−0·7	69·8	+2·4	77·0	+0·9	14·2	87·5	30th	67·0	1st	20·5
		Vellore	707	29·347		30·001	29·443	8th	29·269	28th	·174	70·9	84·3		66·1*		75·3*		18·2	90·4	30th & 31st.	61·4	27th & 28th.	29·0
55	Madras, East Coast, Central.	Nellore	71	30·010	+·024	30·008	30·117	8th	29·919	29th	·198	73·5	85·4	−0·6	69·4	+3·1	77·4	+1·3	16·0	92·3	30th	67·6	10th, 24th & 28th.	24·7
		Masulipatam	15	30·081	+·024	30·016	30·215	6th	29·977	30th	·238	71·0	82·5	−1·0	66·9	?	74·7	?	15·6	88·0	30th	62·2	1st, 2nd	25·8
54	Madras, Central	Cuddapah	433	29·628	+·010	30·031	29·742	8th	29·529	29th	·213	73·6	87·9	−0·5	66·6	+2·2	77·3	+0·9	21·3	96·2	30th & 31st.	61·4	1st	34·8
		Kurnool	958	29·109	+·027	30·011	29·220	7th	29·018	28th	·202	70·0	83·0	−0·7	61·9	+3·2	75·0	+1·3	26·1	94·7	29th, 31st	56·2	10th	38·5
		Bellary	1,475	28·564	+·009	30·038	28·672	8th	28·480	27th	·192	68·9	88·5	+0·9	64·2	+3·7	76·4	+2·3	24·3	96·0	30th	57·1	1st	38·9
52	Madras, East Coast, North.	Cocanada	26	30·061?	+·012?	30·023	30·197	6th	29·954	27th, 28th.	·243	71·6	81·8	+0·8	67·3	+2·0	74·6	+1·4	14·5	91·6	29th	60·5	1st	31·1
		Waltair (Vizag.)	226	29·859	+·008	30·022?	29·986	6th	29·736	28th	·250	72·7	80·3	?	68·6	?	74·5	?	11·7	83·8	29th, 30th, 31st.	62·4	1st	21·4
		Gopalpur	21	30·068	+·018	30·032	30·226	6th	29·918	28th, 31st.	·308	69·1	80·0	−0·3	64·3	+3·1	72·2	+1·4	15·7	85·3	29th	55·1	1st	30·2
	XII.—Hill Stations.					30·029																		
48	Baluchistan	Sharigh											48·8		18·2		33·5		30·6	59·2	7th, 21st, 22nd.	10·0	11th & 14th.	49·2
		Pishin																						
		Quetta	5,502	24·717	+·030		24·854	6th	24·520	22nd	·334	26·2	47·3	−4·0	23·6	−5·7	35·5	−4·9	23·7	57·7	10th	9·3	31st	48·4
		Kalat																						
		Chaman	4,311	25·794	+·022		25·952	1st	25·414	22nd	·538	36·5	50·8	−2·6	31·5	−3·2	41·2	−2·9	19·3	63·3	21st, 22nd	20·6	27th	42·7
		Leh	11,503	19·659	−·002		19·914	7th	19·390	25th	·524	11·0	27·5	−2·3	7·4	−1·4	17·5	−1·9	20·1	37·5	23rd	0·9	27th & 31st.	36·6
30	Punjab and North-West Frontier Province.	Srinagar	5,204	24·980	−·007		25·169	3rd	24·726	25th	·443	27·9	45·8	+6·8	24·9	−1·5	35·4	+2·7	20·9	54·5	8th	17·6	14th	36·9
		Kailang	10,087	20·936			21·152	4th	20·692	25th	·460	15·9	38·9		12·4		25·7		26·5	51·2	26th	−1·0	28th	52·2
		Sonemarg		21·822			21·995	3rd	21·540	30th	·455	14·9	30·1†		7·2		19·0†		22·9	38·0	1st	−5·6	27th	43·6
		Astor (Kashmir)		22·579			22·857	3rd	22·249	25th	·608	18·1	35·7		14·5		25·1		21·2	45·5	12th	5·0	31st	40·5
		Minimarg		21·332			21·541	3rd	21·026	25th	·515	14·4	31·0		7·6		19·3		23·4	42·7	2nd	−10·0	27th	52·7
		Skardu		22·969			23·275	7th	22·598	25th	·677	18·0	35·4		16·4		25·9		19·0	42·0	2nd	−1·9	27th	43·9
		Dras		20·796			21·049	7th	20·456	25th	·593	−6·2	15·8		−11·6		2·1		27·4	35·3	24th	−30·4	27th	65·7
		Gilgit	4,890	25·320			25·646	7th	24·948	25th	·698	34·6	44·0	−1·2	31·7	+0·1	37·8	−0·6	12·3	48·4	2nd	25·1	7th	23·3
		Chitral		24·633			24·850	7th	24·400	23rd	·450	33·1	45·9		30·6		38·3		15·3	56·6	5th	25·0	27th & 29th.	31·6
		Killa Drosh										34·2	45·7		31·8		38·8		13·9	56·3	14th	25·7	29th	30·6
		Para Chinar	6,000	24·529			24·720	6th	24·312	25th	·408	33·5	49·3		27·5		38·4		21·8	58·1	4th	17·0	24th	41·1
		Cherat		25·785	+·016		25·971	6th	25·571	25th	·400	42·3	49·5	+0·3	38·8	+0·9	44·3	+0·6	10·7	57·3	5th	30·0	27th	27·3

* Mean of 30 days.

† Mean of 21 days.

I—*continued.*

Stations in India, Burma, etc., in January, 1903—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 Dec. 1902 to 31st Jan. 1903.	Normal rainfall for period, 1st Dec. to 31st January.	Variation from normal of period, 1st Dec. 1902 to 31st Jan. 1903.	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
																				0·82	0·37	+0·45					XI.—South India.		
1	4	21	5						N 46° E	11·3	12·0			81	·795	3·3	3	2·20	+0·80	1·40	1·33	+0·07	7·15	11·64	−4·49	0·75	Pamban	Madras (South).	57
	16	4					1	10	N 12° W	4·7	4·5			84	·780	6·6	3	1·50	+1·50	1·45	1·02	+0·43	8·81	4·77	+4·04	1·12	Tinnevelly.		
2	14	6						9	N 2° E	4·1	4·7	5·4	−13	81	·727	2·5	1	0·30	+0·20	0·90	0·24	+0·66	4·68	2·11	+2·57	0·76	Madura.		
22	1			3		1	3	1	S 63° W	1·8	2·0			81	·629	3·7	2	0·90	+1·10	1·06	0·63	+0·43	7·91	2·19	+5·72	0·76	Periyakulam.		
15	3	3	9	1					N 70° E	4·5	4·1	5·0	−18	79	·652	3·9	0	0·30	−0·30	0·02	0·23	−0·21	3·32	1·49	+1·83	0·02	Salem	Madras (South Central).	34
1	1	11	10		1		1		N 73° E	2·0	1·8	3·1	−42	90	·713	4·9	0	0·50	−0·50	0	0·16	−0·16	3·08	1·29	+1·79	0	Coimbatore.		
13		12	5		1				N 61° E	5·8	5·4	4·3	+26	89	·507	8·1	0	0·20	−0·20	0	0·02	−0·02	9·16	0·53	+8·63	0	Mercara	Coorg	35
5	1	1	9	6	2	2	4	1	S 56° E	5·3	4·6			76	·549	3·1	0	0·30	−0·30	0	0·01	−0·01	2·83	0·10	+2·73	0	Chitaldroog	Mysore	36
		1	21	8			1		S 79° E	8·8	7·7	3·8	+103	82	·509	4·3	0	0·10	−0·10	0	0·14	−0·14	1·00	0·62	+0·38	0	Bangalore.		
3		4	13	9		1	1		S 79° E	2·5	2·3			83	·539	5·5	0	0·10	−0·10	0	0	0	5·54	0·18	+5·36	0	Hassan.		
1		8	10	5	5	1	1		S 82° E	7·5	8·1			78	·537	5·9	0	0·10	−0·10	0	0	0	2·08	0·17	+1·91	0	Mysore.		
6	1	14	1					9	N 15° E	8·1	7·1	5·4	+31	82	·793	4·8	3	1·90	+1·10	2·24	1·37	+0·87	17·55	14·16	+3·39	0·99	Negapatam	Madras, East Coast, South.	56
29		2							N 45° E	1·5	1·9			93	·796	5·8	3	1·20	+1·80	1·20	0·80	+0·40	13·26	8·99	+9·27	0·68	Cuddalore		
21	1	6							N 39° E	2·3	2·0	4·7	−57	86	·738	3·2	3	0·60	+2·40	0·62	0·27	+0·35	7·41	3·03	+4·41	0·25	Trichinopoly.		
1	11	7	5	1	3		1	2	N 31° E	4·9		6·1	−20	88	·778	2·9	3	2·10	+0·90	4·53	0·52	+4·01	13·71	6·54	+7·17	3·26	Madras.		
26			1				2	2	N 63° W	2·0	2·0			88	·664	3·8	3	0·70	+2·30	1·64	0·49	+1·15	5·27	3·37	+1·90	1·41	Vellore.		
17	6			1	1			6	N 23° W	2·3				88	·729	4·3	3	0·50	+2·50	2·62	0·55	+2·07	15·07	2·19	+12·88	2·10	Nellore	Madras, East Coast, Central.	56
14	9	7	1						N 24° E	5·4	5·2	5·2	0	93	·701	2·7	0	0·20	−0·30	0·05	0·07	−0·02	3·66	0·85	+2·81	0·05	Masulipatam.		
	1	7	5	14		1	2	1	S 77° E					80	·665	2·9	2	0·20	+1·50	0·91	0·16	+0·75	2·41	1·30	+1·11	0·49	Cuddapah	Madras, Central	58
16		3	7	4				1	E	4·7				79	·587	2·3	0	0·20	−0·20	0	0·07	−0·07	0·04	0·19	−0·15	0	Kurnool.		
10	1		2	8	9			1	S 28° E	3·4	3·6	3·3	+9	72	·506	4·6	0	0·10	−0·10	0	0·09	−0·09	0·07	0·20	−0·13	0	Bellary.		
4	7	8					1	11	N 9° W	8·3	7·0			84	·650	3·8	1	0·40	+0·60	0·13	0·11	+0·02	1·07	0·91	+0·16	0·13	Cocanada	Madras, East Coast, North.	52
	1	13	2			14	1		N 45° E	9·3				75	·606	4·1	0	0·60	−0·60	0	0·16	−0·16	1·57	1·96	−0·39	0	Waltair (Vizag.)		
	8	1			1	3	1	17	N 39° W	10·9	10·7	6·5	+65	84	·599	1·3	0	0·40	−0·40	0	0·12	−0·12	0·87	0·87	0	0	Gopalpur		
																											XII.—Hill Stations.		
																											Sharigh	Baluchistan	41
																	2	4·30	−2·30	1·30	2·16	−0·86	1·92	3·36	−1·44	0·85	Pishin.		
25	1			3	1		1		S 28° E	2·5	2·6	3·8	−32	90	·126	2·7	2	4·80	−2·80	1·02	2·03	−1·01	1·32	2·84	−1·52	0·48	Quetta.		
																		3·70			0·79			1·44			Kalat.		
9			6	11	3	2			S 46° E	4·3	4·7			60	·123	2·5	1	3·40	−2·40	0·35	1·20	−0·95	1·31	2·22	−0·91	0·26	Chaman.		
	1	5	7		14	3	1		S 32° E	2·2				48	·038	6·0	1	0·80	+0·20	0·29	0·31	−0·02	0·29	0·50	−0·21	0·11	Leh	Punjab and North-West Frontier Provinces.	30
20	2			3	4			2	S 13° E	2·2	2·2			89	·138	5·9	6	6·40	−0·40	3·17	3·49	−0·32	3·17	4·40	−1·23	1·25	Srinagar.		
	2	3	2		3	6	10	5	N 86° W	0·3*				72‡	·075‡	5·1	3			2·69			26·98			1·23	Kallang.		
		4	3	1	1		4	2	N 16° E	3·5	3·2			85	·080	4·6	10			13·10			16·03			3·50	Sonemarg.		
5					4	21	1		S 40° W	4·6				67	·071	5·1	4			2·02			3·58			0·87	Astor (Kashmir).		
20			7	3	1				S 72° E	5·2	5·5			58	·057	4·8	7			5·07			6·27			1·66	Minimarg.		
22	1	2	1			1	4		N 66° W	1·4	1·4†			96	·102	5·5	2	3·00	−1·00	0·81	1·71	−0·90	0·92	2·42	−1·50	0·50	Skardu.		
30			1						E	0·4	0·4			97	·039	5·3	8	8·70	−0·70	2·84	3·98	−1·14	3·24	6·17	−2·93	1·22	Dras.		
24						3	4		S 72° W	2·9	2·5			71	·145	7·6	3	0·30	+2·70	0·92	0·21	+0·71	1·20	0·30	+0·90	0·39	Gilgit.		
25		1		5					S 53° E					82	·158	4·3	3			0·54			1·63			0·23	Chitral.		
19			10		1		1		S 84° E					78	·154	3·6	4			1·00			1·79			0·35	Killa Drosh.		
15	7	3		1	1	1	2	1	N 8° W	4·8	4·4			65	·122	3·2	3	1·00	+2·00	2·09	0·63	+1·46	2·17	1·42	+0·75	1·67	Para Chinar.		
	15	1			2	2		11	N 22° W	10·4	9·7			41	·105	1·2	5			1·49	2·07	−0·58	1·49	3·07	−1·58	0·60	Cherat.		

‡ Mean of 26 days.

§ Rainfall since 1st January 1903.

Table

Abstract of Observations taken at 8 A.M. at 230

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 in month.	Date.	Lowest pressure recorded 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—*contd.*	Murree	6,333	23·866	+·002		24·056	6th	23·653	25th	·403	38·3	45·7	−1·5	32·1	−3·1	38·9	−2·3	13·6	57·2	8th	22·0	31st	35·2
		Poo											42·7		24·5		33·6		18·2	53·3	23rd	11·7	29th	41·6
		Simla	7,224	23·124	+·012		23·278	6th	22·969	30th	·309	37·5	46·4	+1·9	34·9	+0·4	40·7	+1·2	11·5	56·8	1st	26·2	26th, 27th & 31st.	30·6
25	United Provinces.	Chakrata	7,022	23·312	+·013		23·467	6th	23·165	28th	·302	37·3	51·6‡	+0·8‡	34·8	−1·4	43·4‡	−0·3‡	16·8‡	62·3	1st	27·4	31st	34·9
		Mussooree	6,705	23·592	+·016		23·752	6th	23·448	28th	·304	38·6	46·7	−2·2	34·8	−2·8	40·3	−2·5	11·9	57·7	1st	29·0	31st	28·7
		Ranikhet	6,069	24·161	+·028		24·335	6th	24·014	28th	·321	41·9	53·2	−1·3	39·6	−0·4	46·4	−0·9	13·6	64·6	1st	30·0	31st	31·6
		Muktesar	7,600	22·373			23·038	6th	22·716	28th	·322	39·1	49·9		34·8		42·4		15·1	62·0	1st	24·7	31st	37·3
13	Bengal	Yatung	10·480?										43·1		17·5		30·3		25·6	47·1	26th	15·9	4 days	31·2
		Darjeeling	7,376	23·021	+·002		23·178	6th	22·864	28th	·314	37·7	46·4	−0·4	33·6	−1·2	40·0	−0·8	12·8	54·4	1st & 24th.	30·1	30th	24·3
8	Assam Hill Tracts	Shillong	4,920	25·2 8			25·377	6th	25·075	29th	·302	45·0	60·0		37·8		48·9		22·2	65·5	27th	31·5	16th	34·0
		CherraPoonjee	4,309	25·774			25·900	6th	25·661	28th	·239	50·1	59·0		45·0		52·1		14·0	65·8	27th	42·0	2 days	23·8
	Central India	Mount Abu	3,945	26·129	−·009		26·227	7th	26·043	28th	·184	55·3	64·1	−2·5	50·8	−0·4	57·5	−1·5	13·3	70·1	7th & 22nd.	38·6	31st	31·5
		Pachmarhi	3,528	26·551	−·006		26·660	6th	26·446	30th	·214	55·7	73·0	+1·7	50·1	+2·6	61·6	+2·2	22·9	77·6	24th	40·8	28th	36·8
	South India	Wellington	6,200	24·325	+·023		24·398	6th	24·270	27th	·128	54·8	69·1	+1·5	46·6	+1·4	57·9	+1·5	22·5	73·7	4 days	39·7	1st	34·0
		Kodai Kanal	7,688	22·890			22·951	8th	22·840	27th	·111	54·3	64·1		47·6		54·1		16·5	71·1	19th	43·5	25th	27·6
		Ootacamund		23·124			23·187	7th.	23·068	27th	·119	53·7	65·3		43·5		54·4		21·8	70·0	18th	36·1	26th	33·9
		Dodabetta†		22·069			22·118	6th & 7th	22·024	13th & 24th	·094	55·5	57·3		44·3		50·9		13·0	61·7	18th	39·8	24th	21·9
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	30·012	+·026	29·950	30·057	8th	29·954	28th & 29th,	·113	78·7	84·4	+1·1	75·8	+1·2	80·1	+1·2	8·6	86·0	4 days	73·0	4 days	13·0
		Colombo	40	29·958	+·008	29·924	30·020	1st & 7th	29·904	23rd	·116	78·3	89·1	+1·6	74·1	+2·0	81·6	+1·8	15·0	93·0	25th	73·0	7th, 16th & 18th.	20·0
	Persia	Meshed	3,104									24·8			20·4							−4·0	24th	
		Teheran		(c) 26·080			26·390	1st	25·660	20th	·730	30·4*	43·8	+1·5	26·8	+0·6	35·3	+1·1	17·0	51·5	18th	17·0	24th	34·5
		Ispahan		(c) 24·271			24·580	1st	23·880	21st	·700	28·1	46·3	−0·2	17·7	−5·4	32·0	−2·8	28·6	57·3	18th	10·6	23rd	46·7
		Bushire	14	30·176	+·042	30·149	30·373	1st	29·812	20th	·561	51·7	61·5	−2·6	48·0	−3·7	54·7	−3·2	13·5	74·1	19th	41·8	30th	32·3
		Bahrein(*a*)	30	30·166			30·312	9th	29·859	20th	·453	58·7	65·5							74·0	20th & 21st.			
		Jask		30·152	+·025		30·292	9th	29·846	21st	·446	61·4	71·6	−2·2	57·5	−2·8	64·6	−2·5	14·1	76·3	3rd	49·8	23rd	26·5
		Muscat	20	30·141	+·020	30·109	30·266	2nd	29·834	21st	·432	68·5	71·5	−0·7	66·5	−0·7	69·1	−0·7	5·0	76·8	2nd	61·1	13th & 16th.	15·7
	Arabia	Baghdad	220	30·055	+·023	30·269	30·282	9th	29·745	18th	·537	40·9	54·9	−5·2	37·9‖	+0·1	46·4‖	−2·6	17·0	67·0	19th	29·5	30th	37·5
		Bussrah		30·260			30·454	1st	29·942	20th	·512		56·3		41·9		49·1		14·4	65·2	19th	33·0	31st	32·2
		Aden‡‡	94	29·993	+·011	30·020	30·087	1st	29·842	22nd	·245	74·2	78·0	−2·6	71·9	−0·9	75·0	−1·8	6·1	82·8	1st	68·9	5 days	13·9
		Perim	201	29·845	+·014	29·982	29·965	1st	29·721	20th & 21st.	·244	75·7	81·6	−1·1	73·3	−0·2	77·5	−0·7	8·3	85·3	1st	70·0	31st	15·3
	Afghanistan	Kabul										23·7	41·9	0	18·3	+0·5	31·6	+0·3	26·6	55·2	9th	8·4	27th	51·8
	Central Asia	Kashgar	4,255	†† 25·702			26·650	5th	25·220	23rd	·330	14·3	33·7	+1·3	7·6	−4·9	20·7	−1·8	26·1	49·0	4th	−3·2	7th	52·2
	Arabian Sea Islands.	Amini Debi	13																					
		Minicoy	7																					
	Africa	Zanzibar	73	29·930*	+·019	29·929*	29·982	1st	29·871	15th	·111	82·4§	86·5*	+0·4	79·8*	+0·2	83·2*	+0·3	6·7	89·6	31st	75·6	31st	14·0
		Do. Dunga		29·873			29·960	7th	29·758	29th	·162	80·8	91·0		75·1		83·1		15·9	93·7	31st	72·8	24th	20·9
	Straits Settlements	Penang(*f*)	20	29·914			29·983	8th	29·812	3rd	·171	82·6	90·1		74·6		82·4		15·5	92·0	15th	72·0	8th	20·0
		Singapore (*f*)	10	29·960			30·041	6th	29·886	27th	·155	81·5	85·6		73·5		79·6		12·1	89·2	17th & 24th.	70·3	1st	18·9

Note.—When a query is inserted against any reading or in the returns of any

† 1 P.M. observations.

‡ Mean of 28 days.

§ Mean of 24 days.

* Mean of 30 days.

(*a*) Observation of 29 days.

(*f*) 9th observations.

I—*concluded.*

Stations in India, Burma, etc., in January, 1903—concluded.

Wind Direction. Number of winds from									Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.								Station.	Meteorological Province or District.	Number of District.
Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	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 Dec. 1902 to 31st Jan., 1903.	Normal rainfall for period, 1st Dec. to 31st January.	Variation from normal of period, 1st Dec. 1902 to 31st Jan., 1903.	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
12	1		1	14	3				S 43° E	6·1	6·6	8·1	−19	61	·135	3·0	7	2·80	+4·20	4·70	3·67	+1·03	4·72	4·81	−0·09	1·07	Murree	Punjab and North-West Frontier Province—*concld.*	30
24	1		3	2			1		S 83° E							5·0	5			2·12	3·20	−1·08	2·12	4·25	−2·13	0·71	Poo.		
11	1			4	14	1			S 7° E			2·0		52	·113	4·2	6	3·60	+2·40	2·93	2·71	+0·22	2·93	3·94	−1·01	0·76	Simla.		
7	15	2						7	N 11° W	6·9		4·8	+41	57	·123	3·3	6	5·00	+1·00	4·12	3·73	+0·39	4·12	4·89	−0·77	1·41	Chakrata	United Provinces.	25
	2	6	10	1		4	6	2	N 54° E					58	·137	3·7	6	4·20	+1·80	3·65	3·32	+0·33	3·65	4·73	−1·08	1·24	Mussooree.		
22	1	2	1	2	1	2			S 59° E	1·5	1·7	1·4	+21	53	·140	3·2	4	4·30	−0·30	2·11	2·79	−0·68	2·11	3·50	−1·39	0·80	Ranikhet.		
7		4	2	7	3	1		7	S 76° E	5·3	4·9			51	·117	5·0	5			2·44			2·44			0·86	Muktesar.		
																	2	2·50		0·90	0·89		0·90	1·07		0·60	Yatung	Bengal	13
14	2	3	5	5		1	1		S 89° E	4·1	3·8	2·6	+46	74	·165	2·1	1	1·71	−0·71	0·13	0·71	−0·58	0·13	0·94	−0·81	0·13	Darjeeling		
15	1		2	3	1	6	2	1	S 27° W	2·4	2·7			68	·205	1·3	0	1·50	−1·50	0·04	0·53	−0·49	0·13	0·81	−0·68	0·04	Shillong.	Assam Hill Tracts	9
16		3	2			3	7		S 31° W	3·3	3·8			67	·217	1·7	0	1·70	−1·70	0·01	0·83	−0·82	0·02	1·04	−1·02	0·01	Cherra Poonjee		
9	3	11		2	1	4	1		N 44° E	6·4	6·5	4·8	+35	42	·188	2·4	0	0·70	−0·70	0	0·33	−0·33	0·08	0·54	−0·46	0	Mount Abu.	Central India.	
10				3	1	11	1	5	S 51° W	3·7	3·8	3·1	+23	69	·311	3·5	1	1·50	−0·50	0·43	0·65	−0·22	2·63	1·12	+1·51	0·43	Pachmarhi.		
27		2	1				1		N 45° E	2·0		2·1	−17	79	·343	4·2	2	1·70	+0·30	0·71	0·83	−0·09	16·36	4·74	+11·62	0·44	Wellington.	South India.	
	2	2	2	13	8	2		2	S 35° E	11·9				65	·270	2·81	3	1·40	+1·60	1·25	1·17	+0·08	11·09	6·74	+4·35	0·50	Kodai Kanal.		
25			2	3	1				S 53° E	1·5	1·4			64	·266	2·8	0	0·60	−0·60	0·12	0·35	−0·23	12·00	2·00	+10·00	0·06	Ootacamund.		
														76	·335	2·9	0			0·17			20·81			0·09	Dodabetta.		
																											XIII.—Extra India.		
11	1	19							N 43° E					87	·855	3·7	6			4·86	5·38	−0·52	19·98	21·28	−1·30	1·72	Trincomalee	Ceylon.	
	18	9	1	2				1	N 18° E	7·7		8·4	−8	83	·831	3·8	7			4·16	3·20	+0·96	10·78	9·99	+0·79	2·03	Colombo.		
														87	·124	4·3	2			1·73	0·41	+1·32	2·99	2·17	+0·82	1·49	Meshed	Persia.	
15	2	10	1			1	1		N 37° E	0·7	0·9			78* (b)	·131* (b)	4·5	2			1·09	1·29	−0·20	1·29	2·66	−1·37	0·68	Teheran.		
18	1					1	9	2	N 80° W	2·7	3·5			72	·116	2·2	2			0·47	0·26	+0·21	1·94	0·80	+1·14	0·33	Ispahan.		
	16	6	3	2	2			2	N 21° E	7·1	8·4			72	·276	2·0	1			0·29	3·12	−2·83	3·32	6·36	−3·04	0·12	Bushire.		
	2	2	1		2	1	13	8	N 71° W					77	·385		0			0·09			0·09			0·09	Bahrein.		
1	11	15	2					2	N 26° E	11·3	9·4			65	·358	1·4	4			1·51	0·87	+0·64	2·18	1·65	+0·53	0·64	Jask.		
6				7				13	N 45° W	5·1	5·3			61	·448	1·6	1			0·40	1·28	−0·88	0·92	1·54	−0·62	0·40	Muscat.		
20					2		1		S 27° W	1·0 **	1·3 **			79¶	·207¶	2·9¶	2			0·72	1·38	−0·66	1·21	3·02	−1·81	0·50	Baghdad(*d*).	Arabia.	
																	1			0·23			1·10			0·16	Bussrah.		
		15	13	2		1			N 71° E	17·8	14·4	12·0	+20	77	·619	7·9	9			3·31	0·32	+2·99	3·31	0·69	+2·62	1·20	Aden.		
	1	1	10	16				3	S 68° E	19·9	17·9			80	·708	1·0	2			0·67	0·34	+0·33	0·67	0·42	+0·25	0·35	Perim.		
	2	1	1	8	3	12	1	3	S 18° W					82	·108	3·0	0			0	1·24	−1·24	0	1·53	−1·53	0	Kabul	Afghanistan.	
29	1				1				Calm	0·3	0·2					2·3	0			0·09	0·27	−0·18	0·09	0·46	−0·37	0·05	Kashgar	Central Asia.	
																					0·19			0·51			Amini Devi.	Arabian Sea Islands.	
																					2·09			6·75			Minicoy.		
	11	14	1	2	1			1	N 32° E	8·3	7·8			84*	·932*	7·4*	3			2·17	3·37		12·59	6·14	+6·45	0·95	Zanzibar	Africa.	
19	5	14						2	N 29° E	5·4	5·3			87	·922	5·8	7			3·07			12·58 (g)			1·04	Do. Dunga.		
2	16	12						1	N 18° E	5·3						0	7			4·89			4·89 (g)			1·82	Penang	Straits Settlements.	
	9	21						1	N 29° E							5·0	18			17·38			17·38			3·75	Sringapore		

station, the data for that station are not utilized in calculating the provincial variations.

‖ Mean of 21 days. ¶ Mean of 23 days. ** Mean of 22 days †† Aneroid corrected. ‡‡ Observations of 30 days.

(*d*) Wind observation of 23 days. (*b*) Mean of 29 days. (*c*) Aneroid uncorrected. (*g*) Rainfall since 1st January 1903.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 61 Stations in India, Burma, etc., in January, 1903.

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	29·978	29·872	·106	29·920	+·031	29·912	87·0	76·0†	11·0	89·7	70·6	19·1	83·3	81·8	80·6†	+1·1	73·0	77·4	77·4	75·9
	Rangoon	57	30·008	·877	·131	·942	+·015	·936	88·8	63·6	25·2	93·3	59·1	34·2	78·2	87·2	71·0	0	61·6	68·0	69·0	66·2
	Diamond Island	41	·025	·914	·111	·966	+·011	·942	83·1	73·0	10·1	86·2	71·2	15·0	78·5	81·0	77·2	+1·3	66·8	71·1	71·9	69·9
	Cocos Island	119									Not received											
	Akyab	20	·074	·958	·116	30·010	+·016	·973	81·6	?	?	85·1	?	?	72·2	77·4	?	?		65·7	67·8	
Bengal and Orissa.	Chittagong	87	·024	·910	·114	29·963	+·021	30·001	79·7	54·9	24·8	84·6	48·0	36·6	68·6	76·0	66·8	+0·7	54·4	62·5‡	64·5‡	60·5
	Calcutta (Alipore)	21	·112	·982	·130	30·035	+·021	·002	77·9	57·7	20·2	84·1	48·9	35·2	69·8	76·5	66·7	+1·5	56·3	62·6	65·0	61·3
	Saugor Island	25	·094	·975	·119	·025	+·020	29·995	76·7	61·2	15·5	80·0	52·6	27·4	71·0	74·2	67·9	+0·8	59·9	67·4	68·0	65·1
	False Point	21	·091	·976	·115	·029	+·004	·992	78·8	61·5	17·3	83·4	52·8	30·6	75·0	75·7	69·0	+1·2	61·2	69·9	70·0	67·0
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	28·047	27·941	·106	27·986	+·008	·984	75·7	52·5	23·2	82·6	45·2	37·4	66·9	72·8	62·9	+2·0	47·4	54·3	56·6	52·8
	Darbhanga	166	29·964	29·826	·138	29·886	+·013	30·013	72·9	50·6	22·3	75·6	45·1	30·5	64·6	71·8	61·3	−0·8	49·1	58·1	60·4	55·9
	Allahabad	309	·831	·702	·129	·753	+·024	·028	76·4	46·6	29·8	82·3	38·7	43·6	66·3	75·3	61·5	+0·9	45·6	56·6	59·9	54·0
Upper Sub-Himalayas.	Dehra Dun	2,233	27·818	27·728	·090	27·763	+·020	·043	66·4	43·1	23·3	71·2	37·4	33·8	56·1	63·2	53·5	−1·3	39·9	48·1	50·9	46·3
	Roorkee	899	29·192	29·087	·105	29·129	+·015	·040	69·9	41·1	28·8	74·4	33·3	41·1	57·8	66·6	54·2	−1·6	39·9	50·9	54·7	48·5
	Meerut	738	·355	·247	·108	·292	+·009	·053	70·9	44·1	26·8	74·9	37·7	37·2	58·2	67·7	56·2	0	41·7	49·9	54·0	48·5
	Lahore	702	·402	·307	·095	·342	+·014	·053	68·8	41·2	27·6	75·2	31·0	41·2	56·5	66·7	53·4	+1·4	38·6	49·3	51·4	47·4
	Ludhiana	812	·284	·181	·100	·222	+·020	·050	66·3	43·5	22·8	71·3	37·0	34·3	54·4	64·6	53·6	+0·8	41·1	47·6	52·1	46·9
N.-W. Fron. Prov., Indus Valley and N.-W. Rajputana.	Peshawar	1,110	·021	28·926	·095	28·962	+·018	·119	63·4	38·1	25·3	70·2	31·1	39·1	53·3	61·0	49·0	−0·5	34·4	45·9	49·6	43·3
	Jacobabad	186	·967	29·818	·119	29·895	+·024	·049	72·9	38·2	34·7	75·9	32·2	43·7	59·7	70·1	53·7	−2·9	35·5	50·3	55·6	47·1
	Kurrachee	30	30·133	30·017	·116	30·066	+·035	·017	76·3	52·3	24·0	80·4	45·0	35·4	67·5	73·2	63·2	−1·8	46·4	55·3†	60·2†	53·8
	Jaipur	1,431	28·660	28·552	·108	28·596	+·016	·034	73·6	49·8	23·8	82·1	37·0	45·1	64·2	71·6	59·9	+1·1	43·3	51·4	55·5	50·1
E. Rajputana, Central India and Gujarat.	Udaipur	1,925	·141	·023	·118	·082		·010	75·4	47·6	27·8	80·9	39·0	41·9	66·2	73·6	61·1		44·3	53·1	56·2	51·2
	Deesa	466	29·621	29·504	·117	29·550	+·014	29·582	81·9	51·7	30·2	88·9	40·6	48·3	71·3	79·6	66·7	−0·9	44·4	55·7	58·3	52·8
	Jamnagar	61	30·063	·912	·121	30·002		30·009	77·7	52·9	24·8	83·4	43·2	40·2	69·7	75·8	64·8		46·8	57·2	59·3	54·4
Deccan.	Belgaum	2,539	27·500	27·385	·115	27·437	+·020	29·894	82·0	58·9	23·1	86·3	52·8	33·5	74·3	80·9	70·2	+0·3	56·9	63·1	65·0	61·7
	Sholapur	1,590	28·461	28·326	·135	28·390	+·007	·931	85·6	61·9	23·7	91·9	55·1	36·8	75·7	84·6	73·2	+1·2	56·2	63·8	65·7	61·9
	Akola	930	29·140	29·000	·140	29·062	+·010	·956	85·9	57·0	28·9	90·3	46·3	44·0	74·5	84·4	70·4	+2·2	52·5	61·5	66·0	60·0
	Buldana	2,132	27·915	27·804	·111	27·851	+·012	·943	79·3	59·1	20·2	84·5	53·8	30·7	73·0	77·6	68·1	−0·4	52·5	59·1	61·0	57·5
	Khandwa	1,044	29·020	28·884	·136	28·914	+·011	·959	84·4	54·9	29·5	90·4	44·1	46·3	72·9	83·1	68·6	+1·7	49·8	59·5	63·4	57·6
	Nagpur	1,025	·051	·917	·134	·976	+·020	·970	85·2	59·1	26·1	89·1	50·5	38·6	73·0	83·2	70·9	+2·7	53·6	61·7	65·9	60·4
	Do. (Sanitary Commr.'s Office).	1,013	·063	·927	·136	·987		·971	85·8	58·2	27·6	91·7	48·6	43·1	74·0	83·6	71·5		54·0	62·6	67·9	61·5
	Hyderabad (Deccan).	1,690	28·371	·246	·125	·303	+·014	·947	84·6	61·4	23·2	90·8	54·1	36·7	75·6	82·1	72·4	+2·1	59·1	65·6	67·0	63·9
West Coast.	Bombay	37	30·036	29·923	·113	29·971	+·020	·948	81·7	67·8	13·9	86·6	61·5	25·1	73·6	78·0	72·5	+0·3	62·4	66·3	69·0	65·9
	Karwar	44	29·991	·882	·109	·927	+·013	·903	86·1	67·7	18·4	90·7	62·3	28·4	80·2	84·7	76·1	+0·9	65·6	70·7	72·6	69·6

† Mean of 30 days. ‡ Mean of 23 days. § Mean of 29½ days.

II.

61 Stations in India, Burma, etc., in January, 1903.

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
																									%	%						
·775†	·870	·848	·831	+·044	86†	76	70	77	+ 1	2·6	3·6	3·1	−0·3		11	45	2	1			1	2	N. 36° E.	N. 41° E.	87	76	138*	162	0·50	0·30	Port Blair .	Burma Coast and Bay Islands.
·527	·554	·470	·517	−·034	89	58	37	61	− 3	3·1	3·7	3·4	+1·4	4	18	12	5	3	1		3	16	N. 2° E.	N. 27° E.	56	36	31*	95	0	0	Rangoon .	
·575	·656	·663	·635	+·005	70	68	62	67	− 3	2·4	3·2	2·8	+0·5		10	18	6	2		1	1	11	N. 2° E.	N. 1° W.	61	71	273*	176	0	0	Diamond Island, Cocos Island	
	·549	·555				69	59			0·8	0·6	0·7	−0·6		1	14	14	2		1	15	15	N. 3° W.	N. 19° W.	31	42	59*	67	0	0	Akyab .	
·421	·485‡	·455‡	·454	−·013	96	68‡	50‡	71	− 2	2·8	3·0	2·9	+1·5		7	25	3	1		1	5	20	N. 2° E.	N. 26° W.	60	47	67*	75	2·71	2·71	Chittagong .	Bengal and Orissa.
·442	·478	·468	·463	+·061	92	65	51	69	0	3·5	3·5	3·5	+2·2	5	7	13	6	3	1	7	6	14	N. 11° W.	N. 36° W.	30	39	43	62	0·21	0·16	Calcutta (Alipore),	
·508	·629	·607	·581	+·062	92	82	72	82	+ 7	4·4	5·0	4·7	+3·1		16	15	1		10	11	1	8	N. 11° W.	N. 6° W.	24	20	134	166	1·95	0·75	Saugor Island.	
·547	·674	·660	·627	+·090	98	76	74	83	+ 5	5·1	5·7	5·4	+3·4	4	10	2	12	2	17	9	5	1	S. 12° E.	N. 57° E.	21	22	124*	147	1·42	0·60	False Point	
·269	·271	·263	·268	0	67	41	32	47	− 4	4·0	4·5	4·3	+2·0	3	17	5	3	1	7	8	7	11	N. 42° W.	N. 53° W.	32	49	101*	135	0·53	0·18	Hazaribagh	Gangetic Plain and Chota Nagpur.
·335	·402	·377	·371	−·025	90	66	48	68	− 3	0·8	0	0·4	+1·0	34			4	3	1	3	12	5	S. 82° W.	S. 80° W.	19	46	21	63	0·24	0·24	Darbhanga	
·295	·333	·317	·315	−·021	93	51	36	60	− 6	2·5	2·4	2·5	+0·4	5	4	12	17	5	2	2	8	7	N. 54° E.	N. 40° W.	29	25	74*	81	0	0	Allahabad .	
·209	·240	·225	·225	−·049	74	53	40	56	−11	3·7	3·0	3·4	−0·8	18	2		2	3	8	7	12	7	S. 65° W.	S. 69° W.	33	18	218	40	1·66	0·72	Dehra Dun.	
·238	·285	·274	·266	−·023	90	59	42	64	− 2	2·6	2·3	2·5	−0·9	16	1	5	3	9	1	3	1	23	N. 31° W.	N. 76° W.	21	19	50	51	1·63	0·79	Roorkee .	Upper Sub-Himalayas.
·240	·255	·241	·245	−·045	81	52	36	56	− 9	1·8	1·8	1·8	−1·4	14	9	1	5	2		7	15	9	N. 64° W.	N. 56° W.	35	42	31*	49	0·61	0·25	Meerut .	
·205	·259	·265	·243	−·029	77	57	41	59	− 4	2·6	2·7	2·7	−0·9	18	9	3	3	7	2		9	11	N. 28° W.	N. 27° W.	23	20	41	43	0·52	0·20	Lahore .	
·232	·244	·227	·234	−·055	81	57	38	59	−10	2·6	2·0	2·3	−2·1	11		8	2	3		5	25	8	N. 77° W.	N. 54° W.	30	29	38*	35	0·96	0·39	Ludhiana .	
·160	·221	·218	·200	−·025	68	55	41	55	− 7	3·1	2·9	3·0	−1·8	35	3	1	3	3	5	2	6	4	S. 67° W.	S. 2° W.	8	5	23*	64	1·41	0·65	Peshawar .	N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.
·176	·245	·254	·225	−·004	75	47	34	52	+ 3	1·4	1·8	1·6	−1·4	38	10			1		1		12	N. 33° W.	N. 4° W.	33	24	16*	51	0·05	0·05	Jacobabad .	
·241	·281†	·356†	·291	−·060	60	41†	44†	48	− 8	1·4	1·3	1·4	−1·2	1	4	21	10	4	9	5	4	4	N. 70° E.	N. 23° E.	30	23	158*	239	0·35	0·24	Kurrachee.	
·210	·227	·244	·227	−·047	58	38	30	42	−11	3·0	3·0	3·0	−0·2	5	3	16	19			3	3	13	N. 37° E.	N. 8° E.	43	18	74	83	0·15	0·14	Jaipur .	
·257	·245	·246	·249		77	36	29	47		1·7	2·5	2·1		24	5	7	10	3	1	3	7	2	N. 47° E.		14		84*		0	0	Udaipur .	E. Rajputana, C. India and Gujarat.
·206	·247	·211	·221	−·031	51	32	20	34	− 3	1·7	2·1	1·9	−0·3		14	20	7	2	4	2	7	6	N. 22° E.	N. 20° E.	44	38	179	208	0·02	0·02	Deesa .	
·248	·312	·293	·284		59	41	32	44		0·6	0·8	0·7			22	17	1			5	7	10	N. 7° W.		63		246*		0	0	Jamnagar .	
·144	·440	·421	·435	+·090	83	52	40	60	+13	3·2	2·7	3·0	+1·5	7	3	4	15	15	7	5	4	2	S. 55° E.	S. 75° E.	39	43	164	249	0	0	Belgaum .	Deccan.
·286	·446	·398	·410	+·060	69	50	34	51	+ 7	3·7	4·5	4·1	+2·3	1	2		4	42	3	4	2	4	S. 41° E.	S. 59° E.	65	55	237*	184	1·01	1·01	Sholapur .	
·343	·378	·400	·373	+·044	71	44	34	50	+ 2	3·4	4·2	3·8	+2·4	32		1	4	5			4	16	N. 40° W.	N. 50° E.	17	28	47*	88	0·18	0·18	Akola .	
·321	·335	·337	·331	+·021	63	41	36	46	+ 2	3·8	4·8	4·3	+2·3		8	4	3	10	10	6	6	15	N. 85° W.	N. 75° E.	23	13	125*	132	0·22	0·22	Buldana .	
·305	·350	·345	·333	+·008	68	42	30	47	− 2	3·0	3·3	3·2	+1·7	9	5	4	9	4	13	4	6	8	S. 2° E.	N. 21° E.	8	21	76	74	0·01	0·01	Khandwa .	
·352	·413	·425	·397	+·038	69	51	38	53	+ 1	2·4	3·4	2·9	+0·8	21	9	3	7	1	7	10	4		S. 17° W.	N. 71° E.	7	30	P	93	0·01	0·01	Nagpur .	
·374	·431	·490	·432		75	51	43	56		3·0	4·0	3·5		6		22		21		5		8	N. 82° E.		31		24*	P	0·05	0·05	Do. (Sanitary Commr.'s Office).	
·479	·509	·478	·489	+·052	87	58	44	63	+ 3	2·7	5·3	4·0	+2·4	30			12	17			3		S. 60° E.	S. 51° E.	39	60	69*	90	0·38	0·30	Hyderabad (Deccan).	
·499	·561	·598	·553	−·024	72	66	61	66	− 3	2·8	2·4	2·6	+1·2		10	12	10	1		1	4	24	N. 4° W.	N. 6° E.	55	56	218	239	0	0	Bombay .	
·607	·625	·638	·623	+·033	89	60	54	68	− 1	0·7	1·5	1·1	+0·4	7	3	10	3				14	25	N. 30° W.	N. 19° W.	57	53	76	73	0	0	Karwar .	West Coast.

† Mean of 28 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.
	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	29·107	28·968	·139	29·044			86·8	66·3	20·0	92·1	60·6	31·5	78·7	81·0	75·7		64·0	70·7	71·5	68·7
	Salem	940	·135	·991	·144	·066	+·015	29·945	88·2	65·9	22·3	94·5	60·9	33·6	80·1	85·8	75·7	+1·2	64·5	71·0	73·6	69·7
	Chitaldroog	2,405	27·641	27·516	·125	27·575	+·023	·898	84·4	62·8	21·6	89·1	54·4	34·7	76·0	82·3	73·1	+1·1	59·9	66·2	66·1	64·1
	Bangalore	3,021	·066	26·943	·123	·004	+·016	·922	81·9	60·3	21·6	88·3	55·0	33·3	72·8	79·3	70·4	+2·8	58·8	63·9	64·2	62·3
	Hassan	3,091	26·989	·871	·118	26·929	+·030	·907	80·6	58·0	22·6	84·1	50·5	33·6	73·9	79·5	69·1	+1·3	57·2	64·6	63·8	61·9
	Mysore	2,518	27·541	27·419	·134	27·477	+·022	·905	84·8	61·9	22·9	89·0	55·2	33·8	75·7	83·2	73·0	+1·7	60·3	65·7	65·0	63·7
	Madras	22	30·066	29·949	·122	30·004	+·016	·957	84·2	70·0	14·2	88·3	67·9	20·4	80·6	80·8	76·6	+1·1		74·3	73·8	72·8
	Bellary	1,475	28·584	28·439	·145	28·508	+·007	·928	88·9	64·2	24·7	96·0	56·9	39·1	77·5	86·3	75·6	+2·4	60·2	66·0	67·2	64·5
	Waltair	226	29·885	29·759	·126	29·822		·993	80·6	68·6	12·0	85·7	62·2	23·5	77·7	78·2	74·0		66·1	68·9	69·9	68·3
Hill Station, Baluchistan.	Quetta	5,502	24·737	24·652	·085	24·694	+·029		47·3	23·7	23·6	57·6	9·3	48·3	38·6	43·1	34·5	−5·1	22·8	33·3	36·0	30·7
Hill Stations, Northern India.	Leh	11,503	19·685	19·595	·090	19·641	+·016		27·1	7·3	19·8	37·3	−2·1	39·4	18·0	25·2	16·4	−2·1	3·4	9·6	12·8	8·6
	Srinagar	5,204	25·009	24·928	·081	24·969	+·002		45·7	21·8	20·9	54·5	17·5	37·0	33·7	43·7	34·7	+1·7	23·8	32·1	41·3	32·4
	Simla (Ridge)	7,224	23·156	23·098	·058	23·117	+·014		45·8	34·6	11·2	55·3	26·2	29·1	41·6	42·1	38·8	−1·8	29·7	33·5	35·3	32·8
	Chakrata	7,022	·344	·283	·061	·304	+·013		51·2†	35·0	16·2	57·8	27·4	30·4	40·8	44·7	41·5†	−0·1	30·0	34·4	37·2	33·9
	Ranikhet	6,069	24·197	24·112	·085	24·140	+·029		52·5	39·5	13·0	61·4	30·0	31·4	46·2	48·4	44·5	−1·5	34·9‡	39·2	40·2	38·1
	Muktesar	7,000	22·908	22·839	·067	22·873			49·2	34·8	14·4	58·9	24·7	34·2	44·1	45·0	41·0		29·1	35·8	37·5	34·1
	Katmandu	4,388	25·809	25·709	·100	25·753	?		63·0	33·0	30·0	67·3	27·6	39·7	46·1	59·5	47·2	−3·1	31·8	41·9	48·9	40·9
	Darjeeling	7,376	23·031	22·972	·059	22·996	+·005		45·9	33·6	12·3	54·4	30·1	24·3	41·3	43·1	39·1	−0·2	32·0	37·2	39·0	36·1
Hill Stations, Central India.	Mount Abu	3,945	26·157	26·080	·077	26·106	−·015		63·7	50·8	12·9	70·1	38·6	31·5	59·8	60·7	56·5	−1·1	42·5	47·2	47·6	45·8
	Pachmarhi	3,528	·590	·484	·106	·529	+·006		72·7	50·1	22·6	77·5	40·8	36·7	65·6	70·0	59·0	+2·0	46·7	53·8	56·3	52·3
	Chikalda	3,642	·463	·368	·095	·407	−·094		73·3	56·6	16·7	77·8	50·6	27·2	66·2	70·8	62·6	+0·2	50·0	56·1	58·5	54·8
Hill Stations, S. India.	Kodaikanal	7,688	22·908	22·832	·076	22·865			61·0	47·6	16·4	71·1	43·5	27·6	60·4	57·4	54·0		42·2	51·5	53·6	48·8
	Ootacamund		23·138	23·057	·081	23·097			65·2	43·5	21·7	70·2	36·0	34·2	61·7	60·0	53·0		39·8	50·9	53·5	48·1
Extra India.	Aden	94	30·007	29·902	·105	29·947	+·020	·974	77·9	72·0	5·9	80·5	68·9	11·6	75·9	77·3	75·0	−1·0	67·4	69·9	69·7	69·0
	Perim	201	29·856	·748	·108	·794	+·028	·931	81·3	73·3	8·0	83·9	70·0	13·9	77·5	78·7	76·6	−0·8	69·0	71·9	71·7	70·9
	Minicoy	7											Not	received.								
	Zanzibar	73	·925‡	·818	·107	·872	+·031	·870‡	86·3	79·8	6·5	89·7	75·6	14·1	83·4‡	86·0	83·0	+0·6	76·2	79·0	79·5	78·2
	Port Victoria (Seychelles)	15	·969	·877	·092	·923	−·002	·862	83·5	75·0	8·5	85·6	72·1	13·5	81·7	82·9	79·1	−0·6	73·8	77·0	77·2	76·0
	Mauritius (Pamplemouses)	181				·709	−·023	·834				89·0	66·6	22·4			78·9	0				75·0

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

II—*concluded.*

61 Stations in India, Burma, etc., in January, 1903—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
																									%	%						
·570	·647	·604	·618		68	66	53	69		3·3	4·0	4·1		2	5	5	21	12	4	3	6	3	S. 80° E.		57		47*		1·06	0·76	Periyakulam**	South India.
·591	·647	·675	·638	+·074	93	62	55	70	+ 5	4·9	5·0	5·6	+2·2	12		8	39	1				2	N. 82° E.	N. 82° E.	71	62	99*	117	0·02	0·02	Salem	
·483	·524	·446	·484	+·130	84	58	40	61	+15	3·7	3·0	3·4	+1·6	5	2	7	26	14	1	2	2	3	S. 85° E.	S. 88° E.	56	77	105*	175	0	0	Chitaldroog	
·481	·492	·429	·467	+·062	91	61	44	65	+ 4	2·2	3·3	2·8	+0·3	1	1	8	29	20	1	1	1		S. 79° E.	N. 88° E.	79	79	182*	111	0	0	Bangalore	
·464	·504	·413	·460	+·075	95	60	41	65	+ 8	4·6	4·3	4·5	+1·4	2		14	28	16	1			1	S. 88° E.	N. 87° E.	79	74	54*	75	0	0	Hassan	
·510	·510	·397	·472	+·025	91	57	35	61	+ 1	6·4	4·7	5·6	+2·8		2	13	23	17	1	3	1	2	S. 86° E.	N. 82° E.	64	83	189*	218	0	0	Mysore	
	·765	·741	·757	+·103		74	71	83	+ 8	4·2	3·5	3·9	−0·1		4	23	27	6	2				N. 71° E.	N. 49° E.	79	78	115	141	4·53	3·26	Madras	
·478	·501	·432	·470	+·014	79	53	35	56	+ 4	4·6	4·7	4·7	+2·5	2	2	5	12	17	16	2	2	4	S. 45° E.	S. 68° E.	43	64	86*	81	0	0	Bellary	
·611	·591	·626	·609		67	62	64	71		3·9	3·6	3·8				27	4	9	2	20			S. 77° E.		26		108		0	0	Waltair	
·116	·140	·141	·132	−·026	92	63	54	70	+ 3	1·8	3·2	2·5	−1·6	14	15	2	2	8	4	5	6	6	N. 30° W.	N. 85° W.	14	25	60*	74	1·02	0·48	Quetta	Hill Station, Baluchistan.
·024	·019	·014	·019	−·053	34	17	9	20	P	5·0	5·7	5·4	−1·2		1	5	4		29	20	3		S. 14° W.	S. 10° W.	64	29	54	22	0·29	0·11	Leh	
·122	·165	·238	·175	+·021	89	84	82	85	+ 3	5·9	4·0	5·0	−2·9	28	3	4		6	5	1	1	14	N. 40° W.	S. 37° E.	11	10	47*	71	3·17	1·25	Srinagar	Hill Stations, Northern India.
·119	·113	·137	·123	−·024	62	45	53	53	− 5	4·6	4·7	4·7	−0·9	27	4			4	26	1			S. 5° E.	S. 7° E.	42	31		128	2·93	0·76	Simla (Ridge)	
·121	·136	·147	·135	−·021	61	55	52	56	− 6	3·8	3·3	3·6	−1·0	9	14	6		11	17	1		4	S. 63° E.	S. 84° W.	16	5	162	123	4·12	1·41	Chakrata	
·155†	·171	·166	·164	−·029	64	56	51	57	− 6	3·5	3·4	3·5	−0·6	23	1	5	4	1		10	14	4	S. 89° W.	S. 51° W.	26	15	39*	44	2·11	0·80	Ranikhet	
·107	·127	·150	·128		55	46	52	51		4·2	4·0	4·1		8	1	2	4	23	2	4	5	13	S. 26° E.		18		118*		2·44	0·86	Muktesar	
·170	·223	·226	·306	+·057	88	70	45	68	− 5	1·6	1·2	1·4	−1·9		5		6		2	1	41	7	N. 80° W.	N. 76° W.	66	49	19	21	1·06	0·82	Katmandu	Hill Stations, Northern India.
·166	·181	·197	·181	−·022	86	70	71	76	− 5	4·4‡	5·1‡	4·9	−0·8	2	2	5	2	3	1	5	27	15	N. 74° W.	S. 89° W.	56	22	91*	88	0·13	0·13	Darjeeling	
·184	·188	·185	·186	−·021	48	35	34	39	− 4	2·8	2·9	2·9	+0·5	1	10	16	2	6	4	16	1	6	N. 10° E.	N. 69° W.	10	11	156*	119	0	0	Mount Abu	Hill Stations, Central India.
·287	·283	·303	·291	+·007	77	44	41	54	− 1	3·3	4·5	3·9	+1·6	5		8		6	2	21	4	16	S. 79° W.	N. 79° W.	34	10	94*	78	0·43	0·43	Pachmarhi	
·239	·337	·353	·326	+·017	62	53	47	54	+ 2	3·4	4·3	3·9	+1·7	37	5	1		2	4	10		3	S. 57° W.	S. 40° W.	14	24	168*	123	0·11	0·09	Chikalda	
·219	·294	·375	·295		66	55	80	71		3·1§	5·6§	4·4			4	5	9	17	18	1		7	S. 46° E.		42		287		1·25	0·50	Kodaikanal**	Hill Stations, S. India.
·211	·263	·345	·273		74	49	67	63		3·1	5·3	4·2		38	2	5	7	5	3			2	N. 85° E.		21		33*		0·12	0·06	Ootacamund	
·615	·653	·631	·633	−·007	78	73	67	73	+ 1	7·6	4·2	5·9	+2·1			21	27	12				2	N. 81° W.	N. 89° E.	79	70	346*	319	3·31	1·20	Aden	Extra India.
·651	·710	·684	·682	+·020	79	75	70	75	+ 5	0·5	0·6	0·6	−1·8		1		19	37				5	S. 63° E.	S. 63° E.	76	78	424*	472	0·67	0·35	Perim	
																															Minicoy	
·856	·935†	·924	·905	+·055	84	81	74	80	+ 3	7·0‡	5·4	6·2	+1·8		24	21	8	1	2	1	1	3	N. 28° E.	N. 35° E.	68	69	187*	196	2·17	0·95	Zanzibar	
·825	·869	·859	·851	+·031	95	80	76	84	+ 4	7·6	7·9	7·8	+0·8	3	7	5	2	4	2		7	32	N. 36° W.	N. 43° W.	56	66	163	144	18·44	4·50	Port Victoria (Seychelles).	
			·795	+·054				80	+ 6			7·1	+0·6										N. 77° E.	N. 87° E.			202	266	9·38	4·24	Mauritius (Pamplemousses)	

† Mean of 23 days. ¶ Mean of 27½ days. ** Wind variable. * Corrected.

C. I. C. P. O.—No. 50 Meteor.—27-5-1903—385.—J. W. G.

Reg. No 242, Wr. 1.—May 02.

LITHO. BY J. H. 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.

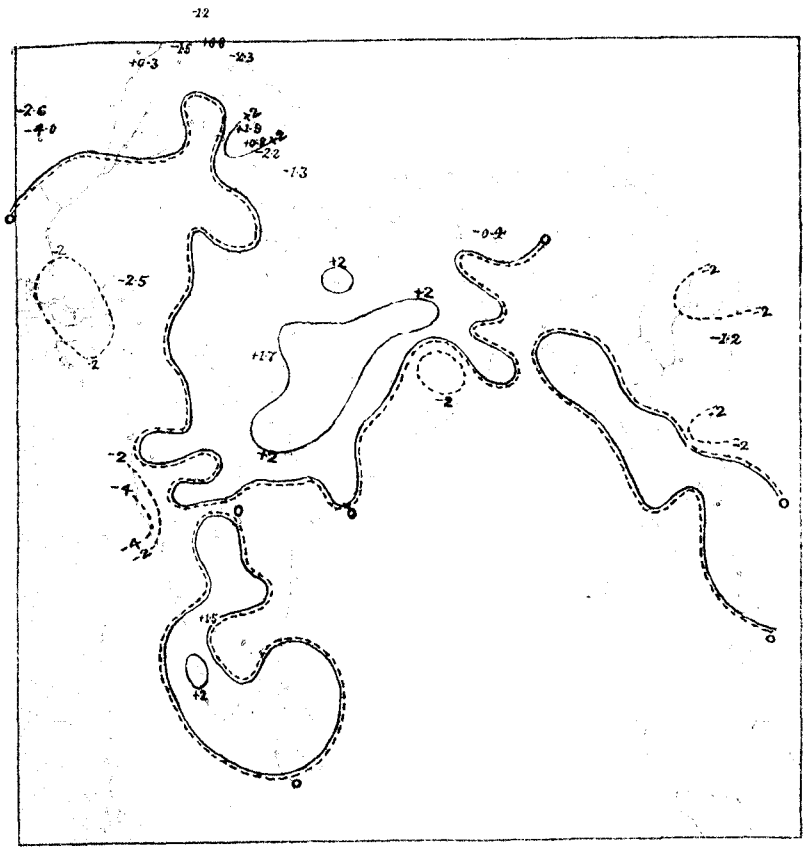
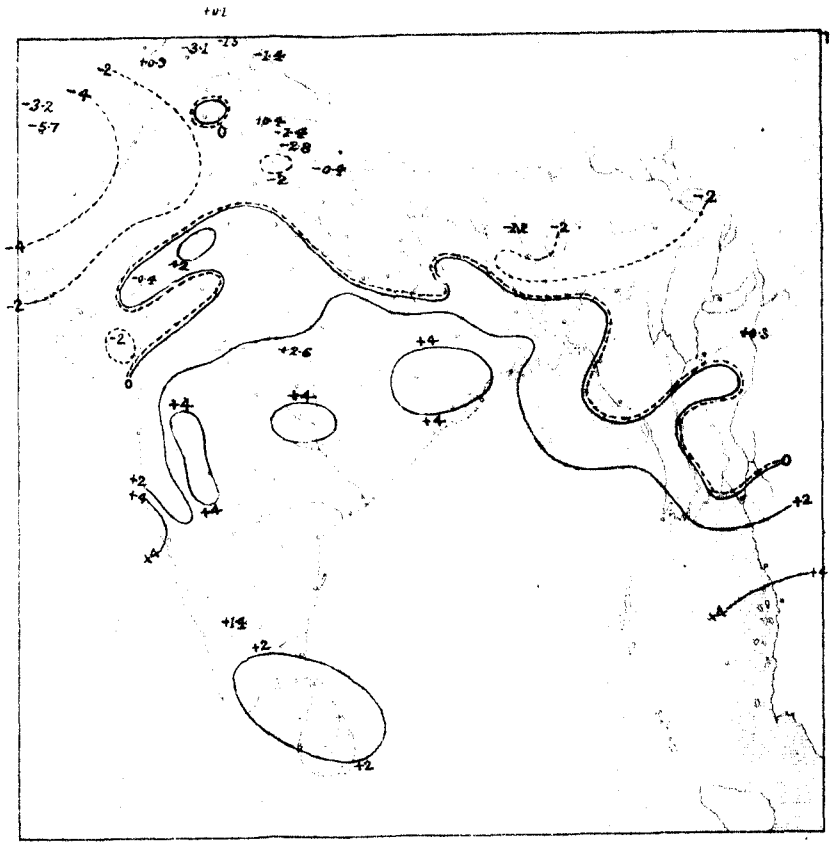


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

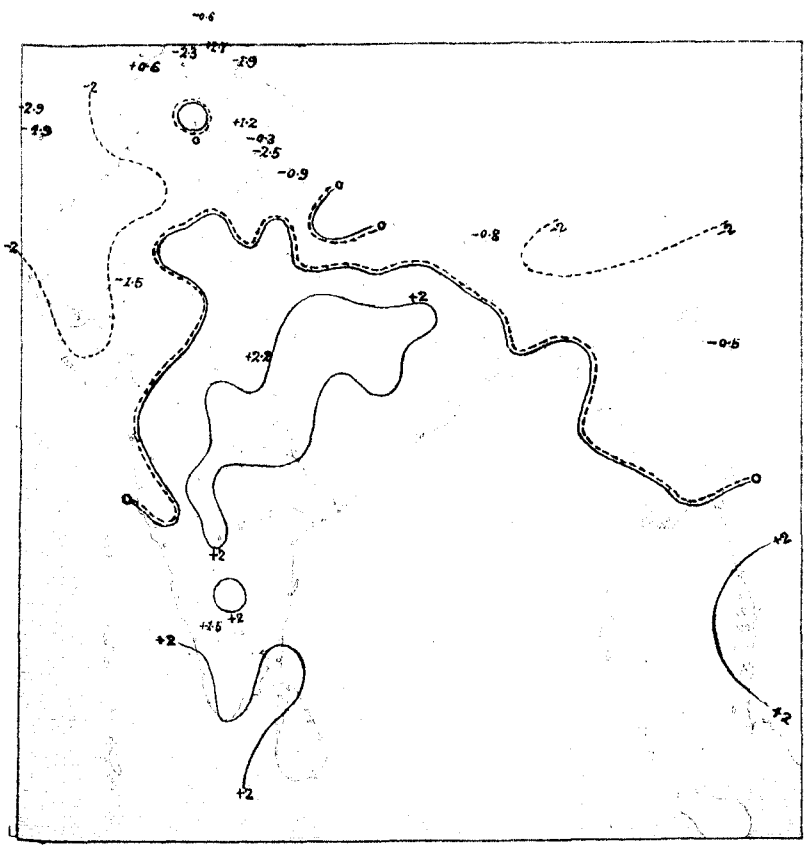
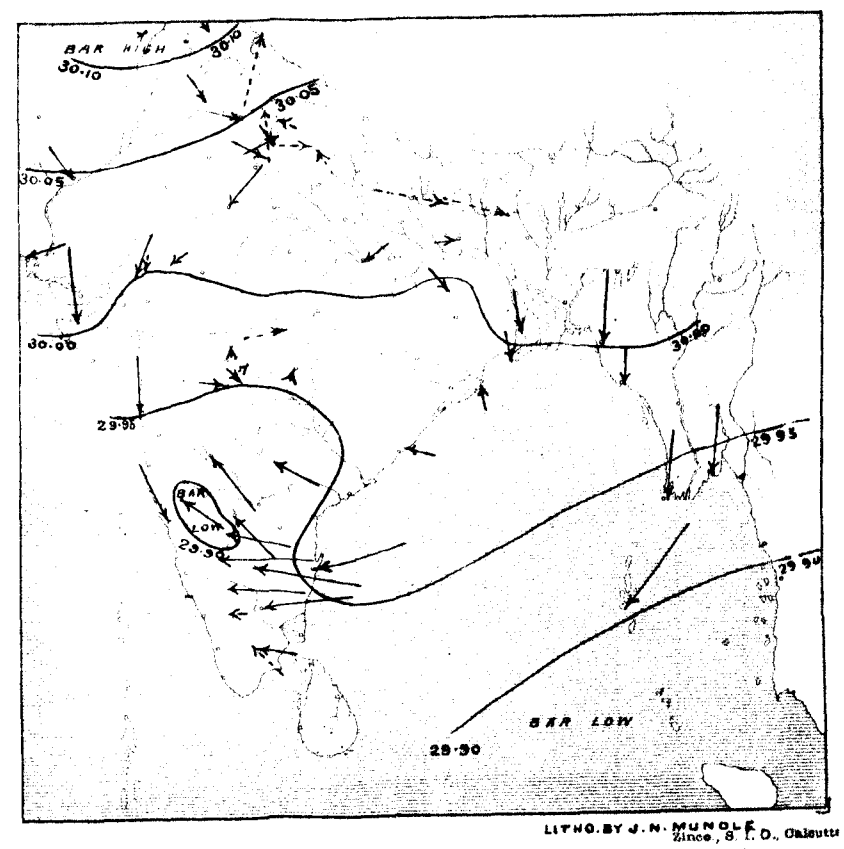


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JANUARY 1903.



LITHO. BY J. N. MUNGLE Since, S. T. O., Calcutta

Explanation.

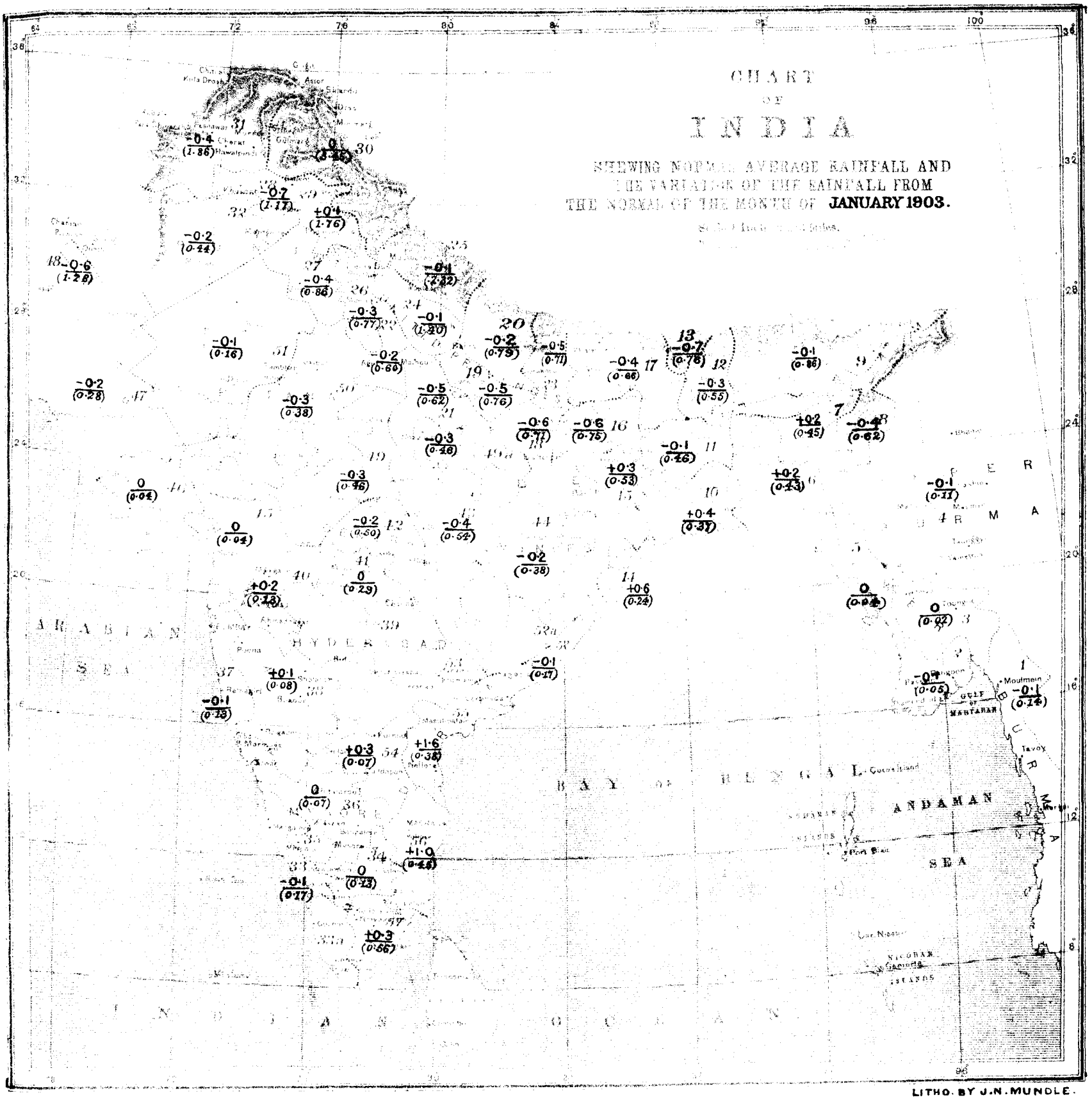
Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of 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 $\frac{1}{8}$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 on 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 notched line faces the area of no rainfall.



LITHO. BY J.N. MUNDLE.

Remarks

The [illegible] the variations of the rainfall of the month [illegible] the whole of India and [illegible] Upper Burma, for which [illegible] number of years to [illegible] The country is divided into [illegible] conditions are fairly [illegible] similar in character and the [illegible] been calculated, [illegible] the difference between the actual [illegible] of each division during the [illegible] and a negative sign that it was [illegible] by the amounts indicated by the numbers to which [illegible] normal average rainfall is also given [illegible] in smaller figures enclosed within [illegible] that the [illegible] The name of the division to which any one [illegible] ascertained by referring, in the following list, [illegible] right hand boundary of each district is [illegible] sloping red figures.

1. Tenasserim
2. Lower Burma (rice)
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 do.
18. Central Provinces, East
19. South Oudh
20. North do.
21. Central Provinces, Central
22. do. West
23. do. East satpura dist.
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. North West
34. Central Provinces, East
35. South Oudh
36. North do.
37. Central Provinces, Central
38. do. West
39. do. East satpura dist.
40. do. West do.
41. do. Hills
42. South East Punjab
43. South do.
44. Central do.
45. Punjab, Submontane
46. Do., Hills
47. North Punjab
48. West do.
49. Sind
50. Malabar
51. Travancore
52. Madras, South Central
53. Coorg
54. Mysore
55. Konkan
56. Bombay Deccan
57. Hyderabad, North
58. Khandesh
59. Berar
60. Central Provinces, West
61. Do., Central
62. Do., East
63. Gujarat
64. Kathiawar
65. Sind
66. Nilgiri and Palni Hills
67. Carnatic, East
68. Do. do.
69. Konkan, Central India West
70. Do. West
71. Madras, East Coast, North
72. Do. do. do. (a)
73. Hyderabad, South
74. Madras, Central
75. Madras, East Coast, Central
76. Do. East Coast, South
77. Madras, South

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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, FEBRUARY, 1903.

INTRODUCTION.

THIS review of the weather in India during the month of February 1903 is based on observations taken daily at 8 A.M. at 231 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 62 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, 1903.

The meteorology of the month of February, 1903, was characterized by abnormal features similar to those which prevailed in February, 1902, but in a less intense form. There was a considerable, persistent and general excess of pressure, great dryness of the air, absence of cloud and deficiency of rainfall, but the temperature, unlike last February, was in defect over the greater part of the country.

Except quite at the close of the month, anti-cyclonic conditions prevailed over the whole of north-western and central India, while to the south and east of this anti-cyclonic area, *i.e.*, over the south of the Central Provinces and over north-east India, feeble depressions or storms appeared at intervals occasioning slightly unsettled weather.

The month may be divided into three periods, *viz.*, from the 1st to the 11th, the 14th to the 20th, and the 21st to the 28th, with a short period of transition on the 12th and 13th.

The chief features of the weather of the first period were due to the march across India of two cold waves attributable apparently to snowfall in Kashmir and round the north-west frontier of India. At the commencement of the month the weather was fine, except in two areas. The first included parts of north-east India, where a slight depression had occasioned showers in east Bengal, Assam and upper Burma, and the second the west Himalayas, where the weather was slightly unsettled. The mean temperature was higher than usual over and around the Bay and the extreme south of the Peninsula, but was in defect in all other places—more particularly over Rajputana and the Central India plateau. At this time pressure was higher than usual, except over the Indus valley region and the south-west of the Peninsula. During the next four days the weather in the north-west was affected by a very shallow storm, which entered north-west India from countries to the westward and occasioned slight to moderate snow over Baluchistan and the mountains around the north-west frontier. This snowfall was succeeded by a fresh decrease of temperature over northern India, causing an intensification and extension of the already existing low temperatures. The following gives data for all divi-

sions for February 5th, and shows the extent and intensity of the cold wave:—

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

On the 5th a feeble depression was developed over the north Deccan within the area outlined by the stations of Chanda, Amraoti and Akola, and the cloudy weather which accompanied this condition occasioned relatively high temperatures over the central parts of the country, while both in the north-east and north-west the temperature conditions were unaltered. This occasioned on the 6th a distribution of temperature relatively to the normal, which is illustrated in the following table:—

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

The storm drifted northward and north-eastward and finally filled up over Bengal, having given the following light falls of rain:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 7th February, 1903.
		Inch.
Palamau	Nagarutari	0·12
Champaran	Burhurwa	0·11

Between the 6th and the 11th the cold wave gradually drifted eastward and decreased in intensity, so that while there was some fall of temperature over north-east India there occurred a fairly general rise over other parts of the country.

On the 12th and 13th the cold wave had almost disappeared and the mean temperature was, except in Burma, Assam and Orissa, above the normal in nearly all divisions. The following gives 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	
	12th February.	13th February
	°	°
Burma	—1·6	—2·7
Assam	—2·2	—0·3
Bengal	—1·0	+1·4
Orissa	—1·5	—0·2
Bihar	—0·4	+3·2
Chota Nagpur	+2·1	+7·2

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	12th February.	13th February.
	°	°
United Provinces of Agra and Oudh	+3·1	+2·0
Punjab	+1·3	+1·0
N.-W. F. Province	—0·1	+0·2
Sind	+2·4	—1·1
Rajputana	+3·3	—0·5
Gujarat	+1·4	—1·2
Central India	+3·7	+1·3
Central Provinces	+2·3	+1·6
Berar	+1·8	+1·0
West Coast	+1·8	+0·7
Bombay Deccan	+0·4	+0·3
Mysore	+0·7	+4·1
Madras Coast	+0·2	+0·4
Madras Deccan	—0·9	+2·5
South India	+0·6	+1·3

On the 13th a sudden fall of temperature occurred over Gujarat accompanied with a considerable and remarkable fall of humidity. This fall of temperature spread all over western and central India, and this diminished temperature continued as a marked feature of the weather up to the 20th. During this period considerable changes occurred in the north-east. Temperature rose and was very high over west Bengal on the 13th and 14th, and within this area of excessive temperature a slight storm or barometric depression was formed which occasioned showers over Bengal and Assam and brought about a sudden fall of temperature over north-east India. The rainfall due to this depression was moderately heavy and lasted from the 14th to the 16th. The following were the principal amounts recorded between those dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Darrang	Kabira	14th February	1·30
	Attarikhat	,, ,,	1·17
	Singrimari	,, ,,	1·09
Khulna	Mollahat	15th ,,	3·25
Dacca	Manikganj	,, ,,	3·20
	Narayanganj	,, ,,	2·91
	Dacca	,, ,,	2·64
Jessore	Narail	,, ,,	2·09
Chittagong	Cox's Bazar	16th ,,	1·13

This rainfall, as mentioned above, reduced temperature quickly in the north-east, and the following comparative data for the 17th for all divisions illustrate the temperature conditions existing at this time :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 17th February.	Mean minimum temperature, 17th February.	Mean daily temperature, 17th February.
	°	°	°
Burma	—2·9	+0·5	—1·2
Assam	—0·7	—2·4	—1·6
Bengal	—2·4	+0·9	—0·8
Orissa	—4·1	0	—2·1
Bihar	—0·9	+1·0	+0·1
Chota Nagpur	—1·9	—0·3	—1·1
United Provinces of Agra and Oudh.	+0·6	+1·5	+1·1
Punjab	+3·9	+3·8	+3·9
N.-W. F. Province	+6·8	—0·4	+3·2
Sind	+3·8	+2·9	+3·4
Rajputana	—3·0	—0·1	—1·6
Gujarat	—3·3	+1·6	—0·9
Central India	—1·0	—0·4	—0·7
Central Provinces	—2·1	—4·5	—3·3
Berar	—3·3	—8·2	—5·8
West Coast	—4·0	—1·9	—3·0
Bombay Deccan	—1·7	—5·3	—3·5
Mysore	+2·9	+0·2	+1·6
Madras Coast	+1·0	+4·8	+2·9
Madras Deccan	+1·4	—1·6	—0·1
South India	+3·6	+6·4	+5·0

The last eight days of the month were principally remarkable for the appearance of a warm wave over north-west India and its passage eastward across the country. The warm wave appeared in Baluchistan on the 20th and gradually intensified and extended eastward. It covered the whole of north-western and western India by the 25th, had reached west Bengal by the 26th, east Bengal by the 27th and Arakan by the 28th. The excess of temperature due to this warm wave was greatest in Baluchistan and north-western and western India. The following temperature variation data from the 21st to the

28th for Baluchistan and north-west India illustrate the intensity of this warm wave :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of							
	21st Feb.	22nd Feb.	23rd Feb.	24th Feb.	25th Feb.	26th Feb.	27th Feb.	28th Feb.
	°	°	°	°	°	°	°	°
United Provinces of Agra and Oudh.	—0·4	—1·8	— 3·7	— 2·3	— 0·3	+ 2·5	+ 3·7	+ 4·9
Punjab . . .	+ 1·7	+ 2·5	+ 2·7	+ 3·0	+ 6·4	+ 7·1	+ 8·4	+ 10·6
N.-W. F. Province .	+ 3·7	+ 4·8	+ 6·9	+ 2·9	+ 5·6	+ 6·2	+ 10·2	+ 9·6
Baluchistan . .	+ 3·4	+ 5·6	+ 10·5	+ 15·8	+ 12·2	+ 12·9	+ 14·5	+ 5·2
Sind	+ 3·1	+ 3·5	+ 5·2	+ 5·0	+ 2·2	+ 3·8	+ 5·3	+ 6·2
Rajputana . . .	—0·8	— 1·4	+ 0·6	+ 2·3	+ 4·5	+ 5·3	+ 7·1	+ 8·0
Gujarat . . .	+ 2·4	+ 1·5	+ 0·1	+ 1·2	+ 3·0	+ 3·5	+ 3·2	+ 2·4
Central India . .	—1·3	—2·5	— 2·6	— 1·8	— 0·1	+ 4·6	+ 4·4	+ 4·6

The warm wave above described preceded the entry into north-west India of a slight storm which had advanced from the Persian-Baluchistan area. This storm and the generally unsettled conditions prevailing over Persia, etc., at this period had given five days (24th—28th) rain and snow to Afghanistan and the mountain regions around the north-west frontier of India. This snowfall had commenced to affect the temperature conditions in Baluchistan, Afghanistan, etc., on the last day of the month, on which day the mean temperature had fallen 8·8° at Quetta and 9·0° at Chaman compared with the temperature of the previous 24 hours.

Pressure.—The mean pressure of the Indian land area was largely above the normal. The mean excess was 0·068″ which, though 0·020″ less than in February, 1902, was very much larger than usual. The excess of pressure extended southwards over the Arabian Sea and Indian Ocean as far as the Seychelles and Zanzibar, westward over Afghanistan, Persia and Asiatic Turkey, as far as the Levant, and northward as far as Leh. It was apparently at a maximum over the Persian Gulf, where it exceeded one tenth of an inch.

The local variations of pressure over India (*i.e.*, the variations relatively to the general condition of excess, *viz.*, 0·068″) were generally small in amount. They were negative over the west and south of the Peninsula, in the Indus valley and in the Gangetic plain and deltaic Bengal, and were positive over the remainder of India. They were, as mentioned above, small in amount, and exceeded 0·020″ only at the stations for which data are given below :—

Stations.	Negative anomalies.	Stations.	Positive anomalies.
	″		″
Salem	—·035	Bhamo . .	+·026
Mangalore	—·034 ?	Sirsa . .	+·026
Trichinopoly	—·030	Kurrachee . .	+·025
Colombo	—·027	Bhuj . .	+·021
Cochin	—·026		
Calicut	—·024		
Bangalore	—·022		
Madras	—·022		
Negapatam	—·021		
Poona	—·021		

The excess was generally less at the hill stations than on the neighbouring plains.

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, 1903.	Pressure anomaly, February, 1903.
	″	″
Burma Coast and Bay Islands . . .	+·071	+·003
Burma Inland	+·084	+·016
Assam	+·069	+·001
Bengal and Orissa	+·072	+·004
Gangetic Plain and Chota Nagpur . .	+·063	0
Upper Sub-Himalayas	+·076	+·008
Indus Valley and North-West Rajputana .	+·074	+·006
East Rajputana, Central India and Gujarat	+·074	+·006
Deccan	+·064	—·004
West Coast	+·058	—·010
South India	+·056	—·012

Temperature.—The mean temperature conditions of the month were less anomalous than those of February, 1902, as the increased pressures were accompanied over the greater part of the country with lower temperatures than usual.

The mean maxima or day temperatures of the month were excessive over Sind and over large parts of the Punjab, Rajputana and the Gangetic plain. They were likewise in excess over the extreme south of the Peninsula, Ceylon and Tenasserim. The variations were not generally considerable, but amounted to 4·1° at Rawalpindi and to 5·3° at Khushab. Over the whole area intervening between these two regions of excess the mean maximum temperature was lower than usual. The negative variations were also generally small, but were considerable along a line connecting the mid-west coast with upper Burma and were greatest at Ratnagiri (—2·7°), Sholapur (—2·0°), Sambalpur (—2·5°), Cuttack (—4·5°), Chaibassa (—3·2°) and Bhamo (—4·2°).

The mean minimum temperature of the month exhibited variations from the normal generally similar to those of the mean maximum. The mean minimum temperature was higher than usual in the Punjab and over Madras and Tenasserim and lower than usual over the whole intervening region. The following shows the principal varia-

tions, and illustrates the distribution of this element relatively to the normal:—

MEAN MINIMUM TEMPERATURE.

Station.	Positive variation of actual from normal, March 1903.	Station.	Negative variation of actual from normal, March 1903.
	°		°
Peshawar	+2·2	Bikaner	−2·8
Sialkot	+2·1	Neemuch	−3·3
Madras	+3.8	Jubbulpore	−3·9
Trichinopoly	+3·3	Allahabad	−3·5
Negapatam	+4·8	False Point	−2·6
Mergui	+3·5	Akyab	−1·3

At most of the north-western hill stations and in Baluchistan the mean minimum temperature was higher than usual, but at the stations in the eastern Himalayas and at the central hill stations it was lower.

As the distribution of the variations of the mean maximum and mean minimum temperatures of the month was generally similar, the mean temperature exhibited the same general characteristics. The heat was somewhat greater than usual over the Punjab and Sind, as well as over the south and south-east of the Peninsula, the Burma coast and Tenasserim, while the whole of the large intervening region was occupied with abnormally low temperatures. The excess was considerable at Peshawar (+2·5°), at Rawalpindi (+2·8°), at Sialkot (+2·6°), at Negapatam (+3·2°) and at Mergui (+2·2°), while the deficiency was considerable at Rajkot (−2·2°), Neemuch (−2·2°), Jubbulpore (−2·3°), Cuttack (−3·0°) and Bhamo (−2·8°).

The following table gives mean comparative data of temperature for the eleven meteorological provinces or divisions into which India is divided:—

Meteorological Province.	Variation of actual from normal of		
	Mean maximum temperature, February, 1903.	Mean minimum temperature, February, 1903.	Mean daily temperature, February, 1903.
	°	°	°
Burma Coast and Bay Islands	−0·3	+1·5	+0·7
Burma Inland	−1·8	+0·1	−0·9
Assam	−0·9	−1·1	−1·0
Bengal and Orissa	−1·4	−0·8	−1·1
Gangetic Plain and Chota Nagpur	−0·3	−1·9	−1·1
Upper Sub-Himalayas	+1·3	−0·2	+0·6
Indus Valley and North-West Rajputana.	+1·9	−0·8	+0·6
East Rajputana, Central India and Gujarat.	−0·7	−1·9	−1·3
Deccan	−1·0	−1·5	−1·3
West Coast	−0·2	−0·5	−0·4
South India	0	+1·9	+1·0

Winds.—The wind was slightly stronger than usual over the Indian seas—less so in the Arabian sea than in the Bay of Bengal. The air movement was, on the contrary, generally weaker than usual over the Indian land area, where it was also generally unsteady and variable. This weakness of the winds was also felt at Aden, Perim, Port Blair, and to a less extent at the Seychelles. The variations of the direction of the mean air movement of the month were generally small in amount and irregular. There was again slightly increased northing in the winds at Port Blair and on parts of the Burma coast, but the most important variation was the increased westing and steadiness in the winds over upper India, due apparently to the comparative absence of cold weather storms. In Kashmir the wind was also more westerly than usual, a variation which was accompanied with largely increased rainfall and snowfall.

Humidity.—One of the most marked features of the month was the abnormal dryness of the air. As in the previous year, the relative humidity of the month was lower than usual over nearly the whole country, though the amount of the deficiency was considerably less than in February, 1902. The driest period was from the 10th to the 16th, and during that period the relative humidity fell to below 10 % at several stations. The air was damper than usual over Mysore, the Madras Deccan and the south of the east coast, and was locally damper at Chittagong and Jacobabad and Quetta. In all other places the air was drier than usual, more particularly over the area represented by the stations of Meerut, Delhi, Agra and Bareilly, which area for the past few months has been the seat of the greatest deficiency of humidity.

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, 1903:—

Meteorological Province.	Mean absolute humidity.		Mean relative humidity.	
	Average actual, February, 1903.	Variation of actual from normal, February, 1903.	Average actual, February, 1903.	Variation of actual from normal, February, 1903.
	"	"	%	
Burma Coast and Bay Islands.	·688	+·001	68	−3
Bengal and Orissa	·533	−·022	70	−2
Gangetic Plain and Chota Nagpur.	·296	−·025	50	−4
Upper Sub-Himalayas	·258	−·032	54	−7
Indus Valley and North-West Rajputana.	·311	+·020	51	−2
East Rajputana, Central India and Gujarat.	·203	−·040	32	−5
Deccan	·296	−·033	37	−3
West Coast	·566	−·059	66	−5
South India	·516	+·065	57	+5

Cloud.—The skies, on the mean of the month, were unusually clouded over two areas. The first included the Bay Islands, Burma, Assam, Bengal and Orissa; the second

included the interior and southern districts of the Peninsula. The excess in these areas was generally small, but was more than 1·0 at Akyab (+1·2), Hyderabad (+1·6), Mysore (+1·9) and Salem (+1·9). Over the whole of the remainder of the country, both on the hills and plains, the sky was unusually clear. The deficiency in the cloud amount was greatest in the north-west, due to the comparative absence of cold weather storms, and amounted to 2·2 at Ludhiana, to 2·0 at Kurrachee, to 1·5 at Jacobabad and Deesa, to 1·1 at Roorkee and to 1·0 at Meerut. In the equatorial belt, on the other hand, there was a large excess of cloud.

The following gives variation data of the mean cloud amount of nine meteorological provinces for the month of February 1903:—

Meteorological Province.	Mean cloud amount.	
	Average actual, February, 1903.	Variation of actual from normal, February, 1903.
Burma Coast and Bay Islands	2·6	+0·6
Bengal and Orissa	2·7	+0·5
Gangetic Plain and Chota Nagpur	1·9	−0·2
Upper Sub-Himalayas	2·8	−1·0
Indus Valley and North-West Rajputana	2·2	−1·4
East Rajputana, Central India and Gujarat	1·7	−1·1
Deccan	1·3	−0·2
West Coast	0·3	−0·6
South India	2·7	+0·7

Rainfall.—The rainfall of the month of February, 1903, was exceptionally deficient, except over the Burma coast and around the head of the Bay. In this area the small normal rainfall of the month was exceeded. In all other parts of the country the rainfall was even lighter than usual, and over Inland Burma, north-western and central India and the Deccan the mean actual rainfall of the month was less than one tenth of an inch. The snowfall around the north-west frontier was generally lighter than usual, but there occurred a heavy fall over Further Kashmir and in Afghanistan during the last four days of the month.

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

Meteorological Province.	Rainfall.			
	Mean actual for February, 1903.	Mean normal for February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	0·98	0·44	+0·63*	+143
Burma Inland	0·01	0·15	−0·14	− 93
Assam	1·14	1·49	−0·35	− 23
Bengal and Orissa	1·15	0·90	+0·25	+ 28
Gangetic Plain and Chota Nagpur	0·14	0·67	−0·53	− 79
Upper Sub-Himalayas	0·04	1·37	−1·34*	−98
Indus Valley and North-West Rajputana.	0·01	0·46	−0·45	−98
East Rajputana, Central India and Gujarat.	0·03	0·18	−0·16*	−89
Deccan	0·06	0·28	−0·22	−79
West Coast	0·30	0·21	+0·09	+43
South India	0·25	0·38	−0·13	−34

* 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.

So far the discussion has been concerned almost wholly with the meteorological changes and features within India and the Indian seas. In the following paragraphs a brief account is given of the larger meteorological changes which have affected extra-Indian countries so far as they appear to be, or may possibly be, connected with the Indian weather.

The barometric changes over western Siberia during February, 1903, were large and irregular. Between the 1st and the 3rd the barometer fell more or less rapidly followed by a brisk to rapid recovery on the 4th, another fall occurred on the 7th, another on the 10th and 11th, a fourth on the 18th and a fifth on the 24th and 25th. These changes were in some cases reproduced in the movements of the barometer at Chitral and Gilgit, but the connexion was very uncertain, and on most occasions the changes in western Siberia and those in Kashmir, etc., were far from synchronizing. The rapid barometric fall which occurred between the 23rd and the 26th was accompanied with heavy snow in Afghanistan and Further Kashmir, while there was no precipitation over Baluchistan or north-west India, and on this occasion the weather over Afghanistan and the most northern districts of the Indian region appears to have been connected with changes taking place over central Asia. This was indicated at the time in the Indian Daily Weather Report.

Turning to the countries to the west of the Indian region the European reports show that from the 1st to the 5th pressure was low over the Mediterranean, and that a depression was passing eastward from Sardinia to the Levant. After the disappearance of this storm pressure increased and a high pressure area appeared over western, central and southern Europe, whence it subsequently (about the 19th) extended over the Caspian area. Between the 6th and the 19th the pressure conditions over the Eur-Asian continent were therefore favourable for the appearance of storms over Asiatic Turkey and Persia, and the slight storms which affected the Persian area and subsequently passed on to India occurred between the 7th and the 9th, the 13th and 16th and the 20th to the 23rd. On the 6th the barometer fell nearly 0·3″ at Baghdad, but the fall lost very much in intensity as it advanced eastward, and the depression was exceedingly slight when it entered the Indian area. On the 13th and 14th there

was a very rapid fall at Tiflis and Baku and simultaneously over the Persian region, but on this occasion also the intensity of the atmospheric disturbance fell off very quickly as it advanced eastward, and the depression as it appeared over India was exceedingly slight. On the 21st a fall appeared at Baghdad and thence spread eastward through Persia to the Indian frontier, and was apparently due to a small depression which developed over the Caspian on the 20th. In Egypt the maximum pressure of the month was recorded on the 9th and the minimum on the 20th and 21st, and it was during this period of diminishing pressure that conditions became favourable for the production of depressions over the area lying between Egypt and the Indian frontier.

The following table shows the daily variations of pressure from the normal for various selected stations within the monsoon area and for the whole monsoon area :—

Month, February, 1903.

	PRESSURE VARIATION FROM NORMAL OF								
DATE.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	"	"	"	"	"	"	"	"	"
1	+·134	+·043	+·036	+·077	—·039	+·031	+·063	—·037	+·045
2	+·213	+·093	+·044	+·110	—·001	+·041	+·105	+·046	+·086
3	+·262	+·310	+·281	+·129	+·029	+·037	+·049	+·024	+·140
4	+·197	+·182	+·159	+·124	+·039	+·069	+·038	+·003	+·1031
5	+·138	+·157	+·138	+·111	—·018	+·037	+·052	+·017	+·083
6	+·062	+·143	+·122	+·098	—·038	+·039	+·065	+·034	+·068
7	—·015	+·147	+·157	+·099	+·053	+·056	+·083	+·052	+·080
8	+·071	+·128	+·156	+·129	+·063	+·049	+·104	+·080	+·097
9	+·161	+·160	+·163	+·156	+·057	+·066	+·130	+·123	+·130
10	+·204	+·129	+·102	+·131	+·012	+·027	+·086	+·115	+·102
11	+·210	+·109	+·077	+·162	+·042	+·060	+·060	+·084	+·107
12	+·169	+·127	+·098	+·169	+·072	+·059	+·066	+·075	+·111
13	+·065	+·093	+·044	+·114	+·059	+·043	+·067	+·045	+·071
14	—·087	+·022	+·057	+·094	+·104	+·067	+·096	+·023	+·052
15	+·066	+·019	+·045	+·083	+·073	+·090	+·094	+·004	+·064
16	+·062	+·024	+·017	+·058	+·084	+·079	+·042	—·022	+·045
17	+·012	—·032	—·021	+·017	+·034	+·063	+·037	—·002	+·017
18	+·078	+·015	+·019	+·026	+·051	+·062	+·072	+·054	+·046
19	+·053	+·092	+·124	+·073	+·088	+·063	+·079	+·088	+·078
20	+·015	+·194	+·198	+·057	+·100	+·067	+·093	+·098	+·097
21	+·126	+·242	+·203	+·057	+·076	+·052	+·104	+·104	+·114
22	+·011	+·137	+·133	+·050	+·086	+·022	+·061	+·087	+·072
23	+·070	+·026	—·035	+·042	+·085	+·001	+·018	+·047	+·037
24	+·126	+·089	+·040	+·063	+·054	+·006	+·050	+·091	+·069
25	+·161	+·057	+·036	+·073	+·087	+·077	+·016	+·066	+·074
26	+·187	+·064	—·002	+·076	+·059	+·032	+·021	+·022	+·062
27	+·119	+·066	+·030	+·085	+·028	+·026	—·004	—·016	+·050
28	+·114	+·091	+·066	+·064	+·013	—·006	—·010	—·039	+·042

The preceding data show that general excess of pressure prevailed practically throughout the whole monsoon area throughout the month. The oscillations of pressure were small and of short period, the principal features having been the maximum on the 9th and the minimum on the 17th. It was during or about this period that most of the unsettled weather occurred over Asiatic Turkey, Persia and north-west India, and it is worthy of note that during this time the weather was also disturbed over the south Indian Ocean. The following gives a brief account of a cyclone which occurred over Madagascar on the 11th, extracted from the *Journal Official de Madagascar*.

"The Director of the Observatory of Tananarive reports that a cyclone traversed the north and north-west of Madagascar during the 10th and 11th of February. All day on the 10th up to 11 A. M. a moderate easterly wind blew and the barometer fell. On the 11th the morning maximum of pressure disappeared and after 11 A. M. the wind turned to north-east as the cyclone travelled towards the north and north-west of the Island. The barometric pressure diminished up to 6 P. M.; it then remained stationary for half an hour after which it rose rapidly.

This second cyclone occurred two months to a day after the first cyclone. Torrential rain occurred throughout the Island. The observations made at Tananarive during February 11th were as follows;—

Hours.	Barometer reduced to 32°.	WIND.		Rain.
		Direction.	Velocity.*	
	"			Inches.
7 A. M.	25·355	ENE	134 Miles	0·83
9 A. M.	25·354	ENE	34 "	
1 P. M.	25·287	NE	75 "	
4 P. M.	25·232	NE	65 "	
6 P. M.	25·224	NE	48 "	1·65

* Since previous observation.

The rainfall distribution of the month was peculia The storm or storms of the 20th to the 28th apparently originated over the Caspian area and followed a course to the northward of the Indian region. While, therefore, they gave heavy rain and snow to Ourmiah, Teheran, Meshed, Kabul, Kashmir and Kashgar, the storms did not affect the Indian area, and the rainfall from Baghdad eastward through Persia (except the north), northern Arabia and Baluchistan to north-west India was nearly as short as in February, 1902. Unlike the corresponding month of last year, however, the rainfall of southern Arabia was much heavier than usual, and the total rainfall of Aden and Perim during February, 1903, was nearly four times the average. In the month of February, 1902, the drought over India and the neighbouring countries was accompanied with heavier rain than usual in the south, and a similar condition is reported in the year under review, when Ceylon and the stations in the south-east trades region, except Mauritius, all recorded heavier rain than usual.

Magnetic observations.

The following note on the Colaba Magnetic Record has been supplied by the Director, Colaba Observatory:—

The magnetic traces for the month do not show any unusually large disturbances. There were 13 calm days, 14 days of small and one of moderate disturbances, the last being recorded on the 8th. Two movements suspected to be due to seismic disturbances were noted; one on the 12th, commencing at about 22 hours and lasting about six hours; the other was noted on the 15th at about 21 hours. Small period movements—19 serrated movements (the oscillations continuing for some time) and 40 abrupt movements (appearing as if suddenly damped in their propagation) have been recorded during the month. The selected quiet days of the month were 2nd, 6th, 18th, 24th and 27th.

The means of the observed absolute values of the several elements for the past two months were as follow:—

	January, 1903.	February, 1903.
Declination	0° 18′ 17″ E	0° 8′ 1″ E
Horizontal force	0·37430 c. g. s. unit	0·37436 c. g. s. unit.
Dip	21° 40′·7	21° 40′·3

There were nine well-marked earthquakes recorded at Colaba during the month, on 1st, 2nd, 6th, 11th, 12th, 27th and 28th. Double disturbances were recorded on the 6th and 27th. One of the two disturbances registered on the 27th was the largest in the month, the amplitude being 8·6 m.m., the next largest being that of the 1st, with an amplitude of 5·2 m.m.

Mauritius.—The Director of the Royal Alfred Observatory reports that disturbances of the horizontal force were recorded on the 8th, 9th, 11th, 12th and 13th.

Sunspots were recorded on the 2nd, 3rd, 7th, 10th, 11th, 13th and 16th to 27th. Faculæ were observed on all the above dates and also on the 8th and 9th.

Atmospheric Pressure.

The mean 8 A.M. pressure of the Indian land area was 0·068″ above the normal.

The barometer read above the normal at all stations in the Indian land area, the variation ranging from +·094″ at Sirsa and Bhamo and +·093″ at Kurrachee to +·033″ at Salem. The excess was thus generally greater over northern than over southern India. Pressure ranged from 30·162″ at Peshawar to 29·955″ at Colombo, so that the total range of pressure over India was ·016″ greater than usual. The excess of pressure was general over a very large area, as is shown by the following data:—

STATION OR AREA.	Variation from normal of mean 8 A.M. pressure of February, 1903.
	″
Indian land area	+·068
Baluchistan	+·088
Jask	+·088
Muscat	+·105
Bushire	+·108
Baghdad	+·093
Aden	+·091
Perim	+·095
Seychelles	+·032
Zanzibar	+·048
Mauritius	—·015

In Egypt pressure was above the normal over the delta and also in the Soudan, but was below in middle Egypt. The preceding data indicate that the excess of pressure was general over the Indian area as well as westward over Baluchistan and Persia as far as the Levant, but was disappearing in Egypt and that it extended southward in the south-east trades region as far as the Seychelles and Zanzibar, where, however, the positive variations were smaller than over India. At Mauritius the excess disappeared and was replaced by a slight deficiency.

The data likewise indicate that the actions occasioning this large general excess were most marked over the Persian Gulf, where the excess amounted to over one tenth of an inch.

As mentioned above the mean excess over the Indian land area was 0·068″. The variation was thus 0·020″ less than in February, 1902, and this decrease in the amount of the excess was accompanied with other marked differences. Thus, in February, 1902, the general excess of pressure was associated with a larger excess of pressure at the hill stations than at the plains stations and with a fairly general and persistent excess of temperature, while in February, 1903, the abnormal pressure conditions, though similar in extent and character and differing only in intensity, were associated with a smaller excess of pressure at most of the hill stations compared with the plains stations and with a marked and fairly general reduction, of temperature below the normal.

Over the Indian land area pressure was, relatively to the general condition, in defect over the south and west of the Peninsula, over the upper part of the Indus valley, and over deltaic Bengal and the greater part of the Gangetic plain. The deficiency was small and unimportant except in parts of the Peninsula, where at the

following stations the relative deficiency amounted to 0·02″ or more :—

STATION.	Variation from normal of mean 8 A. M. pressure of February, 1903.	Pressure anomaly, February, 1903.
	″	″
Salem	+·033	—·035
Mangalore	+·034?	—·034?
Trichinopoly	+·038	—·030
Colombo	+·041	—·027
Cochin	+·042	—·026
Calicut	+·044	—·024
Bangalore	+·046	—·022
Madras	+·046	—·022
Negapatam	+·047	—·021
Poona	+·047	—·021
Sholapur	+·048	—·020

Over the remainder of India pressure, relatively to the general condition, was in excess of the normal, but in this case also the anomalies were generally small, and exceeded 0·02″ only at the stations for which data are given below :—

STATION.	Variation from normal of mean 8 A. M. pressure of February, 1903.	Pressure anomaly February, 1903.
	″	″
Bhamo	+·094	+·026
Sirsa	+·094	+·026
Kurrachee	+·093	+·025
Bhuj	+·089	+·021

The variations of pressure at the level of the hill stations differed little from those at the neighbouring plains stations, and, except in the Baluchistan-Sind and Sikkim-Bengal areas, the differences were unimportant. Generally speaking, the vertical pressure anomalies were negative. This is shown by the following data for ten pairs of stations:—

HILL STATION.	Variation from normal pressure, February, 1903.	PLAIN STATION.	Variation from normal pressure, February, 1903.	Vertical pressure anomaly (Hill–Plain).
	″		″	″
Quetta	+·091	Jacobabad	+·061	+·030
Leh	+·088	Lahore	+·073	+·015
Murree	+·073	Peshawar	+·057	+·016
Simla	+·073	Ludhiana	+·076	—·003
Chakrata	+·053	Roorkee	+·078	—·025
Ranikhet	+·071	Bareilly	+·073	—·002
Darjeeling	+·049	Dhubri	+·081?	—·032
Mount Abu	+·054	Deesa	+·073	—·019
Pachmarhi	+·046	Khandwa	+·066	—·020
Wellington	+·050	Coimbatore	+·050	0

The following gives a summary of the chief abnormal features of the pressure distribution :—

(1) Pressure was in excess over the Indian land area by amounts averaging 0·068″.

(2) The excess was general over the whole area from India in the east to Persia and Arabia in the west and the south-east trades region in the south.

(3) Pressure, relatively to the general condition over India, was in slight defect over the south and west of the Peninsula, the Indus valley, deltaic Bengal and the Gangetic plain.

(4) Pressure was in slight relative excess over the remainder of India.

(5) The vertical pressure anomalies were generally negative, except in the Baluchistan—Sind areas.

Barometric depressions and cyclonic storms of the month.

There were no cyclonic storms over the Indian seas during February, 1903, while the land-formed depressions, which either entered the Indian area from countries to the westward, or were developed over India itself, were in all cases feeble and of little importance. On the other hand, in the Indian Ocean, there occurred a cyclone of some importance on the 10th and 11th of February. The storm passed over the north and north-west of Madagascar, and torrential rain occurred throughout the Island.

Local storms of February 3rd and 6th :—

February 3rd.—A land-formed depression, which had apparently been developed over Baluchistan and the Indus valley region, appeared over the west Punjab on the 3rd. It passed on to eastern Rajputana on the 4th, and apparently filled up over the United Provinces on the 5th. It gave snow to Quetta on the 3rd and to Further Kashmir, Srinagar and Murree on the 4th and 5th.

February, 4th.—On the 4th pressure was giving way briskly over the central parts of the country, and on the 5th a shallow storm was shown over the west Satpuras, where the sky was lightly clouded and a few drops of rain had fallen at Chanda. By the morning of the 6th the storm had advanced northward into the Central Provinces, and light showers of rain had fallen at Allahabad, Jubbulpore, Seoni and Chanda. The storm subsequently moved

into Chota Nagpur, where it filled up after giving further very light showers to a few places in the Gangetic plain.

Cold weather storm of February 6th to 9th:—

February, 6th.—On the 6th the barometer was falling very rapidly at Baghdad and Busrah with a southerly wind, and pressure was giving way slightly to briskly in Persia, but in Baluchistan the barometer was still rising. The following gives data for 8 A.M. on the 6th for 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.			
	"	"	"				Inch.	
Baghdad	30·040	—·298	—·132	S	0	8	...	Cloudy.
Busrah	...	—·273	...	...	...	...	...	Do.
Bahrein	·089	—·108	...	SE	...	...	...	Clear.
Teheran	...	—·070	...	NE	2	4	...	Fine.
Ispahan	...	—·090	...	Calm	2	2	...	Do.
Bushire	·142	—·078	+·062	E	3	0	...	Sea smooth
Jask	·170	—·018	+·122	N	8	0	...	Do.
Quetta	...	+·026	+·124	Calm	1	0	...	
Chaman	...	+·027	+·150	ESE	2	0	...	

The preceding data show a rapid to very rapid fall of pressure over the Euphrates valley and at Bahrein, and a brisk fall at Bushire, Teheran and Ispahan. There was, however, no rain in this region.

February 7th.—On the 7th the barometer was rising again at Baghdad and Busrah, where, however, the wind was still southerly, having blown strongly during the previous 24 hours. The following gives 8 A.M. 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.			
	"	"	"				Inch.	
Baghdad	30·074	+·034	—·091	S	7	0	...	
Busrah	...	+·127	...	...	...	...	...	Fine.
Bahrein	·085	—·004	...	S	...	...	...	Clear.
Teheran	...	—·095	...	Calm	2	10	0·17	Rainy.
Ispahan	...	—·120	...	Calm	3	9	...	Cloudy.
Bushire	·062	—·080	—·015	SSE	9	9	...	Sea rough.
Jask	202	+·032	+·157	NE	10	0	...	
Quetta	...	+·062	+·186	Calm	1	1	...	Frosty.
Chaman	...	+·019	+·170	Calm	0	1	...	

The barometer was falling briskly to rapidly at Bushire, Teheran and Ispahan, and Teheran reported a light shower of rain. Pressure was still increasing over Baluchistan.

February, 8th.—The following gives 8 A.M. data for the Persian-Baluchistan 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	
Baghdad	30·306	+·232	+·133	Calm	4	3	...	
Busrah	...	+·063	...	...	...	...	...	Fine.
Bahrein	·079	—·006	...	S	...	...	...	Cloudy.
Teheran	...	—·050	...	Calm	0	10	1·01	Snowstorm.
Ispahan	...	+·070	...	W	8	0	...	
Bushire	·145	+·083	+·071	NNE	12	6	0·06	Sea smooth.
Jask	·199	—·003	+·156	NE	15	0	...	
Quetta	...	—·036	+·150	SE	3	8	...	Dust haze.
Chaman	...	—·069	+·103	SE	3	7	...	

The barometer was rising fast over Asiatic Turkey and the Persian Gulf, but was steady at Jask and falling over Baluchistan, where the wind was south-easterly and the sky cloudy. Heavy snow had fallen at Teheran, and a light shower of rain was reported from Bushire.

February 9th.—The following gives 8 A.M. data for Baluchistan and north-west India:—

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.	
Quetta	...	—·037	+·113	SSE	5	2	...	Dust haze.
Chaman	...	—·023	+·081	S	6	8	...	Do.
Kurrachee	30·207	—·056	+·182	Calm	6	0	...	
Hyderabad	·195	—·045	+·160	N	6	0	...	
Jacobabad	·204	—·050	+·161	Calm	0	0	...	
Mooltan	·211	—·071	+·154	SE	1	2	...	
D. I. Khan	·233	—·040	+·158	Calm	1	3	...	
Montgomery	·221	—·058	+·185	ENE	3	4	...	

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hrs.	PRESSURE. Variation from normal.	WIND Direction at 8 A.M.	WIND Average hourly velocity in miles during past 24 hours.	Cloud	Rainfall.	WEATHER.
	"	"	"				Inch.	
Bikaner	30·250	—·048	+·191	SSW	3	2	...	
Jodhpur	·238	—·069	...	ENE	5	0	...	
Khushab	·235	—·039	+·180	Calm	1	2	...	
Peshawar	·261	—·063	+·134	Calm	1	9	...	
Rawalpindi	·258	—·059	+·156	Calm	2	5	...	
Murree	...	—·042	+·135	SE	10	9	...	Strong wind.
Srinagar	...	—·095	···7 8	SSE	4	8	...	
Sonemarg	...	+·050	...	Calm	8	10	...	
Skardu	...	—·169	...	Calm	2	10	...	
Dras	...	—·177	...	N	0	10	0·01	Snow storm.
Leh	...	—·140	+·186	E	1	4	...	

The storm from Persia apparently lay over Baluchistan and north-west India, but the disturbance had almost filled up and was of no importance. Light snow fell over Kashmir during the 9th, but this was probably connected with a separate disturbance over the Himalayan area.

Cold weather storm of February 13th to 17th:—

February 13th.—The following gives 8 A.M. data for the Persian area for 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.	
Baghdad	30·206	—·186	+·009	Calm	0	10	...	Drizzling.
Busrah	...	—·179	...	...	...	...	...	Fine.
Bahrein	·108	—·124	...	SSW	...	...	...	
Teheran	...	—·075	...	NE	4	5	...	Cloudy.
Ispahan	...	—·060	...	Calm	4	0		
Bushire	·120	—·108	+·065	N	7	10	...	Sea smooth.
Jask	·072	—·057	+·044	NW	21	0	...	Sea rough.

The barometer had fallen nearly 0·20″ at Baghdad and Busrah with overcast weather. At Teheran and Ispahan the barometer was falling briskly.

February 14th.—The following gives 8 A.M. data for the Persian 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	30·209	+·003	+·013	Calm	0	0	0·44	Dust haze.
Busrah	...	—·018	...	...	...	...	...	Fine.
Bahrein	·025	—·083	...	SSW	...	...	...	Clear.
Teheran	...	—·135	...	NE	2	1	...	Fine.
Ispahan	...	—·100	...	W	3	9	0·02	Cloudy.
Bushire	29·964	—·156	—·087	SSE	4	9	0·02	Sea slight.
Jask	30·082	+·010	+·057	ENE	11	0	...	Sea smooth.

Pressure had been steady at Baghdad and Jask, but had continued to fall at other stations in this area. Rain had fallen at Baghdad, Ispahan and Bushire, but the disturbance was apparently slight and ill-defined.

February 15th.—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	...	—·077	—·018	SSE	2	3	...	
Chaman	...	—·078	—·032	ESE	6	8	...	
Hyderabad	29·995	—·053	—·022	SW	5	0	...	
Jacobabad	·986	—·071	—·041	Calm	0	1	...	
Bikaner	30·053	—·055	+·034	WSW	4	1	...	Dust haze.
Mooltan	·011	—·065	—·038	Calm	1	0	...	
Montgomery	·007	—·079	—·009	SW	4	1	...	
Lahore	29·994	—·072	—·036	Calm	1	8	...	
Sialkot	·985	—·088	—·029	Calm	1	5	...	
Khushab	30·014	—·054	—·018	SSW	3	6	...	
Rawalpindi	·022	—·107	—·042	NNW	2	8	...	
Peshawar	·031	—·083	—·066	SW	1	7	...	

The barometer was falling briskly over Baluchistan and north-west India, and the ill-defined depression from Persia was probably passing through Baluchistan, where the weather was cloudy, but where no rain had fallen.

February 16th.—The following gives 8 A.M. data for north-west India :—

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 .	29·962	—·081	—·049	W	10	4	...	
Hyderabad .	·926	—·069	—·088	SW	7	3	...	
Jacobabad .	·938	—·048	—·084	Calm	0	0	...	
Mooltan .	·978	—·033	—·059	Calm	1	4	...	
Montgomery .	·975	—·032	—·027	SE	5	9	...	
Bikaner .	·970	—·083	—·035	NE	6	8	...	
Jodhpur .	·989	—·097	...	Calm	3	7	...	
Jaipur .	30·018	—·067	—·013	WSW	2	10	...	
Ajmer .	·023	—·064	—·042	Calm	2	9	...	
Sambhar .	·006	—·074	—·019	Calm	2	8	...	
Neemuch .	·030	—·088	—·014	ENE	3	3	...	
Deesa .	29·991	—·079	—·008	SW	5	2	...	
Udaipur .	30·016	—·114	...	Calm	2	1	...	

The depression from Persia was passing through Sind, and pressure had given way briskly over the western desert; the storm was, however, of very little importance and had given no rain to north-west India. It passed eastward into southern Rajputana and the Central Provinces during the day, and practically filled up on the 18th after giving light showers to a few places.

Cold weather storms of the 20th to 28th February :—

February 20th.—On the 20th a heavy snowstorm occurred at Ourmiah in west Persia. The storm lasted for 48 hours, and was accompanied with thunder and lightning. Snow extended apparently over the whole of the Caspian region. On the 20th a large high pressure area covered the whole of this region, but on the evening of the 21st and morning of the 22nd a small shallow depression was shown over the Caspian. On the 20th the barometer was falling over Persia, as is shown by the following 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.	
Baghdad .	30·083	+·011	—·091	Calm	1	3	...	
Busrah .	...	—·036	...	...	...	...	...	Cloudy.
Bahrein .	·015	—·047	...	ESE	...	...	...	Clear.
Teheran .	...	—·040	...	NE	4	10	...	Overcast.
Ispahan .	...	—·020	...	N	3	6	...	Cloudy.
Bushire .	·045	—·041	+·015	SSE	8	9	...	Sea smooth.
Jask . .	·205	+·071	+·198	E	16	0	...	Sea rough.

February 21st.—The following gives 8 A.M. data for the Persian 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.	
Baghdad .	29·981	—·102	—·179	S	3	8	0·03	Strong wind.
Busrah .	...	+·117	...	...	...	...	...	Cloudy.
Bahrein .	30·065	+·050	...	ESE	...	...	...	Do.
Teheran .	...	+·065	...	Calm	3	10	...	Overcast.
Ispahan .	...	+·060	...	E	3	9	0·05	Cloudy.
Bushire .	·153	+·108	+·126	SE	8	10	...	Thunder and drizzling.
Jask . .	·207	+·002	+·203	ENE	14	4	...	Sea smooth.

The above shows that the barometer had fallen fast at Baghdad, but had risen over Persia. Rain had fallen at Baghdad and Ispahan.

February 22nd.—The following gives 8 A.M. data for the Persian and Baluchistan 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.	
Baghdad .	30·172	+·191	+·011	Calm	4	8	0·56	
Busrah .	...	—·086	...	...	...	...	0·90	Cloudy.
Bahrein .	·063	—·002	...	E	...	...	...	
Teheran .	...	—·175	...	Calm	4	10	1·51	Overcast.
Ispahan .	...	—·170	...	W	3	9	...	Cloudy.
Bushire .	·035	—·118	+·011	SE	8	10	...	Sea smooth.
Jask . .	·134	—·073	+·133	N	5	0	...	Do.
Quetta .	..	—·115	+·140	Calm	1	3	...	Dust haze.
Chaman .	...	—·120	+·124	ESE	4	8	...	

Pressure was recovering at Baghdad, but was giving way at the Persian stations and in Baluchistan. Moderately heavy rain had fallen over the Persian area.

February 23rd.—The following gives 8 A.M. data for the Persian-Baluchistan region :—

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	30·165	—·007	+·006	W	2	0	...	
Busrah	..	+·078	...	...	...	..	0·31	Fine.
Bahrein	·060	—·003	...	N	...	..	...	Cloudy.
Teheran	...	—·105	...	WSW	3	2	0·53	Fine.
Ispahan	...	—·120	...	SW	12	9	...	Cloudy.
Bushire	·092	+·057	+·070	NE	13	10	0·03	Drizzling.
Jask	29·964	—·170	—·035	ESE	8	0	...	
Quetta	...	—·071?	+·09??	Calm	0	8	...	
Chaman	...	—·133	—·009	SSE	5	6	...	

Pressure had been steady at Baghdad and Bahrein, while it had risen at Busrah and Bushire and fallen at Teheran, Ispahan, Jask and in Baluchistan. The weather was unsettled, and further showers of rain had been received in parts of Persia. It is probable that the rapid barometric fall at Teheran and Ispahan marked the advance of a fresh disturbance to the north of Persia.

February 24th.—The following gives data for the Persian-Baluchistan region :—

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	30·287	+·122	+·132	NNW	1	1	...	
Busrah	...	—·012	...	...	...	...	...	Fine.
Bahrein	·111	+·051	...	N	...	..	...	Cloudy.
Teheran	...	+·130	...	NNE	3	2	...	Fine.
Ispahan	...	+·090	...	Calm	5	9	...	Cloudy.
Bushire	·146	+·054	+·126	NW	5	10	0·08	Showery.
Jask	·036	+·072	+·040	E	9	0	...	Sea smooth.
Quetta	...	+·009?	+·079	Calm	3	8	...	
Chaman	...	+·032	+·022	Calm	9	8	...	

The barometer was rising generally and no definite storm can be traced in the observations. The weather was, however, unsettled and it is probable that a storm existed to the northward of the Indian region. Rain was reported from Kabul and snow from Kashmir.

February 25th.—The following gives data for the Persian-Baluchistan region :—

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	30·371	+·084	+·229	Calm	1	0	...	
Busrah	...	+·044	...	...	...	...	...	Fine.
Bahrein	·121	+·010	...	...	...	...	...	Clear.
Teheran	...	+·135	...	Calm	2	2	...	Fine.
Ispahan	...	+·040	...	Calm	3	8	....	Cloudy.
Bushire	·178	+·032	+·161	NW	22	10	0·02	Sea rough.
Jask	·030	—·006	+·036	W	22	4	...	
Quetta	...	0	+·079	Calm	0	3	...	Dust haze.
Chaman	...	+·036	+·058	SSE	2	6	...	

The barometer continued to rise over the above area, but the weather remained unsettled generally. A further fall of rain had occurred at Kabul and heavy snow in Kashmir showing that the principal area of disturbance lay to the northward of India.

February 26th.—The following gives 8 A.M. data for the Persian and Baluchistan areas :—

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	
Baghdad	30·211	—·160	+·084	WNW	1	8	...	
Busrah	...	+·122	...	...	...	...	...	Fine.
Bahrein	·187	+·066	...	NNW	...	...	1·20	Cloudy.
Teheran	...	—·160	...	NNE	3	8	...	Do.
Ispahan	...	—·070	...	Calm	5	0	...	
Bushire	·201	+·023	—·187	N	15	0	...	Sea slight.
Jask	29·990	—·040	—·002	WNW	25	8	...	Sea rough.
Quetta	...	—·063	+·016	Calm	1	4	...	
Chaman	...	—·114	—·056	S	2	1	...	

The barometer had fallen fast at Baghdad and in Baluchistan, while it had changed irregularly elsewhere. Heavy rain had commenced at Bahrein, while rain and snow had continued over Afghanistan and snow in Kashmir.

February 27th.—The following gives 8 A.M. data for the Persian and Baluchistan 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.			
	"	"	"				Inch.	
Baghdad	30·354	+·143	+·241	Calm	3	0	...	
Busrah	...	—·062	...	...	...	...	...	Fine.
Bahrein	·237	+·050	...	NNW	...	...	0·22	Cloudy.
Teheran	...	+·155	...	Var.	3	10	0·07	Snowstorm.
Ispahan	...	+·040	...	NW	5	8	...	Cloudy.
Bushire	·131	—·070	+·119	NW	8	9	...	Sea smooth.
Jask	·021	+·031	+·030	NW	27	0	...	Sea rough.
Quetta	...	—·064	—·048	SSE	5	8	...	
Chaman	...	—·050	—·106	SSE	9	8	...	

The barometric changes continued irregular. The barometric fall noticed at Baghdad on the 26th may have passed on to Busrah and Bushire, but elsewhere the changes were generally upward. Light rain had been received in parts of Persia, rain and snow at Kabul and snow in Kashmir.

February 28th.—The following gives 8 A.M. data for Persia, Baluchistan and north-west India :—

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	30·296	—·058	+·186	Calm	0	2	...	
Busrah	...	—·053	...	...	...	...	...	Fine.
Bahrein	·136	—·101	...	WNW	...	...	...	Clear.
Teheran	...	+·150	...	NE	1	0	...	Clear.
Ispahan	...	+·150	...	NW	4	0	...	
Bushire	30·123	—·008	+·114	NNW	10	0	...	Sea slight.
Jask	·056	+·035	+·066	N	24	0	...	Dust storm.
Quetta	...	+·107	+·039	NNW	5	0	...	Dust haze.
Chaman	...	+·234	+·127	S	12	8	...	Do.
Hyderabad	29·858	—·017	—·110	SW	10	3	...	
Jacobabad	·800	—·032	—·173	NNW	4	0	...	
Mooltan	·785	—·085	—·208	Calm	1	2	...	
D. I. Khan	·804	—·093	—·191	Calm	1	6	...	
Khushab	·784	—·092	—·172	ENE	4	4	...	
Rawalpindi	·859	—·054	—·122	NE	2	10	0·03	
Lahore	·787	—·092	—·177	SE	1	6	...	
Sialkot	·820	—·068	—·133	ENE	1	4	...	
Srinagar	...	—·130	—·064	Calm	3	5	...	
Sonemarg	...	—·058	...	Calm	3	10	0·12	Snowing.
Skardu	...	—·172	...	SW	3	10	...	
Dras	...	—·142	...	Calm	1	10	0·22	
Leh	...	—·132	—·001	WSW	0	6	...	

A fairly well-defined depression had entered north-west India from the westward, and pressure was in considerable defect over the western desert. Rain and snow had continued at Kabul as well as all around the north-west frontier and in Kashmir.

The preceding data show that from the 20th to the end of the month the weather was unsettled over Asiatic Turkey, Persia and Baluchistan, and that large barometric changes and a considerable amount of rain and snow were experienced over that area. The storms to which this disturbed weather was due apparently followed a more northerly track than usual, as, except in the case of that of the 28th, the depressions could not be traced to India. This is also supported by the distribution of rain and snow. Thus there was no rain in Baluchistan after the 19th, while, on the contrary, in Afghanistan, on the north-west frontier and in Further Kashmir there was almost daily snow from the 23rd to the 28th.

Slight land-formed depressions had, at different times during the month, appeared over the central and north-eastern districts of India, and had occasioned cloudy and showery weather in their immediate neighbourhoods, but they were too slight and transitory to be of much importance.

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.*—Snow fell as under—

9th February	4 inches.
11th "	drops.
19th "	"

The snowfall was greater than that in the previous year.

(2) *Wano.*—On 3rd February snow fell to a depth of six inches on the higher peaks of Marwattai and Pirghal (11,000 feet), on Janimela (9,400 feet), Kotkan (7,900 feet), and a very slight snowfall on the Wano plain, about ¼ inch. By the 28th February nearly all the snow had melted off the sunny slopes and only about 6 inches of snow remained on hills from 8,000 feet upwards on northern slopes and in ravines. The snowfall of the month was heavier than that in the corresponding month of last year.

(3) *Kurram.*—Snow fell on the 9th and 11th February on the Sufed Koh and adjacent hills, but both falls were very light and did not extend to Parachinar. It was reported that at the end of February there were about 7 feet of snow on the higher peaks of the Sufed Koh.

(4) *Kohat.*— No snow fell on the Samana or other mountains on the Kohat border during the month of February, 1903.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Kashmir.*—On the 17th February snow fell on the higher mountains around Srinagar.

The following table shows the approximate depth of snow lying around the observatories in Kashmir, week by week, throughout the month :—

OBSERVATORY.	February 3rd.	February 10th.	February 17th.	February 24th.
	′ ″	′ ″	′ ″	′ ″
Dras.	2 9	2 9	2 7	2 6
Minimarg . . .	3 6	3 0	2 10	3 0
Sonemarg . . .	6 3	4 3	3 3	2 8

(2) *Leh.*—The following is the record of the snowfall at Leh. Snow just sufficient to cover the ground fell on the mornings of the 1st, 13th, 17th and 19th :—

On the 24th morning		1 inch.
"	4 P.M.	3 inches.
25th	8 A.M.	9½ "
"	4 P.M.	11 "
26th	8 A.M.	12 "
"	4 P.M.	9¼ "
27th	8 A.M.	9¾ "

(3) *Murree.*—Snow fell as under on the Murree hills during February. On the Kahuta hill there was no snow :—

Murree—1st February	1/10 inch.
2nd "	6½ inches.
5th "	½ inch.
12th "	½ "

(4) *Chamba.*—Light snow fell on the Chamba and Dalhousie ranges on the 16th, 17th and 18th of February.

(5) *Simla.*—The following was the snowfall:—

4th February, descending to 5,700 feet, where depth			1 inch.
5th "	"	" 9,000 " "	" 1 "
11th "	"	" 7,000 " "	" 3 inches.
12th "	"	" 7,000 " "	" 3 "
14th "	"	" 6,500 " "	" ½ inch.
17th "	"	" 8,000 " "	" 1 "
18th "	"	" 8,000 " "	" 1 "

The accumulation of snow on the 28th of February on the following passes was as follows :—

Rupin Pass (16,000 feet)	13 feet.
Braun " (10,000 ")	13 "
Harang " (12,000 ")	5½ "
Shatul " (10,000 ")	11 "
Buldar " (16,000 ")	13 "
Runang " (14,000 ")	9 "

All the passes were closed throughout the month. The snowfall of the month was about the average.

(6) *Kailang.*—Snow fell as follows :—

12th February	½ inch.
24th "	8 inches.
26th "	1 inch.
TOTAL	9½ inches.

III.—UNITED PROVINCES HIMALAYAS.

(1) *Garhwal.*—Snow fell throughout the month in the vicinity of the perpetual snows. All passes were closed throughout the month.

(2) *Almora.*—The following gives information as to the snowfall in this area :—

Malla Johar.

6th February	3 feet.
7th "	4 "
12th "	4 "
17th "	6 "
22nd "	6 "
TOTAL	23 feet.

Malla Danpur.

6th and 7th February	1½ feet.
11th to 14th "	3½ "
16th to 22nd "	3 "
TOTAL	8 feet.

Byans, Chandas and Darma.

6th February	2 feet.
12th to 13th "	3 "
16th "	½ "
19th "	½ "
21st "	1½ "
TOTAL	7½ feet.

The above were the depths of snow on the Utadhura, Pindari, Kaphini and Kantela. At the close of the month snow had accumulated to a depth of

23 feet on the	Utadhura.
11½ " "	Ralam Dhura.
8 " "	Pindari, Kaphini and Kantela.
7½ " "	Byans, Chandas and Darma.

The snowfall was less than last year in Malla Johar and greater elsewhere.

Summary of Special Storm Reports.

The following gives a brief statement of the few local storms which occurred during the month under review:—

February 16th.—A duststorm passed over Jodhpur at 2-30 P.M. (Madras time). Thunder was heard in the distance, and some drops of rain fell. The storm lasted for about 15 minutes.

" *17th.*—A thunderstorm occurred at Lahore at 4-20 P.M. The storm came up from south-west, and lasted one hour. Drizzling rain was experienced.

" *20th.*—A thunderstorm with lightning and rain passed over Nagpur at 11 P.M.

" *24th.*—A storm passed over Srinagar between 4 P.M. and midnight.

February 28th to March 1st.—A thunderstorm occurred at Srinagar between 6 P.M. of 28th February and 6 A.M. of 1st March. The total amount of rain measured was 0·39".

Hailstorm Reports.

February 20th.—A hailstorm occurred in the Katangi Pargana of Balaghat (Central Provinces) and lasted half an hour. It affected 12 villages, covering an area of 13,000 acres, and the wheat and gram crops were slightly damaged.

February 23rd.—A hailstorm occurred at Shillong (Assam). The storm lasted five minutes, and the stones were the size of a pea or bullet. A severe hailstorm occurred at Samaguri, District Nowgong, Assam. The storm lasted 20 minutes, and severely affected 12 villages. The size of hailstones measured from 1 to 4 cubic inches.

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

Arabian Sea.—Except along the Bombay coast, where the directions were more than usually northerly, strongly marked north-east monsoon conditions prevailed over the Arabian Sea throughout the month. Between the 20th and the 25th, indeed, the direction was more easterly than the normal. The mean daily air movement was 0·4 stronger than usual, the mean force for the whole month having been 3·4, compared with a normal force of 3·0. Winds were normal or stronger than usual, except between the 14th and the 18th and on the 23rd, 24th, 26th and 27th, and were strongest on the 4th and 5th, when the mean air movement was 4·4 and 4·6, respectively. The winds were weakest between the 14th and 18th, a feature which may have been connected with the filling up of the cyclone which passed over Madagascar on the 11th.

In the Persian Gulf the wind was north-westerly on most days during the month, but the weather was a good deal disturbed over Persia during the period under review, and the winds in this region were unsteady.

In the Gulf of Aden and the southern part of the Red Sea the wind's direction was approximately normal, but the force of the wind was much below the average. This weakness of the air movement was accompanied with very unsettled weather, Aden reporting rain on five days with a total fall of 1·07", while Perim had six days with rain, giving a total of 0·80". The normal rainfall for February at Aden is 0·29", and at Perim 0·26," so that the average was largely exceeded.

Bay of Bengal.—Very steady northerly and north-north easterly winds prevailed over this region from the 1st to the 12th, when a depression appeared over Bengal, and the wind shifted to south-east over the centre of the Bay and to south in the north. South-easterly and easterly winds prevailed up to the 19th, after which date the wind again drew into north-east and so continued for two days. On the 22nd and 23rd the winds were irregular, and on the 25th another depression in Bengal drew the winds in the north of the Bay into the southward again, and irregular or southerly breezes continued till the end of the month over a large part of the Bay.

The mean daily air movement varied largely from the normal, but the mean of the whole month was 3·0, which was 0·5 above the normal. The winds were on the whole strongest on the 7th, when their force as derived from the data of 21 vessels was 4·5; they were feeblest on the 14th, when from the data of 20 vessels the mean strength was only 1·9.

Equatorial Belt.—The data for this region are as usual scanty. They show that the usual north-east to north-west winds obtained in the extreme west with showery and rather squally weather from the 1st to the 18th. From the 18th to the 21st the winds in this region were easterly and variable, but on the 22nd north-easterly and north-westerly winds re-appeared and continued until the end of the month.

Temperature of the air.

The month of February, 1903, was cooler than usual over the greater part of the Indian land area. The exceptions were the extreme north-west of India, the south-east of the Peninsula, and the Burma coast and Tenasserim, where the mean temperature exceeded the normal.

The mean maximum or day temperature of the month exceeded the normal over the extreme north-west of India and the Gangetic plain, over the extreme south of the

Peninsula and Ceylon, and over Tenasserim. The excess was slight to large in the first area, and exceeded 2·5° at the following stations :—

Station.	Mean maximum temperature. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	°	°
Khushab	74·0	68·7	+5·3
Rawalpindi	68·9	64·8	+4·1
Sialkot	72·6	69·6	+3·0
Peshawar	68·9	66·1	+2·8
Mooltan	76·4	73·7	+2·7
Jacobabad	80·6	77·9	+2·7

It was slight to moderate in the second area, and amounted to 2·0° or more at the following stations :—

Station.	Mean maximum temperature. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	°	°
Cochin	92·2	89·9	+2·3
Colombo	90·3	88·3	+2·0

The excess was slight and unimportant in Tenasserim and the Gangetic plain. Over the whole of the remainder of India the mean day or maximum temperature was below the normal. The deficiency was most marked along a line which extended from the mid-west coast east-north-eastward as far as upper Burma, and amounted to 2° or more at the following stations :—

Province.	Station.	Mean maximum temperature. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
		°	°	°
West Coast	Ratnagiri	83·7	86·4	−2·7
Bombay Deccan	Sholapur	91·7	93·7	−2·0
Gujarat	Rajkot	85·0	87·2	−2·2
Orissa	Cuttack	85·6	90·1	−4·5
	Balasore	83·0	85·4	−2·4
	False Point	80·7	82·8	−2·1
Central Provinces.	Sambalpur	85·5	88·0	−2·5
Chota Nagpur	Chaibassa	82·0	85·2	−3·2
Upper Burma	Bhamo	78·0	82·2	−4·2

The mean day or maximum temperature varied irregularly from the normal at the hill stations. The following gives data in illustration :—

Hill Station.	Mean maximum temperature. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	°	°
Gilgit	51·2	51·1	+0·1
Srinagar	47·9	42·3	+5·6
Leh	30·1	31·4	−1·3
Murree	47·5	48·0	−0·5
Cherat	55·0	52·1	+2·9
Simla	46·5	45·9	+0·6
Chakrata	53·4	52·5	+0·9
Mussooree	48·9	50·1	−1·2
Ranikhet	53·6	55·6	−2·0
Darjeeling	46·9	47·9	−1·0
Pachmarhi	74·9	75·5	−0·6
Mount Abu	66·2	68·8	−2·6
Wellington	71·2	70·2	+1·0

The highest day temperatures of the month were generally recorded during the last few days, except in Burma, north-east India and Madras, where they occurred somewhat earlier. In parts of the Punjab the highest day temperatures registered were higher than had been previously recorded. The following gives instances with the highest readings hitherto recorded at the same stations :—

Station.	Highest maximum temperature recorded in February, 1903.	Date on which recorded.	Highest maximum temperature recorded in February previous to 1903.	Year in which recorded.
	°		°	
Montgomery	92·5	28th	90·3	1895
Umballa	91·0	28th	90·0	1902
Lahore	90·4	28th	87·9	1902
Patiala	89·8	28th	86·9	1897, 1902
Ludhiana	88·1	28th	87·2	1887
Rawalpindi	83·9	28th	82·4	1902

Maximum temperatures exceeding 100° were registered during the month at Surat (102·2°), Akola (100·8°), Amraoti (100·3°), Khandwa (100·2°), Nagpur (100·6°), Chanda (101·2°), Gulbarga (101·5°), Secunderabad (100·7°), Salem (100·2°), Cuddapah (101·7°), Kurnool (100·2°) and Bellary (102·0°).

The variations of the mean minimum or night temperature from the normal exhibited a distribution, relatively to the normal, generally similar to that of the

maximum. The mean minimum temperature of the month was above the normal over a large part of the Punjab, over Madras, and over Tenasserim and lower Burma. It was more than 2° above at the following stations in these three areas:—

Province or Division.	Station.	Mean minimum temperature. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
		°C	°C	°C
Punjab	Peshawar	44·8	42·6	+ 2·2
	Sialkot	48·2	46·1	+ 2·1
Madras	Negapatam	76·9	72·1	+ 4·8
	Madras	71·8	68·0	+ 3·8
	Cuddalore	72·2	68·9	+ 3·3
	Trichinopoly	71·7	68·4	+ 3·3
	Salem	68·6	65·5	+ 3·1
	Coimbatore	68·6	65·5	+ 3·1
	Madura	72·1	69·5	+ 2·6
	Masulipatam	70·7	68·3	+ 2·4
	Bangalore	61·7	59·6	+ 2·1
	Nellore	71·2	69·1	+ 2·1
Tenasserim	Mergui	72·6	69·1	+ 3·5

Over the remainder of India the mean minimum temperature was below the normal, and right across the head of the Peninsula the variations from the normal were moderate to considerable. The following gives comparative data for those stations at which the deficiency was more than 2·5°:—

Station.	Mean minimum temperature. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°C	°C	°C
Hoshangabad	52·1	56·0	—3·9
Jubbulpore	48·5	52·4	—3·9
Benares	48·3	52·0	—3·7
Allahabad	48·3	51·8	—3·5
Cawnpore	48·0	51·3	—3·3
Neemuch	48·8	52·1	—3·3
Akola	54·2	57·5	—3·3
Bhavnagar Para	58·5	61·6	—3·1
Indore	49·3	52·1	—2·8
Bikaner	50·7	53·5	—2·8
Pachpadra	46·0	48·7	—2·7
Seoni	52·7	55·4	—2·7
False Point	62·2	64·8	—2·6
Lucknow	48·3	50·9	—2·6
Mainpuri	47·8	50·4	—2·6
Umballa	45·5	48·1	—2·6

The preceding data show that there was thus a large area of reduced night temperature extending from the west of Rajputana in the west to Orissa in the east.

The mean night temperatures of the hill stations varied irregularly from the normal, as is shown by the following data:—

Hill Station.	Mean minimum temperature. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	°	°
Gilgit	36·7	36·4	+0·3
Srinagar	31·6	27·3	+4·3
Leh	10·0	9·8	+0·2
Murree	33·9	34·5	—0·6
Cherat	42·5	40·1	+2·4
Simla	36·2	35·6	+0·6
Chakrata	36·2	36·1	+0·1
Mussooree	36·7	37·7	—1·0
Ranikhet	40·4	40·8	—0·4
Darjeeling	34·8	35·6	—0·8
Pachmarhi	48·9	51·5	—2·6
Mount Abu	52·1	53·6	—1·5
Wellington	48·4	46·3	+2·1

The lowest night temperatures of the month recorded over the hills and plains of northern India and adjacent countries were as follows:—

Station.	Lowest minimum temperature recorded in February, 1903.	Date on which recorded.	Lowest minimum temperature recorded in February previous to 1903.	Year in which recorded.
	°		°	
Dras	—30·9	7th	—33·9	1901
Minimarg	—26·5	7th	— 6·0	1902
Skardu	— 1·9	6th and 7th	— 4·0	1897
Kabul	0·4	5th	5·0	1896
Sonemarg	1·1	21st	— 3·4	1902
Astor	5·0	7th	4·5	1897
Yatung	10·9	23rd	11·9	1896
Poo	11·1	3rd	8·8	1895
Pishin	13·0	4th	9·9	1895
Quetta	14·8	4th	11·8	1893
Teheran	21·0	1st	15·5	1898
Parachinar	22·3	4th	21·5	1900

STATION.	Lowest minimum temperature recorded in February, 1903.	Date on which recorded.	Lowest minimum temperature recorded in February previous to 1903.	Year in which recorded.
	°		°	
Baghdad	31·8	1st	30·0	1893
Jacobabad	32·0	7th	29·0	1887
Rawalpindi	32·0	1st	28·7	1887
Montgomery	34·0	8th	32·3	1893
Peshawar	34·9	5th	29·2	1883
Umballa	38·1	8th	34·0	1902

The preceding data show that, except at Minimarg, Kabul and Yatung, the recorded minima were not remarkably low and had been exceeded in previous winters.

The mean temperature of the month was above the normal in three areas, *viz*:—

(1) the extreme north-west of India,

(2) the south and south-east of the Peninsula, and

(3) the Burma coast and Tenasserim.

The variations in these areas were generally slight, but exceeded +2·5° in the submontane Punjab and locally at Negapatam.

The mean temperature was more or less in defect of the normal over the remainder of the country, the deficiency having been greatest and more than 2° across the head of the Peninsula as well as locally at Rajkot and Bhamo. This is shown below:—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	°	
Hoshangabad	67·5	70·7	—3·2
Cuttack	74·9	77·9	—3·0
Bhamo	64·9	67·7	—2·8
False Point	71·5	73·9	—2·4
Sambalpur	71·6	74·0	—2·4
Jubbulpore	65·2	67·5	—2·3
Neemuch	64·5	66·7	—2·2
Chaibassa	69·6	71·8	—2·2
Balasore	71·5	73·7	—2·2
Rajkot	68·7	70·9	—2·2
Akola	72·0	74·1	—2·1

At most of the Himalayan hill stations and also at the central hill stations the mean temperature of the month was generally lower than usual, but in Baluchistan the temperature was slightly excessive. The following gives comparative data:—

HILL STATION.	MEAN DAILY TEMPERATURE.		
	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	°	
Chaman	48·5	46·9	+1·6
Quetta	43·1	42·4	+0·7
Gilgit	44·0	43·8	+0·2
Srinagar	39·8	34·8	+5·0
Leh	20·1	20·7	—0·6
Murree	40·7	41·3	—0·6
Cherat	48·8	46·1	+2·7
Simla	41·4	40·8	+0·6
Chakrata	46·1	45·6	+0·5
Mussooree	42·8	43·9	—1·1
Ranikhet	47·0	48·2	—1·2
Darjeeling	40·9	41·8	—0·9
Pachmarhi	61·9	63·5	—1·6
Mount Abu	59·2	61·3	—2·1
Wellington	59·8	58·2	+1·6

The excess of temperature in Baluchistan was, however, apparently local as further to the westward in Afghanistan, Persia, Asiatic Turkey, and thence southward over Arabia the mean temperature of the month was more or less lower than usual. This is shown below:—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	°	°
Kabul	30·1	35·7	—5·6
Jask	68·2	68·4	—0·2
Bushire	58·1	59·3	—1·2
Teheran	40·3	42·4	—2·1
Ispahan	38·0	41·7	—3·7
Baghdad	53·2	53·2	0
Muscat	69·7	70·3	—0·6
Aden	75·9	77·6	—1·7
Perim	77·4	78·9	—1·5

The mean temperature of the month hence differed more or less irregularly from the normal over the monsoon area. The principal features were :—

1st—A deficiency of temperature all over the interior of India.

2nd—An excess on the outskirts of the Indian area, *viz.*, in Baluchistan and north-west India, in the south of the Peninsula and Ceylon and in Tenasserim, and

3rd—A deficiency in Afghanistan, Persia and Arabia, and apparently as far south as the south-east Trades region.

The following table shows the mean temperature conditions of the month for the 57 meteorological divisions into which India is divided :—

Provinces.	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	91·4	70·2	80·8	21·2	27·5	+0·6	+2·2	−1·6
	Lower Burma (Deltaic)	87·9	69·3	78·6	18·6	28·1	−1·1	+1·6	−2·7
	Central do.	91·6	58·7	75·2	32·9	46·2	−0·2	0	−0·2
	Upper do.	86·6	58·7	72·7	27·9	40·1	−2·3	+0·1	−2·4
	Arakan	83·6	60·2	71·8	23·4	36·8	−1·2	−1·3	+0·1
Bengal and Assam	Eastern Bengal	79·6	57·4	68·5	22·3	36·0	−1·5	−0·1	−1·4
	Assam (Surma)	79·1	55·6	67·4	23·5	35·4	−1·6	0	−1·6
	Do. Hills	61·3	44·6	52·9	16·7	26·7	...	...	...
	Do. (Brahmaputra)	75·3	53·2	64·2	22·1	32·3	−0·6	−1·7	+1·1
	Deltaic Bengal	81·0	59·0	70·0	22·0	39·0	−0·8	−0·7	−0·1
	Central do.	80·5	55·7	68·1	24·7	40·2	−1·3	−0·3	−1·0
	North do.	77·4	52·7	65·2	24·7	35·6	−0·2	−0·9	+0·7
	Bengal Hills	44·5	26·7	35·6	17·9	29·5	−1·0	−0·8	−0·2
	Orissa	82·8	63·3	73·1	19·5	37·0	−3·0	−2·0	−1·0
	Chota Nagpur	79·7	53·8	66·8	25·9	46·2	−1·9	−0·8	−1·1
	South Bihar	79·8	53·4	66·6	26·4	42·0	−0·2	−0·6	+0·4
	North do.	78·0	51·1	64·6	26·9	37·9	−0·1	−1·3	+1·2
United Provinces of Agra and Oudh.	United Provinces (East)	80·2	48·3	64·3	31·9	52·5	−0·1	−3·6	+3·5
	Oudh (South)	79·6	48·3	64·0	31·3	54·3	+0·8	−2·6	+3·4
	Do. (North)	77·0	49·5	63·3	27·5	39·6	+0·3	−1·2	+1·5
	United Provinces (Central)	79·6	50·5	65·1	29·1	51·9	+0·7	−3·0	+3·7
	Do. do. (West)	76·8	49·5	63·2	27·3	50·0	+0·3	−0·9	+1·2
	Do. do. (East Submontane).	78·0	50·5	64·3	27·5	40·3	0	−2·1	+2·1
	Do. do. (West Submontane)	73·0	46·6	59·8	26·4	46·7	+0·9	−1·7	+2·6
	Do. do. (Hills)	51·4	37·1	44·6	14·4	39·3	−0·8	−0·4	−0·4
Punjab	Punjab (South-East)	74·4	51·7	63·1	22·7	45·6	−0·4	−0·1	−0·3
	Do. (South)	74·0	47·6	60·8	26·4	52·8	?	?	?
	Do. (Central)	73·6	46·1	59·9	27·5	53·4	+0·9	+2·0	−1·1
	Do. (Submontane)	71·7	46·3	59·2	25·4	49·6	+2·4	+0·5	+1·9
	Do. (Hills)	42·0	23·6	32·8	18·4	44·9	+1·2	+1·2	0
	Do. (West)	74·9	46·1	60·6	28·8	52·9	+3·2	−0·5	+3·7
N.-W. F. Province	North-West Frontier Province	71·7	44·7	58·2	27·0	47·8	+2·7	+1·0	+1·7
Bombay and Malabar Coast Districts (Madras).	Malabar	88·8	74·4	81·6	14·5	22·6	+1·0	+0·8	+0·2
	Madras (South Central)	92·7	68·6	80·7	24·1	35·2	−0·1	+3·1	−3·2
	Coorg	81·3	58·1	69·7	23·2	30·9	+0·1	+0·7	+0·8
	Mysore	87·7	62·4	75·1	25·3	36·1	+0·1	+0·9	−0·8
	Konkan	83·9	68·3	76·2	15·6	25·1	−0·8	−1·2	+0·4
	Bombay Deccan	89·9	59·5	74·7	30·4	47·0	−2·0	−0·8	−1·2
	Hyderabad (North)	88·4	59·1	73·7	29·3	48·1	...	...	...
	Khandesh	88·4	54·3	71·4	34·1	52·4	−0·7	−1·0	+0·3
Central Provinces and Berar.	Berar	89·3	57·3	73·3	32·0	52·1	−0·9	−3·3	−2·4
	Central Provinces (West)	86·4	54·5	70·5	31·9	52·5	−0·9	−2·2	+1·3
	Do. do. (Central)	83·9	53·3	68·6	30·5	51·0	−1·0	−2·3	+1·3
	Do. do. (East)	85·5	55·8	70·7	29·7	49·0	−2·5	−2·2	−0·3
Bombay (North)	Gujarat	88·3	58·0	73·2	30·3	53·3	−0·4	−1·4	+1·0
	Kathiawar and Cutch	81·7	56·8	69·3	24·9	45·7	−1·4	−1·9	+0·5
	Sind	81·1	52·7	66·9	28·5	52·1	+1·7	−1·0	+2·7
	Baluchistan Hills	56·2	32·4	44·3	23·8	59·7	+1·3	+1·0	+0·3

Provinces.	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.
		°	°	°	°	°	°	°	°
Rajputana and Central India.	Central India (East) . . .	80·4	49·6	65·0	30·9	53·7	—0·7	—2·4	+1·7
	Rajputana (East), Central India (West)	79·4	50·4	64·9	29·1	53·8	+0·1	—2·0	+2·1
	Do. (West)	79·4	49·6	64·5	29·8	55·9	—0·4	—2·8	+2·4
Madras . . .	East Coast (North) . . .	84·2	69·2	76·7	15·0	26·4	—0·1	—0·6	+0·5
	Hyderabad (South) . .	90·8	65·4	78·1	25·4	43·3	—1·2	+0·2	—1·4
	Madras (Central)	94·1	66·9	80·5	27·2	41·9	—0·2	+1·0	—1·2
	East Coast (Central) . . .	88·5	71·0	79·8	17·5	30·6	—0·3	+2·3	—2·6
	Do. (South) . . .	88·2	72·2	80·2	15·9	26·1	+0·7	+3·8	—3·1
	Madras (South) . . .	90·2	72·7	81·3	17·5	27·8	—0·5	+2·1	—2·6

The above shows that the mean temperature of the month exceeded 80° in Tenasserim, central and south Madras and the south division of the east coast, and thence decreased to 59·8° in the west submontane division of the United Provinces, to 59·9° in the central Punjab and to 56·4° in the north Punjab. The mean daily range of temperature was greater than usual over upper and central India.

The following gives a brief summary of the larger changes of temperature conditions during the month:—

The large and important cold wave which entered north-west India during the last week of January 1903 and extended over the whole of northern and central India affected the temperature conditions over the whole of northern India during the first eleven days of February. During these eleven days there occurred light snow on the Simla hills on the 1st, 2nd and 5th, in Baluchistan on the 3rd and in Kashmir on the 4th, 5th and 10th. These falls of snow were generally light, but they added to the large area of snow covered hills in the extreme north-west and helped to maintain and intensify the low temperatures already prevailing over northern India. The following gives comparative temperature data for all divisions for each alternate day from the 1st to the 11th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 1st Feb.	3rd Feb.	5th Feb.	7th Feb.	9th Feb.	11th Feb.
	°	°	°	°	°	°
Burma . . .	+0·6	—0·1	+0·2	+0·6	+1·5	—0·9
Assam . . .	—2·6	—1·2	—0·4	+2·4	+1·0	—0·7
Bengal . . .	+0·8	—1·2	—4·4	—1·6	—0·8	—2·8
Orissa . . .	+1·2	—5·4	—8·5	—5·5	—3·5	—4·3
Bihar	—0·4	—1·1	—3·4	—0·1	—1·4	—2·6
Chota Nagpur . .	—0·1	—5·2	—5·4	+0·1	—3·7	—1·1
United Provinces of Agra and Oudh.	—1·2	—5·0	—3·3	—1·3	—2·6	—0·7
Punjab	—4·9	—3·2	—2·8	—3·5	—0·9	+1·0
North-West Frontier Province.	—4·6	—2·6	—3·7	—1·7	+0·5	+2·0

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 1st Feb.	3rd Feb.	5th Feb.	7th Feb.	9th Feb.	11th Feb.
	°	°	°	°	°	°
Sind	—4·4	+0·1	—6·2	—6·9	—4·0	+1·6
Rajputana . . .	—7·3	—5·5	—3·9	—5·5	—5·3	+1·0
Gujarat . . .	—6·1	—1·1	—8·1	—7·3	—0·5	+1·1
Central India . .	—5·8	—5·3	—2·1	—2·8	—5·9	+0·7
Central Provinces .	—4·6	—5·5	—1·9	—1·5	—7·0	—1·5
Berar	—5·6	—4·4	—0·6	—2·4	—4·7	—1·0
West Coast . .	—0·6	+0·3	—1·6	—2·2	+3·4	+2·3
Bombay Deccan . .	—2·4	—2·6	—2·8	—2·8	—2·0	—0·3
Mysore . . .	+2·5	+1·5	+0·9	—0·8	—1·0	—1·3
Madras Coast . .	+2·7	+0·8	+0·6	+0·2	+0·9	—0·5
Madras Deccan . .	+0·4	—1·2	+0·9	—0·8	—1·3	—1·7
South India . .	+2·0	+1·3	+1·4	—0·4	+0·8	+1·2

The preceding data show that temperature was generally high during this period over the south and east of the Peninsula and in Burma and generally low in other parts of the country, though, owing to the passage of faint cold waves over the country from west to east, the variations of temperature from the normal over northern and central India differed in amount from day to day. One of the most interesting days during this period was the 6th. On the two or three preceding days there had been light snow in Baluchistan and Kashmir and a well-marked trough of low temperature had entered north-west India. At the same time a slight depression had formed over the central parts of the country causing cloudy weather and thereby raising the night temperature to considerably above the normal, while over north-east India there existed a large area of very low temperature which had reached that position after traversing northern India from west to east. There was thus a well-marked wave over northern India with one

trough over north Bombay, the crest over the central parts of the country, and the second trough over the head of the Bay. The following data for the 6th illustrate this distribution :—

Cold wave.		Warm wave.		Cold wave.	
Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
	°		°		°
Chaman .	—11·2	Sutna . .	+2·5	Chaibassa .	—6·1
Quetta . .	— 9·8	Jubbulpore .	+3·1	Cuttack .	—6·9
Jacobabad .	— 7·4	Nagpur .	+1·2	False Point .	—8·0
Hyderabad (S)	— 8·1	Chanda .	+3·9	Balasore .	—7·5
Bhuj . .	—10·6	Bellary . .	+1·1	Saugor Island	—6·7
Rajkot .	— 8·6	Madras .	+3·2	Calcutta .	—5·5
Ahmedabad .	— 7·4	Negapatam .	+4·7	Burdwan .	—4·7
Surat . .	— 7·9	...	...	Jessore . .	—4·6
Poona . .	— 8·0	...	...	Barisal .	—3·4
Goa . .	— 5·6	...	...	Akyab . .	—6·0

On the 11th the influence of the snowfall in the north-west was disappearing and the temperature was rising generally. This continued during the two following days when the mean temperature was generally in excess of the normal, except in Burma, Assam and Orissa. The following gives data for all divisions for the 12th and 13th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	12th February.	13th February.
	°	°
Burma	—1·6	—2·7
Assam	—2·2	—0·3
Bengal	—1·0	+1·4
Orissa	—1·5	—0·2
Bihar	—0·4	+3·2
Chota Nagpur	+2·1	+7·2
United Provinces of Agra and Oudh	+3·1	+2·0
Punjab	+1·3	+0·9
N.-W. F. Province	—0·1	+0·2
Sind	+2·4	—1·1
Rajputana	+3·3	—0·5
Gujarat	+1·4	—1·2
Central India	+3·7	+1·3
Central Provinces	+2·3	+1·6
Berar	+1·8	+1·0
West Coast	+1·8	+0·7
Bombay Deccan	+0·4	+0·3
Mysore	+0·7	+4·1
Madras Coast	+0·2	+0·4
Madras Deccan	—0·9	+2·5
South India	+0·6	+1·3

On the 13th the mean temperature fell to below the normal over Gujarat and adjacent parts of north-western and western India. The fall was greatest and nearly 6° at Rajkot. On the same date a marked fall of temperature occurred over Burma, and over these two regions areas of relatively low temperature were reported. The decrease of temperature which had commenced over Gujarat continued and extended, so that by the 17th the heat was less than usual over Bombay, Gujarat, the Deccan, the central parts of the country, the Gangetic plain and Bengal as well as over the greater part of Burma. The reduction of temperature was greatest at some central stations where it ranged between 6·0° and 7·9°. The following gives data from the 14th to the 20th for those divisions in which the mean temperature was lower than usual :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	14th Feb.	15th Feb.	16th Feb.	17th Feb.	18th Feb.	19th Feb.	20th Feb.
	°	°	°	°	°	°	°
Burma . .	—1·6	—0·2	—0·7	—1·2	—1·0	+0·5	+1·5
Assam . .	—0·9	—3·8	—2·8	—1·6	—1·0	+0·7	—0·9
Bengal . .	+3·7	+1·3	—0·6	—0·8	—1·4	+1·8	—1·4
Orissa . .	+2·6	+1·3	—0·6	—2·1	—0·1	—3·3	—2·0
Chota Nagpur .	+6·2	+2·5	—2·1	—1·1	+0·9	—1·7	—5·7
Gujarat . .	—3·8	—4·9	—2·1	—0·9	—2·5	—2·8	0
Central India .	—1·5	—5·0	—4·2	—0·7	+0·3	+0·5	+1·4
Central Provinces.	+0·2	—4·1	—5·8	—3·3	+0·1	0	+1·1
Berar . .	—3·8	—5·5	—6·3	—5·8	—4·0	—0·3	+1·8
West Coast .	—1·0	—1·3	—2·6	—3·0	—2·6	—2·5	—2·1
Bombay Deccan	—2·6	—5·1	—4·4	—3·5	—3·4	—2·8	—0·6

During the above period the mean temperature more or less steadily exceeded the normal over Madras on the one hand and over the Punjab, North-West Frontier Province, Sind and western Rajputana on the other, so that there existed relatively high temperatures in the extreme north-west and south-east of the Indian region with a large intervening area of relatively low temperature. The

following gives data for the Madras divisions and for those in north-west India from the 14th to the 20th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	14th Feb.	15th Feb.	16th Feb.	17th Feb.	18th Feb.	19th Feb.	20th Feb.
	°	°	°	°	°	°	°
United Provinces of Agra and Oudh.	+1·3	−0·7	−1·5	+1·1	+2·4	+0·8	+0·5
Punjab . .	+1·3	+1·6	+3·6	+3·9	+3·9	+1·4	+1·6
N.W.F. Province.	+2·9	+4·6	+4·8	+3·2	+2·1	+4·3	+4·0
Sind . .	−1·2	+2·3	+4·1	+3·4	+3·9	+3·9	+2·7
Rajputana .	−3·3	−3·8	−0·4	−1·6	+0·4	+0·7	+1·3
Mysore . .	+4·2	+2·1	+1·2	+1·6	0	+1·0	+0·4
Madras Coast .	+1·1	+4·2	+4·2	+2·9	+1·1	+1·1	+1·1
,, Deccan	+2·9	+0·2	−2·3	−0·1	−0·2	+0·6	+0·1
South India .	+2·5	+4·8	+5·3	+5·0	+4·1	+0·5	+0·3

On the 21st and 22nd the distribution of the mean temperature, relatively to the normal, was somewhat irregular, the principal features having been the excess over north-east and north-west India and the deficiency over the central parts of the country. The following gives data for the 22nd in illustration:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 22nd February.	Mean minimum temperature, 22nd February	Mean daily temperature, 22nd February.
	°	°	°
Burma	+2·0	+2·9	+2·5
Assam	+1·8	−0·9	+0·5
Bengal	+1·2	+0·3	+0·8
Orissa	−2·6	−1·1	−1·9
Bihar	+0·9	−2·4	−0·8
Chota Nagpur	−2·8	−1·1	−2·0
United Provinces of Agra and Oudh . .	+0·1	−3·7	−1·8
Punjab	+4·9	+0·1	+2·5
North-West Frontier Province . . .	+9·5	+0·1	+4·8
Baluchistan	+7·0	+4·2	+5·6
Sind	+6·6	+0·3	+3·5
Rajputana	−0·3	−2·4	−1·4
Gujarat	+2·4	+0·6	+1·5
Central India	−1·7	−3·3	−2·5
Central Provinces	−4·1	−1·4	−2·8
Berar	−4·0	+0·8	−1·6
West Coast	+0·1	+0·8	+0·5
Bombay Deccan	−0·8	+1·9	+0·6
Mysore	−2·7	+0·8	−1·0
Madras Coast	−1·9	+2·7	+0·4
Madras Deccan	−3·4	+0·9	−1·3
South India	−2·7	+2·9	+0·1

It will be seen from the above that the greatest excess was reported from Baluchistan, the Punjab, the North-West Frontier Province and Sind. This excess marked the approach of a warm wave from the westward, during the existence of which the day temperatures were exceedingly high. At Baghdad the thermometer on the 21st rose to 73·2°, which was 7·0° above the normal; at Bharein to 80·1° on the 22nd and 23rd; at Bushire on the 22nd to 77·6°, which was 10·0° above the normal; at Chaman on the 22nd to 66·8°, which was 8·0° above the normal, and at Khushab to 82·2°, which was 12·4° above the normal.

This warm wave intensified and advanced eastward, and, though temporarily checked on the 24th by a fall of snow over Kashmir, reached the east Punjab on the 23rd and 24th, the west of the United Provinces on the 25th, west Bengal on the 26th, east Bengal on the 27th and Arakan on the 28th. The following gives comparative temperature data for all divisions from the 23rd to the 28th and shows the advance of the warm wave eastward:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	23rd Feb.	24th Feb.	25th Feb.	26th Feb.	27th Feb.	28th Feb.
	°	°	°	°	°	°
Burma . . .	+1·4	+1·4	−1·5	−2·2	−2·2	−1·6
Assam . . .	+0·6	−0·1	−3·9	−2·4	+0·2	−0·6
Bengal . . .	+0·7	−4·1	−4·1	−1·1	+1·4	+0·6
Orissa . . .	−1·7	−3·1	−2·9	−0·4	+2·3	+2·7
Bihar	−2·0	−3·3	−3·1	−0·7	+0·6	+1·3
Chota Nagpur . .	−1·2	−5·2	−3·2	0	+2·1	+1·6
Punjab. . . .	+2·7	+3·0	+6·4	+7·1	+8·4	+10·6
United Provinces of Agra and Oudh.	−3·7	−2·3	−0·3	+2·5	+3·7	+4·9
North-West Frontier Province.	+6·9	+2·9	+5·6	+6·2	+10·2	+9·6
Baluchistan . .	+10·5	+15·8	+12·2	+12·9	+14·5	+5·2
Sind	+5·2	+5·0	+2·2	+3·8	+5·3	+6·2
Rajputana . . .	+0·6	+2·3	+4·9	+5·3	+7·1	+8·0
Gujarat . . .	+0·1	+1·2	+3·0	+3·5	+3·2	+2·4
Central India . .	−2·6	−1·8	−0·1	+4·6	+4·4	+4·6
Central Provinces .	−1·9	−3·5	−2·0	+0·8	+2·1	+2·4
Berar	+0·3	+0·2	+1·4	+1·4	+3·6	+4·0
West Coast . .	+1·1	+1·3	+1·5	+1·9	+1·8	+2·3
Bombay Deccan . .	+1·7	+2·5	+3·1	+3·8	+4·9	+4·2
Mysore . . .	+0·6	−0·1	+0·5	−0·2	+2·2	+3·0
Madras Coast . .	+0·5	+0·5	+1·0	+0·7	+1·3	+2·4
Madras Deccan . .	−0·7	−0·5	−0·3	+0·5	+2·8	+3·1
South India . .	+1·5	+0·5	−1·2	+0·1	+0·7	+1·6

The warm wave illustrated above was occasioned by excessive temperatures, both by day and night. It apparently originated or appeared first over Asiatic Turkey as at Baghdad and Busrah, the high temperatures appeared at least one day earlier than over east Persia and Baluchistan and north-west India. The following table

gives data for all places at which between the 21st and the 28th either the maximum or minimum temperature was more than 12° above the normal :—

DATE.	STATION.	Actual maximum.	Variation from normal.	Actual minimum.	Variation from normal.
		°	°	°	°
22nd February .	Khushab . .	82·2	+12·4	51·5	+ 3·3
23rd „ .	Chaman . .	69·3	+ 9·9	54·6	+16·6
24th „	Chaman . .	76·3	+16·3	57·1	+18·9
	Quetta . .	70·7	+13·7	48·9	+14·1
25th „	Quetta . .	70·2	+12·6	43·9	+ 8·8
	Chaman . .	72·8	+12·2	53·6	+15·2
	Lahore . .	79·8	+ 3·0	60·9	+14·0
26th „	Quetta . .	71·2	+13·0	45·9	+10·5
	Chaman . .	72·8	+11·6	55·1	+16·4
	Peshawar . .	76·1	+ 6·8	58·0	+12·4
27th „	Quetta . .	76·7	+18·0	48·9	+13·2
	Chaman . .	74·8	+12·9	52·6	+13·7
	Chakrata . .	66.5	+11·3	55·3	+16·3
	Simla . .	58·3	+ 8·5	52·2	+13·7
	Peshawar .	78·1	+ 8·4	58·0	+12·1
	Mussooree .	61·7	+ 7·9	52·0	+12·1
	Rawalpindi .	75·9	+ 6·7	59·1	+14·0
28th February .	Umballa . .	91·0	+14·7	52·6	+ 1·4
	Rawalpindi .	83·9	+14·2	61·1	+15·6
	Simla . .	64·5	+14·1	49·9	+10·8
	Chakrata . .	69·5	+13·7	49·9	+10·6
	Montgomery .	92·5	+13·3	56·0	+ 6·5
	Cherat . .	69·3	+12·8	54·0	+ 9·7
	Leh . .	48·5	+12·5	18·9	+ 5·1
	Lahore . .	90·4	+12·1	59·0	+10·9
	Sialkot . .	86·6	+12·0	62·2	+12·1
	Khushab . .	86·3	+11·9	62·4	+12·3
	Ajmer . .	90·4	+ 7·5	72·1	+17·9

The preceding data show that the warm wave advanced from west to east across the whole Indian area, that it was strongly marked, and that the temperature was about equally affected by day and by night. They likewise show the temporary check which occurred owing to the snowfall in Kashmir and also that though delayed the excess was finally as strongly marked on the hills as on the plains :—

Winds.

The wind, on the mean of the month, blew from the normal direction at Port Blair, but the velocity and steadiness were lower than usual. The following gives data for this station :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, February, 1903.	Normal percentage, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
				°	°			
Port Blair . .	71	74	— 3	N 42 E	N 45 E	97	121	—24

On the lower Burma coast and at Chittagong the wind's direction was more northerly than the average, but at Akyab the wind was exceedingly unsteady and blew from east-south-east instead of from north-north-west. The following gives comparative data of direction for this region :—

STATION.	MEAN WIND DIRECTION.	
	Actual, February, 1903.	Normal, February.
	°	°
Rangoon	N 22 W	S 45 W
Diamond Island	N 14 W	N 32 W
Akyab	S 63 E	N 25 W
Chittagong	N 5 E	N 43 W

At the head of the Bay the variations from the normal direction were irregular, increased westing being shown

by the winds at Saugor Island and increased easting by those at False Point. The following gives data :—

Station.	Mean wind direction.	
	Actual, February, 1903.	Normal, February.
	°	°
Calcutta	N 79 W	S 89 W
Saugor Island	S 73 W	S 52 W
False Point	S 36 E	S 12 E

In the Gangetic plain the directions were about normal, but the steadiness and velocity were generally lower than usual. This is shown below :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, February, 1903.	Normal percentage, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
				°	°			
Hazaribagh	39	55	—16	N 45 W	N 62 W	158	172	—14
Darbhanga	7	47	—40	S 85 W	S 78 W	40	90	—50
Allahabad	34	34	0	N 57 W	N 63 W	113	100	+13

The winds in the Upper Sub-Himalayas were generally more westerly than usual, a variation probably connected with the absence of any important storms during the month. For the same reason the steadiness was universally above and the velocity below the normal. The following gives data :—

Station.	Mean steadiness.			Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual percentage, February, 1903.	Normal percentage, February.	Variation of actual from normal, February, 1903	Actual, February, 1903.	Normal, February.	Westerly deflection.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
				°	°				
Dehra Dun.	40	28	+12	S 79 W	S 88 W	— 9	26	43	—17
Roorkee	34	31	+ 3	N 48 W	N 61 W	—13	64	68	— 4
Meerut	57	50	+ 7	N 83 W	N 59 W	+24	39	61	—22
Lahore	39	31	+ 8	N 67 W	N 31 W	+36	35	54	—19
Ludhiana	43	40	+ 3	N 67 W	N 50 W	+17	43	44	— 1

In the Indus valley the wind was lighter than usual. It was, as is ordinarily the case, very unsteady, while the direction varied irregularly from the average. This is shown below :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, February, 1903.	Normal percentage, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
				°	°			
Peshawar	11	9	+ 2	N 5 W	N 9 W	34	82	—48
Jacobabad	15	24	— 9	N 39 E	N 21 E	33	71	—38
Kurrachee	22	20	+ 2	S 45 W	N 69 W	188	249	—61

In northern Rajputana the wind, as in upper India, was more westerly than usual, while in southern Rajputana it was more easterly. The following gives data for Jaipur and Deesa :—

Station.	Mean wind direction.	
	Actual, February, 1903.	Normal February.
	°	°
Jaipur	N 74 W	N 18 W
Deesa	N 13 E	N 2 W

The following gives comparative data of the mean air movement and steadiness over northern India, Burma and the Bay Islands during the month :—

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, February, 1903.	Normal, percentage, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
Bay Islands	71	74	— 3	97	121	—24
Burma	37	50	—13	115	124	— 9
Bengal	23	24	— 1	129	126	+ 3
Bihar	7	47	—40	40	90	—50
Chota Nagpur	39	55	—16	158	172	—14
Orissa	18	17	+ 1	163	191	—28
United Provinces of Agra and Oudh.	41	36	+ 5	61	68	— 7
North-West Frontier Province.	11	9	+ 2	34	82	—48
Punjab	41	36	+ 5	39	49	—10
Rajputana	35	32	+ 3	136	152	—16
Sind	19	22	— 3	111	160	—49

The principal feature in the preceding table is the diminished velocity over almost the whole area.

The winds were generally lighter than usual over the Deccan. They were nearly northerly in direction over Berar and the west of the Central Provinces, but were south-easterly and south-south-easterly in the Nizam's Dominions and the Bombay Deccan. The following gives data :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, February, 1903.	Normal, February.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	°			
Belgaum	N 50 E	S 62 E	170	237	—67
Sholapur	S 6E	S 43 E	215	174	+41
Akola	N 4E	N 14 W	84	98	—14
Buldana	N 22 W	N 17 W	124	147	—23
Khandwa	N 9 W	N 14 W	79	93	—14
Nagpur	S 74 W	N 42 E	...	...	...
Hyderabad	S 47 E	S 50 E	78	97	—19

A fairly steady north-north-west wind prevailed along the west coast.

The wind was south-easterly at Bellary, and east-south-easterly at Bangalore, Mysore, Madras and Waltair, while it was east-north-easterly at Salem, Chitaldroog and Hassan. The steadiness was everywhere less than usual, while the mean velocity varied irregularly from the normal. This is shown below :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, February, 1903.	Normal percentage, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
				°	°			
Salem	45	51	— 6	N 77 E	E	144	128	+16
Chitaldroog	41	48	— 7	N 88 E	N 89 E	120	170	—50
Bangalore	53	65	—12	S 77 E	S 69 E	189	105	+84
Hassan	55	67	—12	N 83 E	S 85 E	63	77	—14
Mysore	46	67	—21	S 69 E	N 87 E	198	201	— 3
Madras	64	69	— 5	S 72 E	S 85 E	131	119	+12
Bellary	23	47	—24	S 48 E	S 57 E	108	92	+16
Waltair	53	...	...	S 68 E	...	109	...	...

The following gives comparative data of the air movement and steadiness over the central parts of the country and the Deccan :—

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, February, 1903.	Normal percentage, February.	Variation of actual from normal, February, 1903.	Actual February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
Central Provinces	28	27	+ 1	79	93	—14
Berar	36	25	+11	104	123	—19
Bombay Deccan	14	19	— 5	193	206	—13
Madras Deccan	28	38	—10	93	95	— 2
West Coast	68	64	+ 4	177	170	+ 7
Mysore	49	62	—13	143	138	+ 5
Madras Coast	64	69	— 5	131	119	+12
South India	45	51	— 6	144	128	+16

The wind was more westerly than usual at Quetta, but was lighter and less steady than the average, as is shown below :—

Hill Station.	Mean steadiness.			Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual percentage, February, 1903.	Normal percentage, February.	Variation of actual from normal, February, 1903.	Actual February, 1903.	Normal, February.	Westerly deflection.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
				°	°				
Quetta	10	31	—21	W	N83 W	+17	48	88	—40

The wind was south-south-westerly in Kashmir, where it was steadier and stronger than usual. The following gives data for Leh and Srinagar :—

Hill Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, February, 1903.	Normal percentage, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
Leh	73	23	+50	S 33 W	S	43	29	+14
Srinagar	21	13	+ 8	S 32 W	S 24 E	89	74	+15

At Simla and Chakrata there was a local south-south east wind, but from Ranikhet eastward to Darjeeling

the wind's direction was almost westerly and more westerly than usual. The following gives data:—

Hill Station.	Mean wind direction. Actual, February, 1903.	Mean wind direction. Normal, February.
	°	°
Simla	S 37 E	S 20 E
Chakrata	S 30 E	S 20 W
Ranikhet	N 89 W	S 51 W
Katmandu	S 82 W	N 86 W
Darjeeling	S 84 W	S 79 W

At the central hill stations the winds were more northerly and stronger than usual. This is shown below:—

Hill Station.	Mean wind direction. Actual, February, 1903.	Mean wind direction. Normal, February.	Mean wind direction. Northerly Deflection.	Mean wind velocity in miles per diem. Actual, February, 1903.	Mean wind velocity in miles per diem. Normal, February.	Mean wind velocity in miles per diem. Variation of actual from normal, February, 1903.
	°	°				
Mount Abu	N 59 W	N 63 W	+ 4	162	140	+22
Pachmarhi	N 36 W	N 64 W	+28	111	98	+13
Chikalda	N 21 W	N 83 W	+62	184	148	+36

In the Gulf of Aden the direction and steadiness of the wind were about normal, but the velocity was low. The following gives data for Aden and Perim:—

Station.	Mean steadiness. Actual percentage, February, 1903.	Mean steadiness. Normal percentage, February.	Mean steadiness. Variation of actual from normal, February, 1903.	Mean wind direction. Actual, February, 1903.	Mean wind direction. Normal, February.	Mean wind velocity in miles per diem. Actual, February, 1903.	Mean wind velocity in miles per diem. Normal, February.	Mean wind velocity in miles per diem. Variation of actual from normal, February, 1903.
				°	°			
Aden	68	73	− 5	N 81 E	N 87 E	271	336	−85
Perim	78	73	+ 5	S 62 E	S 64 E	380	430	−50

In the equatorial belt the wind was generally somewhat more northerly than usual, while the velocity at Zanzibar and steadiness at the Seychelles were above the average. Data for the Seychelles, Zanzibar and Mauritius are given below:—

Station.	Mean steadiness. Actual percentage, February, 1903.	Mean steadiness. Normal percentage, February.	Mean steadiness. Variation of actual from normal, February, 1903.	Mean wind direction. Actual, February, 1903.	Mean wind direction. Normal, February.	Mean wind direction. Northerly deflection.	Mean wind velocity in miles per diem. Actual, February, 1903.	Mean wind velocity in miles per diem. Normal, February.	Mean wind velocity in miles per diem. Variation of actual from normal, February, 1903.
				°	°				
Seychelles	68	56	+12	N 24 W	N 27 W	+ 3	140	145	− 5
Zanzibar	61	63	− 2	N 30 E	N 34 E	+ 4	174	159	+15
Mauritius	...	...	..	N 84 E	N 80 E	− 4	180	266	−86

It has already been pointed out that abnormally high pressures prevailed during the month over the whole of the monsoon area, the excess ranging from about 0·10″ over the Gulf, parts of northern India and Arabia to only 0·03″ at the Seychelles, hence gradients for north-east monsoon winds were above their normal intensity. It will, however, be seen from the tables on pages 69 and 70 that the wind velocity over the greater part of the Indian land area was below the normal. Over the Arabian Sea and the Bay of Bengal the force of the wind was slightly above the average, but in the Gulf of Aden the velocity was in considerable and at the Seychelles in slight (5 miles per diem) defect of the normal on the mean of the month. As in the *Monthly Weather Review* for February, 1902, it is mentioned that "the air movement in the Indian seas was stronger than usual and was hence in full accordance with the abnormal presssure conditions," it seems desirable to point out that in February, 1903, although the abnormal pressure conditions were similar, the observed air movement over India, as well as at Aden, Perim and the Seychelles, was less than usual, and it was only in the estimated forces as recorded on board ships that any accordance can be traced between the abnormal pressure conditions and increased velocity of the wind.

Humidity and Cloud.

The air was somewhat damper than usual over the southern half of the Peninsula, with the exception of the Malabar and North Kanara coasts. The excess was largest at Salem, but was more than 5 at the stations of Bellary and Belgaum. The following gives comparative data of the mean absolute and relative humidities for those stations

in the Peninsula where the relative humidity was in excess of the normal :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	"	"	"	%	%	
Salem . . .	·724	·563	+·161	70	58	+12
Bellary . . .	·490	·389	+·101	48	40	+ 8
Belgaum . .	·346	·328	+·018	46	39	+ 7
Chitaldroog . .	·383	·332	+·051	42	37	+ 5
Madras . . .	·782	·679	+·103	79	74	+ 5
Bangalore . .	·427	·396	+·031	55	52	+ 3
Hassan . . .	·387	·381	+·006	53	52	+ 1
Hyderabad (Deccan)	·446	·437	+·009	51	50	+ 1

In addition to the above the mean relative humidity was in excess locally at Chittagong and Jacobabad. The following gives comparative data for these two stations :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February, 1903.	Variation of actual from normal, February, 1903.
	"	"	"	%	%	
Chittagong . .	·504	·509	—·005	72	70	+2
Jacobabad . .	·274	·231	+·043	45	42	+3

Over the whole of the remainder of India the mean relative humidity was in defect. The deficiency was 5 or more over the North-West Frontier Province, the east Punjab, the United Provinces, Rajputana, Central India, the Central Provinces and as far east as Orissa. The following gives comparative data for the stations within this area :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, February, 1903.	Normal February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal February.	Variation of actual from normal, February, 1903.
	"	"	"	%	%	
Meerut . .	·232	·294	—·062	47	58	—11
Dehra Dun . .	·242	·283	—·041	53	62	— 9
Jaipur . .	·207	·256	—·049	34	43	— 9
Peshawar . .	·236	·233	+·003	49	58	— 9
Khandwa . .	·222	·307	—·085	31	40	— 9
Ludhiana . .	·268	·303	—·035	56	64	— 8
Allahabad . .	·282	·330	—·048	50	56	— 6
Nagpur . .	·285	·337	—·052	36	42	— 6
Buldana . .	·228	·277	—·049	28	34	— 6
Akola . . .	·246	·292	—·046	32	37	— 5
Roorkee . .	·264	·291	—·027	56	61	— 5

It will be noticed that the area of greatest defect of relative humidity lay over the region represented by the stations of Meerut, Delhi, Jaipur, Agra, Mainpuri and Bareilly, while the area of greatest excess of relative humidity covered the area represented by the stations of Salem, Chitaldroog, Bellary, Madras and Belgaum. The positions of the areas of greatest excess and defect of relative humidity are thus approximately those which these areas have occupied during the past three months, and the only important change in the general distribution, relatively to the normal, is the considerable contraction in the area of excessive humidity. This area in December and January covered nearly the whole of the Peninsula and of the Bay area, while in the month under review it was restricted to the southern half of the Peninsula, excepting the west coast.

The driest periods during the month were between the 10th and the 16th and the 24th and the 28th, during which the following low relative humidities were recorded :—

STATION.	Date.	Hour.	Lowest humidity recorded during February, 1903.
			%
Deesa	10th February	4 P.M. . .	9
Hazaribagh	10th ,,	,, . .	12
Deesa	11th ,,	,, . .	9
Jaipur	12th ,,	,, . .	13
Deesa	14th ,,	,, . .	10
Akola	14th ,,	,, . .	10
Jamnagar	14th ,,	,, . .	11
Akola	15th ,,	,, . .	11
Hazaribagh	15th ,,	,, . .	11
Khandwa	15th ,,	,, . .	12
Sholapur	15th ,,	,, . .	12
Sholapur	16th ,,	,, . .	10

Station.	Date.	Hour.	Lowest humidity recorded during February 1903.
			%
Buldana	16th February	4 P.M.	11
Akola	16th ,,	,,	12
Nagpur	16th ,,	,,	12
Hazaribagh	24th ,,	,,	13
Deesa	25th ,,	,,	11
Hazaribagh	25th ,,	,,	13
Khandwa	26th ,,	,,	12
,,	27th ,,	,,	11
Pachmarhi	27th ,,	8 A.M.	11
Nagpur	27th ,,	4 P.M.	11
Sholapur	27th ,,	,,	13
Bangalore	28th ,,	,,	11

The following gives mean comparative data of temperature, absolute humidity and relative humidity for the Bay Islands, Burma, and the different divisions of northern India :—

Province or Division.	Mean temperature variation, February, 1903.	Absolute Humidity.			Relative Humidity.		
		Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	"	"	"	%	%	
Bay Islands	+1·7	·852	·810	+·042	76	76	0
Burma	+0·7	·607	·627	—·020	64	68	—4
Bengal	—0·4	·515	·530	—·015	69	70	—1
Orissa	—1·8	·587	·628	—·041	73	78	—5
Bihar	0	·367	·382	—·015	60	63	—3
Chota Nagpur.	—0·7	·240	·253	—·013	39	42	—3
United Provinces.	—0·8	·255	·300	—·045	52	60	—8
N.-W. F. Province	+3·9	·236	·233	+·003	49	58	—9
Punjab	+2·2	·277	·293	—·016	56	61	—5
Sind	+0·8	·348	·320	+·028	52	50	+2
Rajputana	+0·1	·203	·243	—·040	32	37	—5

The preceding data show that except in the Bay Islands and Sind both the absolute and relative humidities were below the normal.

The following gives similar information for the different divisions of the Peninsula :—

Province or Division.	Mean temperature variation, February, 1903.	Absolute Humidity.			Relative Humidity.		
		Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	"	"	"	%	%	
Central Provinces.	—0·8	·254	·323	—·069	34	42	— 8
Berar	—0·8	·225	·292	—·067	30	36	— 6
Bombay Deccan.	— 1·1	·321	·324	—·003	39	37	+ 2
West Coast	—0·7	·566	·625	—·059	66	71	— 5
Madras Deccan.	+0·7	·468	·413	+·055	50	45	+ 5
Mysore	+1·1	·404	·382	+·022	50	48	+ 2
Madras Coast.	+1·9	·782	·679	+·103	79	74	+ 5
South India	+2·1	·724	·563	+·161	70	58	+12

The above shows that over southern India and the Deccan the absolute and relative humidities were generally more or less in excess, but that in the Central Provinces and along the west coast both were in defect.

At Quetta and Srinagar the absolute humidity was in excess of the normal, and, notwithstanding the high temperature, prevailing the relative humidity was also in excess, The following gives data :—

Hill Station.	Absolute Humidity.			Relative Humidity.		
	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	"	"	"	%	%	
Quetta	·177	·166	+·011	67	66	+ 1
Srinagar	·211	·156	+·055	86	80	+ 6

At all the remaining hill stations the air was drier than usual, and, notwithstanding the prevailing low temperatures, the relative humidity was lower than usual. This is shown below :—

Hill Station.	Absolute Humidity.			Relative Humidity.		
	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.	Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	"	"	"	%	%	
Pachmarhi	·204	·247	—·043	39	45	— 6
Chikalda	·229	·280	—·051	35	41	— 6
Chakrata	·153	·163	—·010	58	63	— 5
Ranikhet	·181	·196	—·015	58	62	— 4
Katmandu	·232	·249	—·017	63	66	— 3
Mount Abu	·170	·188	—·018	33	36	— 3
Darjeeling	·199	·211	—·012	78	80	— 2
Simla	·140	·152	—·012	56	58	— 2

The variations of the amount of cloud differed somewhat from those of humidity. The sky was more covered than usual over the Bay Islands, Burma (except Dimond Island), Chota Nagpur, Bengal and Orissa. The following gives comparative data for the stations within this area :—

Province or Division.	Station.	Mean cloud amount. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
Burma	Akyab	2·3	1·1	+1·2
	Rangoon	2·9	1·9	+1·0
	Diamond Island	1·4	2·2	—0·8
Bay Island	Port Blair	3·6	2·8	+0·8
Bengal	Sagour, Island	3·0	2·2	+0·8
	Chittagong	2·4	1·9	+0·5
	Calcutta	2·4	1·9	+0·5
Chota Nagpur	Hazaribagh	2·8	2·3	+0·5
Orissa	False Point	2·9	2·7	+0·2

There was thus a slight deficiency of cloud at Diamond Island and an excess elsewhere—largest at Rangoon and Akyab.

The second area of increased cloud amount included the centre and south of the Peninsula. The following gives data for this area :—

Station.	Mean cloud amount. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
Salem	3·9	2·0	+1·9
Mysore	3·3	1·4	+1·9
Hyderabad (Deccan)	2·9	1·3	+1·6
Bellary	2·3	1·4	+0·9
Hassan	3·4	2·8	+0·6
Madras	3·0	2·8	+0·2
Belgaum	1·3	1·2	+0·1
Nagpur	2·0	1·9	+0·1

The greatest excess in this region was shown at the stations of Hyderabad, Mysore and Salem, where the excess nearly equalled 2·0.

Over the whole of the remainder of India, both on the hills and plains, the sky was clearer than usual of cloud. The deficiency in the cloud amount was considerable over western and north-western India, and was absolutely greatest over Sind, the Rajputana desert and the south-east Punjab. The deficiency was 1·0 or more at the stations for which comparative data are given below :—

Station.	Mean cloud amount. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
Ludhiana	2·1	4·3	—2·2
Kurrachee	0·8	2·8	—2·0
Jacobabad	1·9	3·4	—1·5
Deesa	0·9	2·4	—1·5
Buldana	0·6	1·8	—1·2
Roorkee	2·3	3·4	—1·1
Meerut	1·9	2·9	—1·0
Bombay	0·2	1·2	—1·0

At all the hill stations except Simla the sky, on the mean of the month, was clearer of cloud than usual, but the deficiency was generally less than on the neighbouring plains. This is shown below :—

Station.	Mean cloud amount. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
Simla	6·0	5·7	+0·3
Quetta	3·3	4·2	—0·9
Katmandu	2·6	3·5	—0·9
Mount Abu	1·7	2·6	—0·9
Chikalda	0·9	1·8	—0·9
Pachmarhi	1·4	2·1	—0·7
Leh	6·2	6·8	—0·6
Srinagar	6·2	6·8	—0·6
Chakrata	4·2	4·7	—0·5
Darjeeling	5·5	5·9	—0·4
Ranikhet	4·4	4·5	—0·1

The mean cloud amount of the month was less than 1·0 at the stations for which comparative data are given below, and these stations hence outlined the region of most quiet and settled weather :—

Station.	Mean cloud amount. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	°	°
Deesa	0·9	2·4	—1·5
Chikalda	0·9	1·8	—0·9
Kurrachee	0·8	2·8	—2·0
Akola	0·7	1·5	—0·8
Khandwa	0·7	1·4	—0·7
Jamnagar	0·6	—	—
Buldana	0·6	1·8	—1·2
Darbhanga	0·6	1·6	—1·0
Karwar	0·4	0·5	—0·1
Bombay	0·2	1·2	—1·0

At Aden the sky was slightly more cloudy than usual, while, on the contrary, at Perim it was unusually clear. This is shown below :—

Station.	Mean cloud amount. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	°	°
Aden	4·4	3·9	+0·5
Perim	0·8	2·4	—1·6

At the Seychelles the cloud amount was in excess of the normal and the sky more cloudy than in any part of the Indian area. The following gives data for the stations in the south-east Trades region.

Station.	Mean cloud amount. Actual, February, 1903.	Normal, February.	Variation of actual from normal, February, 1903.
	°	°	°
Seychelles	7·6	6·5	+1·1
Zanzibar	6·4	4·0	+2·4
Mauritius	6·6	6·4	+0·2

Rainfall.

The month of February, 1903, like the corresponding month of last year, was exceptionally dry. The actual distribution of rain, as shown by the meteorological observatories, is shown in Plate IV. This plate shows that over about three-quarters of the country actually or practically no rain fell during the month. The fourth quarter included parts of the south and east coasts of the Peninsula, Bengal, Assam and Tenasserim. The heaviest rainfall reported at any station was 5·10 inches at Chittagong and 5·67 inches at Port Blair. Patches of light rainfall are shown over central Burma and over parts of central and north-western India, but, with these exceptions, the whole of the plains of India, excepting the coasts of the Bay and north-east Inida, received a total of less than one-tenth of an inch of rain during the month. On the other hand, on the hills the drought was much less strongly marked, and at some places around the north-west frontier the total monthly rainfall exceeded the normal.

The chief periods of rainfall were as follows :—

The 3rd to the 5th—when Baluchistan and Kashmir received some snow showers.

„ *6th and 7th*—when showers fell in the Central Provinces.

„ *12th to 23rd*—when rain was received over north-east India, light rain and snow showers over Baluchistan and the hill districts of north-west India.

„ *24th to 28th*—when Kashmir and the north-west frontier received snow.

The following table gives the mean actual, mean normal and variation rainfall data of the 57 meteorological provinces or divisions for February 1903:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, February, 1903.	Average normal, February.	Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.
				Inches.	Inches.	Inches.
Bengal and Assam	Eastern Bengal	2·1	1·6	1·43	0·98	+0·45
	Assam (Surma)	1·9	3·1	0·59	1·83	−1·24
	Do. (Hills)	2·8	2·9	1·30	1·36	−0·06
	Do. (Brahmaputra)	3·1	3·4	1·10	1·34	−0·24
	Deltaic Bengal	1·9	1·6	1·20	1·07	+0·13
	Central do.	1·8	1·4	0·66	0·73	−0·07
	North do.	0·6	1·2	0·25	0·54	−0·29
	Bengal Hills	1·4	2·0	0·48	0·79	−0·31
	Orissa	2·2	1·3	1·06	0·76	+0·30
	Chota Nagpur	1·4	1·6	0·66	0·79	−0·13
	Bihar (South)	0·5	1·5	0·29	0·66	−0·37
	Do. (North)	0·2	1·1	0·13	0·45	−0·32
United Provinces of Agra and Oudh.	United Provinces (East)	0.1	1·1	0·02	0·48	−0·46
	Oudh (South)	0	0·9	0	0·39	−0·39
	Do. (North)	0	1·2	0	0·50	−0·50
	United Provinces (Central)	0	0·8	0	0·37	−0·37
	Do. do. (West)	0	0·1	0·01	0·50	−0·49
	Do. do. (Submontane, East)	0·1	1·2	0·03	0·51	−0·48
	Do. do. (Do. West)	0·2	2·2	0·07	1·26	−1·19
	Do. do. (Hills)	1·0	4·2	0·25	2·52	−2·27
Punjab	Punjab (South-East)	0	1·3	0	0·53	−0·53
	Do. (South)	0·1	1·5	0·03	0·59	−0·56
	Do. (Central)	0·2	2·3	0·04	1·05	−1·01
	Do. (Submontane)	0·1	2·8	0·05	1·51	−1·46
	Do. (Hills)	2·6	4·9	0·85	3·30	−2·45
	Do. (West)	0	1·4	0	0·59	−0·59
North-West Frontier Province.	North-West Frontier Province	0·2	3·0	0·06	1·46	−1·40
Bombay and Malabar Coast Districts (Madras).	Malabar	0·1	0·3	0·10	0·21	−0·11
	Travancore	0·9	...	0·97	...	...
	Madras (South-Central)	0·2	0·6	0·09	0·34	−0·25
	Coorg	0	...	0	...	...
	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	0·2	0	0·11	−0·11
Central Provinces and Berar.	Berar	0·1	0·6	0·04	0·23	−0·19
	Central Provinces (West)	0·2	0·6	0·05	0·27	−0·22
	Do. do. (Central)	0·7	0·8	0·23	0·47	−0·24
	Do. do. (East)	1·2	0·9	0·53	0·47	+0·06
Bombay (North)	Gujarat	0	0·2	0	0·11	−0·11
	Kathiawar and Cutch	0	0·2	0	0·11	−0·11
	Sind	0·1	0·7	0·05	0·25	−0·20
	Baluchistan Hills	2·0	3·7	0·72	1·59	−0·87
Rajputana and Central India.	Central India (East)	0·1	0·8	0·01	0·41	−0·40
	Rajputana (East), Central India (West)	0·1	0·6	0·02	0·26	−0·24
	Rajputana West	0·1	0·3	0·07	0·13	−0·06
Madras	East Coast (North)	0·7	0·6	0·45	0·34	+0·11
	Madras (Central)	0	0	0	0·05	−0·05
	East Coast (Central)	0	0·1	0·01	0·19	−0·18
	East Coast (South)	0·6	0·5	0·27	0·45	−0·18
	Madras (South)	1·2	1·2	0·60	0·84	−0·24

The preceding data show that in twentynine out of the fiftyseven divisions the total rainfall of the month was less than 0·10″ and was less than half an inch in all the remaining divisions, except the Assam divisions, east, deltaic and central Bengal, Orissa, Chota Nagpur, the Punjab Hills, Travancore, the east of the Central Provinces, Baluchistan, and south Madras. The month's rainfall was below the normal in all divisions, except east Bengal, deltaic Bengal, Orissa, the east of the Central Provinces, and the north of the east coast, where there was some excess.

From the fifth column of the above table it would appear that the general rainfall of the whole Indian region (excluding the hill divisions) was 0·37″ below the normal on the average of all divisons.

Showers occurred in Tenasserim on the 5th, 6th and 7th and in central Burma on the 9th, but the province, as a whole, was practically rainless throughout the month.

Assam received less rain than usual more particularly in the southern districts. In the Surma valley general showers occurred between the 14th and 16th and scattered showers between the 22nd and the 28th, the amounts in all cases having been moderate or small. In the Brahmaputra valley there were showers from the 8th to 10th, the 14th and 15th, and between the 21st and 24th. In parts of Darrang falls exceeding 1·00″ in 24 hours were recorded, but in general the showers were light and the total rainfall of the month was except in Kamrup, Darrang and Nowgong, more or less below the normal. The following gives comparative data for the eight plains districts of the province:—

District.	Rainfall.			
	Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	0·54	2·01	−1·47	−73
Sylhet	0·66	1·67	−1·01	−60
Goalpara	0·42	0·58	−0·16	−28
Kamrup	0·79	0·72	+0·07	+10
Darrang	1·08	0·93	+0·15	+16
Nowgong	1·00	0·84	+0·16	+19
Sibsagar	1·58	1·79	−0·21	−12
Lakhimpur	1·52	2·63	−1·11	−42

Rain fell in all the districts of Bengal, but, except in deltaic Bengal and Orissa, in less amount than usual. In southwest Bengal there were general showers on the 14th and 15th, between the 18th and 20th and on the 23rd. The only heavy falls in 24 hours were 3·25 inches at Mollahat (Khulna), 2·09 inches at Narail (Jessore) on the 15th and 2·19 inches at Saugor Island on the 18th. The following gives comparative data for the districts in this division:—

District.	Rainfall.			
	Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Burdwan	1·21	0·99	+0·22	+22
Birbhum	0·80	0·79	+0·01	+1
Bankura	0·88	0·85	+0·03	+4
Midnapore	0·76	0·91	−0·15	−16
Hooghly	1·67	1·14	+0·53	+46
Howrah	0·31	0·99	−0·68	−69
24-Parganas	1·29	1·16	+0·13	+11
Nadia	1·43	1·09	+0·34	+31
Murshidabad	0·48	0·76	−0·28	−37
Jessore	1·94	1·16	+0·78	+67
Khulna	1·14	1·04	+0·10	+10

In north Bengal light scattered showers occurred between the 15th and the 23rd and the total rainfall was only about half the normal. The following gives data for the districts in this division:—

District.	Rainfall.			
	Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Rajshahi	0·22	0·70	−0·48	−69
Dinajpur	0·09	0·56	−0·47	−84
Jalpaiguri	0·48	0·63	−0·15	−24
Cooch Behar	0·38	0·45	−0·07	−16
Rangpur	0·21	0·51	−0·30	−59
Bogra	0·05	0·85	−0·80	−94
Pabna	0·89	0·99	−0·10	−10

East Bengal received moderately heavy rain between the 14th and 16th and showers (in some cases moderately heavy) on the 23rd, 27th and 28th. Falls

exceeding 2″ in 24 hours were recorded at the following places on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Dacca	Manikganj	15th February	3·20
	Narayanganj	,, ,,	2·91
	Dacca	,, ,,	2·64
Chittagong	Chittagong	28th ,,	3·12

The rainfall of this division was, except in Mymensingh, heavier than usual, as is shown by the following comparative data for the different districts :—

District.	Rainfall. Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dacca	2·68	1·17	+1·51	+129
Mymensingh	0·50	0·87	−0·37	−43
Faridpur	1·26	1·18	+0·08	+ 7
Backergunge	1·62	1·09	+0·53	+49
Tippera	0·74	1·01	−0·27	−27
Noakhali	1·50	1·14	+0·36	+32
Chittagong	1·70	0·82	+0·88	+107

In Bihar there occurred only one rainfall period, *viz.*, between the 18th and 20th. The falls were light and the total rainfall of the month was, except in Bhagalpur and Sonthal Parganas, less than half the normal. The following gives comparative data for the districts in this division :—

District.	Rainfall. Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Patna	0·24	0·62	−0·38	−61
Gaya	0·39	0·61	−0·22	−36
Shahabad	0·04	0·75	−0·71	−95
Saran	0·04	0·44	−0·40	−91
Champaran	0·05	0·43	−0·38	−88
Muzaffarpur	0·06	0·47	−0·41	−87
Darbhanga	0·05	0·42	−0·37	−88
Monghyr	0·53	0·65	−0·12	−18
Bhagalpur	0·57	0·51	+0·06	+12
Purnea	0·01	0·41	−0·40	−98
Malda	0·39	0·68	−0·29	−43
Sonthal Parganas	0·83	0·50	+0·33	+66

In Orissa general rain fell between the 18th and the 20th, and showers between the 21st and the 24th. The total rainfall of the month was heavier than usual. This is shown by the following comparative data for the districts :—

District.	Rainfall. Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Cuttack	1·06	0·74	+0·32	+43
Balasore	1·16	1·02	+0·14	+14
Angul	0·96	0·55	+0·41	+75
Orissa Tributary Mahals	1·13	0·63	+0·50	+79
Puri	1·00	0·75	+0·25	+33

Chota Nagpur received scattered showers between the 18th and 23rd, and the month's rainfall was very irregularly distributed. The following gives data for the districts :—

District.	Rainfall. Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inches.	Inch.	Inch.	
Hazaribagh	1·13	0·82	+0·31	+38
Ranchi	0·61	0·82	−0·21	−26
Palamau	0·24	0·63	−0·39	−62
Manbhum	0·59	0·74	−0·15	−20
Singbhum	0·85	0·77	+0·08	+10

Over the United Provinces there was no rain of any importance, except over the submontane and hills districts,

where light showers occurred about the middle of the month.

In the Punjab the distribution of rain was similar to that in the United Provinces. Over nearly the whole province the total fall of the month was insignificant and less than 10 per cent. of the normal, but at the hill and submontane stations light showers were recorded during the middle of the month.

Baluchistan received showers between the 2nd and 3rd, the 9th and 12th and the 15th and the 19th. The falls were not heavy and the total rainfall was only about half the normal.

In Kashmir there were three periods of showery weather, *viz.*, between the 1st and 5th, the 11th and 18th and the 24th and the 28th. The rainfall and snowfall were generally lighter than usual, except at Leh.

In Rajputana and Central India there occurred a few showers on the 17th and 18th, but the total fall was insignificant.

In the Central Provinces there were a few showers between the 5th and 7th and between the 18th and 23rd. Amounts exceeding 1·00 inch in 24 hours were recorded at some places in the Raipur and Bilaspur districts. The following gives comparative data for the districts of the Central Provinces:—

District.	Rainfall. Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Chanda	0·41	0·36	+0·05	+ 14
Bhandara	0·30	0·46	−0·16	− 35
Balaghat	0·48	0·52	−0·04	− 8
Raipur	0·67	0·34	+0·33	+ 97
Bilaspur	0·77	0·57	+0·20	+ 35
Sambalpur	0·67	0·46	+0·21	+ 46
Saugor	0	0·37	−0·37	−100
Damoh	0·10	0·35	−0·25	− 71
Jubbulpore	0·14	0·44	−0·30	− 68
Mandla	0·19	0·98	−0·79	− 81
Seoni	0·16	0·78	−0·62	− 79
Narsingpur	0	0·26	−0·26	−100
Hoshangabad	0	0·22	−0·22	−100
Nimar	0	0·17	−0·17	−100
Betul	0	0·22	−0·22	−100
Chhindwara	0·08	0·36	−0·28	− 78
Wardha	0·09	0·29	−0·20	− 69
Nagpur	0·16	0·39	−0·23	− 59

In Berar the only rainfall recorded was a few showers in the Wun district between the 20th and 23rd.

There was no rain during the month over the Bombay Presidency or in Mysore, where the weather was fine throughout the month.

Travancore received moderate showers between the 12th and 14th, but in Malabar and South Kanara hardly any rain was recorded, except on the 14th, when Cochin (Malabar) received 2·68 inches, and even the small normal amount was not reached.

South Madras received scattered showers during the month, more especially between the 11th and 14th, and the month's rainfall on the whole was nearly normal. The following gives data for the districts in this division:—

District.	Rainfall. Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inch.	Inches.	Inch.	
Madura	0·32	0·66	−0·34	−52
Tinnevelly	0·89	1·06	−0·17	−16

In south-central Madras a few light scattered showers were received, but the total amount was insignificant, while central Madras was rainless throughout the month.

In the north division of the east coast and in the more northern districts of that division the rainfall was, as in Orissa and deltaic Bengal, heavier than in other parts of India and exceeded the normal. The rainfall was most general on the 18th, when the following amounts exceeding 2″ in 24 hours were recorded:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 18th February, 1903.
		Inches.
Vizagapatam	Yellamanchili	3·38
	Balacheruvu	3·29
	Chodavaramu	2·29

The following gives comparative data for the different districts in this division:—

District.	Rainfall. Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inches.	Inch.	Inch.	
Ganjam	0·72	0·57	+0·15	+ 26
Vizagapatam	1·20	0·38	+0·82	+216
Godavari	0·14	0·23	−0·09	− 39
Kistna	0·01	0·16	−0·15	− 94

In the central division of the east coast there was no rain, but in the south division there were showers between

the 21st and 23rd. The following gives comparative data for the districts in this division :—

District.	Rainfall. Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Madras	2·17	0·28	+1·89	+675
Chingleput	0·64	0·37	+0·27	+ 73
North Arcot	0·11	0·27	—0·16	— 59
South Arcot	0·26	0·48	—0·22	— 46
Tanjore	0·07	0·64	—0·57	— 89
Trichinopoly	0·34	0·46	—0·12	— 26

The rainfall of the extra-Indian stations exhibited a very irregular distribution. In Ceylon as well as at Perim and Aden, and southward over the south-east Trades region as far south as the Seychelles, the month's rainfall was more or less in excess of the normal, while, on the contrary, over the north of Arabia and the greater part of Persia the month was practically or absolutely rainless. At Teheran in north Persia, on the contrary, the rainfall was heavier than usual, while at Meshed and Kabul the month's fall was normal. This condition was due to the last storms of the month which only affected the extreme north of the Indian area. The following gives data of the extra-Indian stations :—

Station.	Rainfall. Average actual, February, 1903.	Average normal, February.	Variation of actual from normal, February, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee	4·70	1·98	+2·72	+137
Colombo	3·96	2·29	+1·67	+ 73
Minicoy	3·74	0·35	+3·39	+979
Kashgar	0	0·12	—0·12	—100
Kabul	0·82	0·98	—0·16	— 16
Meshed	1·04	1·03	+0·01	+ 1
Teheran	3·29	0·82	+2·47	+301
Ispahan	0·07	0·17	—0·10	— 59
Bushire	0·21	2·35	—2·14	—91
Jask	0	0·97	—0·97	—100
Muscat	0	0·78	—0·78	—100
Baghdad	1·03	2·17	—2·14	— 99
Aden	1·07	0·29	+0·78	+269
Perim	0·80	0·26	+0·54	+208
Zanzibar	3·60	1·38	+2·22	+161
Seychelles	14·91	12·11	+2·80	+ 23
Mauritius	6·19	7·43	—1·24	— 17

Crop Report.

Madras.—There was little rain over Madras during February, and water for irrigation became insufficient during the month in a part of Ganjam, the Deccan and Salem. The condition of the standing crops was, however, generally fair during the month and prices were generally stationary. Harvesting continued with fair outturn.

Bombay.—There was very little rain during February and more was required in parts of Sukkur, Larkana and Hyderabad. At the close of the month the standing crops were generally in good condition, but had been damaged by locusts or drought in parts of Hyderabad, by frost in parts of Hyderabad, the upper Sind frontier, and Ahmedabad, and by insufficient moisture in parts of Sukkur, Larka and Nasik. Cotton was in good condition in Wadhwan and in fair condition elsewhere, and picking was proceeding in Broach, Surat, Bijapur, Belgaum, Rajkot and Baroda. Fodder was deficient in parts of Larkana and water in parts of Bijapur. Prices were easier than in 1902.

Bengal.—More or less rain fell generally during the month, but was insufficient in Nadia, Pabna, Tipperah, Patna, Purnea, Monghyr and Malda. The spring crop was harvested during the month, and the outturn of wheat was estimated at 92 per cent., of late cotton at 85 per cent., and of oil-seeds at 90 per cent. of a normal crop. Poppy did well during the month. Fodder and water were sufficient, and the preparation of lands for rice and jute progressed during the month. Prices were generally stationary.

United Provinces.—Rain was very light and was much needed during the month in Allahabad, Muttra, Agra, Mirzapur and in the Bundelkhand district. In Agra the crops were damaged owing to insufficiency of rain. Slight damage from frost was reported. The poppy crop flourished and the extraction of opium commenced in the second half of the month. Fodder was scarce in Hardoi and parts of Agra and Rai Bareli.

Punjab.—Rain was light and by the end of the month was urgently needed throughout the province. The

prospects of the standing crops on irrigated lands were generally good, but on unirrigated lands the condition of the crops deteriorated during the month. At the commencement of the month they were average, while at the close they were withering in most districts. Fodder was sufficient in most districts and the cattle generally in good condition.

North-west Frontier Province.—Rain fell at the close of the month. The prospects of the irrigated crops were good, but more rain was badly wanted on unirrigated lands. Prices were, however, steady.

Burma.—There was very little rain during the month, and in some places the crops suffered from the want of rain and irrigation. The standing crops at the end of the month were generally fair.

Central Provinces.—The weather was cloudy, but there was very little rain. Cloudy weather and caterpillars caused damage in Jubbulpore, Raipur and Chanda. The harvesting of the winter crops was in progress and the average outturn was 90 per cent. in Nagpur and 75 per cent. to 100 per cent. in Mandla and Narsingpur. Fodder and water were generally sufficient.

Assam.—Light rain fell during the month, but the quantity was insufficient. The pulse harvest was completed during the month, the outturn having been bad. The outturn of sugarcane was good in Lakhimpur, bad in Cachar, Kamrup and Nowgong, and fair in other districts, and of mustard, poor in most districts. The hoeing and pruning of tea and ploughing for rice and jute progressed during the month.

Mysore.—The general prospects were good, and water and fodder sufficient.

Coorg.—Prices were normal, and water and fodder sufficient.

Berar.—The picking of cotton was completed during the month. The winter crops were in good condition and were being harvested at the close of the month. Preparation of land for the monsoon crops was in progress, and fodder and water were sufficient.

Hyderabad.—There was no rain. The standing crops were fairly good and harvest commenced during the month.

Rajputana.—There was light rain at times and the standing crops were fair in Ajmer-Merwara and good elsewhere. The condition of the cattle was good and fodder was sufficient.

Central India.—Very little rain fell during the month. Crops at the close of the month were fair in Bundelkhand, Baghelkhand and Indore and good elsewhere. Some damage by frost was reported from Baghelkhand. Agricultural stock and pasturage were generally good.

Kashmir.—In Jummoo light rain was received and the condition of the standing crops was good.

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 231 Stations in India, Burma, etc., in February, 1903.

Table

Abstract of Observations taken at 8 A.M. at 231

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
	I.—Burma Coast and Bay Islands.				+·071								88·9	−0·3	69·4	+1·5	79·2	+0·7	19·4					29·1
1	Tenasserim and Bay Islands.	Car Nicobar**	25	30·017		29·969	30·091	20th	29·922	18th	·169	81·7	88·5		78·8		83·7		9·7	89·7	4 days	73·3	15th	16·4
		Port Blair	61	29·994	+·066	29·986	30·063	9th	29·912	28th	·151	79·3	88·6	+0·5	76·8*	+1·9	82·7*	+1·2	11·8	90·7	2nd & 26th.	71·8	3rd & 4th	18·9
		Mergui	96	29·969	+·082	29·958	30·048	21st	29·889	28th	·159	76·5	90·4	+0·8	72·6	+3·5	81·5	+2·2	17·8	92·6	24th	68·9	8th	23·7
		Tavoy	26	30·048	+·070	30·005	30·110	19th	29·969	28th	·141	72·7	91·7	+0·6	68·7	+1·9	80·2	+1·3	23·0	94·2	5 days	60·5	28th	33·7
		Moulmein	94	29·967	+·074	30·000	30·061	9th	29·871	28th	·190	72·6	92·1	+0·6	69·2	+1·5	80·7	+1·1	22·9	95·5	3 days	61·9	28th	33·6
2	Lower Burma	Rangoon	57	30·012	+·071	30·003	30·111	9th	29·926	28th	·185	70·9	91·3	−1·5	67·3	+1·4	79·3	−0·1	24·0	95·1	22nd	60·8	1st	34·3
		Bassein	27	30·041	+·079?	30·004	30·103	9th	29·955	28th	·168	70·5	89·6	−0·4	66·8	+1·9	78·2	+0·8	22·8	94·7	21st	61·8	13th	32·9
		Diamond Island.	41	30·020	+·060	29·997	30·106	9th	29·937	28th	·169	76·1	82·7	−1·5	73·8	+1·5	78·3	0	8·9	86·9	20th	69·7	13th	17·2
5	Arakan	Akyab	20	30·050	+·056?	30·014	30·154	9th	29·942	28th	·212	66·0	83·6	−1·2	60·2	−1·3	71·8	−1·3	23·4	89·9	23rd	53·1	6th	36·8
3	Central Burma	Toungoo	183	29·873	+·073	30·005	29·983	9th	29·779	27th	·209	69·2	90·8	−0·1	60·5	−0·6?	75·7	−0·4?	30·3	98·4	9th	54·6	1st	43·8
	II.—Burma, Inland.				+·084								87·6	−1·8	58·4	+0·1	73·0	−0·9	29·2					41·5
3	Central Burma	Thayetmyo	130	29·931	+·078	30·007	30·048	9th	29·823	27th	·225	69·0	92·4	−0·2	56·9	0	74·7	−0·1	35·5	97·5	22nd	49·0	11th	48·5
4	Upper Burma	Minbu	165	29·906	P	30·020	30·026	9th	29·782	27th	·244	65·8	88·8	−2·8	59·9	−1·3	74·4	−2·1?	28·9	95·2	24th	51·0	14th	44·2
		Yamethin	657	29·382	+·080	30·010	29·501	9th	29·288	27th	·213	68·3	91·4	−1·1	61·8	+1·2	76·6	+0·1	29·6	97·8	22nd	55·7	10th	42·1
		Monywa		29·801			29·928	9th	29·704	27th	·224	66·2	86·5		59·7		73·1		26·8	92·3	21st	53·8	14th	38·5
		Mandalay	250	29·808	+·085	30·018	29·926	9th	29·693	27th	·233	66·2	88·4	−1·5	60·5	+0·4	74·5	−0·6	27·9	94·0	22nd	54·5	10th	39·5
		Bhamo	381	29·688	+·091	30·046	29·815	9th	29·563	27th	·252	57·1	78·0	−4·2	51·7	−1·4	64·9	−2·8	26·3	83·5	20th	47·2	2 days	36·3
4(a)	Burma Hill Stations.	Maymyo		26·495			26·602	9th	26·386	3rd	·216	55·9	71·2		45·4		59·8		28·8	80·0	22nd	37·8	10th	42·2
		Lashio		27·249	+·070		27·333	9th	27·159	27th	·174	56·9	77·7	−1·3	50·1	+1·1	63·9	+0·1	27·6	83·1	21st	43·5	12th	39·6
	III.—Assam.				+·069								75·9	−0·9	53·6	−1·1	64·8	−1·0	22·3					32·8
7	Surma	Silchar	104	30·001	+·068	30·062	30·126	9th	29·852	28th	·274	60·3	79·1	−1·6	55·6	0	67·4	−0·8	23·5	84·9	2 days	49·5	12th	35·4
9	Brahmaputra	Sibsagar	333	29·779	+·070	30·090	29·936	9th	29·638	27th	·298	56·2	72·5	−0·6	52·3	−1·0	62·4	−0·8	20·2	77·3	2 days	46·9	4th	30·4
		Dhubri	115	29·975?	+·081?	30·053?	30·128	9th	29·824	27th	·304	58·2	77·5	−0·5	53·7	−2·3	65·6	1·4	23·8	82·1	22nd	46·8	3rd	35·3
		Gauhati	195	29·920		30·083	30·073	9th	29·767	27th	·306	57·4	77·9		51·9		64·9		26·0	81·6	21st	45·6	3rd	36·0
		Tezpur	252	29·854		30·083	29·995	9th	29·705	27th	·290	56·8	75·4		54·4		64·9		21·0	79·0	3 days	50·0	24th	29·0
		Dibrugarh	353	29·782		30·116	29·928	9th	29·661	27th	·267	57·6	73·1		53·6		63·4		19·5	79·6	19th	48·9	2 days	30·7
	IV.—Bengal and Orissa.				+·072								80·2	−1·4	57·2	−0·8	68·7	−1·1	23·0					38·0
6	East Bengal	Chittagong	87	29·988	+·058	30·027	30·118	9th	29·836	28th	·282	63·8	80·5	−1·8	58·7	−0·3	69·6	−1·1	21·8	86·5	22nd	52·6	11th	33·9
		Noakhali	43	30·030		30·022	30·164	9th	29·863	27th	·301	63·4	79·5		57·1		68·3		22·4	85·2	21st	48·5	5th	36·7
		Comilla	36	30·046		30·031	30·178	9th	29·877	27th	·301	61·6	81·6		56·9		69·2		24·7	87·0	20th	48·1	4th	38·9
		Sirajganj	49	30·038		30·039	30·190	9th	29·860	27th	·330	58·9	77·8		54·9		66·4		22·9	83·9	22nd	48·3	11th	35·6
		Narayanganj	26	30·065	+·077	30·040	30·210	9th	29·884	27th	·326	62·8	80·4	−1·8	59·0	+0·4	69·7	−0·7	21·4	84·1	4 days	51·3	4th	32·8
		Barisal	13	30·065	+·065	30·024	30·207	9th	29·893	27th	·314	64·8	80·0	−1·7	58·9	−0·8	69·5	−1·3	21·1	88·3	28th	48·2	5th	40·1
		Mymensingh	59	30·017?	+·061?	30·031?	30·158	9th	29·855	27th	·303	61·3	77·6	−0·8	56·0	+0·4	66·8	−0·2	21·6	82·7	22nd	48·5	11th	34·2
10	Deltaic Bengal	Faridpur	46	30·043		30·039	30·184	9th	29·859	27th	·325	61·6	79·4		56·1		67·7		23·3	84·2	27th	47·4	11th	36·8
		Jessore	33	30·052	+·067	30·033	30·202	9th	29·854	27th	·348	63·1	80·0	−3·1?	57·9	+0·6	69·0	−1·3?	22·1	85·5	23rd	47·1	5th	38·4
		Calcutta	21	30·069	+·066	30·037	30·237	9th	29·885	27th	·352	64·6	81·7	−0·3	59·7	−0·7	70·7	−0·5	22·0	89·1	28th	49·6	5th	39·5
		Saugor Island	25	30·057	+·066	30·027	30·221	3th	29·874	27th	·347	68·3	80·0	−1·2	64·9	−0·6	72·5	−0·9	15·1	84·4	28th	51·9	5th	32·5
		Krishnagar	47	30·056?		30·054?	30·205	9th	29·859	27th	·346	64·1	81·1		55·6		68·4		25·5	87·1	14th	43·8	4th	43·3
		Midnapore	149	29·933		30·037	30·089	9th	29·758	27th	·331	64·4	83·9		59·8		71·9		24·1	93·3	27th	49·6	5th	43·7

** Observations of 26 days. * Mean of 27 days. † Mean of 19 days.

I.

Stations in India, Burma, etc., in February, 1903.

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. 1902 to 28th Feb. 1903.	Normal rainfall for period, 1st Dec. to 28th Feb. 1903.	Variation from normal of period, 1st Dec. 1902 to 28th Feb. 1903.	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
																				0·98	0·44	+0·63					**I.—Burma Coast and Bay Islands.**		
	7	9		2	2				N 39° E	6·3‡	6·3			77	·832	5·9	1			0·17			2·77			0·17	Car Nicobar¶	Tenasserim and Bay Islands.	1
1	4	12		2	1		2	6	N 16° E	3·6	4·0	5·1	−22	84	·848	4·2	3			5·67	0·40	+5·27	12·48	8·04	+4·44	4·64	Port Blair.		
18	3	1		1	2			3	N 24° W	2·3	2·0	2·0	0	89	·802	3·9	3	2·80	+0·20	3·18	1·73	+1·45	4·95	3·02	+1·93	1·50	Mergui.		
27								1	N 45° W	1·3				88	·709	0·6	1	0·80	+0·20	0·69	0·65	−0·06	0·63	0·92	−0·29	0·57	Tavoy.		
22	1		1	2			1	1	N 67° E	1·4	1·6	2·4	−33	76	·613	1·8	0	0·50	−0·50	0	0·25	−0·25	0·83	0·66	+0·17	0	Moulmein		
15	3	5					2	3	N 4° W	3·2	2·7	3·9	−31	78	·588	0	0	0·40	−0·40	0	0·31	−0·31	1·23	0·52	+0·71	0	Rangoon .	Lower Burma.	2
1	5	5		1		2	1	13	N 25° W	5·3		3·8	+39	85	·637	1·1	0	0·30	−0·30	0	0·29	−0·29	0·21	0·56	−0·35	0	Bassein.		
1	13	5	1	1				8	N 1° W	10·5	10·5	7·2	+46	75	·674	1·4	0	0·40	−0·40	0	0·07	−0·07	1·57	0·98	+0·59	0	Diamond Island.		
	8	19	1						N 34° E	2·4	2·3	3·4	−32	85	·549	1·3	0	0·30	−0·30	0·08	0·12	−0·04	0·08	0·88	−0·80	0·06	Akyab. .	Arakan.	5
10	3	2	3	1	1	4	1	3	N 22° W	1·7	1·7	1·9	−11	80	·580	1·6	1	0·30	+0·70	0·12	0·15	−0·03	1·06	0·40	+0·66	0·12	Toungoo .	Central Burma.	3
																				0·01	0·15	−0·14					**II.—Burma Inland.**		
	4	3	3	1	1	2	7	7	N 43° W	2·9		4·2	−31	66	·475	1·0	0	0·10	−0·10	0	0·04	−0·04	0·19	0·21	−0·02	0	Thayetmyo .	Central Burma	3
14								14	N 45° W	4·3	5·1			61	·390	1·3	0	0·10	−0·10	0	0·03	−0·03	0·03	0·66	−0·63	0	Minbu .	Upper Burma.	4
16	7	1		3	1				N 32° E	7·6	8·0			65	·454	2·7	0	0·30	−0·30	0	0·38	−0·38	0·15	0·95	−0·80	0	Yamethin.		
8	3						3	11	N 45° W	1·8	1·9			69	·445	2·3	0	0	0	0·04	0	+0·04	0·04‖	0·15	−0·11	0·04	Monywa.		
	8	10	1	4	2	1		2	N 38° E	5·9	6·0			70	·451	0·9	0	0·30	−0·30	0	0·05	−0·05	0·05	0·39	−0·34	0	Mandalay.		
17		5			1	4		1	N	2·3	2·7			92	·428	3·6	0	1·10	−1·10	0·01	0·39	−0·38	0·09	1·53	−1·44	0·01	Bhamo.		
25						3			S 45° W	2·6				76	·342	5·5	0	0·30	−0·30	0·15	0·30	−0·15	0·18	0·81	−0·63	0·09	Maymyo .	Burma Hill Stations.	4 (a)
		6	7	7	2	3	2	1	S 70° E	4·0				83	·383	4·6	0			0·04	0·29	−0·25	0·84	1·34	−0·50	0·04	Lashio.		
																				1·14	1·49	−0·35					**III.—Assam.**		
15		1	6	5	1				S 69° E	1·3	2·2	2·8	−21	87	·460	4·2	2	3·70	−1·70	0·50	2·31	−1·81	3·14	3·49	−0·35	0·28	Silchar .	Surma.	7
19	2	6						1	N 27° E	2·4	2·2	2·2	0	98	·449	6·7	7	4·90	+2·10	2·07	1·98	+0·09	2·97	3·86	−0·89	0·80	Sibsagar .	Brahmaputra.	1
2	2	11	7	2	2	1	1		N 53° E	3·7	4·4	4·0	+10	84	·412	2·1	1	1·20	−0·20	0·20	0·48	−0·28	0·56	0·98	−0·42	0·10	Dhubri.		
8		1	1	10	7			1	S 33° E	2·1	2·4			89	·425	3·4	4	1·80	+2·20	1·36	0·73	+0·63	1·66	1·61	+0·05	0·64	Gauhati.		
8		10	10						N 68° E	3·8	4·0			88	·410	3·1	3	2·60	+0·40	1·19	0·87	+0·23	1·49	1·95	−0·46	0·76	Tezpur.		
	5	12	6	4				1	N 56° E	1·7	1·6			88	·414	4·4	4	6·70	−2·70	1·61	2·56	−0·95	3·91	4·89	−0·98	0·50	Dibrugarh.		
																				1·15	0·90	+0·25					**IV.—Bengal and Orissa.**		
	6	17	2	2	1				N 43° E	4·0	4·0	4·4	−9	82	·491	2·7*	4	1·39	+2·61	5·40	0·98	+4·42	8·13	2·13	+6·00	3·36	Chittagong .	East Bengal.	6
	10	5	3	3	1	1	1	4	N 17° E	2·2	2·4			84	·503	2·8	3	1·81	+1·19	1·92	1·00	+0·92	3·37	1·82	+1·55	0·71	Noakhali.		
22	1	1	2	1	1				E	1·6	1·3			86	·477	2·8	1	2·18	−1·18	1·57	0·97	+0·60	1·65	1·73	−0·08	1·38	Comilla.		
23			1	1		1	1	1	S 45° W	1·7	1·8			90	·456	2·9	1	1·57	−0·57	0·31	0·91	−0·60	0·49	1·49	−1·00	0·22	Sirajganj.		
8	3	5	1	2	1	1	1	6	N	3·1		2·6	+19	86	·502	0·5†	3	2·12	+0·88	3·22	1·28	+1·94	3·25	1·82	+1·43	2·90	Narayanganj.		
										2·0				83	·516	2·3*	2	1·77	+0·23	1·68	1·04	+0·64	2·46	2·31	+0·15	1·06	Barisal.		
20		1	2	3	1			1	S 63° E	1·8	1·6			80	·439	?	2	1·48	+0·52	0·36	1·03	−0·67	0·83	1·58	−0·75	0·20	Mymensingh.		
12	4	2	2	2	2		1	3	N 27° E	2·5	2·1			87	·475	1·9	3	2·00	+1·00	1·12	1·32	−0·20	1·23	1·89	−0·66	0·53	Faridpur .	Deltaic Bengal.	10
23	1	2			1	1			N 45° E	1·9		2·0	−5	87	·519	2·7‡	2	1·77	+0·23	2·97	1·16	+1·81	3·45	1·80	+1·65	1·95	Jessore.		
10	4	3	4			2	1	4	N 7° E	3·0		3·8	−21	82	·515	2·2§	1	1·61	−0·61	0·64	1·00	−0·36	1·51	1·54	−0·03	0·63	Calcutta.		
1	7	5	2	1	2	5		5	N 7° W	9·1		7·9	+15	87	·610	2·6*	1	1·74	−0·74	2·28	1·12	+1·16	5·73	1·66	+4·07	2·19	Saugor Island		
4	3	5	3	3	1	1	1	7	N 14° E	2·2	2·4			77	·471	2·6	3	1·58	+1·42	1·61	1·10	+0·51	2·21	1·63	+0·58	1·03	Krishnagar.		
3	12	2		1	2	1	1	5	N 12° W	3·0	2·6			71	·445	1·2	2	1·77	+0·23	1·24	1·09	+0·15	2·33	1·81	+0·49	0·67	Midnapore.		

‡ Mean of 21 days. § Mean of 24 days. ‖ Since 2nd January 1903. ¶ Wind variable 6.

Table

Abstract of Observations taken at 8 A.M. at 231 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	29·768		30·033	29·925	9th	29·576	27th	·349	64·2	81·7		58·2		70·0		23·5	91·6	27th	48·3	4th	43·3
		Raniganj	334	29·749		30·053	29·898	9th	29·572	27th	·326	60·0	81·9		56·1		69·0		25·8	91·2	14th	47·2	4th	44·0
		Burdwan	99	29·985	+·062	30·037	30·136	9th	29·797	27th	·339	62·8	82·3	−1·5	58·1	−0·5	70·2	−1·0	24·2	89·0	14th	47·6	4th	41·4
		Naya Dumka	489	29·584		30·062	29·738	9th	29·412	27th	·326	61·2	79·4		54·5		67·0		24·9	86·7	14th	46·0	4th	40·7
		Berhampore	67	30·024	+·070	30·043	30·163	9th	29·855	27th	·308	60·8	80·9	−1·1	56·6	+0·1	68·7	−0·5	24·3	86·3	2 days	48·3	4th	38·0
		Rampur Boalia	70	30·022		30·044	30·174	9th	29·849	27th	·325	61·0	79·3		55·0		67·1		24·3	84·1	27th	46·3	4th	37·8
		Malda	72	29·9997		30·027?	30·144	9th	29·829	27th	·315	60·1	79·2		53·4		66·3		25·8	83·6	27th	44·0	4th	39·6
		Bogra	61	30·014?	+·083?	30·031?	30·158	9th	29·847	27th	·311	59·1	79·0	−1·2	53·9	−0·6	66·5	−0·9	25·1	84·2	22nd	47·2	2 days	37·0
12	North Bengal	Dinajpur	125	29·973	+·088	30·058	30·118	9th	29·825	27th	·293	58·7	79·2	−0·2	51·6	−1·5	65·5	−0·9	27·6	83·1	22nd	43·9	4th	39·2
		Rangpur	123	29·975		30·059	30·120	9th	29·813	27th	·307	59·2	77·4		53·0*		65·3*		24·4	81·8	22nd	45·8	4th	36·0
		Jalpaiguri	284	29·801	+·076	30·060	29·934	9th	29·668	27th	·266	58·3	76·4	−0·1	52·6	−0·2	64·6	−0·2	23·8	80·4	28th	46·1	4th	34·3
		Cooch Behar	156	29·942		30·064	30·079	9th	29·799	27th	·280	58·0	76·7		53·7		65·3		23·0	81·1	28th	48·2	4th	32·9
17	North Bihar	Purnea	125	29·965	+·083	30·053	30·108	9th.	29·812	27th	·296	55·9	78·7	·0·4	50·4	−1·0	64·6	−0·7	28·3	84·2	28th	43·6	4th	40·6
14	Orissa	Balasore	50	30·053	+·072	30·048	30·223	9th	29·873	27th	·350	65·8	83·0	−2·4	59·9	−2·0	71·5	−2·2	23·1	92·9	28th	48·4	5th	44·5
		False Point	21	30·068	+·067	30·031	30·223	9th	29·907	28th	·316	66·9	80·7	−2·1	62·2	−2·6	71·5	−2·4	18·5	85·4	28th	50·0	5th	35·4
		Cuttack	80	30·008	+·071	30·034	30·170	9th	29·854	27th	·316	67·2	85·6	−4·5	64·2	−1·5	74·9	−3·0	21·4	91·9	28th	54·6	4th	40·3
		Puri	21	30·066		30·029	30·225	9th	29·903	27th	322	70·2	81·9		67·0		74·5		14·9	85·2	9th	57·6	4th	27·6
	V.—Gangetic Plain and Chota Nagpur.				+·068								79·0	−0·3	51·5	−1·9	65·3	−1·1	27·5					44·2
15	Chota Nagpur	Hazaribagh	2,007	28·015	+·055	30·053	28·152	9th	27·867	27th	·285	60·4	76·9	−1·1	53·9	−0·6	65·4	−0·9	23·0	86·2	13th	43·4	4th	42·8
		Ranchi	2,128	27·888	+·051	30·050	28·030	9th	27·745	27th	·285	59·3	76·8	−1·4	54·0	0·8	65·4	−1·1	22·8	86·1	27th	43·2	4th	42·9
		Daltonganj	730?	29·350?		30·082?	29·525	9th	29·183	27th	342	57·5	81·1		48·4		64·8		32·7	91·9	28th	37·2	4th	54·7
		Purulia		29·242		30·045	29·397	9th	29·073	27th	324	61·9	81·7		55·6		68·7		26·1	91·8	27th	46·2	4th	45·6
		Chaibassa	760	29·298	+·067	30·047	29·462	9th	29·131	27th	·331	61·3	82·0	−3·2	57·2	−1·1	69·6	−2·2	24·8	93·4	28th	48·2	4th	45·2
15	South Bihar	Gaya	375	29·707	+·065	30·059	29·865	9th	29·531	27th	·334	59·7	80·8	−0·5	54·7	−1·5	67·8	−1·0	26·1	87·2	27th	44·9	4th	42·3
		Lehri	351	29·71271		30·04881	29·839	21st	29·555†	27th	·284	60·3‡	80·3‡		55·1‡		67·8‡		25·2‡	88·5	28th	46·1	4th	42·4
		Patna	183	29·910	+·071	30·056	30·057	9th	29·745	27th	·312	59·8	78·3	+0·1	53·9	+0·3	66·1	+0·2	21·4	83·2	28th	46·6	2 days.	36·6
		Arrah	190	29·902		30·0·7	30·051	9th	29·736	27th	·315	57·2	79·2		51·0		65·2		28·2	85·1	28th	42·0	4th	43·1
		Buxar	239	29·848		30·058	30·007	9th	29·678	27th	·329	58·8	80·2		52·1		66·2		28·1	86·8	14th & 28th.	41·4	4th	45·4
17	North Bihar	Bhagalpur	160	29·926		30·047	30·073	9th	29·759	27th	·314	66·3	79·2		53·2		66·2		26·0	83·8	27th	45·7	4th	38·1
		Darbhanga	166	29·924	+·081	30·055	30·067	9th	29·767	27th	·300	57·7	77·0	+0·2	52·9	−1·5	65·0	−0·7	24·1	81·2	28th	47·7	3rd	33·5
		Muzaffarpur	178	29·907		30·051	30·007	15th	29·761	27th	·246	56·8	76·7		50·5		63·6		26·2	81·0	28th	45·3	4th	35·7
		Motihari	224	29·871		30·066	29·968	9th	29·730	27th	·258	59·3	77·1		49·2		63·2		27·9	81·3	28th	42·9	6th	38·4
		Chapra	181	29·897		30·045	30·038	9th	29·737	27th	301	55·7	79·3		50·5		64·9		28·8	84·4	28th	43·4	4th	41·0
18	United Provinces, East.	Benares	267	29·814	+·066	30·054	29·980	9th	29·650	27th	330	56·5	80·1	−0·3	48·3	−3·7	64·2	−2·0	31·8	89·7	28th	38·0	4th	51·7
		Allahabad	309	29·787	+·060	30·071	29·949	9th	29·624	27th	·325	57·0	80·3	+0·1	48·3	−3·5	64·3	−1·7	32·0	92·1	28th	38·9	4th	53·2
23	United Provinces (East Submontane.)	Gorakhpur	257	29·817	+·078	30·049	29·949	9th	29·680	27th	·269	55·6	78·0	0	50·5	−2·1	64·3	−1·1	27·5	83·4	28th	43·1	4th	40·3
19	South Oudh	Lucknow	368	29·709	+·073	30·061	29·859	9th	29·543	27th	·313	55·9	79·6	+0·8	48·3	−2·6	64·0	−0·9	31·3	93·5	28th	39·2	4th	54·3
20	North Oudh	Bahraich	404	29·656	+·074	30·045	29·795	9th	29·494	27th	·301	56·0	77·0	+0·3	49·5	−1·2	63·3	−0·5	27·5	83·1	28th	43·5	3rd	39·6
21	United Provinces (Central.)	Cawnpore	416	29·659	+·080	30·059	29·865	9th	29·491	27th	·314	56·5	79·4	+0·6	48·0	−3·3	63·7	−1·4	31·4	92·3	28th	38·0	5th	54·3
		Mainpuri	516	29·538?	+·065?	30·050?	29·693	9th	29·357	27th& 28th.	·336	53·8	77·6	+0·8	47·8	−2·6	62·7	−0·9	29·8	90·8	28th	38·5	3rd	52·3

* Mean of 27 days. † Mean of 19 days. ‡ Mean of 21 days.

I—*continued.*

in India, Burma, etc., in February, 1903—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. 1902 to 28th February 1903.	Normal rainfall for period, 1st Dec. to 28th February.	Variation from normal of period, 1st Dec. to 28th February 1903.	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		1				1	2		W	1·4	1·6			60	·370	1·9	2	1·88	+ 0·12	0·61	1·03	− 0·42	0·77	1·50	− 0·73	0·40	Bankura .	Central Bengal	11
20	1		2				1	4	N 27° W	1·9				70	·377	1·5	2	1·52	+ 0·48	0·35	1·05	− 0·70	0·90	1·56	− 0·66	0·21	Raniganj.		
17		4					3	4	N 27° W	2·0		2·3	−13	75	·436	1·7§	2	1·58	+ 0·42	1·37	0·92	+ 0·45	1·67	1·32	+ 0·35	0·87	Burdwan.		
22	1		2		1			2	N 45° E	1·3	1·5			68	·376	2·2	2	1·62	+ 0·38	0·43	0·70	− 0·27	0·61	1·45	− 0·84	0·22	Naya Dumka.		
18		2	1		1		6		N 84° W	1·1	1·2	2·4	−50	82	·446	2·9§	2	1·65	+ 0·35	0·52	0·97	− 0·45	0·78	1·49	− 0·71	0·24	Berhampore.		
19	3	2		1	2		1		N 27° E	1·1	1·1			81	·443	2·0	0	1·35	— 1·35	0·11	0·84	− 0·73	0·36	1·25	−0·89	0·09	Rampur Boalia.		
	2	2	2	2	1	10	5	4	S 73° W	2·4	2·2			81	·429	1·8	3	1·23	+ 1·77	0·52	0·75	− 0·23	0·97	1·67	− 0·70	0·19	Malda.		
10	5	6	4	3					N 56° E	2·5	2·9			80	·407	P	0	1·52	— 1·52	0·07	0·85	− 0·78	0·36	1·44	−1·08	0·04	Bogra.		
	3	8	6	1		1	8	1	N 20° E	1·9	1·8			79	·394	2·0	1	1·39	— 0·39	0·11	0·37	− 0·26	0·32	0·92	− 0·60	0·10	Dinajpur .	North Bengal.	12
20		4	4						N 67° E	1·0	1·0			85	·431	1·5	0	1·13	— 1·13	0·03	0·43	− 0·40	0·63	1·01	− 0·38	0·02	Rangpur.		
	10	4	4	4	1			5	N 26° E	0·6	0·8			82	·404	2·0‖	1	1·03	— 0·03	0·88	0·45	+ 0·43	1·06	0·99	+ 0·07	0·88	Jalpaiguri.		
14		5	9						N 73° E	1·5	1·6			87	·424	1·6	1	1·21	— 0·21	0·12	0·42	− 0·30	0·44	0·93	− 0·49	0·12	Cooch Behar.		
7		6	3			5	5	2	N 56° W	3·3	2·9	2·5	+16	80	·365	0·6	0	1·13	− 1·13	0·04	0·56	− 0·52	0·68	1·13	− 0·45	0·04	Purnea .	North Bihar.	17
11	6	1			3	2	1	4	N 45° W	2·9	2·8			75	·493	1·9	2	2·16	— 0·16	1·71	1·20	+ 0·51	5·07	1·65	+ 3·42	1·06	Balasore .	Orissa.	16
	10	1	2	1	1	3	3	7	N 30° W	7·1	6·8	7·5	− 9	82	·595	3·2*	1	1·29	— 0·29	0·39	0·95	− 0·56	3·65	2·10	+ 1·55	0·39	False Point.		
17		4	3			2	2		N 63° E	1·6		2·2	−27	80	·550	1·7*	4	1·16	+ 2·84	1·75	0·46	+ 1·29	4·47	0·89	+ 3·58	0·67	Cuttack.		
5	13	4				6			N 5° W	11·2	10·5			83	·631	1·7	2	1·08	+ 0·92	1·06	0·99	+ 0·07	4·02	1·90	+ 2·12	0·85	Puri.		
																				0·14	0·67	−0·53					V.—Gangetic Plain and Chota Nagpur.		
4	2		1		5	6	4	6	S 76° W	7·3	6·5	6·5	0	49	·262	2·5	2	1·84	+ 0·16	1·06	0·76	+ 0·30	1·59	1·44	+ 0·15	0·85	Hazaribagh.	Chota Nagpur.	15
9	1	1	1		1	3	3	9	N 63° W	5·0	5·9			55	·284	2·5	1	2·10	— 1·10	0·32	1·36	— 1·04	1·83	1·74	+ 0·09	0·30	Ranchi.		
20		1	4	2				1	E	4·0	3·3			68	·323	0·8	1	1·30	— 0·30	0·33	0·53	− 0·20	1·16	1·58	− 0·42	0·30	Daltonganj.		
22						5	1		N 81° W	0·9	1·1			58	·340	1·6	1	1·97	— 0·97	0·34	1·02	− 0·68	1·11	1·64	− 0·53	0·29	Purulia.		
23	1				1	1	2		S 72 W	0·9	0·8			71	·393	1·6	1	1·61	— 0·61	0·13	1·26	− 1·13	2·42	1·50	+ 0·92	0·10	Chaibassa.		
7	2		1	3	6	3	4		S 16° W	4·7	3·7	2·6	+42	66	·347	2·1	0	1·39	— 1·39	0·07	0·63	− 0·56	0·16	1·39	− 1·23	0·07	Gaya . .	South Bihar.	16
	1	1	1	1	4	11	1	1	S 35° W	4·0	3·6			66‡	·352‡	3·2†	1	1·29	— 0·29	0·26	0·52	− 0·26	0·33	1·43	− 1·10	0·25	Dehri.		
1		6	3	1	2	9	5	1	S 45° W	3·9	4·4	2·9	+52	67	·357	2·0	0	1·16	— 1·16	0	0·60	− 0·60	0·24	1·26	− 1·02	0	Patna.		
19	1		2	1			1	4	N 18° W	1·5	1·5			70	·334	1·8	0	1·10	— 1·10	0	0·61	− 0·61	0	1·62	− 1·62	0	Arrah.		
2			7	2	3	8	6		S 17° W	5·3	5·0			59	·302	2·0	0	1·39	— 1·39	0·05	0·52	− 0·47	0·08	1·50	− 1·42	0·05	Buxar.		
13				3	1	2	3		S 22° W	2·8¶	2·6¶			68	·360	1·3	0	1·52	— 1·52	0·13	0·68	− 0·55	0·42	1·30	− 0·88	0·08	Bhagalpur .	North Bihar.	17
14		1	1	2	1	2	5	2	S 68° W	1·7		3·3	−48	76	·369	0·8	0	1·23	— 1·23	0·03	0·51	− 0·48	0·27	1·20	− 0·93	0·02	Darbhanga.		
13	1	1	3	3		2	3	2	S	2·5				77	·361	0·5	1	1·27	— 0·27	0·15	0·47	− 0·32	0·19	1·33	− 1·14	0·15	Muzaffarpur.		
4	1	6	5	2		4	4	2	N 45° E	3·3	3·2			74	·373	0·8	0	1·00	— 1·00	0·06	0·37	− 0·31	0·14	1·10	− 0·96	0·06	Motihari.		
21		1	2			2	2		S 45° W	1·8	1·6			75	·339	1·4	0	1·13	— 1·13	0	0·49	− 0·49	0·08	1·32	− 1·24	0	Chapra.		
19		1	1			6	1		S 45° W	1·6	1·8	4·1	−56	73	·338	1·4	0	1·20	— 1·20	0	0·46	− 0·46	0·28	1·34	− 1·06	0	Benares .	United Provinces East.	18
9		3	3	1	1	2	7	2	S 76° W	4·1	4·7	4·2	+12	65	·302	2·6	0	1·00	— 1·00	0·06	0·47	− 0·41	0·06	1·47	− 1·41	0·05	Allahabad.		
10	3	3	1	1	1	1	8		N 61° W	1·3		2·3	−43	74	·332	3·0	0	1·30	— 1·30	0	0·49	− 0·49	0·26	1·39	− 1·13	0	Gorakhpur .	United Provinces (East Submontane)	23
9	3	1	3	1		1	9	1	N 63° W	1·6	1·7	3·3	−48	64	·284	1·6	0	1·20	— 1·20	0·01	0·44	− 0·43	0·59	1·78	− 1·19	0·01	Lucknow .	South Oudh.	19
12	2	1	1	3		2	2	5	N 48° W	1·9	1·8			69	·317	1·2	0	1·60	— 1·60	0	1·01	− 1·01	0·75	2·27	− 1·52	0	Babraich .	North Oudh.	20
3	3	1	2	2	2	6	8	1	S 73° W	3·8				58	·268	1·3	0	1·00	— 1·00	0	0·48	− 0·48	0·12	1·33	− 1·21	0	Cawnpore .	United Provinces (Central).	21
19		2	1			1	3	2	N 53° W	0·9	0·9			66	·271	2·6	0	0·70	− 0·70	0	0·96	− 0·96	0·36	2·03	− 1·67	0	Mainpuri.		

§ Mean of 24 days. ‖ Mean of 20 days. ¶ Mean of 22 days.

Table

Abstract of Observations taken at 8 A.M. at 231 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				+·076								73·1	+1·3	47·1	−0·2	60·2	+0·6	26·0					49·7
24	United Provinces, (West Submontane).	Bareilly	568	29·486	+·073	30·062	29·621	8th	29·320	27th	·301	52·2	74·9	−0·1	48·5	−1·2	61·7	−0·7	26·4	84·3?	28th	42·2	4th	42·1?
		Dehra Dun	2,238	27·779	+·067	30·089	27·896	19th	27·645	27th	·251	50·4	70·3	+1·1	46·1	−0·9	58·2	+0·1	24·2	84·5	28th	38·5	2nd	46·0
		Roorkee	899	29·146	+·078	30·082	29·269	8th	28·991	27th	·278	49·8	73·8	+0·7	45·2	−2·5	59·5	−0·9	28·6	86·3	28th	38·9	7th	47·4
22	United Provinces, West.	Meerut	738	29·307	+·062	30·068	29·438	9th	29·134	27th	·304	51·5	76·0	+1·5	47·2	−1·2	61·6	+0·2	28·8	90·1	28th	39·2	4th	50·9
26	South-East Punjab.	Delhi	718	29·350	+·075	30·082	29·486	9th	29·168	27th	·318	54·5	74·4	−0·4	51·7	−0·1	63·1	−0·3	22·7	90·7	28th	45·1	3rd	45·6
28	Central Punjab.	Lahore	702	29·370	+·073	30·100	29·515	8th	29·091	28th	·424	49·9	73·6	+0·9	46·1	+2·0	59·9	+1·5	27·5	90·4	28th	37·0	6th & 7th.	53·4
27	South Punjab	Sirsa	662	29·431	+·094	30·111	29·584	8th	29·176	28th	·408	52·1	75·2	0	47·3	+0·5?	61·3	+0·3?	27·9	93·3	28th	37·0	3rd	56·3
		Patiala	818	29·243		30·088	29·389	8th	29·058	27th & 28th.	·331	52·8	72·7		47·8		60·3		24·9	89·8	28th	40·6	3rd	49·2
29	Punjab (Submontane).	Ludhiana	812	29·242	+·076	30·083	29·398	8th	29·010	28th	·388	52·0	71·4	+0·2	48·6	+1·1	60·0	+0·7	22·8	88·1	28th	41·6	3rd & 8th.	46·5
		Sialkot	830	29·231	+·083	30·096	29·365	19th	28·989	28th	·376	51·6	72·6	+3·0	48·2	+2·1	60·4	+2·6	24·4	86·6	28th	39·6	1st	47·0
		Umballa	892	29·158	?	30·082	29·288	19th	28·966	28th	·322	52·2	73·9	+2·4	45·5*	−2·6*	60·5*	−0·1*	28·4*	91·0	28th	38·1	8th	52·9
		Rawalpindi	1,674	28·377	+·077	30·147	28·517	8th	28·162?	28th	·356	47·0	68·9	+4·1	42·8	+1·4	55·9	+2·8	26·1	83·9	28th	32·0	1st	51·9
	VII.— Indus Valley and North-West Rajputana.				+·074								77·3	+1·9	48·6	−0·8	63·0	+0·6	28·7					52·6
31	West Punjab	Khushab	612	29·480	+·083	30·111	29·633	19th	29·194	28th	·439	52·0	74·0	+5·3	46·1	0	60·1	+2·7	27·9	86·3	28th	37·4	3rd & 9th.	48·9
		Montgomery	558	29·528	+·084	30·098	29·697	8th	29·233	28th	·464	51·7	74·4	+1·6	44·4	−2·0	59·4	−0·2	30·0	92·5	28th	34·0	8th	58·5
		Mooltan	420	29·677	+·057?	30·099	29·850	8th	29·379	28th	·471	52·2	76·4	+2·7	47·9	+0·4	62·2	+1·6	28·5	89·8	28th	38·5	1st	51·3
32	N.-W. Frontier Province.	Peshawar	1,110	28·986	+·057	30·162	29·136	7th	28·737	28th	·399	49·5	69·0	+2·9	44·8	+2·2	56·9	+2·6	24·2	79·1	28th	34·9	5th	44·2
		D. I. Khan	590	29·525	+·065	30·113	29·688	19th	29·240	28th	·448	50·6	74·4	+2·5	44·6	−0·3	59·5	+1·1	29·8	86·3	28th	35·0	1st & 2nd.	51·3
47	Sind	Jacobabad	186	29·921	+·061	30·082	30·103	7th	29·647	28th	·456	54·8	80·6	+2·7	47·6	−0·9	64·1	+0·9	33·0	94·5	28th	32·0	7th	62·5
		Hyderabad	96	30·020	+·061	30·075	30·214	7th	29·805	28th	·409	58·5	82·3	+1·5	53·2	−1·2	67·8	+0·2	29·1	93·1	28th	42·0	6th	51·1
		Kurrachee	30	30·121	+·093	30·103	30·319	7th	29·959	28th	·360	62·6	80·5	+0·8	57·2	−0·8	68·9	0	23·3	87·4	21st	44·7	5th	42·7
51	West Rajputana	Bikaner	771	29·311	+·087	30·105	29·484	8th	29·063	28th	·421	54·3	76·3	+0·4	50·7	−2·8	63·5	−1·2	25·6	93·2	28th	38·1	1st	55·1
		Pachpadra	380	29·741	?	30·108	29·919	8th	29·562	28th	·357	55·2	81·9	−1·1	46·0	−2·7	64·0	−1·9	35·9	96·5	26th	31·8	8th	61·7
		Jodhpur	782	29·309		30·123	29·480	8th	29·131	28th	·349	57·4	80·1		52·1		66·1		28·0	92·6	27th	41·6	7th	51·0
	VIII.—East Rajputana, Central India and Gujarat.				+·074								81·5	−0·7	53·3	−1·9	67·5	−1·3	28·2					51·0
50	East Rajputana	Jaipur	1,431	28·639	+·073	30·110	28·786	9th	28·474	28th	·312	57·3	78·9	+0·3	50·6	−1·3	64·8	−0·5	28·3	93·7	28th	38·0	9th	55·7
		Bharatpur	585	29·508		30·096	29·706	8th	29·315	28th	·391	53·9	77·4		49·2		63·4		28·2	93·9	28th	41·2	9th	52·7
		Kotah	819	29·251		30·118	29·414	8th	29·078	28th	·336	59·4	81·1		54·0		67·6		27·1	96·0	28th	46·0	3rd	50·0
		Sambhar	1,254	28·818	+·084	30·119	28·968	8th	28·655	28th	·313	52·4	78·5	+1·1	47·2	−2·5	62·9	−0·7	31·3	93·4	28th	37·0	3rd	56·4
		Ajmer	1,611	28·453	+·063	30·132	28·606	8th	28·302	28th	·304	52·4	75·8	−1·8	49·1	−0·3?	62·5	−1·1?	26·7	90·4	28th	40·3	7th	50·1
		Udaipur§	1,925	28·146		30·121	28·293	8th	28·014	28th	·279	58·3	78·8		49·5		64·2		29·3	94·0	27th	38·2	1st	55·8
		Deesa	466	29·626	+·073	30·075	29·773	7th	29·511	27th	·262	60·4	85·5	−1·0	52·9	−2·2	69·2	−1·6	32·6	97·1	27th	41·5	5th	55·6
46	Kathiawar and Cutch.	Bhuj	395	29·721	+·089	30·090	29·864	7th	29·582	28th	·282	63·8	82·5	−1·8	56·1	−2·0	69·3	−1·9	26·4	95·3	26th	45·0	6th	50·3
		Jamnagar	61	30·071		30·078	30·197	7th	29·958	28th	·239	61·7	82·1		55·3		68·8		26·8	89·5	25th	44·2	8th	45·3
		Rajkot	429	29·672	+·076	30·077	29·783	7th	29·582	28th	·201	60·5	85·0	−2·2	52·3	−2·2	68·7	−2·2	32·7	97·4	26th	33·6	5th	58·8
		Veraval	18	30·086	+·083	30·046	30·178	7th	29·998	28th	·180	64·0	81·2	−0·3	59·1	−1·6	70·2	−1·0	22·1	90·6	21st	49·3	5th	41·3
		Dwarka	37	30·089		30·072	30·215	7th	29·972	28th	·143	67·2	77·9		61·3		69·6		16·6	85·9	21st & 22nd.	53·1	7th	32·8
		Bhavnagar Para.	55	30·064	+·073	30·067	30·173	7th	29·954	28th	·219	62·1	86·7	+0·8?	58·5†	−3·1†	74·3†	−1·2?	28·2	98·6	26th	50·7	15th	47·9
49	Central India	Nowgong	757	29·317	+·061	30·082	29·488	8th	29·155	28th	·333	55·2	79·6	−0·7	49·2	−1·9	64·4	−1·3	30·4	94·0	28th	40·5	3rd & 9th.	53·5
		Indore	1,823	28·238	+·070	30·095	28·393	8th	28·143	28th	·250	59·2	82·2	−1·1	49·3	−2·8	65·8	−2·0	32·9	94·3	28th	41·1	1st	53·2

* Mean of 24 days. † Mean of 14 days. § Observation of 27 days.

I—*continued.*

in India, Burma, etc., in February, 1903—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.	Barometry, 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 1902 to 28th February 1903.	Normal rainfall for period, 1st December to 28th February.	Variation from normal of period, 1st December 1902 to 28th February 1903.	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	5
																				0·04	1·37	—1·34					**VI.—Upper Sub-Himalayas.**		
7	2	1	3			2	8	5	N 62° W	0·2	0·2	4·0	— 95	75	·294	1·4	0	1·18	—1·18	0	0·74	— 0·74	1·54	2·12	— 0·58	0	Bareilly	United Provinces (West Submontane).	24
19		3		1	1		1	3	N 8° W	1·0		2·0	— 50	66	·248	3·1	1	4·10	—3·10	0·11	2·21	— 2·10	1·77	5·39	— 3·62	0·11	Dehra Dun.		
12			2	4	1		1	8	N 45° W	2·71		2·8	— 4	75	·272	2·4	0	2·90	—2·90	0·06	1·32	— 1·26	1·69	3·61	— 1·92	0·06	Roorkee.		
9	2			2		1	11	3	N 81° W	1·5	1·5	2·6	— 42	63	·252	2·3	0	1·50	—1·50	0·02	0·90	— 0·88	0·63	2·73	— 2·10	0·02	Meerut	United Provinces, West.	22
5	4	1	1	1		1	11	4	N 63° W	3·4	3·1	3·6	— 14	53	·224	3·0	0	1·40	—1·40	0	0·71	— 0·71	0·70	2·47	— 1·77	0	Delhi	South-East Punjab.	26
23	1			1			1	2	N 45° W	1·4		2·4	— 42	76	·278	3·1	0	2·20	—2·20	0·05	1·10	— 1·05	0·57	2·60	— 2·03	0·05	Lahore	Central Punjab.	28
9	4		4	1	2	1	6	1	N 72° W	3·7	3·4	3·4	0	68	·268	2·0	0	1·10	—1·10	0	0·33	— 0·33	0	1·48	— 1·48	0	Sirsa	South Punjab.	27
2	5	4	3	1	2		3	8	N 10° W	4·4	4·5			71	·286	3·5	1			0·12			1·26			0·10	Patiala.		
14	3	3		2		1		5	N 7° W	2·1	1·9	1·6	+ 19	69	·270	2·5	0	2·40	—2·40	0·01	1·30	— 1·29	0·97	3·92	— 2·95	0·01	Ludhiana	Punjab (Submontane).	29
17	2	5	2				1	1	N 33° E	0·9		1·7	— 47	71	·270	2·1	0	3·50	—3·50	0	1·30	— 1·30	1·25	4·83	— 3·58	0	Sialkot.		
15			2	1			1	9	N 40° W	1·6				75	·292	3·4	0	2·30	—2·30	0·02	2·41	— 2·39	2·29	4·85	— 2·56	0·02	Umballa.		
19	3	2				1	1	2	N 28° W	2·3	2·1	2·4	— 13	66	·216	4·6	0	4·40	—4·40	0·10	2·24	— 2·14	0·85	5·72	— 4·87	0·07	Rawalpindi.		
																				0·01	0·46	—0·45					**VII.—Indus Valley and North-West Rajputana.**		
10	4	4	2		1	3	3	1	N 14° W	3·8	3·2			49	·189	2·7	0	1·80	—1·80	0	0·69	— 0·69	0·32	2·05	— 1·73	0	Khushab	West Punjab.	31
6	1	5	1	5	1	2	2	5	N 27° E	4·7	4·0			50	·189	2·7	0	1·30	—1·30	0	0·67	— 0·67	0·07	1·93	— 1·86	0	Montgomery.		
14		9		5					N 73° E	1·0	1·2	2·4	— 50	57	·225	2·1	0	1·20	—1·20	0	0·43	— 0·43	0·24	1·07	— 0·83	0	Mooltan.		
21					1	4	1	1	S 56° W	1·3	1·4	3·3	— 58	64	·233	4·3	0	2·90	—2·90	0	1·22	— 1·22	1·41	3·15	— 1·74	0	Peshawar	N.-W. Frontier Province.	32
14	2	3						9	N 22° W	1·5	1·6	2·0	— 20	54	·207	3·5	0	2·00	—2·00	0·08	0·77	— 0·69	0·20	1·44	— 1·24	0·05	D. I. Khan		
22	1			4				1	N 24° W	0·9	0·9	3·0	— 70	55	·237	2·6	0	0·90	—0·90	0	0·34	— 0·34	0·06	0·70	— 0·64	0	Jacobabad	Sind.	17
2	14	1			1	8		2	N 34° W	6·1	6·3	7·0	— 10	53	·272	1·3	0	0·60	—0·60	0	0·22	— 0·22	0·01	0·51	— 0·50	0	Hyderabad.		
5	1	10	5			1	5	1	N 37° E	6·2	7·8	10·5	— 25	63	·372	0·9	0	0·80	—0·80	0	0·31	— 0·31	0·37	1·10	— 0·73	0	Kurrachee.		
3	2	4	4		3	5	3	4	N 72° W	5·5		3·7	+ 49	54	·238	1·6	0	0·80	—0·80	0	0·26	— 0·26	0·17	0·82	— 0·65	0	Bikaner	West Rajputana	51
	5	7	7	2	3	2	2		N 68° E	6·0	5·2	3·3	+ 58	48	·219	0·2	0	0·30	—0·30	0·06	0·08	— 0·02	0·06	0·58	— 0·52	0·06	Pachpadra.		
6	4	14	1	1			1	1	N 36° E	4·8	4·3			40	·194	1·7	0	0·50	—0·50	0·01	0·11	— 0·10	0·02	0·49	— 0·47	0·01	Jodhpur.		
																				0·03	0·18	—0·16					**VIII.—East Rajputana, Central India and Gujarat.**		
8	4	5	2		1	1	5	2	N 13° W	3·1		4·4	— 30	43	·203	2·3	0	0·50	—0·50	0	0·17	— 0·17	0·15	0·96	— 0·81	0	Jaipur	East Rajputana.	50
11	2	1					4	10	N 45° W	2·2	2·0			70	·294	1·5	0			0·04			0·16			0·04	Bharatpur.		
8	1	1	1	1		7	5	4	S 84° W	3·5	2·8			46	·234	0·9	0	0·50	—0·50	0·01	0·25	— 0·24	0·46	0·69	— 0·23	0·01	Kotah.		
20	3	4						1	N 18° E	4·1		5·3	— 23	50	·197	1·5	0	0·50	—0·50	0	0·18	— 0·18	0·21	0·92	— 0·71	0	Sambhar.		
19	1	3		2		3			S 72° E	3·2	2·8	2·5	+ 12	61	·243	1·5	1	0·70	+0·30	0·18	0·24	— 0·06	0·26	0·95	— 0·69	0·18	Ajmer.		
14	2	1					4	6	N 47° W	3·7	3·3			51	·255	0·7	1	0·30	+0·70	0·22			0·41			0·22	Udaipur.		
	3	13	3			1	1	2	N 37° E	8·3‡		9·0	— 8	39	·213	1·6	0	0·27	—0·27	0·03	0·07	— 0·04	0·05	0·28	— 0·23	0·03	Deesa.		
	4	2	3	2	2	5	8	2	S 89° W	8·2	6·9	6·7	+ 3	62	·383	0·9	0	0·30	—0·30	0	0·09	— 0·09	0	0·23	— 0·23	0	Bhuj	Kathiawar and Cutch.	46
	2	5	4	4	3	6	4		S 32° E	12·1	14·4			59	·311	1·2	0			0			0			0	Jamnagar.		
7	2	2	4			3	8	2	N 66° W	5·8	5·7	6·2	— 8	53	·292	1·1	0	0·30	—0·30	0	0·09	— 0·09	0·08	0·17	— 0·09	0	Rajkot.		
	12	11					1	4	N 9° E	7·1	7·1	5·8	+ 22	57	·343	0·6	0	0·10	—0·10	0	0·01	— 0·01	1·09	0·10	+ 0·99	0	Veraval.		
	10	9	2	1			2	4	N 13° E	12·1				73	·495	1·5	0			0			0·07			0	Dwarka.		
1	1	2				3	6	15	N 58° W	5·7	5·4			43	·241	0·9	0	0·20	—0·20	0	0·07	— 0·07	0·47	0·21	+ 0·26	0	Bhavnagar Para.		
6	2	2	5		1	5	4	3	N 73° W	1·8	1·8	1·7	+ 6	55	·245	2·3	0	1·00	—1·00	0	0·48	— 0·48	0	1·74	— 1·74	0	Nowgong	Central India	49
9	2	5	1			1	1	9	N 17° W	3·7	3·0	3·0	0	57	·292	1·8	0	0·50	—0·58	0	0·18	— 0·18	1·18	0·51	+ 0·67	0	Indore.		

‡ Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 231 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	28·442	+·076	30·120	28·587	8th	28·308	28th	·279	56·0	80·1	−1·1	43·8	−3·3	64·5	· 2·2	31·3	95·5	28th	39·6	2nd	55·9
45	Gujarat	Surat	39	30·057	+·068	30·040	30·144	8th	29·966	28th	·178	64·7	89·6	−0·1	57·7	−1·3	73·7	−0·7	31·9	102·2	26th	49·2	6th	53·0
		Ahmedabad*	163	29·939	?	30·059	30·068	8th	29·833	28th	·235	64·3	86·9	−0·3	58·3	−1·5	72·6	−0·9	28·6	99·7	26th	46·2	5th	53·5
22	United Provinces, West.	Agra	555	29·520	?	30·074	29·678	8th	29·344	27th	·334	55·5	77·6	−1·0	51·8	−0·5	64·7	−0·8	25·8	92·0	28th	42·9	3rd	49·1
21	United Provinces, Central.	Jhansi	858	29·229	+·069	30·092	29·396	9th	29·060	28th	·336	60·2	81·8	+0·6	55·8	+0·4?	68·8	+0·5?	26·0	96·2	28th	47·2	3rd	49·0
	IX.—Deccan				+·064								87·6	−1·0	57·9	−1·5	72·8	−1·3	29·7					48·8
38	Bombay (Deccan)	Belgaum	2,539	27·501	+·051	30·011	27·593	9th	27·417	28th	·176	68·1	86·7	−1·9	58·3	−1·3	72·5	−1·6	28·4	94·3	28th	50·9	16th & 17th.	43·4
		Sholapur	1,590	28·455	+·048	30·034	28·579	9th	28·362	28th	·217	69·1	91·7	−2·0	61·9	−0·3?	76·8	−1·2?	29·8	99·7	28th	53·6	1st	46·1
		Poona	1,840	28·212	+·047	30·076	28·329	9th	28·124	28th	·205	59·6	90·4	−0·9	54·0	−3 1?	72·2	−2·0?	36·4	99·5	27th & 28th.	44·5	6th	55·0
		Bijapur	1,946	28·099	+·069?	30·022	28·212	9th	28·014	28th	·198	71·0	90·7	+0·3?	63·8	−0·4	77·3	−0·1?	26·9	98·9	28th	55·6	2nd	43·3
40	Khandesh	Malegaon	1,430	28·626	+·054	30·070	28·763	8th	28·533	28th	·224	62·2	89·4	−0·5	53·7	−1·7	71·6	−1·1	35·7	99·9	27th	44·2	7th	55·7
		Ahmednagar	2,152	27·917	+·079?	30·070	28·039	9th	27·843	17th	·196	65·5	87·3	−0·8	54·9	−0·2	71·1	−0 5	32·4	96·4	27th	47·4	1st	49·0
41	Berar	Akola	930	29·133	+·068	30·056	29·286	9th	29·025	28th	·261	63·2	89·3	−0·9	54·2	−3·3	72·0	−2·1	35·6	100·8	27th & 28th.	45·4	8th	55·4
		Amraoti	1,215	28·848	+·082?	30·059	29·001	9th	28·736	28th	·265	66·9	88·7	−1·4	60·3	−1·4?	74·5	−1·4?	28·4	100·3	27th & 28th.	51·5	1st	48·8
42	Central Provinces (West).	Khandwa	1,044	29·021	+·066	30·074	29·173	8th	28·915	28th	·258	60·3	88·5	−0·3	53·5	−2·4	71·0	−1·4	35·0	100·2	28th	43·1	9th	57·1
		Hoshangabad	1,006	29·083	+·081?	30·101	29·250	8th	28·952	28th	·298	60·1	82·9	−2·5?	52·1	−3·9	67·5	−3·2?	30·8	93·8	28th	44·2	9th	49·6
		Nagpur	1,025	29·042	+·077	30·063	29·205	9th	28·917	28th	·288	65·7	87·9	−1·4?	58·0	−2·0	73·0	−1·7?	29·9	100·6	28th	49·7	9th	50·9
43	Central Provinces (Central).	Chanda	634	29·439	+·075	30·045	29·595	9th	29·309	28th	·286	66·1	90·7	−1·1	57·6	−1·6	74·2	−1·4	33·1	101·2	28th	46·1	9th	55·1
		Seoni	2,033	28·015	+·058	30·070	28·161	9th	27·912	28th	·249	61·2	82·7	−1·1	52·7	−2·7	67·7	−1·9	30·0	94·8	28th	46·5	2nd & 10th.	48·3
		Jubbulpore	1,327	28·719	+·055	30·079	28·876	9th	28·594	28th	·282	55·6	81·8	−0·6	48·5	−3·9	65·2	−2·3	33·3	94·0	27th	39·9	9th	54·1
		Saugor	1,807	28·255	+·080?	30·092	28·415	8th	28·129	28th	·286	60·4	80·2	−1·1	54·5	−0·9	67·4	−1·0	25·7	92·9	27th & 28th.	46·6	3rd	46·3
44	Central India	Sutna	1,040	29·017	+·062	30·078	29·183	9th	28·870	28th	·313	57·2	79·7	+ 01	50·9	−1·4	65·3	−0·7	28·8	93·5	28th	41·2	9th	52·3
44	Central Provinces (East).	Raipur	970	29·089	+·061	30·051	29·246	9th	28·947	28th	·299	64·8	85·5	−1·9	53·9	?	69·7	?	31·6	97·4	28th	46·4	4th	51·0
		Sambalpur	486	29·607	+·079	30·061	29·769	9th	29·448	27th	·321	64·9	85·5	−2·5	57·7	−2·2	71·6	−2·4	27·8	96·1	28th	49·2	10th	46·9
39	Hyderabad (North).	Aurangabad	1,905	28·161		30·051	28·286	9th	28·098	17th	·188	69·1	87·2		56·2		71·7		31·0	97·4	27th	47·2	15th	50·2
		Indur	...	28·782			28·881	10th	28·687	1st	·194	71·1	89·6		59·6		74·6		30·0	98·8	28th	50·1	15th	48·7
		Bidar	2,165	27·854		29·986	27·953	8th	27·770	4th	·183	72·0	88·2		61·4		74·8		26·8	97·0	28th	51·7	7th	45·3
53	Hyderabad (South).	Gulbarga	1,503	28·548	+·067	30·029	28·670	9th	28·443	28th	·227	71·8	92·2	−0·4	63·7	−0·5	78·0	−0·5	28·5	101·5	28th	52·8	16th	48·7
		Raichur	1,326	28·716	+·075	30·017	28·838	9th	28·605	28th	·233	73·5	91·2	−1·6	68·6	+0·4	79·9	−0·6	22·6	98·6	28th	60·2	1st	38·4
		Hyderabad (Deccan).	1,690	28·360	+0·73	30·038	28·484	9th	28·254	28th	·230	69·1	89·6	−1·7	64·2	+0·8	76·9	−0·5	25·4	99·4	28th	56·8	2nd	42·6
		Secunderabad	1,787	28·264	?	30·042	28·395	9th	28·161	28th	·234	68·2	90·6	−0·7?	64·2	+0·8	77·4	+0·1?	26·4	100·7	28th	56·2	2nd	44·5
		Hanumkonda	871	29·182		30·021	29·323	9th	29·068	28th	·255	72·5	90·3		66·4		78·4		23·9	99·3	28th	57·2	3rd	42·1
	X.—West Coast				+·058								85·8	−0·2	70·5	−0·5	78·2	−0·4	15·2					25·4
37	Konkan	Bombay	37	30·044	+·063	30·022	30·120	9th	29·952	28th	·168	70·0	82·4	−0·2	67·0	−1·7	74·7	−1·0	15·4	89·0	9th	61·5	7th	27·5
		Ratnagiri	110	29·954	+·072	30·005	30·042	9th	29·841	28th	·201	71·7	83·7†	−2·7†	66·2	−1·1	75·3†	−1·9	17·5	88·3	12th & 28th.	59·0	6th	29·3
		Mormugao	60	30·001	+·068	29 997	30·076	9th	29·904	28th	·172	72·6	84·8	−0·1	70·2	−1·0	77·5	−0·6	14·6	91·0	2nd	66·3	16th	24·7
		Goa	199									74·0	82·6	−4·0?	71·4	+1·3?	77·0	−1·4?	11·2	88·0	9th & 10th.	65·0?	10th	23·0
		Karwar	41	30·011	+·053	29 987	30 062	9th	29·918	28th	·144	69·5	86·0	−0·3	66·5	−0·8	76·3	−0·6	19·5	93·3	9th	62·5	2nd, 6th & 17th.	30·8
33	Malabar	Cochin	10	30·023	+·042	29·961	30·059	21st	29·957	28th	·102	78·4	92·2	+2·3	75·3	+1·6	83·8	+2·0	16·9	95·3	9th	71·7	9th	23·6
		Calicut	27	30·013	+·024	29·970	30·060	21st	29·930	28th	·130	77·3	89·0	+0·3						91·3	25th			
		Mangalore	65	29·971	+·034?	29·969	30·008	10th	29·882	28th	·126	77·2	87·7	−0·4	72·2	−0·1	80·0	−0·3	15·5	96·2	9th	68·5	17th	27·7
		Trivandrum	198	29·830	+·066	29·961	29·880	21st	29·768	28th	·112	77·8	86·6	+1·6	75·5	+3·1?	81·1	+2·4?	11·1	89·0	9th & 28th	72·5	3rd	16·5

* Observation of 26 days.

† Mean of 17 days.

I—*continued.*

in India, Burma, etc., in February, 1903—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 1902 to 28th Feb. 1903.	Normal rainfall for period, 1st Dec. to 28th February.	Variation from normal of period, 1st Dec. 1902 to 28th Feb. 1903.	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	5	13	3			1	2	3	N 25° E	5·8	5·2	9·1	− 43	57	·254	1·2	0	0·50	−0·50	0·02	0·17	−0·15	0·16	0·66	− 0·50	0·02	Neemuch	Central India	19
3	8	5	8	1	1			2	N 44° E	4·6	4·3	5·4	− 20	56	·351	0·2	0	0·10	−0·10	0	0·08	−0·08	0·84	0·14	+ 0·70	0	Surat	Gujarat	15
	4	9	6	1				6	N 33° E	4·5	7·4			41	·346	0·5	0	0·30	−0·30	0	0·14	−0·14	0·11	0·24	− 0·13	0	Ahmedabad.		
6		3		1		12		6	S 73° W	2·3	2·6	4·0	− 35	55	·244	2·2	1	0·60	+0·40	0·10	0·29	−0·19	0·33	1·11	− 0·78	0·10	Agra	United Provinces, West.	42
7	2	3		1		9	4	2	S 80° W	3·6	4·0	2·7	+ 48	63	·329	0·7	0	0·80	−0·80	0·05	0·41	−0·36	0·14	1·27	− 1·13	0·05	Jhansi	United Provinces, Central	21
																				0·06	0·28	−0·22					IX.—Deccan.		
17	3	3	1	1	2	1			N 61° E	6·8		10·0	− 32	55	·375	0·9	0	0·10	− 0·10	0	0·03	− 0·03	7·60	0·19	+ 7·41	0	Belgaum	Bombay (Deccan).	38
		6	2	6	1	4	3	5	S 74° E	7·4	9·0	6·5	+ 38	39	·285	0·7	0	0·10	− 0·10	0	0·03	− 0·03	5·15	0·53	+ 4·62	0	Sholapur.		
	3			1	4	11	7	2	S 62° W	6·7		6·3	+ 6	66	·338	0·3	0	0·10	− 0·10	0	0·06	− 0·06	2·42	0·29	+ 2·13	0	Poona.		
2	9	1	1	2	5	1	1	6	N 23° E					55	·422	0·6	0	0·20	− 0·20	0	0·07	− 0·07	3·35	0·10	+ 3·25	0	Bijapur.		
	2	1				1	12	12	N 63° W	4·2	4·8	5·0	− 4	36	·208	5·0	0	0·10	− 0·10	0	0·03	− 0·03	1·32	0·40	+ 0·92	0	Malegaon	Khandesh	40
3	7	1					1	16	N 32° W	5·1	6·2			59	·379	0·5	0	0·30	− 0·30	0	0·40	− 0·40	1·96	0·91	+ 1·05	0	Ahmednagar.		
16		2	5	1			2	2	N 60° E	3·5	3·4	3·8	− 11	40	·238	0·3	0	0·30	− 0·30	0	0·17	− 0·17	1·59	1·25	+ 0·34	0	Akola	Berar	11
	4	8	7	1	5	3			N 81° E	6·8	6·1	3·7	+ 65	45	·301	0·8	0	0·60	− 0·60	0	0·21	− 0·21	0·60	1·13	− 0·53	0	Amraoti.		
20		2	2					4	N 9° E	3·4		3·6	− 6	39	·205	0·3	0	0·30	− 0·30	0	0·05	− 0·05	0·28	0·74	− 0·46	0	Khandwa	Central Provinces (West).	12
		20		1		7			N 49° E	3·0	3·1	2·9	+ 7	54	·283	0·4	0	0·50	− 0·50	0	0·27	− 0·27	1·64	1·06	+ 0·58	0	Hoshangabad.		
14	1		2		1	4	5	1	S 72° W			5·1		41	·269	1·6	1	0·90	+ 0·10	0·13	0·38	− 0·25	1·62	1·29	+ 0·33	0·13	Nagpur.		
11	3	2	3	4	1			4	N 52° E	3·0	2·7	2·7	0	56	·387	1·5	2	0·60	+ 1·40	0·33	0·49	− 0·16	0·59	1·13	− 0·54	0·12	Chanda	Central Provinces (Central).	43
	9	7	1	1	2	2	2	4	N 2° E	4·7		2·9	+ 62	47	·257	0·5	1	1·50	− 0·50	0·35	0·88	− 0·53	1·51	1·03	− 0·42	0·32	Seoni.		
5	2	2	1	6	9	1	1	1	S 23° E	2·4	2·1	2·5	− 16	63	·280	0·7	0	1·10	− 1·10	0·03	0·56	− 0·53	0·36	1·61	− 1·25	0·03	Jubbulpore.		
	2	5	4	9	1	3	4		S 62° E	3·9	4·4	2·8	+ 57	37	·181	0·8	0	0·80	− 0·80	0	0·41	− 0·41	0·30	1·75	− 1·45	0	Saugor.		
7	1	1	3	1	1	2	7	5	N 74° W	2·8	2·5	4·7	− 47	46	·219	2·5	0	1·50	− 1·50	0	0·65	− 0·65	0·31	2·00	− 1·69	0	Sutna	Central India	18
4	4	7	4		3	4	1	1	N 49° E	4·2	3·9	3·7	+ 5	53	·332	1·5	1	0·70	+ 0·30	0·80	0·35	+ 0·45	0·84	0·80	+ 0·04	0·73	Raipur	Central Provinces (East).	44
	4	4	5	5	1	2	2	5	N 45° E	4·7	4·6	1·7	+171	60	·378	2·4	0	1·00	− 1·00	0·01	0·51	− 0·50	2·57	1·03	+ 1·54	0·01	Sambalpur.		
16	2	5	3	1					N 57° E	3·3	3·3			36	·267	0	0	0·20	− 0·20	0	0·11	− 0·11	2·87	0·84	+ 2·03	0	Aurangabad.	Hyderabad (North).	32
17		3		2		4		2	S 45° W	4·6	3·9			54	·420	0·6	0	0·40	− 0·40	0	0·13	− 0·13	1·12	0·51	+ 0·61	0	Indur.		
	5	2	3	2	8	4	2	2	S 6° W	6·7	5·6			70	·546	2·1	0	0·40	− 0·40	0	0·18	− 0·18	0·80	0·72	+ 0·08	0	Bidar.		
11		5	5		5	1		1	S 74° E	6·3	6·0			62	·490	0·4	0	0·40	−0·40	0	0·29	− 0·29	0·97	0·36	+ 0·61	0	Gulbarga	Hyderabad (South).	53
2	2		2	13	2	3		4	S 38° E	7·5	7·1			54	·460	0·1	0	0·20	− 0·20	0	0·24	− 0·24	0·20	0·24	− 0·04	0	Raichur.		
20			4	3	1				S 63° E	3·9	3·8			62	·526	2·3	0			0	0·15	− 0·15	0·79	0·38	+ 0·41	0	Hyderabad (Deccan).		
2	3	3	8	10			1	1	S 75° E	5·5		3·8	+ 45	72	·507	2·1	0	0·40	− 0·40	0		− 0·15	0·68	0·38	+ 0·30	0	Secunderabad.		
4	2			18	1			3	S 48° E	9·0	7·7			64	·526	3·5	0			0	0·60	−0·60	1·43			0	Hanumkonda.		
																				0·30	0·21	+0·09					X.—West Coast.		
	10	11	5					2	N 31° E	9·8		10·7	− 8	71	·529	0·3	0	0·10	−0·10	0	0·02	− 0·02	0·81	0·18	+ 0·63	0	Bombay	Konkan	37
7	4	3	9	5					N 80° E	9·6	9·5	9·8	− 3	66	·512	0·5	0	0·10	−0·10	0	0·03	− 0·03	1·90	0·23	+ 1·67	0	Ratnagiri.		
2	6	5	9	4	1			1	N 66° E	8·8‡				83	·671	0·7	0			0	0·05	− 0·05	3·46	0·05	+3·41	0	Mormugao.		
	2	8	17			1			N 73° E					75	·636	0·9	0			0	0·06	− 0·06	2·72	0·31	+ 2·41	0	Goa.		
2		9	16	1					N 76° E	4·5				82	·593	0·4	0	0	0	0	0·02	− 0·02	3·21	0·18	+ 3·03	0	Karwar.		
	1	24	3						N 49° E	6·2§				76	·754	1·4	1	1·70	−0·70	2·68	0·87	+ 1·81	5·28	3·07	+ 2·21	2·68	Cochin	Malabar	32
4	2	13	8	1					N 60° E	8·2	10·2			80	·747	1·5	0	0·40	−0·40	0	0·15	− 0·15	4·68	1·31	+ 3·37	0	Calicut.		
18	1	1	4	4					S 82° E	2·1		3·5	−40	74	·692	1·5	0	0·10	−0·10	0	0·03	− 0·03	2·27	0·53	+1·74	0	Mangalore.		
9	9	6	1			2		1	N 14° E	3·9§				77	·795	3·0	0	1·10	−1·10	0	0·64	− 0·64	5·65	3·51	+ 2·14	0	Trivandrum.		

‡ Mean of 24 days.

§ Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 231 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.				+·056								89·1	0	69·1	+1·9	79·1	+1·0	20·0					31·4
57	Madras (South)	Pamban	37	30·028		29·992	30·080	9th	29·931	28th	·149	80·6	86·4		76·9		81·6		9·5	89·3	16th, 18th & 19th.	72·2	1st	17·1
		Tinnevelly	168	29·892	+·058	29·992	29·958	9th	29·786	28th	·172	78·2	91·5	−0·5	74·2	+1·5	82·9	+0·5	17·3	96·7	16th	70·4	2nd	26·3
		Madura	447	29·615	+·051	30·005	29·680	9th	29·508	28th	·172	78·0	91·6	−0·4	72·1	+2·6	81·9	+1·1	19·5	96·0	8th	67·1	2nd & 3rd,	28·9
		Periyakulam	945	29·114			29·184	9th	29·014	28th	·170	74·1	91·2		67·4		78·5		23·8	96·0	28th	57·4	8th	38·9
34	Madras (South Central).	Salem	940	29·135	+·033	30·030	29·208	9th	29·033	28th	·175	76·0	93·8	+0·2	68·6	+3·1	81·2	+1·7	25·2	100·2	28th	63·4	2nd & 8th,	36·8
		Coimbatore	1,348	28·713	+·050	30·027	28·795	9th	29·617	28th	·178	73·9	91·6	−0·4	68·6	+3·1	80·1	+1·4	23·0	96·9	28th	63·3	9th	33·6
35	Coorg	Mercara	3,781	26·342	+·057		26·387	10th	26·283	28th	·104	65·3	81·3	+0·1	58·1	−0·7	69·7	−0·3	23·2	85·0	22nd, 25th, & 27th.	54·1	9th, 16th, & 17th.	30·9
36	Mysore	Chitaldroog	2,405	27·646P	+·056P	29·989P	27·724	9th	27·569	28th	·155	73·7	89·0	−0·3	66·0	+0·1	77·5	−0·1	23·0	95·1	28th	60·9	11th	34·2
		Bangalore	3,021	27·062	+·046	30·024	27·126	11th	26·988	28th	·138	67·6	86·5	+0·7	61·7	+2·1	74·1	+1·4	24·8	92·8	28th	56·9	8th & 9th,	35·9
		Hassan	3,091	27·000	+·058	30·037	27·069	9th	26·931	28th	·138	68·4	85·7	−0·6	58·0	+0·5	71·9	−0·1	27·7	90·9	28th	51·7	2nd	39·2
		Mysore	2,518	27·553	+·061P	30·015	27·615	10th	27·477	28th	·138	71·7	89·4	+0·6	63·9	+1·0	76·7	+0·8	25·5	95·1	28th	59·9	2nd, 8th, & 9th.	35·2
56	Madras (East Coast, South)	Negapatam	31	30·028	+·047	29·988	30·074	19th	29·937	28th	·137	80·5	85·9	+1·5	76·9	+4·8	81·4	+3·2	9·0	89·2	14th & 22nd.	70·0	1st	19·2
		Cuddalore	12	30·062	+·061P	30·003	30·132	9th	29·963	28th	·169	77·7	86·1	+0·7	72·2	+3·3	79·1	+2·0	13·9	89·2	16th	66·7	1st	22·5
		Trichinopoly	255	29·807	+·038	29·999	29·864	9th	28·708	28th	·156	77·2	92·8	+0·5	71·7	+3·3	82·3	+1·9	21·1	98·1	17th	66·9	1st	31·2
		Madras	22	30·051	+·046	30·004	30·139	9th	29·944	28th	·195	77·8	86·9	0	71·8	+3·8	79·4	+1·9	15·1	91·5	16th & 28th,	67·0	8th	24·5
		Vellore	707	29·355		30·012	29·445	9th	29·253	28th	·192	73·4	89·2		68·6		78·9		20·6	95·4	15th & 28th.	62·4	3rd & 8th.	33·0
55	Madras (East Coast, Central)	Nellore	71	30·006	+·073	30·011	30·114	9th	29·868	28th	·246	76·4	90·3	−0·3	71·2	+2·1	80·8	+0·9	19·1	93·3	28th	65·6	3rd	32·7
		Masulipatam	15	30·075	+·066	30·025	30·204	9th	29·949	28th	·255	76·3	86·6	−0·3	70·7	+2·4	78·7	+1·1	15·9	94·1	28th	65·7	2nd	28·4
54	Madras (Central)	Cuddapah	433	29·625	+·062	30·005	29·730	9th	29·488	28th	·242	77·7	94·8	−0·3	69·7	+0·6	82·3	+0·2	25·1	101·7	28th	63·4	10th	38·3
		Kurnool	945	29·097	+·069	30·020	29·209	9th	28·985	28th	·224	72·9	93·4	−1·1	64·3	−0·5P	78·9	−0·8P	29·1	100·2	28th	55·7	2nd & 3rd.	44·5
		Bellary	1,475	28·572	+·057	30·019	28·675	9th	28·460	28th	·215	72·7	94·1	−0·1	66·7	+1·3	80·4	+0·6	27·4	102·0	28th	59·1	3rd	42·9
52	Madras (East Coast, North)	Cocanada	26	30·061	+·064	30·022	30·177	9th	29·937	28th	·240	75·5	85·7	−0·1	70·7	+1·1	78·2	+0·5	15·0	93·1	16th	65·5	6th, 7th, & 13th.	27·6
		Waltair (Vizag.)	226	29·858P	+·060P	30·030P	29·978	9th	29·714	28th	·264	75·6	83·5	−2·7P	71·2	+2·3P	77·4	−0·2P	12·3	86·9	28th	66·9	5th & 13th.	20·0
		Gopalpur	21	30·061	+·076	30·022	30·205	9th	29·901	28th	·304	72·1	83·4	−0·1	65·6	−2·3	74·5	−1·2	17·8	87·3	28th	55·6	5th	31·7
	XII.—Hill Stations.																							
48	Baluchistan	Pishin											56·0		26·7		41·4		29·3	6·3	27th	13·0	4th	63·0
		Quetta	5,502	24·751	+·091		24·916	21st	24·612	27th	·304	35·3	54·1	+1·0	32·0	+0·3	43·1	+0·7	22·1	76·7	27th	14·8	4th	61·9
		Kalat																						
		Chaman	4,311	25·808	+·085		25·960	27th	25·611	27th	·349	44·5	58·5	+1·5	38·4	+1·7	48·5	+1·6	20·1	76·3	24th	22·1	4th	54·2
30	Punjab and North-West Frontier Provinces	Leh	11,503	19·699	+·088		19·920		19·533	4th	·387	13·1	30·1	−1·3	10·0	+0·2	20·1	−0·6	20·1	48·5	28th	0·9	8th	47·6
		Srinagar	5,204	25·022	+·068		25·232	8th	24·877	28th	·355	33·9	47·9	+5·6	31·6	+4·3	39·8	+5·0	16·3	55·0	22nd	22·1	2nd	33·9
		Kailang	10,087	20·976			21·139	8th	20·817	4th	·372	15·7	32·3		11·1		21·7		21·2	48·2	28th	−2·0	3rd	50·2
		Sonemarg		21·855			21·939	26th	21·600	1st	·369	17·7	34·5		9·4		22·0		25·1	45·1	28th	1·1	21st	44·0
		Astor (Kashmir)		22·615			22·801	8th	22·437	3rd	·364	21·2	38·3		17·2		27·8		21·1	49·5	28th	5·0	7th	44·5
		Minimarg		21·394			21·565	8th	21·238	4th	·327	17·4	33·8		9·3		21·6		24·5	54·9	28th	−26·5	7th	81·4
		Skardu		23·021			23·314	8th	22·768	28th	·546	18·6	34·6		14·6		24·6		20·0	44·0	28th	−1·9	6th & 7th.	45·9
		Dras		20·845			21·090	8th	20·664	4th	·426	−3·9	17·9		−11·6		3·2		29·5	41·8	28th	−30·9	7th	72·7
		Gilgit	4,890	25·324			25·563	8th	25·061	28th	·502	39·5	51·2	+0·1	36·7	+0·3	44·0	+0·2	14·5	59·2	28th	30·1	7th & 8th.	29·1
		Chitral		24·672			24·850	17th	24·575	3rd	·275	36·3	49·1		32·8		41·0		16·3	59·6	22nd	27·5	6 days	32·1
		Killa Drosh										36·5	49·9		34·4		42·2		15·5	59·7	21st	25·3	5th	34·4
		Para Chinar	6,000	24·568			24·696	19th	24·429	28th	·267	38·1	51·8		33·2		42·5		18·6	63·1	22nd	22·3	4th	40·8
		Cherat		25·823	+·084		25·932	19th	25·672	28th	·260	45·4	55·0	+2·9	42·5	+2·4	48·8	+2·7	12·5	69·3	28th	32·0	3rd	37·3

1—*continued.*

in India, Burma, etc., in February, 1903—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. 1902 to 28th Feb. 1903.	Normal rainfall for period, 1st Dec. to 28th Feb.	Variation from normal of period, 1st Dec. 1902 to 28th Feb. 1903.	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
																				0·25	0·38	—0·13					**XI.—South India.**		
3	2	15	4	1	2	1			N 59° E	9·4	10·0			78	·814	3·2	1	0·50	+ 0·50	0·74	0·73	+ 0·01	7·89	12·37	− 4·48	0·59	Pamban	Madras (South)	57
	11	5				1	4	7	N 18° W	5·2	5·0			83	·803	4·4	3	1·80	+ 1·20	0·53	1·48	− 0·95	9·31	6·25	+ 3·09	0·30	Tinnevelly.		
2	11	7	2	3				3	N 24° E	4·2	4·8	5·0	− 4	79	·764	3·9	0	0·90	− 0·90	0	0·50	− 0·50	4·68	2·62	+ 2·06	0	Madura.		
17	2	1	1	1		1	2	3	N 34° W	2·5	2·7			73	·621	2·5	2	1·40	+ 0·60	1·15	0·97	+ 0·18	9·06	3·16	+ 5·90	0·96	Periyakulam.		
12		5	9				2		N 71° E	6·6	5·9	5·6	+ 5	79	·728	3·5	0	0·50	− 0·50	0	0·33	− 0·33	3·32	1·82	+ 1·50	0	Salem	Madras (South Central).	34
	1	8	11				4	1	N 64° E	2·4	2·1	3·2	− 34	85	·717	4·3	0	0·80	− 0·80	0	0·46	− 0·46	3·08	1·76	+ 1·32	0	Coimbatore.		
22		5	1						N 52° E	5·0	4·7	4·0	+ 18	77	·490	8·0	0	0·30	− 0·30	0	0·14	− 0·14		0·67	+ 8·49	0	Mercara	Coorg.	35
4			6	6	1	1	7	3	S 6° E	5·8	5·0			54	·451	0·4	0	0·10	− 0·10	0	0·07	− 0·07	2·83	0·17	+ 2·66	0	Chitaldroog	Mysore.	36
1				8	3	2		1	S 62° E	9·0	7·8	3·6	+117	79	·551	1·9	0	0·20	− 0·20	0	0·09	− 0·09	1·00	0·71	+ 0·29	0	Bangalore.		
7	1	2	7	6	1		2	2	S 84° E	3·0	2·6			71	·494	3·0	0	0·10	− 0·10	0	0·06	− 0·06	5·54	0·24	+ 5·30	0	Hassan.		
1		4	8	5	3	4	2	1	S 56° E	7·7				67	·517	3·6	0	0·30	− 0·30	0	0·22	− 0·22	2·08	0·39	+ 1·69	0	Mysore.		
7	1	13	2	3				2	N 51° E	7·3	6·4	3·6	+ 78	77	·806	4·1	0	0·80	− 0·80	0	0·58	− 0·58	17·55	14·74	+ 2·81	0	Negapatam	Madras (East Coast, South).	56
24		1	1			1	1		S 45° E	2·5	3·1			87	·834	4·9	1	0·70	+ 0·30	0·43	0·71	− 0·28	18·69	9·70	+ 8·99	0·43	Cuddalore.		
23		5							N 45° E	3·2		4·1	− 22	81	·755	2·5	1	0·50	+ 0·50	0·11	0·79	− 0·68	7·55	3·82	+ 3·73	0·11	Trichinopoly.		
	5	5	5	3	9	1			S 71° E	5·4		5·0	+ 8	88	·806	3·4	3	0·60	+ 2·40	2·17	0·23	+ 1·94	15·88	6·77	+ 9·11	0·98	Madras.		
					1	2	1	1	S 56° W	2·5	2·5			84	·692	2·9	0	0·50	− 0·50	0	0·13	− 0·13	5·27	3·50	+ 1·77	0	Vellore.		
23																													
7	5			4	6			6	N 72° W	4·3				83	·757	3·4	0	0·30	− 0·30	0	0·10	− 0·10	15·07	2·29	+12·78	0	Nellore	Madras (East Coast, Central).	55
5	5	4	2	7	3			2	N 81° E	6·1	5·9	5·1	+ 16	83	·758	3·5	0	0·30	− 0·30	0·06	0·22	− 0·16	3·72	1·07	+ 2·65	0·06	Masulipatam		
		4	7	13	1	2		1	S 65° E					70	·669	1·0	0	0·20	− 0·20	0	0·07	− 0·07	2·41	1·37	+ 1·04	0	Cuddapah	Madras (Central).	54
15			2	6	2	3			S 27° E	5·7				69	·562	1·1	0	0·10	− 0·10	0	0·02	− 0·02	0·04	0·21	− 0·17	0	Kurnool.		
8	1	1	2	6	6		2	2	S 23° E	4·3	4·6	4·0	+ 15	61	·496	1·3	0	0·10	− 0·10	0	0·02	− 0·02	0·08	0·22	− 0·14	0	Bellary.		
8	4	5	2	1	1			7	N 7° E	7·3	6·1			83	·738	3·1	0	0·50	− 0·50	0	0·37	− 0·37	1·07	1·28	− 0·21	0	Cocanada	Madras (East Coast, North).	52
		9	7	2		10			S 75° E	8·7				71	·640	3·4	1	0·50	+ 0·50	0·67	0·17	+ 0·50	2·24	2·13	+ 0·11	0·65	Waltair (Vizag.)		
1	11					3	3	10	N 37° W	11·9	11·7	9·6	+ 22	75	·600	0·4	0	0·90	− 0·90	0	0·48	− 0·48	0·87	1·35	− 0·48	0	Gopalpur.		
																											XI.—Hill Stations.		
																	3	6·40	− 3·40	1·17	2·86	− 1·69	3·09	6·22	− 3·13	0·57	Pishin	Baluchistan.	48
20	1			4	2		1		S 28° E	1·9	2·0	4·4	−55	84	·172	2·9	4	6·40	− 2·40	1·19	2·21	− 1·02	2·68	5·05	− 2·37	0·43	Quetta.		
																		5·20			1·26			2·70			Kalat.		
5				6	10	5	2		S 41° E	4·4	4·8			60	·171	3·5	2	4·30	− 2·30	0·54	1·75	− 1·21	1·85	3·97	− 2·12	0·20	Chaman.		
		7	3		5	6	7		S 38° W	1·8				47	·041	6·1	3	1·00	+ 2·00	1·25	0·35	+ 0·90	1·54	0·85	+ 0·69	0·66	Leh	Punjab and N.-W. Frontier Province.	39
13	3	1		2	5	1		3	S 35° W	3·9	3·6			90	·180	6·8	2	6·40	− 4·40	0·55	2·80	− 2·25	3·64	7·20	− 3·56	0·14	Srinagar.		
	1	2	4	1	4	2	9	5	S 89° W	0·3				87‡	·096‡	4·9	2			1·09			3·78§			0·82	Kallang		
20	3	3	2						N 39° E	3·6	3·3			94	·100	4·9	7			3·21			19·19			1·70	Sonemarg		
3					6	16	2	1	S 39° W	5·5				68	·082	4·6	4			0·77			4·35			0·27	Astor (Kashmir).		
16		3	9						N 80° E	6·4	6·8			53	·060	6·4	6			3·10			9·37			1·01	Minimarg.		
21		1	1			3	3		S 75° W	1·6	1·6*			91	·098	6·8	4	2·60	+ 1·40	0·62	1·15	− 0·53	1·54	3·57	− 2·03	0·21	Skardu		
26	1	1							N 24° E	0·5	0·5			98	·049	5·3	3	8·20	− 5·20	0·74	2·57	− 1·83	3·98	8·74	− 4·76	0·22	Dras.		
21						2	5		S 81° W	3·6	3·2			67	·164	6·6	1	0·90	+ 0·10	0·64	0·16	+ 0·48	1·84	0·46	+ 1·38	0·64	Gilgit.		
21	1	1			2	1			S					80	·172	1·9	2			1·00			2·63			0·50	Chitral.*		
19			7	1			1		S 82° E					71	·154	3·9	2			0·42			2·21			0·27	Killa Drosh.		
19	1	1	1	1		2	3		S 16° W	4·8	4·4			69	·162	4·3	0	4·80	− 4·80	0·30	1·93	− 1·63	2·47	3·35	− 0·88	0·09	Para Chinar.		
	17	2			3		1	5	N 8° W	9·1	8·5				·127	1·3	0			0·01	3·31	− 3·30	1·50	6·38	− 4·8	0·01	Cherat.		

* Wind observation for 26 days. ‡ Mean of 22 days. § Total rainfall since 1st January 1902.

Table

Abstract of Observations taken at 8 A.M. at 231 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
36	Punjab—(*concld.*)	Murree	6,333	23·901	+·073		24·006	19th	23·806	1st	·200	40·3	47·5	−0·5	33·9	−0·6	40·7	−0·6	13·6	63·2	28th	24·5	5th	38·7
		Poo											41·7		24·2		33·0		17·5	65·5	28th	11·1	3rd	54·4
		Simla	7,224	23·151	+·073		23·265	9th	23·047	1st	·218	39·3	46·5	+0·6	36·2	+0·6	41·4	+0·6	10·3	64·5	28th	27·2	1st	37·3
5	United Provinces.	Chakrata	7,022	23·321	+·053		23·432	9th	23·237	15th	·195	39·3	53·4†	+0·9†	36·2	+0·1	46·1†	+0·5†	17·2†	69·5	28th	28·4	2nd	41·1
		Mussooree	6,705	23·604	+·059		23·698	19th & 20th.	23·520	15th	·178	41·0	48·9	−1·2	36·7	−1·0	42·8	−1·1	12·2	65·7	28th	29·0	1st	36·7
		Ranikhet	6,069	24·171	+·071		24·281	9th	24·078	15th	·203	43·6	53·6	−2·0	40·4	−0·4	47·0	−1·2	13·2	70·0	28th	32·5	7th	37·5
		Muktesar	7,600	22·880			23·004	9th	22·790	1st	·214	40·5	49·8		34·9		42·3		14·9	68·5	28th	26·5	7th	42·0
13	Bengal	Yatung	10,180P										42·1		18·5		30·3		23·6	48·1	6th & 7th	10·9	23rd	37·2
		Darjeeling	7,376	23·034	+·049		23·148	9th	22·956	15th	·192	38·7	46·9	−1·0	34·8	−0·8	40·9	−0·9	12·1	52·5	14th	30·7	2nd	21·8
8	Assam Hill Tracts	Shillong	4,920	25·239			25·352	22nd	25·124	27th	·228	48·0	61·4		41·4		51·4		20·0	65·5	21st	35·0	12th	30·5
		Cherra Poonjee	4,309	25·790			25·906	9th	25·678	27th	·228	53·1	61·1		47·7		54·4		13·4	65·8	2 days	43·0	2 days	22·8
	Central India	Mount Abu	3,945	26·164	+·054		26·284	21st	26·066	16th	·218	57·5	66·2	−2·6	52·1	−1·5	59·2	−2·1	14·1	77·1	26th & 27th.	40·1	7th	37·0
		Pachmarhi	3,528	26·567	+·046		26·693	22nd	26·493	6th	·200	57·1	71·9	−0·6	48·9	−2·6	61·9	−1·6	26·0	85·1	28th	39·8	2nd & 9th	45·3
	South India	Wellington§	6,200	24·355	+·050		24·393	9th	24·292	4th	·101	57·4	71·2	+1·0	48·4	+2·1	59·8	+1·6	22·8	76·2	16th	42·2	2nd	34·0
		Kodaikanal	7,688	22·912			22·939	9th & 14th.	22·859	5th	·080	54·5	65·8		48·6		55·1		17·2	71·1	14th	45·6	9th & 21st	25·5
		Ootacamund		23·149			23·185	15th	23·103	5th	·082	55·9	65·9		45·8		56·4		21·1	73·5	13th	40·7	4th	32·8
		Dodabettah		22·102			22·137	13th	22·036	5th	·101	57·1	58·7		45·1		51·9		13·6	62·5	11th	40·8	9th	21·7
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	30·03	+·060	29·972	30·069	19th	29·954	28th	·115	78·7	86·1	+1·1	75·9	+0·8	81·0	+1·0	10·2	88·5	26th	71·5	2nd	17·0
		Colombo	40	29·983	+·041	29·955	30·038	21st	29·916	28th	·122	79·4	90·3	+2·0	73·6	+0·7	82·0	+1·4	16·7	94·0	23rd	68·5	1st & 3rd.	25·5
	Persia	Meshed	3,104									33·0			28·0	−0·4						9·6	4th	
		Teheran		26·086*			26·350	3rd	25·845	23rd	·505	35·7	49·1	−2·9	31·5	−1·3	40·3	−2·1	17·6	61·7	21st	21·0	1st	40·7
		Ispahan		24·327*			24·460	4th	24·150	23rd	·310	34·7	53·3	−0·9	22·7	−6·4	38·0	−3·7	30·6	60·3	22nd	11·1	4th	49·2
		Bushire	14	30·184	+·108	30·157	30·376	3rd	29·991	14th	·385	56·0	61·6	−1·1	51·6 ††	−1·2	58·1 ††	−1·2	13·0	81·6	21st	43·3	3rd	38·3
		Bahrein	30	30·176			30·370	3rd	30·043	20th	·327	59·8	65·6		56·0		61·1		9·6	80·1	22nd & 23rd.	45·8	8th	34·3
		Jask		30·142	+ 088		30·366	3rd	29·994	23rd	·372	64·5	74·9	0	61·5	−0·3	68·2	−0·2	13·4	88·3	23rd	53·3	4th	35·0
		Muscat	20	30·161	+·105	30·129	30·402	3rd	30·017	17th	·385	63·9	72·1	−0·7	67·3	−0·4	69·7	−0·6	4·8	76·2	25th	62·9	4th	13·3
	Arabia	Baghdad	220	30·056	+·093	30·270	30·314	3rd	29·779	21st	·535	46·5	63·3	−0·7	42·5	+0·7	53·2	0	21·3	73·2	21st	31·8	1st	41·4
		Bussrah		30·255			30·388	2nd	30·044	6th	·344		62·6		48·1		55·4		14·5	72·7	13th	35·0	1st	37·7
		Aden	94	30·038	+·091	30·066	30·124	12th	29·962	17th	·162	74·7	79·3	−2·4	72·5	−0·9	75·9	−1·7	6·8	82·3	25th & 27th.	67·9	9th	14·4
		Perim	201	29·884	+·095	30·023	29·958	11th & 12th.	29·818	18th & 19th.	·140	75·5	82·0	−1·5	72·8	−1·4	77·4	−1·5	9·2	84·9	28th	67·6	1st	17·3
	Afghanistan	Kabul										24·6	42·7	−5·7	17·6	−5·5	30·1	−5·6	25·1	56·2	23rd	0·4	5th	55·8
	Central Asia	Kashgar	4,255	25·700			25·910	5th	25·430	2nd	·480	23·6	43·3	−1·6	18·5	−3·8	30·9	−2·7	24·8	52·8	21st	10·3	7th	42·5
	Arabian Sea Islands.	Amini Devi	13																					
		Minicoy	7	30·033		29·965	30·073	19th	29·983	28th	·090	81·4	85·3	−0·7						87·4	14th			
	Africa	Zanzibar	73	29·956	+·048	29·956	30·011	14th	29·880	6th	·131	81·7	86·0	−1·0	79·5	−0·8	82·8	−0·9	6·5	88·4	21st	75·6	2nd	12·8
		Do. Dunga		29·899			29·962	16th	29·814	1st	·148	80·2	89·4		74·2		81·9		15·2	94·3	22nd	71·6	20th	22·7
	Straits Settlements.	Penang‡	20	29·947			29·987	11th	29·924	24th	·063	81·8	91·1		71·9		83·0		16·2	92·0	9 days	72·0	17th,	20·0
		Singapore§	10	29·999			30·042	10th	29·933	27th	·104	84·7	86·3		73·9		80·1		12·4	90·0	28th	71·3	10th	18·7

* A period uncorrected.
† Observations of 19 days.
‡ 9 h. Observations.

Notes.—When a query is inserted against any reading or in the variation returns o

§ Observation of 2 days.

* Mean of 27 days.

I—*concluded.*

in India, Burma, etc., in February, 1903—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. 1902 to 28th Feb. 1903.	Normal rainfall for period, 1st Dec. to 28th Feb.	Variation from normal of period, 1st Dec. 1902 to 28th Feb. 1903.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Diswi
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
13	2			11	1		1		S 45° E	6·2	6·7	8·2	— 18	63	·151	4·0	2	2·70	−0·70	0·95	3·84	− 2·89	5·67	8·65	− 2·98	0·65	Murree .	Punjab—(*concld.*)	30
17			7	3				1	S 83° E							4·1	0			0·19	3·93	− 3·74	2·31	8·18	− 5·87	0·08	Poo.		
5	9			1	13				S 8° E			2·5		55	·128	3·6	4	4·00	0	0·74	3·00	− 2·26	3·67	6·94	− 3·27	0·18	Simla.		
3	14	3	1		2			5	N 1° W	7·3		5·4	+ 35	57	·133	3·0	1	5·60	−4·60	0·52	4·20	− 3·68	4·64	9·09	− 4·45	0·43	Chakrata .	United Provinces.	25
	3	4	6	1			10	4	N 33° W					58	·147	2·6	1	4·10	−3·10	0·65	4·57	− 3·92	4·30	9·30	− 5·00	0·50	Mussooree.		
18		2			1	6	1		S 45° W	2·1	2·4	2·0	+ 20	59	·164	2·2	2	4·50	−2·50	0·59	2·16	− 1·66	2·61	5·66	− 3·05	0·26	Ranikhet.		
4	1		4	10	1	1	4	3	S 31° E	6·1	5·6			61	·147	2·4	2			0·51			2·98		-	0·26	Muktesar.		
																	7	2·17	+4·83	2·63	0·62	+ 2·01	3·53	1·69	+ 1·84	0·60	Yatung.	Bengal .	13
11		4	6	3	2	1	1		S 77° E	5·3	4·9	5·1	— 4	80	·187	1·9¶	2	2·52	−0·52	0·58	1·01	− 0·43	0·71	1·95	− 1·24	0·27	Darjeeling.		
21			1		2	4			S 22° W	2·4	2·7			74	·246	3·9	4	1·90	+2·10	1·17	0·79	+ 0·38	1·30	1·60	− 0·30	0·42	Shillong .	Assam Hill Tract	8
11		2	3	1		7	4		S 42° W	4·9	5·6			61	·255	6·1	2	3·10	−1·10	1·10	2·08	− 0·98	1·12	3·12	− 2·00	0·84	Cherra Poonjee.		
5	4	9	1			2	5	2	N 3° W	6·8	6·9	5·6	+23	37	·178	1·5	1	0·59	+ 0·50	0·29	0·29	0	0·37	0·83	− 0·46	0·29	Mount Abu	Central India.	
9		3		8		3		5	S 45° E	4·5	4·6	3·8	+21	50	·2·8	1·4	0	1·00	− 1·00	0	0·47	— 0·47	2·63	1·59	+ 1·04	0	Pachmarhi.		
17		3	1			1			N 60° E	2·3		2·7	−15	74	·352	2·5	1	1·90	−0·90	0·58	1·52	− 0·94	16·94	6·26	+10·68	0·50	Wellington .	South India.	
	3	4	9	8	2				S 89° E	12·3				65	·271	2·8	3	2·30	+0·70	1·00	1·18	−0·18	12·09	8·22	+ 3·87	0·54	Kodaikanal.		
18		2	4	3	1				S 76° W	4·3	4·0			55	·260	2·2	0	1·20	−1·20	0·08	0·38	— 0·30	12·08	2·38	+ 9·70	0·08	Ootacamund.		
														61	·284	4·5	0			0			20·84			0	Dodabetta.		
																											XIII.—Extra India.		
10		14				4			N 45° E					89	·875	3·0	3			1·70	1·98	+ 2·72	24·68	23·26	+ 1·42	3·86	Trincomalee	Ceylon.	
	7	9	10	2					N 57° E	7·1		6·2	+15	80	·812	2·8	4			3·96	2·29	+ 1·67	14·71	12·28	+ 2·46	1·62	Colombo.		
														83	·163	3·9	3			1·04	1·03		4·03	2·14	+ 1·89	0·50	Meshed .	Persia.	
6	3	13					1		N 34° E	2·5	3·2			66	·140	3·7	4			3·29	0·82	+ 2·47	4·58	3·48	+ 1·10	1·51	Teheran. (*a*)		
14	1		2			1	8	2	N 76° W	4·1	5·3			73	·156	2·8	0			0·07	0·17	−0·10	2·01	0·97	+1·04	0·05	Ispahan.		
2	10	4	3	3	2			4	N 24° E	8·6	10·2			68	·305	3·6	0			0·21	2·35	−2·14	3·53	8·71	−5·18	0·08	Bushire.		
2	7		2	2	3	2	3	6	N 45° W					82	·431		2			1·42			1·51			1·20	Bahrein. **		
1	8	6	5	1			1	6	N 15° E	14·3	11·9			80	·501	1·1	0			0	0·97	−0·97	2·18	2·62	− 0·44	0	Jask.		
10				3				15	N 45° W	5·4	5·6			66	·471	0·6	0			0	0·78	−0·78	0·92	2·32	− 1·40	0	Muscat.		
22	1				3		1	1	S 63° W	1·3	1·7			70	·227	2·3	2			1·03	2·17	− 1·14	2·24	5·19	− 2·95	0·56	Baghdad .	Arabia.	
																	2			1·21			2·31			0·90	Bussrah.		
3		11	11	1	1			1	N 70° E	16·1	13·0	12·9	+1	74	·627	6·1	3			1·07	0·29	+ 0·78	4·38	0·98	+ 3·40	0·68	Aden.		
	1	1	11	13	1			1	S 68° E	17·4	15·5			77	·679	2·1	1			0·80	0·26	+ 0·54	1·47	0·68	+ 0·79	0·56	Perim.		
	3	3	3	8	5	5		1	S 41° E					83	·119	3·7	3			0·92	0·98	− 0·16	2·50	2·51	− 0·01	0·33	Kabul .	Afghanistan.	
22	1	1			1		2		N 45° W	0·7	0·6					2·0	0			0	0·12	− 0·12	0·09	0·58	− 0·49	0	Kashgar .	Central Asia.	
																					0			0·51			Amini Devi	Arabian Sea Islands.	
	12	13			1		1		N 24° E	4·5	4·9			77	·827	3·6	4			3·74	0·35	+ 3·39	8·17	7·10	+ 1·07	2·07	Minicoy.		
	10	12	2	1	3	1			N 34° E	7·8	7·3			84	·906	5·1	4			3·60	1·38	+ 2·22	16·1	7·52	+ 8·67	1·22	Zanzibar .	Africa.	
10	2	11						5	N 17° E	6·1	6·0			87	·893	6·5*	6			5·67			18·25			1·94	Do. Dunga.		
1	13	7						7	N	5·0						0	4			3·56			8·45†			1·56	Penang .	Straits Settlements.	
1	5	19	3						N 42° E							5·5	12			10·38			28·30†			2·19	Singapore.		

station, the data for that station are not utilized in calculating the provincial variation.

‖ 1 P.M. observations. ¶ Mean of 23 days. ** Wind observation for 27 days. * Mean of 26 days. (*a*) Wind variables 5.

(*f*) Total rainfall since 1st January 1903.

Table II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 62 Stations in India, Burma, etc., in February, 1903.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 62

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	30·011	29·901	·110	29·951	+·064	29·942	88·5	76·8‡	11·7	9·07	71·8	18·9	84·2	86·4	81·6‡	+ 1·7	73·7	78·1	78·5	76·8
	Rangoon	57	·024	·890	·134	·953	+·061	·918	91·5	67·3	24·2	95·3	61·0	34·3	81·2	89·1	77·1	+ 0·7	64·6	69·4	71·2	68·4
	Diamond Island	41	·049	·936	·113	·988	+·056	·964	82·7	73·8	8·9	87·0	69·8	17·2	79·6	80·5	77·2	+ 0·6	67·7	72·2	72·3	70·7
	Cocos Island	119										Not received.										
	Akyab	20	·082	·967	·115	30·017	+·063	·980	83·4	?	?	89·9	?	?	74·4	79·4	?	?	?	67·5	69·2	?
Bengal and Orissa.	Chittagong	87	·019	·893	·126	29·949	+·046	·986	80·5	58·7	21·8	86·6	52·8	33·8	71·9	77·6	69·4	− 0·7	57·7‡	64·8	66·8‡	63·1
	Calcutta (Alipore)	21	·098	·967	·131	30·022	+·069	·988	82·0	59·8	22·2	89·1	49·8	39·3	73·3	80·3	70·1	+ 0·1	57·8	64·7	64·4	62·3
	Saugor Island	25	·087	·965	·122	·013	+·064	·983	80·3	64·9	15·4	84·4	51·7	32·7	74·2	77·6	71·4	− 0·6	62·4	67·9	68·6	66·3
	False Point	21	·096	·974	·122	·032	+·058	·995	80·7	62·2	18·5	85·4	50·0	35·4	76·8	78·2	70·3	− 1·8	61·0	68·9	69·3	66·4
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	28·040	27·932	·108	27·982	+·043	·972	77·2	53·9	23·3	86·2	43·4	42·8	69·1	74·8	64·9	− 0·7	47·6	54·4	55·6	52·5
	Darbhanga	166	29·954	29·820	·134	29·881	+·068	30·007	77·4	32·9	24·5	83·7	47·7	36·0	68·6	76·8	·649	0	50·6	59·6	62·0	57·4
	Allahabad	309	·816	·692	·125	·745	+·068	·016	80·4	48·3	32·1	91·9	38·8	53·1	70·0	79·4	63·6	− 1·7	45·9	57·1	59·9	54·3
Upper Sub-Himalayas.	Dehra Dun	2,233	·817	·733	·084	·768	+·062	·029	71·0	46·2	24·8	84·4	38·5	45·9	60·0	67·2	57·0	− 0·4	42·5	50·8	53·0	48·8
	Roorkee	899	·180	·082	·098	·123	+·055	·024	74·6	45·0	29·6	86·4	38·7	47·7	62·0	72·0	58·6	− 1·2	43·1	53·3	55·8	50·7
	Meerut	738	·336	·241	·095	·283	+·051	·014	76·7	47·2	29·5	90·1	39·2	50·9	63·4	74·4	60·9	+ 0·1	44·0	52·1	55·5	50·5
	Lahore	702	·397	·306	·091	·341	+·057	·042	74·8	46·0	28·8	90·4	37·6	53·4	62·4	72·9	59·3	+ 2·6	42·9	53·9	58·4	51·7
	Ludhiana	812	·272	·181	·091	·218	+·060	·034	72·2	48·6	23·6	88·1	41·7	46·4	61·7	70·2	59·4	+ 1·8	46·2	52·7	54·7	51·2
N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.	Peshawar	1,110	·009	28·913	·096	28·951	+·045	·091	69·7	44·8	24·9	81·1	34·9	46·2	61·1	68·5	56·4	+ 3·9	40·3	51·1‡	53·9‡	48·4
	Jacobabad	186	·949	29·826	·123	29·877	+·056	·028	81·3	47·6	33·7	94·5	31·8	62·7	68·5	78·9	63·2	+ 1·4	42·2	55·9	61·5	53·2
	Kurrachee	30	30·135	30·025	·110	30·072	+·073	·053	81·0	57·2	23·8	87·2	44·7	42·5	73·3	77·4	68·3	+ 0·1	53·2	61·7	65·7	60·2
East Rajputana, Central India and Gujarat.	Jaipur	1,331	28·666	28·565	·101	28·606	+·064	·027	79·7	50·6	29·1	93·9	37·9	56·0	69·8	78·0	64·7	+ 1·4	43·1	53·7	57·0	51·3
	Udaipur	1,925	·155	·035	·120	·095		·005	79·7	49·8	29·9	94·1	38·4	55·7	70·7	78·6	64·5		45·4‖	56·0	59·8	53·7
	Deesa	466	29·648	29·526	·122	29·578	+·072	·006	86·1	52·9	33·2	97·0	41·4	55·6	75·3	84·7	69·2	− 1·3	44·3	56·9	59·5	53·6
	Jamnagar	61	30·088	·961	·121	30·026		·033	82·4	55·5	26·9	89·4	44·2	45·2	73·1	80·4	68·4		48·7	59·2	60·5	56·1
Deccan.	Belgaum	2,539	27·520	27·396	·124	27·454	+·054	29·893	87·0	58·4	28·6	94·3	50·9	43·4	78·2	84·8	71·5	− 1·3	54·5	60·9	63·7	59·7
	Sholapur	1,590	28·470	28·325	·145	28·392	+·044	·969	92·2	61·9	30·3	100·9	53·4	47·5	79·3	90·6	77·3	− 0·8	51·5	61·2	64·8	59·1
	Akola	930	29·154	·998	·156	29·070	+·057	·958	90·4	54·1	36·3	100·9	45·3	55·6	77·1	89·2	71·7	− 1·4	46·6	58·4	63·9	56·3
	Buldana	2,132	27·938	27·809	·129	27·867	+·053	·945	84·3	61·0	23·3	93·6	51·0	39·6	75·0	83·0	72·0	− 1·2	49·1	56·6	59·9	55·2
	Khandwa	1,044	29·042	28·892	·150	28·961	+·064	·968	89·2	53·5	35·8	100·4	43·2	57·2	75·4	88·4	71·0	− 0·3	45·3	56·6	61·9	54·6
	Nagpur	1,025	·065	·915	·150	·984	+·073	·972	88·5	58·1	30·4	100·6	49·7	50·9	76·1	86·7	72·5	− 1·2	50·0	59·3	62·8	57·4
	Nagpur (Sanitary Commr.'s Office)	1,013	·068	·915	·153	·996		·963	89·3	58·2	31·1	102·2	50·0	52·2	77·0	87·6	73·3		50·4	61·1	65·3	58·9
	Hyderabad (Deccan)	1,690	28·379	·241	·138	·304	+·048	·932	89·9	64·2	25·7	99·3	57·0	42·3	79·7	88·3	76·6	+ 0·5	59·3	66·1	67·2	64·2
West Coast.	Bombay	37	30·060	29·935	·125	29·999	+·064	·966	82·7	67·0	15·7	89·2	61·7	27·5	74·6	78·1	74·0	− 1·1	61·2	65·6	68·9	65·2
	Karwar	44	·012	·906	·106	·950	+·046	·926	86·1	66·6	19·5	93·5	62·8	30·7	80·1	84·8	76·3	− 0·2	64·4	70·0	72·5	69·0

‡ Mean of 25½ days. ‖ Mean of 25 days. ¶ Mean of 26 days.

II.

Stations in India, Burma, etc., in February, 1903.

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
																									%	%						
·790‡	·886	·879	·852	+·042	85‡	75	69	76	0	3·9	3·2	3·6	+0·8		6	35	3	5	1		1	5	N. 42° E.	N. 45° E.	71	74	97*	121	5·67	4·64	Port Blair	Burma Coast and Bay Islands.
·577	·566	·528	·557	−·017	86	53	39	59	−4	1·4	4·3	2·9	+1·0	3	7	5	8	5	1	1	10	16	N 22° W.	S 45° W.	32	17	34*§	91	0	0	Rangoon	
·593	·691	·685	·656	−·022	71	68	65	68	−4	1·3	1·4	1·4	−0·8		18	6	4	1				27	N. 14° W.	N. 32° W	75	85	253*	195	0	0	Diamond Island, Cocos Island,	
?	·590	·584	?	?	?	69	58	?	?	2·5	2·1	2·3	+1·2			6	15	7		12	5	11	S. 63° E.	N. 25° W.	5	47	59*	85	0·08	0·06	Akyab	
·472‡	·522	·519‡	·504	−·005	91‡	66	55‡	72	+2	2·5	2·2	2·4	+0·5		7	17	3	4	4	4	4	13	N. 5° E.	N. 43° W	34	29	94*	93	5·40	3·36	Chittagong	Bengal and Orissa.
·463	·507	·399	·456	−·012	88	61	39	63	−2	2·3	2·5	2·4	+0·5	2	5	4	8	3	3	14	4	13	N. 79° W	S. 89° W.	18	25	72	80	0·64	0·63	Calcutta (Alipore).	
·546	·613	·593	·584	−·029	86	71	61	73	−2	3·0	2·9	3·0	+0·8		16	3	1	4	13	12	2	5	S. 73° W.	S. 52° W.	16	18	221	206	2·28	2·19	Saugor Island	
·539	·614	·608	·587	−·041	93	65	62	73	−5	3·4	2·4	2·9	+0·2		7	6	12	3	12	10	4	2	S. 36° E.	S. 12° E.	18	17	163*	191	0·39	0·39	False Point	
·257	·250	·212	·240	−·013	60	31	24	39	−3	2·4	3·2	2·8	+0·5	1	13	5	1	1	8	5	6	16	N. 45° W.	N. 62° W.	39	55	158*	172	1·06	0·85	Hazaribagh	Gangetic Plain and Chota Nagpur.
·344	·395	·363	·367	−·015	85	56	39	60	−3	1·0	0·2	0·6	−1·0	23		1	7	6	1	1	10	7	S. 85° W.	S. 78° W.	7	47	40	90	0·03	0·02	Darbhanga	
·282	·302	·262	·282	−·048	82	42	26	50	−6	2·3	2·1	2·2	0		7	5	7	2	3	4	18	10	N. 57° W.	S. 63° W.	34	34	113*	100	0·06	0·05	Allahabad	
·229	·262	·234	·242	−·041	73	51	35	53	−9	3·4	4·8	4·1	−0·2	12		2	4	2	2	7	21	4	S. 79° W.	S. 88° W.	40	28	261	43	0·11	0·11	Dehra Dun	Upper Sub-Himalayas.
·258	·296	·237	·264	−·027	86	53	30	56	−5	2·1	2·5	2·3	−1·1	13	2	1	1	9	1		5	21	N. 48° W	N. 61° W.	34	31	64	68	0·06	0·06	Roorkee	
·253	·246	·196	·232	−·062	77	42	23	47	−11	1·7	2·1	1·9	−1·0	5	4		2	2	3	6	22	12	N. 83° W	N. 59° W.	57	50	39*	61	0·02	0·02	Meerut	
·243	·310	·304	·286	+·004	77	55	37	56	−2	2·7	4·0	3·4	−0·3	17	7		1	2	4		15	10	N. 67° W.	N. 31° W.	39	31	35	54	0·05	0·05	Lahore	
·290	·285	·230	·268	−·035	84	53	31	56	−8	2·3	1·9	2·1	−2·2	2	5	5	2	7			27	8	N. 67° W.	N. 50° W.	43	40	43*	44	0·01	0·01	Ludhiana	
·202	·260	·216	·236	+·003	67	47	34	49	−9	4·0	3·5	3·8	−0·6	22	5	6	1	6	4		5	7	N. 5° W.	N. 9° W.	11	9	34*	82	0	0	Peshawar	N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.
·210	·288	·325	·274	+·043	62	41	32	45	+3	1·8	2·0	1·9	−1·5	24	6	5	1	10	1	1		8	N. 39° E.	N. 21° E.	15	24	33*	71	0	0	Jacobabad	
·370	·409	·485	·422	+·013	74	49	51	58	0	0·6	1·0	0·8	−2·0	1	3	5	11	2	4	16	12	2	S. 45° W.	N. 69° W.	22	20	188*	249	0	0	Kurrachee	
·190	·219	·211	·207	−·049	52	29	21	34	−9	2·0	2·7	2·4	−0·6	3	3	8	3	3	4	7	15	10	N. 74° W.	N. 18° W.	30	34	71	93	0	0	Jaipur	East Rajputana, Central India and Gujarat.
255‖	271	·291	·272		69‖	35	29	44		1·1	1·9	1·5		9	4	5	9	6	1	5	8	5	N. 35° E.		5		80* ¶		0·22	0·22	Udaipur†	
·185	·229	·180	·199	−·030	45	26	15	29	−1	0·9	0·9	0·9	−1·5		10	16	6	3	1	4	7	7	N. 13° E.	N. 2° W.	39	30	200	211	0·03	0·03	Deesa	
·206	·329	·272	·289		57	40	26	41		0·7	0·5	0·6		1	17	13	2			4	9	10	N. 14° W		56		356*		0	0	Jamnagar	
·383	·372	·353	·346	+·018	78	33	28	46	+7	0·9	1·6	1·3	+0·1	6	6	12	7	5	5	5	5	5	N. 50° E.	S. 62° E.	16	14	170‡	237	0	0	Belgaum	Deccan.
·271	·322	·295	·296	−·024	46	31	20	32	−3	0·6	1·5	1·1	−0·4	6	1	8	4	13	1	10	7	6	S. 6° E.	S. 13° E.	11	24	215*	174	0	0	Sholapur	
·227	·249	·261	·246	−·046	52	26	19	32	−5	0·4	1·0	0·7	−0·8	14	5	7	10	1			4	15	N. 4° E.	N. 14° W.	35	23	84*	98	0	0	Akola	
·208	·240	·236	·228	−·049	38	27	21	28	−6	0·1	1·1	0·6	−1·2		13	5	6	4	3	3	7	15	N. 22° W.	N. 17° W.	36	27	124*	147	0	0	Buldana	
·207	·231	·229	·222	−·085	50	26	17	31	−9	0·5	0·8	0·7	−0·7	12	10	4	9				3	18	N. 9° W.	N. 14° W.	46	31	79	93	0	0	Khandwa	
·269	·306	·280	·285	−·052	54	33	22	36	−6	1·6	2·3	2·0	+0·1	17	5	2	7	5	2	3	15		S. 74° W.	N. 42° E.	9	22	?	123	0·13	0·13	Nagpur	
·278	345	·349	·324		56	38	28	41		1·6	2·1	1·9		5		16		17		2		16	N. 49° E		25		26*		0·33	0·33	Do. (Sanitary Commr.'s Office).	
·452	·480	·406	·446	+·009	74	48	31	51	+1	1·5	4·2	2·9	+1·6	31			5	16	1		3		S. 47° E.	S. 50° E.	32	29	78*	97	0	0	Hyderabad (Deccan).	
·470	·520	·590	·527	−·074	70	60	61	64	−4	0·2	0·1	0·2	−1·0		9	11	5				3	28	N. 15° W.	N. 3° W.	68	58	245	254	0	0	Bombay	West Coast.
·582	·600	·634	·605	−·044	89	59	53	67	−5	0·3	0·4	0·4	−0·1		8	9	2				14	23	N. 35° W.	N. 53° W.	67	69	109	86	0	0	Karwar	

* Corrected. † Observations of 26 days. ‡ Mean of 27 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 62

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
South India.	Periyakulam	945	29·121	28·971	·150	29·053			91·4	67·4	24·0	97·1	57·4	39·7	81·8	88·5	78·7		64·2	71·1	71·7	69·2
	Salem	940	·146	·990	·156	·072	+·036	29·944	94·1	68·7	25·4	100·5	63·3	37·2	82·6	91·3	79·7	+2·1	66·5	74·0	78·6	73·0
	Chitaldroog	2,405	27·656	27·528	·128	27·587	+·038	·890	89·4	66·0	23·4	96·0	61·1	34·9	80·7	87·5	77·3	+0·3	58·1	64·5	65·2	62·6
	Bangalore	3,021	·083	26·953	·130	·017	+·042	·908	86·8	61·7	25·1	92·9	56·7	36·2	77·1	84·7	73·7	+1·8	58·7	64·1	64·1	62·3
	Hassan	3,091	·009	·886	·123	26·947	+·039	·900	86·0	58·0	28·0	90·9	51·7	39·2	77·7	84·5	71·7	+0·7	56·2	62·7	62·7	60·5
	Mysore	2,518	·563	27·418	·145	27·491	+·034	·900	89·7	63·8	25·9	95·4	59·7	35·7	79·3	87·8	76·3	+1·5	60·2	65·2	64·8	63·4
	Madras	22	30·074	29·953	·124	30·009	+·041	·962	87·0	71·9	15·1	91·4	67·2	24·2	82·3	83·2	79·0	+1·9		75·7	75·6	74·2
	Bellary	1,475	29·596	28·441	·155	28·514	+·047	·921	94·5	66·7	27·8	102·5	58·9	43·6	82·2	91·7	80·6	+0·9	58·8	68·4	71·3	66·2
	Waltair	226	29·883	29·757	·126	29·820		·990	83·6	71·2	12·4	86·9	66·9	20·0	80·6	81·0	76·8		67·6	70·5	71·0	69·7
Hill Station, Baluchistan.	Quetta	5,502	24·768	24·689	·079	24·722	+·080		54·6	32·0	22·6	76·6	15·0	61·6	45·9	51·9	42·7	+1·6	30·6	39·6	42·3	37·5
Hill Stations, Northern India.	Leh	11,503	19·721	19·636	·085	19·684	+·092		36·9	9·1	21·8	48·6	−3·1	51·7	19·9	28·2	20·7	−0·7	5·6	11·3	13·6	10·2
	Srinagar	5,204	25·039	24·954	·085	24·990	+·055		48·6	31·6	17·0	56·5	22·0	34·5	38·1	46·5	39·6	+6·4	30·4	36·6	44·0	37·0
	Simla (Ridge)	7,224	23·191	23·132	·059	23·139	+·072		47·5	36·1	11·4	61·5	27·2	37·3	43·4	44·2	40·4	−0·6	31·6	35·5	37·1	24·7
	Chakrata	7,022	·351	·303	·048	·320	+·056		51·01	36·6	17·4	69·5	28·4	4·11	43·7	46·7	44·71	+2·4	32·5	37·0	38·5	36·0
	Ranikhet	6,069	24·198	24·129	·069	24·152	+·065		54·6	40·4	14·2	70·0	32·7	37·3	49·2	50·9	46·0	−1·1	36·2	41·7	42·1	40·0
	Muktesar	7,600	22·910	22·849	·061	22·880			50·6	34·9	15·7	63·5	26·5	42·0	45·5	45·9	41·6		30·8	38·0	38·7	35·8
	Katmandu	4,388	25·815	25·716	·099	25·730	?		66·2	38·0	28·2	73·3	32·2	41·1	54·1	61·9	51·0	−1·7	36·6	47·2	50·6	44·8
	Darjeeling	7,376	23·018	22·990	·058	23·014	+·046		47·6	34·8	12·8	57·9	30·7	27·2	42·9	44·4	40·4	−0·3	33·3	39·0	40·7	37·7
Hill Stations, Central India.	Mount Abu	3,945	26·194	26·117	·077	26·146	+·042		66·9	52·1	14·8	77·1	40·1	37·0	62·2	64·8	59·0	−1·3	41·5	47·9	49·5	46·3
	Pachmarhi	3,528	·607	·567	·100	·551	+·049		75·6	48·9	26·7	85·7	39·6	46·1	67·2	73·6	61·6	−0·8	43·1	51·1	54·1	49·4
	Chikalda	3,642	·478	·376	·102	·421	+·033		77·2	56·8	20·4	86·8	47·3	39·5	68·9	75·3	66·3	−1·4	47·2	52·9	56·4	52·2
Hill Stations, S. India.	Kodaikanal	7,688	22·937	22·865	·072	22·891			66·2	48·6	17·3	72·9	45·6	27·3	61·7	59·7	55·3		43·4	51·9	54·3	49·8
	Ootacamund		23·166	23·091	·075	23·129			67·2	45·8	21·4	73·5	40·9	32·6	63·0	62·7	55·4		42·7	51·2	52·9	48·9
Extra India.	Aden	94	30·064	29·946	·118	29·997	+·092	30·021	79·3	72·6	6·7	82·3	67·7	14·6	76·3	78·5	76·0	−0·9	67·5	69·3	68·8	68·5
	Perim	201	29·968	·789	·119	·841	+·100	29·977	82·3	72·8	9·5	84·9	67·6	17·3	78·2	80·0	76·9	−1·3	68·1	71·3	71·7	70·4
	Minicoy	7	30·048	·959	·089	·999		·931	85·8			87·4			83·6	83·2				76·9	76·8	
	Zanzibar	73	29·959†	·835	·124	·897	+ ·02	·897†	86·1	79·5	6·6	88·4	75·6	12·8	82·5†	85·6	82·7	−0·7	75·7	77·8†	78·9	77·5
	Port Victoria (Seychelles).	15	30·066‡	·916	·090	·961	+·032	·900	84·1	75·1	9·0	86·7	71·9	14·8	82·1	83·1	79·4	−0·8	74·4	77·1	77·2	76·2
	Mauritius (Pamplemouses).	181				·731	− ·015	917				87·3	68·8	19·0			78·9	+0·3				75·3

† Mean of 26 days.

‡ Mean of 9 days.

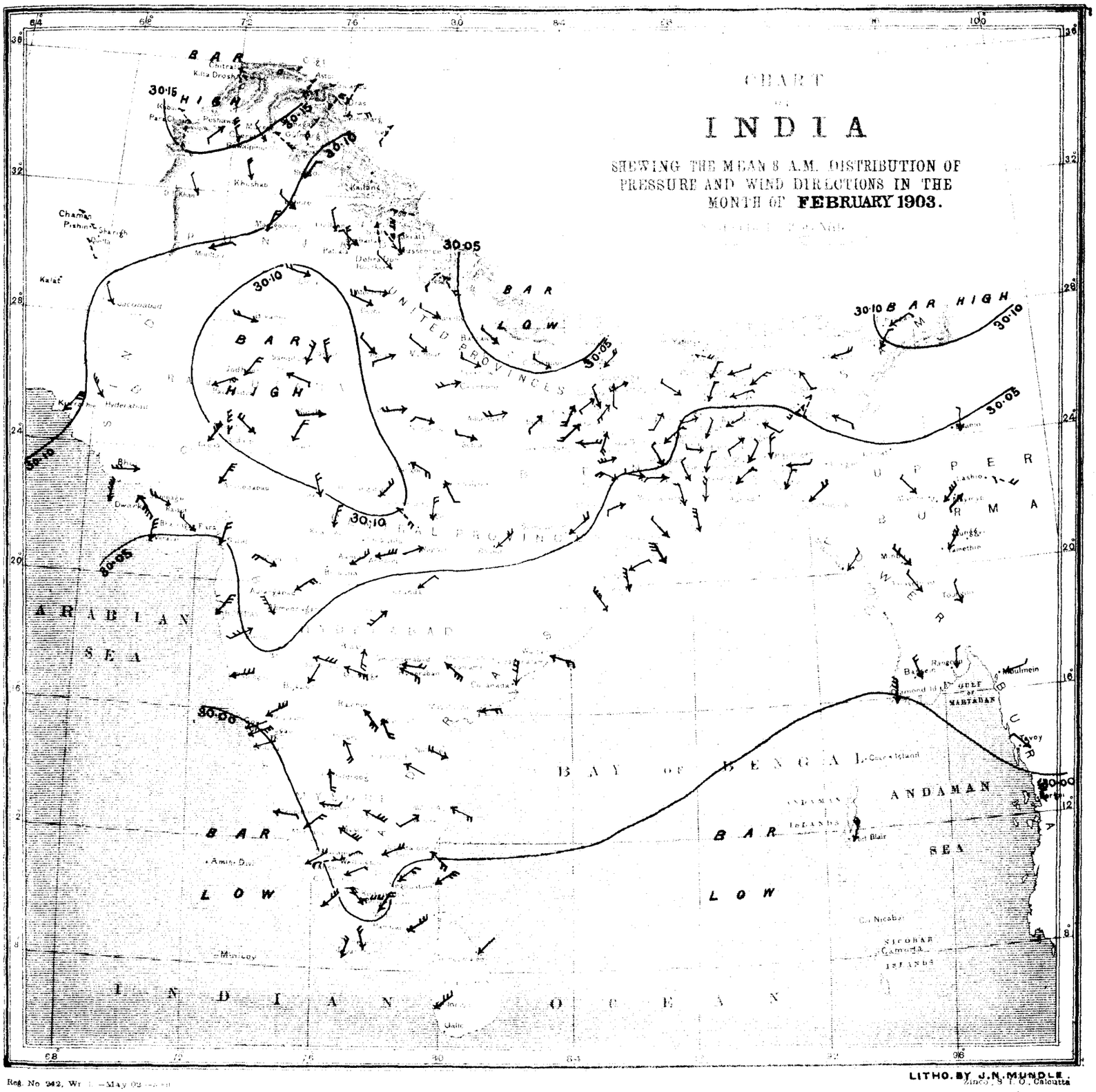
II—*concluded.*

Stations in India, Burma, etc., in February, 1903—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
																									%	%						
·566	·623	·555	·593		84	57	42	60		2·1	4·9	3·5		8	5	2	22	6	1		2	10	N. 66° E.		36		62*		1·15	0·96	Periyakulam	South India.
·626	·733	·814	·724	+·161	89	65	55	70	+12	3·4	4·3	3·9	+1·9	12		11	23		3	1	4	2	N. 77° E.	E	45	51	144*	128	0	0	Salem.	
·392	·409	·347	·383	+·051	61	39	27	42	+ 5	0·9	1·0	1·0	−0·5	3	1	7	26	12	1		6	6	N. 88° E.	N. 89° E.	41	48	120*	170	0	0	Chitaldroog.	
·465	·453	·362	·427	+·031	84	49	31	55	+ 3	1·2	2·3	1·8	−0·1	1	2	6	25	10	3	6	1	2	S. 77° E.	S. 69° E.	53	65	189*	105	0	0	Bangalore.	
·438	·400	·322	·387	+·006	90	42	27	53	+ 1	2·8	3·9	3·4	+0·6	1	1	16	19	10	1	3	3	2	N. 83° E.	S. 85° E.	55	67	63*	77	0	0	Hassan.	
·483	·448	·330	·420	0	81	44	25	50	− 1	3·6	3·0	3·3	+1·9		2	8	17	15	3	6	4	1	S. 69° E.	N. 87° E.	46	67	198*	201	0	0	Mysore,	
	·788	·786	·782	+·103		69	69	79	+ 5	3·6	2·4	3·0	+0·2		1	10	21	12	9	3			S. 72° E.	S. 85° E.	64	69	131	119	2·17	0·98	Madras,	
·408	·534	·527	·490	+·101	61	48	35	48	+ 8	1·1	3·4	2·3	+0·9	2	4	3	8	13	12	2	1	11	S. 48° E.	S. 57° E.	23	47	108*	92	0	0	Bellary,	
·636	·618	·635	·630		82	59	59	67		3·9	2·6	3·3				12	21	4	12	7			S. 68° E.		53		109		0·67	0·65	Waltair.	
·165	·186	·180	·177	+·011	89	62	49	67	+ 1	2·8	3·8	3·3	−0·9	17	4	3	3	6	4	5	6	8	W	N. 83° W.	10	31	48*	88	1·19	0·43	Quetta,	Hill Station, Baluchistan.
·032	·019	·010	·020	−·056	44	15	6	22	?	5·9	6·5	6·2	−0·6				1	4	20	17	14		S. 33° W.	S	73	23	43	29	1·25	0·66	Leh	Hill Stations, Northern India.
·160	·204	·269	·211	+·055	88	87	83	86	+ 6	6·1	6·2	6·2	−0·6	10	4	3		9	11	6	5	8	S. 36° W.	S. 24° E.	21	13	89*	71	0·55	0·14	Srinagar,	
·136	·131	·153	·140	−·012	66	48	54	56	−2	4·6	7·4	6·0	+0·3	13	17	1		5	26				S. 37° E.	S. 20° E.	12	22		131	0·74	0·18	Simla (Ridge),	
·148	·157	·154*	·153	−·010	69	46	49	58	− 5	5·3	5·0	4·2	−0·5	2	9	5		14	19	2		5	S. 30° E.	S. 20° W.	30	2	130	134	0·52	0·23	Chakrata.	
·173	·189	·181	·181	−·015	71	55	49	58	− 4	5·8	5·9	4·1	−0·1	14	3	4	2	2		12	13	6	N. 89° W.	S. 51° W.	34	20	62*	57	0·50	0·26	Ranikhet,	
·134	·155	·168	·152		68	53	55	59		3·4	5·9	4·7		9	3	1	5	14	4	5	3	12	S. 7° E.		9		134*		0·54	0·26	Muktesar,	Hill Stations, Northern India.
·205	·250	·242	·232	−·017	87	59	44	63	− 3	1·3	3·9	2·6	−0·9		4	1	14	1	6	1	28	1	S. 82° W.	N. 86° W.	25	48	20	49	0	0	Katmandu.	
·177	·200	·219	·199	−·012	86	73	75	78	− 2	3·8‖	7·2‖	5·5	−0·4	12	3	5	5	3	2	11	9	6	S. 64° W.	S. 79° W.	20	31	117*	137	0·53	0·27	Darjeeling.	
·146	·176	·189	·170	−·018	38	31	30	33	− 3	1·5	1·8	1·7	−0·9		8	11	2	2	1	15	9	8	N. 59° W.	N. 63° W.	29	27	162*	140	0·29	0·29	Mount Abu.	Hill Stations, Central India.
·216	·198	·199	·204	−·043	62	30	24	39	− 6	0·8	2·0	1·4	−0·7	6	2	10		8	1	8	1	20	N. 36° W.	N. 61° W.	25	25	111*	93	0	0	Pachmarhi.	
·219	·224	·213	·229	−·051	47	31	28	35	− 6	0·4	1·3	0·9	−0·9	36	3	6				4		7	N. 21° W.	N. 33° W.	18	24	184*	148	0	0	Chikalda.	
·235	·293	·370	·306		68	54	73	70		2·7	6·1‖	4·5		1	5	12	11	13	6		1	3	N. 39° E.		46		293		1·00	0·54	Kodaikanal†	Hill Stations, India.
·245	·259	·363	·269		79	45	54	59		2·1	4·3	3·2		31	2	7	10	6					N. 82° E.		31		80*		0·08	0·08	Ootacamund	
·604	·625	·579	·603	−·049	75	69	59	63	− 3	7·1	11·7	4·4	+0·5	6			18	19	11			1	1	N. 81° E.	N. 87° E.	68	73	§271*	§356	1·07	0·68	Aden.	Extra India.
·625	·673	·668	·657	−·037	78	71	66	72	0	1·0	0·5	0·8	−1·6				1	17	34			4	4	S. 62° E.	S. 64° E.	78	73	380*	430	0·60	0·56	Perim.	
		·827	·826			73	71			3·7	4·5	4·1			22	24	3	2			1	4	N 23° E.		78		118*		3·74	2·07	Minicoy.	
·836	·895†	·896	·876	+·022	83	81†	73	79	+ 4	7·2†	5·6	6·4	+2·4	1	21	18	6		5	1	1	1	N. 30° E.	N. 34° E.	61	63	174*	159	3·60	1·22	Zanzibar.	
·850	·867	·869	·859	+·035	87	79	76	81	+ 6	7·7	7·4	7·6	+1·1	6	13	6	1	1			3	26	N. 24° W.	N. 27° W.	62	56	110	145	14·91	3·30	Fort Victoria (Seychelles).	
			·810	+·01				82	+ 5			6·6	+0·2										N. 31° E.	N. 50° E.			180	203	0·19	1·27	Mauritius (Pamplemousses).	

* Corrected. † Wind variable‡ § Mean of 23½ days. ‖ Mean of 25 days.

G. I. C. P. O.—No. 137 Meteor.—25·6·03.—365—C. T.

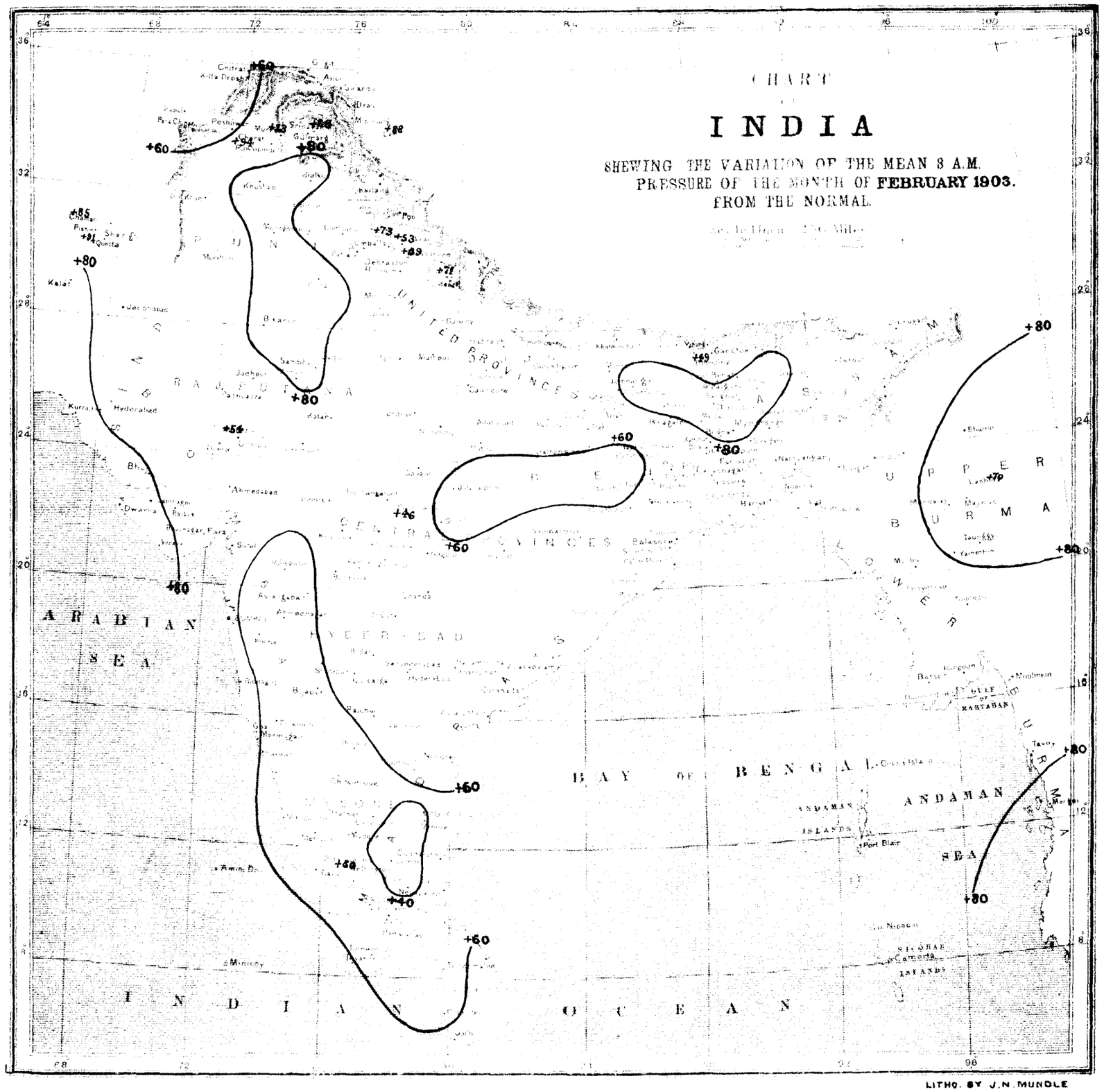


Explanation.

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.

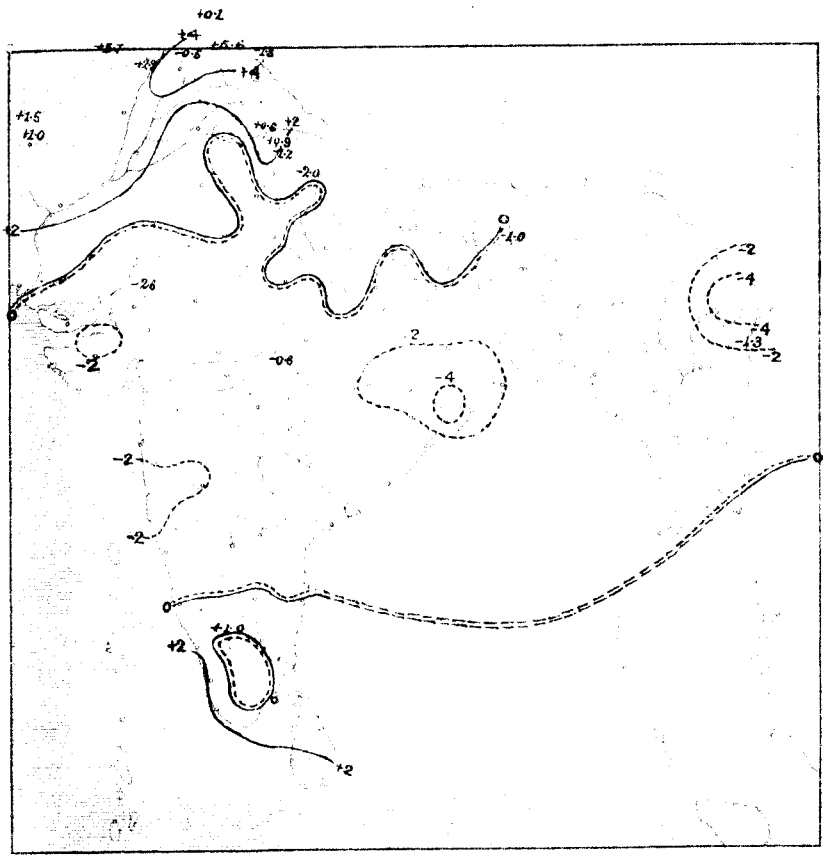
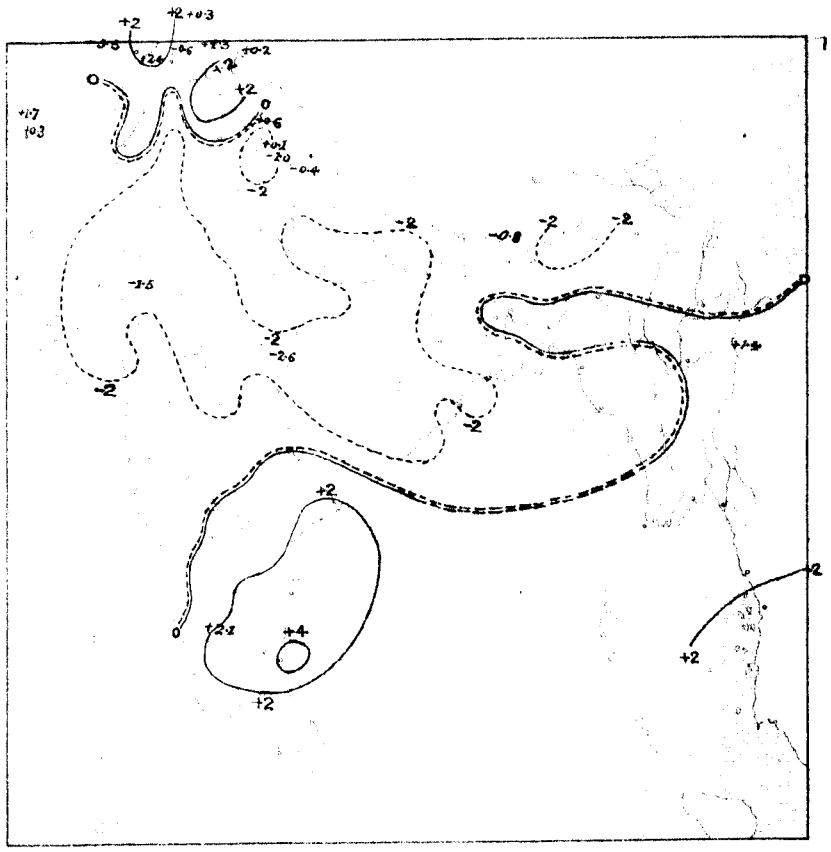


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

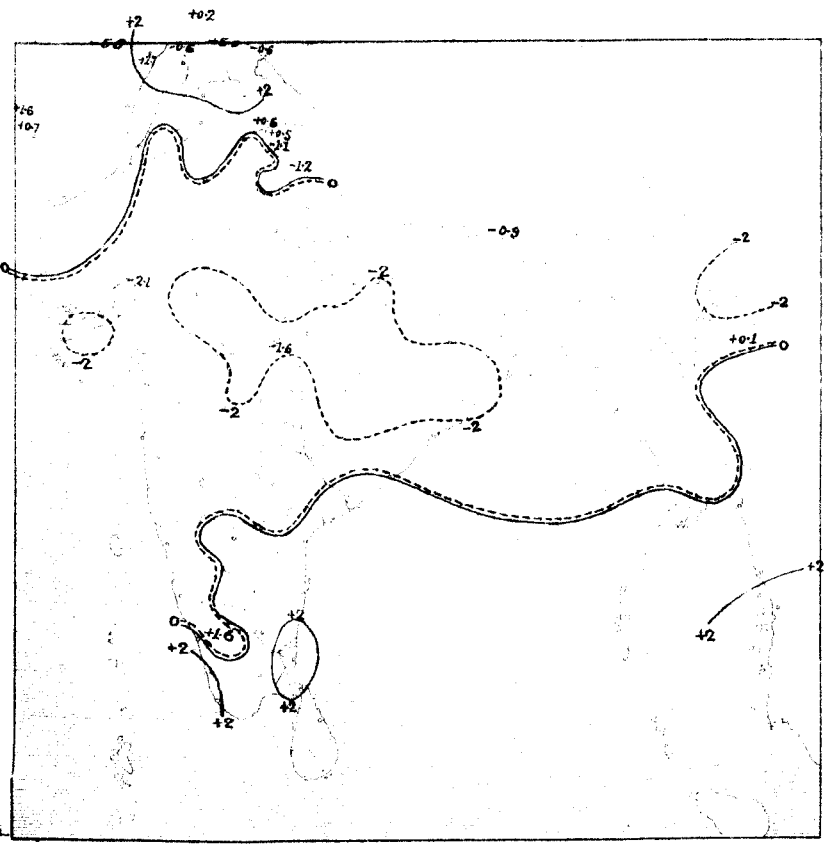
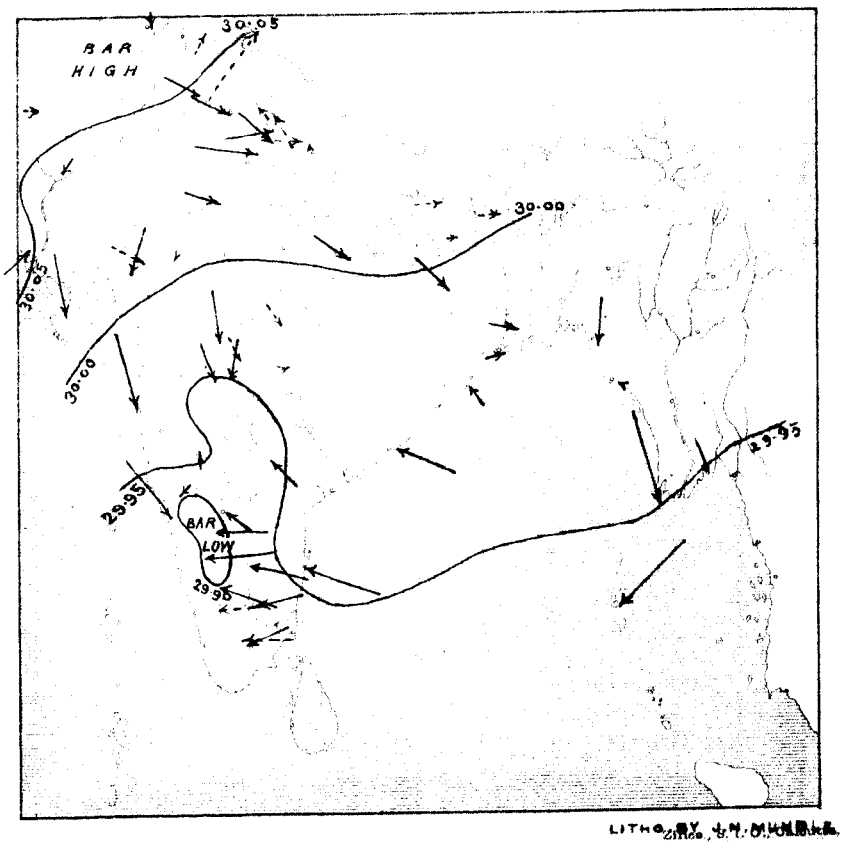


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF FEBRUARY 1903.



Reg. No. [illegible]

LITHO. BY [illegible]

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.

Explanation.

The Chart shows the distribution of the rainfall of the month 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 except those at the Hill Stations over 3,500 feet in elevation (47 in number). The double line or line of no rainfall separates areas in which 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 shaded area shows 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 collected for a sufficient number of years to furnish reliable and useful means. The country is divided into 57 areas, 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. United 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. United 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	

SEP 2 1903

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, MARCH, 1903.

INTRODUCTION.

THIS review of the weather in India during the month of March 1903 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 62 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, 1903.

The meteorology of the month of March 1903 was characterised by very large and important variations from the normal. The month resembled March 1893 and March 1891 in being unusually cool and in some places unusually wet and stormy. The first three days of the month were generally fine and the mean temperature was, on the whole, higher than usual, more especially in the North-West Frontier Province and the Punjab where, on the 1st and 2nd, the mean temperature was more than 10° 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.
		°
1st March	Sialkot	+12·2
	Montgomery	+11·8
	Lahore	+11·5
1st March	Dera Ismail Khan	+11·2
	Mooltan	+10·9
	Khushab	+10·2
	Ludhiana	+10·1
2nd „	Lahore	+12·1
	Rawalpindi	+11·1

Between the 3rd and the 5th showers of rain and snow occurred over the extreme north-west of India and Kashmir, temperature fell fast all over the north-west, and on the 6th was more than 10° below the normal in Baluchistan and 10° below at Jacobabad. This cold wave gradually extended over the country, and by the 9th Burma, Assam, South

India and the Madras coast were the only areas over which the mean temperature was higher than usual. The following gives comparative temperature data for this day and shows the cold wave at its largest extent:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 9th March 1903.	Mean minimum temperature, 9th March 1903.	Mean daily temperature, 9th March 1903.
	°	°	°
Burma	+0·5	+3·3	+1·9
Assam	+4·2	−0·7	+1·8
Bengal	0	−2·8	−1·4
Orissa	−1·1	+0·3	−0·4
Bihar	+1·4	−7·2	−2·9
Chota Nagpur	+0·6	−4·8	−2·1
United Provinces of Agra and Oudh	−6·4	−7·8	−7·1
Punjab	−4·4	−2·1	−3·3
North-West Frontier Province	−4·3	+2·7	−0·8
Sind	−4·3	−6·4	−5·4
Rajputana	−9·4	−9·8	−9·6
Gujarat	−7·2	−10·0	−8·6
Central India	−9·3	−8·0	−8·7
Central Provinces	−5·6	−9·5	−7·6
Berar	−6·4	−11·0	−8·7
West Coast	−0·1	−5·3	−2·7
Bombay Deccan	−6·9	−10·9	−8·9
Mysore	−1·6	−0·4	−1·0
Madras Coast	+2·1	+2·5	+2·3
Madras Deccan	−2·1	−3·7	−2·9
South India	+1·6	+3·2	+2·4

The weather was fine except in the north-east on this day (the 9th) and the sky clear, or nearly so, of cloud, so that the greatest deficiency was exhibited in the night temperatures which were more than 10° below the normal at the following considerable number of stations:—

STATION.	MINIMUM TEMPERATURE.		
	Actual, 9th March.	Normal, 9th March.	Variation of actual from normal, 9th March.
	°	°	°
Akola	47·9	63·7	−15·8
Khandwa	46·6	62·3	−15·7
Nagpur	50·2	65·7	−15·5
Malegaon	46·2	61·0	−14·8
Rajkot	48·0	60·7	−12·7
Sambhar	42·9	55·6	−12·7
Jaipur	45·5	57·9	−12·4
Poona	49·8	61·8	−12·0
Raipur	54·4	66·4	−12·0
Jubbulpore	46·9	58·2	−11·3
Darbhanga	49·8	60·6	−10·8
Sholapur	56·6	67·3	−10·7
Bhuj	53·0	63·6	−10·6
Chanda	54·6	64·8	−10·2
Nowgong	48·0	58·1	−10·1

On this day (the 9th) the mean temperature had risen 10° or more at Quetta, Chaman and Jacobabad and between 3° and 6° at other stations in the north-west dry area. This increase of temperature preceded the appearance of a large complicated storm on the north-west frontier. The storm crossed the frontier on the 10th and 11th, occasioning heavy rain on the plains and snow on the hills. The heaviest falls reported were as follows:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
KOHAT	Fort Lockhart	10th March	3·60
QUETTA-PISHIN	Sanzal	" "	2·90
	Shelabagh	" "	2·40
	Pishin	" "	2·16
JUMMOO	Jasmairgarh	" "	2·10
QUETTA-PISHIN	Syed Hamid	" "	2·07
THAL CHOTIALI	Khost	" "	2·05
JUMMOO	Sambha	11th "	3·05
	Bisolee	" "	2·98
	Ram Nagar	" "	2·78
	Bhimber	" "	2·46
	Riasi	" "	2·46
	Kathua	" "	2·33
	Udumpur	" "	2·30

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kohat	Kohat	11th March	2·27
Ferozepore	Jalalabad	,, ,,	2·06
Kashmir	Sonemarg	12th ,,	4·39
Amritsar	Buggeh	,, ,,	4·00
	Buchar	,, ,,	3·50
	Tarntaran	,, ,,	2·93
Kangra	Nurpur	,, ,,	2·82
Jummoo	Doda	,, ,,	2·80
Amritsar	Ajnala	,, ,,	2·69
Gurdaspur	Madhopur	,, ,,	2·65
Jummoo	Pader	,, ,,	2·60

This heavy precipitation occasioned a rapid fall of temperature in the north-west, and another wave of cold extended from the frontier right across northern India. The following gives comparative temperature data for all divisions for the 15th and 16th, on which days the wave had reached its furthest limits :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	15th March.	16th March.
	°	°
Burma	+0·6	−0·6
Assam	−0·9	−3·2
Bengal	−2·9	−5·7
Orissa	−0·4	−1·1
Bihar	−5·3	−6·0
Chota Nagpur	−4·2	−6·2
United Provinces of Agra and Oudh	−7·9	−8·0
Punjab	−8·2	−6·2
North-West Frontier Province	−4·8	−6·7
Sind	−8·6	−5·3
Baluchistan	−7·0	−3·4
Rajputana	−11·2	−9·1
Gujarat	−5·9	−5·4
Central India	−8·9	−9·8
Central Provinces	−5·3	−7·2
Berar	−3·3	−4·6
West Coast	−0·7	−1·0
Bombay Deccan	−1·2	−1·2
Mysore	+2·4	+3·1
Madras Coast	+0·9	+1·4
Madras Deccan	+1·7	+2·5
South India	+1·7	+1·8

During this period, *viz.*, from the 11th to the 16th, the cold, relatively to the normal, was very intense and the mean temperature was more than 12° below the average on the following dates at the following stations :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
11th March	Hyderabad (Sind)	−17·8
	Murree	−13·8
	Dera Ismail Khan	−12·6
	Chaman	−12·5
	Cherat	−12·3
12th ,,	Quetta	−19·2
	Chaman	−17·5
	Murree	−17·5
	Peshawar	−12·5
13th ,,	Quetta	−16·8
	Murree	−15·7
	Chaman	−14·5
14th ,,	Quetta	−13·3
	Leh	−13·1
	Montgomery	−12·7
	Bikaner	−12·2
15th ,,	Leh	−17·0
	Bikaner	−12·5
	Sambhar	−12·5
	Ajmer	−12·3
16th ,,	Leh	−14·0

The weather was generally fine from the 14th to the 17th, and this fine weather was succeeded by a rise of temperature, but on the 17th a fresh storm commenced to show in Baluchistan, where light rain was falling. This storm advanced very slowly, but on the 20th a fresh depression passed rapidly along the north-west Himalayas, and on the 21st and 22nd a third storm travelled from

Baluchistan and Sind through Rajputana to the south-east Punjab. In consequence the weather during this period was excedingly unsettled in the north-west, snow falling daily in Kashmir, rain and snow in Baluchistan and rain over north-west India, while frequent thunderstorms prevailed over north-east India. This extensive rainfall resulted in a further fall of temperature and in an intensification of the already existing depression, so that, from the 22nd to the 27th, the mean temperature was below the average in nearly all parts of the country. The following gives comparative data of mean temperature for the 22nd and 27th in illustration of the conditions existing during this period :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	22nd March.	27th March.
	°	°
Burma	−1·7	−3·2
Assam	−7·8	−4·7
Bengal	−3·5	−2·8
Orissa	+1·6	−1·2
Bihar	−2·7	−2·5
Chota Nagpur	−2·2	−1·3
United Provinces of Agra and Oudh	−3·4	−4·6
Punjab	−5·9	−5·8
North-West Frontier Province	−12·1	−5·3
Sind	−1·3	−0·6
Rajputana	−2·4	−2·3
Gujarat	−2·5	−0·8
Central India	−4·1	+0·1
Central Provinces	−3·4	+0·5
Berar	−2·2	+1·1
West Coast	−1·5	−2·2
Bombay Deccan	−1·4	−0·3
Mysore	+1·2	+0·6
Madras Coast	+0·1	+1·3
Madras Deccan	+0·2	+0·6
South India	+1·2	+2·4

On the 29th pressure was giving way briskly to rapidly in north-west India especially over farther Kashmir and light rain was falling over Baluchistan and at Dera Ismail Khan and light snow in Kashmir. On the following morning a small depression was shown near Peshawar where pressure had decrease done quarter of an inch. In Kashmir the barometric fall was still greater and at Leh pressure was as much as 0·45″ below the normal. Rain had fallen over Baluchistan and the Punjab and heavy snow in farther Kashmir, the fall at Sonemarg measuring three and a half feet. A rapid fall of temperature resulted from this fresh snowfall and on the 31st the mean temperature was more than 12° below the normal at the following stations in Baluchistan, Kashmir, north-west India and the west Himalayas :—

Hill or Plain Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 31st March 1903.
	°
Quetta	−29·8
Chaman	−28·7
Leh	−12·2
Murree	−20·8
Khushab	−15·1
Montgomery	−15·1
Peshawar	−13·9
Jacobabad	−13·7
Mooltan	−13·2
Sialkot	−13·1
Rawalpindi	−13·0
Bikaner	−12·5

This cold wave was accompanied with a sudden and very rapid decrease of the relative humidity and the air at some stations in the north-west dry area was extraordinarily dry at 8 A.M. The following gives comparative data for those places at which the humidity change in the previous 24 hours exceeded 20 :—

Station.	Relative Humidity.	
	Actual, 31st March.	Change in past 24 hours.
	%	
Peshawar	19	−75
Cherat	28	−64
Jodhpur	10	−63
Hyderabad (Sind)	3	−51
Montgomery	37	−47
Bikaner	26	−35
Khushab	55	−34
Mooltan	55	−26
Lahore	65	−29
D. I. Khan	29	?−22

Pressure.—The mean pressure over the Indian land area was ·012″ below the normal. Relatively to this general condition, pressure was in local excess over lower Sind, Rajputana, the west of Central India, the west of the Central Provinces, Berar, the west and extreme south of the Peninsula, southern Tenasserim, part of east and north Bengal and inland Burma, and was in local defect

over the remainder of India. The anomalies were not generally large or considerable but were more than ·020″ at the stations for which data are given below : —

STATION.	Positive pressure anomaly, March 1903.	STATION.	Negative pressure anomaly, March 1903.
	″		″
Mergui	+·026	Sibsagar	—·022
Bhuj	+·026	Hazaribagh	—·021
Rajkot	+·024	Peshawar	—·021
Bombay	+·024		
Ratnagiri	+·022		

The preceding data show that the positive anomalies were somewhat larger than the negative anomalies, but the latter covered a larger area of country than the former.

The vertical pressure anomalies were negative in all parts of the country and in the case of the Lahore-Leh area the anomaly was large.

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 1903.	Pressure anomaly, March 1903.
	″	″
Burma Coast and Bay Islands	—·009	+·003
Burma Inland	—·005	+·007
Assam	—·024	—·012
Bengal and Orissa	—·021	—·009
Gangetic Plain and Chota Nagpur	—·021	—·009
Upper Sub-Himalayas	—·020	—·008
Indus Valley and North-West Rajputana	—·016	—·004
East Rajputana, Central India and Gujarat	0	+·012
Deccan	—·008	+·004
West Coast	0	+·012
South India	011	+.001

Temperature.—The temperature conditions of March 1903 were, owing largely to the very unsettled weather which prevailed over north-west India, in marked contrast with those of the same month last year. In March 1902 the heat was greater than usual in practically all parts of the country, but particularly so over the north-west districts, while in March 1903 lower temperatures than usual prevailed in all places except the centre, the south and the greater part of the east of the Peninsula, part of Chota Nagpur and the Bay area.

The mean maximum temperature was in excess over the south and centre of the Peninsula, Ceylon, the east of the Central Provinces, south-west Bengal, Chota Nagpur and north Tenasserim. The excess was generally small, but was more than 2°·0 at Secunderabad (+2°·1), Cuddapah (+2°·3), Bangalore (+2°·2), Cocanada (+3°·8), and Colombo (+2°·7). Over practically the whole of the remainder of the country the mean maximum temperature was in defect of the normal. The deficiency was greatest in the north-west and was large at Rawalpindi (—7°·1), Peshawar (—6°·9), Dera Ismail Khan (—6°·8) and Ludhiana (—6°·2). On the hills the deficiency in the mean maximum temperature was even greater than on the plains and amounted to 11°·0 at Murree, to 10°·0 at Quetta, to 9°·4 at Chaman and to 8°·6 at Leh.

The mean minimum or night temperature was also lower than usual except over the south-east of the Peninsula and the Bay area. The negative variations were generally less than those of the maximum except on the hills where they were nearly equal. On the plains the largest variations from the normal were —5°·9 at Bikaner, —4°·7 at Hyderabad (Sind), —4°·6 at Hoshangabad, —4°·5 at Poona and —4°·2 at Jacobabad and Rajkot. On the hills the largest variations were —10°·3 at Murree, —7°·6 at Quetta, —7°·0 at Kabul and —5°·8 at Simla.

The mean temperature of the month exhibited the same general variations as those of the maximum and minimum temperatures. There was some excess over the centre south and east of the Peninsula and over the Bay area while in all other parts of the Indian region the heat was less than usual. On the plains of north-west India the negative variations ranged from 4°·1 at Sirsa to 5°·2 at Bikaner, and on the hills from 2°·1 at Srinagar to 10°·7 at Murree.

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

METEOROLOGICAL PROVINCE.	VARIATION OF ACTUAL FROM NORMAL OF		
	Mean maximum temperature, March 1903.	Mean minimum temperature, March 1903.	Mean daily temperature, March 1903.
	°	°	
Burma Coast and Bay Islands	—0·5	—0·1	—0·3
Burma, Inland	—0·9	—0·6	—0·8
Assam	—1·0	—1·3	—1·1
Bengal and Orissa	—1·2	—0·1	—0·7
Gangetic Plain and Chota Nagpur	—0·5	—1·0	—0·8
Upper Sub-Himalayas	—4·1	—0·8	—2·5
Indus Valley and North-West Rajputana.	—5·2	—3·3	—4·3
East Rajputana, Central India and Gujarat.	—3·5	—2·7	—3·1
Deccan	0	—1·5	—0·8
West Coast	—1·4	—1·9	—1·7
South India	+1·1	+0·5	+0·8

Winds.—The winds are ordinarily irregular and unsteady in March, more particularly over west Bengal and the Gangetic plain. The chief abnormal features of the air movement during the month under review were, increased southing around the head of the Bay and in south India and increased northing over the Punjab and the upper part of the Indus valley. The winds were

slightly more westerly than usual over part of the Gangetic plain, while over the Deccan there was a steady north-westerly current. Over the western and central Himalayas the winds were very irregular, but in the eastern Himalayas the conditions were approximately normal. In the south-east trades region the winds varied irregularly from the normal, the mean direction having been unusually easterly at Zanzibar and unusually northerly at the Seychelles and Mauritius.

Humidity.—With a few exceptions as for example, Rangoon, Chittagong, False Point, Lahore, Salem, Chitaldroog and Madras, there was a deficiency in the amount of vapour present in the air over the whole Indian region, but the temperature was generally low and the relative humidity was in excess over Baluchistan, the western Himalayas, a considerable part of north-west India, the south-east of the Peninsula, the south of the Bay and inland Burma. In the south-east trades region and at Perim, on the contrary, the absolute humidity was in excess and the relative humidity normal or in trifling excess. The driest areas over India were parts of the Deccan and of Rajputana where relative humidities between 0 and 9 per cent. were recorded during the 1st half of the month. In the south-east trades region the air, on the mean of the month, was damper than usual.

The following gives mean comparative data of the nine meteorological provinces:—

METEOROLOGICAL PROVINCE.	MEAN ABSOLUTE HUMIDITY.		MEAN RELATIVE HUMIDITY.	
	Average actual, March 1903.	Variation of actual from normal, March 1903.	Average actual, March 1903.	Variation of actual from normal, March 1903.
	"	"	%	
Burma Coast and Bay Islands.	·751	—·015	71	0
Bengal and Orissa . .	·728	—·001	73	—2
Gangetic Plain and Chota Nagpur.	·314	—·049	38	—5
Upper Sub-Himalayas .	·293	—·046	47	—3
Indus Valley and North-West Rajputana.	·361	—·046	52	—1
East Rajputana, Central India and Gujarat.	·239	—·063	30	—4
Deccan	·276	—·074	27	—7
West Coast . . .	·655	—·078	71	—3
South India . . .	·523	+·010	50	—1

Cloud.—The cloud amount, on the mean of the month, was excessive over the western Himalayas and the submontane districts of north-west India, the excess amounting to 2·1 at Leh and Srinagar and to 2·2 at Simla and Chakrata where the sky was more cloudy than in any other part of the Indian area. The sky was slightly more cloudy than usual locally at Akyab. In all other parts of the country the sky, on the mean of the month, was clearer than usual. The deficiency was greatest in parts of the Deccan, Mysore and the Burma coast, and the mean cloud amount of the month was only 0·8 at Rangoon and Diamond Island, and 0·4 at Sholapur, Khandwa and Bangalore In the south-east trades region the cloud amount was about normal.

The following gives variation data of the mean cloud amount of nine meteorological provinces:—

METEOROLOGICAL PROVINCE.	MEAN CLOUD AMOUNT.	
	Average actual, March 1903.	Variation of actual from normal, March 1903.
Burma Coast and Bay Islands	1·6	—0·9
Bengal and Orissa	2·9	—0·3
Gangetic Plain and Chota Nagpur . . .	1·4	—0·6
Upper Sub-Himalayas	3·7	+0·5
Indus Valley and North-West Rajputana .	2·7	—0·8
East Rajputana, Central India and Gujarat .	1·7	—1·0
Deccan	0·7	—1·3
West Coast	0·5	—1·0
South India	1·3	—1·2

Rainfall.—The rainfall of the month was in excess in two areas. The first included Baluchistan, the North-West Frontier Province, the Punjab, Kashmir, western Rajputana and the hill districts of the United Provinces, where the total rainfall was from twice to six times the normal amount. The second area included upper Burma, Assam, and Bengal proper, where the rainfall was normal or in slight excess. In all other parts of the Indian region the rainfall of the month was in defect, and over a large part of this area, including lower Burma, Bihar, the greater part of the United Provinces, Berar, the Central Provinces, Central India, and the major portion of the Peninsula, the month's rainfall was actually or practically *nil.*

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

METEOROLOGICAL PROVINCE.	RAINFALL.			
	Mean actual for March 1903.	Mean normal for March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Burma Coast and Bay Islands .	0·15	0·69	—0·51	—74
Burma, Inland	0·15	0·22	—0·07	—32
Assam	4·67	4·41	+0·27*	+6
Bengal and Orissa . . .	1·78	1·48	+0·30	+20
Gangetic Plain and Chota Nagpur	0·13	0·51	—0·38	—75
Upper Sub-Himalayas . .	1·01	0·79	+0·22	+28
Indus Valley and North-West Rajputana.	0·97	0·51	+0·46	+90
East Rajputana, Central India and Gujarat.	0·09	0·12	—0·03	—25
Deccan	0	0·44	—0·44	—100
West Coast	0·12	0·51	—0·39	—76
South India	0·08	0·45	—0·38*	—84

* 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.

So far the discussion has dealt mainly with the meteorological changes and conditions prevailing over India alone. In the following paragraphs a brief account is given of the larger and more general changes which have affected the whole monsoon area and neighbouring regions.

In western Siberia the barometer fell rapidly between the 3rd and the 6th, the 9th and 11th, the 22nd and 26th, and on the 29th. The changes were not reproduced in the records of the Gilgit, Chitral and other observatories in farther Kashmir, but they coincided approximately with the periods of disturbance over Persia, Afghanistan and north-west India, showing that general actions tending to favour the production of storms were at work over a large area. The pressure was in general and often large excess over western Siberia throughout nearly the whole month, and the central Asian anti-cyclone apparently lay well to the westward of its ordinary position, as for days together the barometer over central Russia read as high as 30·70″ to 30·80″ and was much above the normal. The European and Russian daily reports showed that for the first three days of the month the weather over the Eur-Asian continent was fairly quiet and settled, but on the 4th pressure became very high over Russia and at the same time storms or depressions commenced to appear over Spain. Very high pressures continued over Russia until the 21st and during the whole of that time there was a fairly constant succession of storms passing along the Mediterranean and into the Black Sea and Caspian areas. On the 22nd conditions changed and high pressures were established over southern Europe, Asia Minor, and the Caspian and the eastward travelling depressions abruptly ceased. At the close of the month the distribution of pressure suddenly changed again, and on the 31st pressure was highest over Spain, while relatively low pressures were reported from the Caspian, Black Sea, and south-eastern Europe.

In Egypt, where the mean pressure of the whole month was above the average, storms accompanied with strong winds and rain occurred on the 7th and 8th and from the 16th to 18th, and the rainfall both at Abbassia and Alexandria exceeded the normal. The periods of disturbed weather over north-west India and the countries to the westward were as follows:—

March	1st	to	4th
,,	5th	to	8th
,,	7th	to	12th
,,	16th	to	22nd
,,	23rd	to	27th
,,	27th	to	30th

The first two storms were small local disturbances formed over Baluchistan and the north-west of India, while those which followed, so far as can be judged, advanced over the Indian area from Asiatic Turkey or even from regions still further to the westward. It is evident that the storm in Egypt on the 7th and 8th could not be the same storm as that which appeared over Asiatic Turkey on the 7th, nor could the storm of the 16th to 18th in Egypt be the same as that which affected Persia, north-west India, etc., between the 16th and 22nd. It hence appears to follow that when the pressure conditions over the Eur-Asian continent are such that the anti-cyclone lies over central Europe, Russia, etc., the barometer then falls quickly over southern Europe, the Mediterranean, and the Caspian areas, and conditions are produced which favour the simultaneous, or nearly simultaneous, appearance of depressions over the Mediterranean, Egypt, Asia Minor, and the table-lands of Persia and Baluchistan.

The general variations and oscillations of pressure over the monsoon area during the month under review were less well marked, less regular, and, on the whole, smaller than in the two preceding months. Pressure decreased relatively to the normal from the 1st to the 9th when the deficiency was general throughout the whole area. A recovery then set in and continued till the 14th after which an irregular fall took place which lasted until the 20th. After the 20th the barometer rose and higher pressures than usual were continuously recorded until the close of the month, more particularly on the 30th and 31st on which days the excess of pressure over the west of the monsoon area from Bushire and Muscat in the north to the Seychelles and Zanzibar in the south was very remarkable. The following gives daily pressure variation data for certain selected stations in the monsoon area:—

PRESSURE VARIATION FROM NORMAL OF

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	″	″	″	″	″	″	″	″	″
1	+·119	+·094	+·079	+·064	—·015	—·010	—·013	—·025	+·041
2	+·047	—·022	—·064	+·026	—·005	—·009	—·026	—·001	+·002
3	—·082	—·031	—·054	—·015	—·028	—·020	+·012	—·028	—·029
4	—·015	—·025	—·053	+·006	—·001	—·008	+·010	—·047	—·023
5	+·001	—·012	—·047	—·038	+·007	—·018	—·013	—·049	—·019
6	—·047	+·014	+·001	—·029	+·028	...	+·027	—·044	—·009
7	—·223	—·020	—·016	—·055	—·005	...	+·031	—·056	—·053
8	—·221	—·082	—·085	—·045	—·009	...	+·035	—·066	—·061
9	—·116	—·242	—·260	—·061	—·001	—·034	—·047	—·057	—·092
10	—·001	—·082	—·139	—·072	—·018	—·054	—·042	—·038	—·050
11	—·013	—·044	—·071	—·041	—·062	—·048	—·074	—·064	—·046
12	+·029	+·096	+·043	—·021	—·046	—·049	+·018	—·036	+·003
13	+·067	+·135	+·104	+·026	—·019	—·009	+·047	—·030	+·038
14	+·102	+·132	+·091	+·051	—·020	—·017	—·008	—·037	+·040
15	+·073	+·104	+·044	+·028	—·014	—·008	—·024	—·042	+·021
16	—·006	+·024	—·066	—·013	—·043	—·059	—·045	—·037	—·027
17	+·035	—·010	—·055	—·014	—·015	—·038	—·067	—·030	—·020
18	+·034	—·005	—·050	+·018	—·051	+·013	—·023	—·008	—·004
19	+·027	+·137	—·076	+·020	—·059	—·005	+·004	—·007	+·008
20	—·164	—·040	—·092	—·014	—·074	—·004	+·040	—·004	—·042
21	—·038	...	—·194	+·014	—·084	—·018	+·040	—·002	—·031
22	+·077	+·107	—·061	+·025	—·049	—·010	+·043	+·013	+·019
23	—·023	+·168	+·006	+·011	+·022	+·013	+·034	+·027	+·031

Date.	Pressure Variation from normal of Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	"	"	"	"	"	"	"	"	"
24	—·062	+·170	+·011	+·062	+·022	+·042	+·034	+·006	+·042
25	+·023	+·266	—·044	+·067	+·044	+·048	+·049	—·005	+·060
26	—·005	+·108	—·059	+·054	+·050	+·044	+·087	+·034	+·045
27	—·169	+·030	—·106	+·047	+·060	+·050	+·057	+·037	+·008

Date.	Pressure Variation from normal of Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	"	"	"	"	"	"	"	"	"
28	+·053	...	—·123	+·018	+.022	+·039	+ 066	+·004	+·015
29	+·137	+·039	—·019	+·057	+·103	+·039	+·024	—·023	+·049
30	+·223	+·303	+·194	+·104	+·105	+·100	+·033	+·004	+·134
31	+·275	+·179	+·289	+·139	+·100	+·090	+·068	—·011	+·140

Magnetic and Solar disturbances.

Kodaikanal:—The following notes have been received from the Director of the Kodaikanal observatory.

There occurred a moderate magnetic disturbance between 10 A.M., 12th and 11 P.M., 13th.

The following telegrams regarding the state of the solar surface were received during the month:—

March 11th.—The recent period of active solar disturbance with large spots rapidly changing and numerous eruptive prominencies is now being followed by a period of quiescence. There have been no spots for the last five days and the prominencies have been few and small.

March 16th.—Three large prominencies have appeared on the western limb of the sun in the Equatorial zone, the centre one being about 25,000 miles high.

March 22nd.—Large disturbed spot has appeared near the eastern limb in high northern latitude.

March 28th.—The sun is again disturbed with two large spots. The forms are rapidly changing. The spectra are very strong with the usual lines.

These reports show that the solar surface was much disturbed from about the 11th to the end of the month.

Colaba, Bombay:—The following note on the Colaba magnetic record has been received from the Director of the Colaba (Bombay) observatory.

The magnetic traces for the month do not show any unusually large disturbances. There were thirteen calm days, fifteen days of small and three of moderate disturbances, the last being recorded on the 5th, 30th and 31st. Movements, suspected to be due to seismic disturbances, occurred on the 5th after 2 hours, the strain appearing to be relieved about 2 hours the next day. A similar movement was noticed on the 22nd, commencing at 18 hours and lasting till 6 hours the next day. A third well pronounced movement occurred on the 28th after 0 hour and a fourth one on the 29th at 6 hours, which lasted till 18 hours.

Small-period movements were noticed—20 serrated movements (the oscillations continuing for some time) and 37 abrupt movements (appearing as if suddenly damped in their propagation). The selected quiet days of the month were the 4th, 11th, 18th, 21st and 27th.

The following is the daily record of the magnetic disturbances for March 1903:—

Date.	Magnitudes.	Date.	Magnitudes.	Date.	Magnitudes.
1	S	12	S	23	S
2	S	13	S	24	S
3	C	14	S	25	C
4	C	15	C	26	C
5	M	16	C	27	C
6	S	17	C	28	C
7	S	18	C	29	S
8	S	19	S	30	M
9	S	20	C	31	M
10	S	21	C		
11	C	22	S		

The magnitudes of the disturbances are determined from horizontal force traces. C=calm; S=small; M=moderate; G=great; VG=very great. Days are reckoned from midnight to midnight.

The means of the observed absolute values of the several elements for the past three months are as follow:—

Magnetic element.	January 1903.	February 1903.	March 1903.
Declination . . .	0° 18′ 17″ E	0° 8′ 1″ E	0° 17′ 58″ E
Horizontal force . .	0·37430 C. G. S. Units.	0·37436 C. G. S. Units.	0·37442 C. G. S. Units.
Dip	21° 40′·7	21° 40′·3	21° 41′·3

Mauritius.—The Director of the Royal Alfred Observatory reports that magnetic disturbances were recorded on the 1st, the 5th, the 7th to 9th, the 12th, the 13th, the 20th to the 23rd, the 30th and the 31st.

Sunspots were observed on the 4th and 5th, the 13th and 14th, the 27th, 28th, 30th and 31st and faculæ on the 5th, 7th, 27th, 28th, 30th and 31st.

Atmospheric Pressure.

The mean 8 A.M. pressure of the whole Indian area was 0·012″ below the normal.

The general condition of pressure over India for the past three months was thus generally similar to that which prevailed during the same period last year. The following table gives the general monthly anomalies for the two years :—

GENERAL PRESSURE ANOMALY.

YEARS.	January.	February.	March.
	″	″	″
1902	—·012	+·088	—·015
1903	+·016	+·068	—·012

The chart of actual barometric pressure shows that the mean monthly pressure was highest over the North-West Frontier Province, relatively high over part of lower Sind, Rajputana, Gujarat and the northern half of Bombay, over part of Mysore and of south India, southern Tenasserim and over the upper Assam valley, and was lowest over Orissa, part of Bengal, of the United Provinces, Chota Nagpur and Bihar. The highest mean pressure recorded was 29·966″ at Peshawar, and the lowest 29·832″ at Bahraich, so that the total range of pressure was 0·134″ which was slightly less than usual.

The variations of pressure, on the mean of the month, at the extra Indian stations were irregular, as is shown by the following table :—

STATION.	Variation from normal of mean 8 A. M. pressure of March 1903.
	″
Trincomalee	+·018?
Colombo	—·011
Baghdad	—·035
Bushire	+·005
Jask	—·028
Muscat	+·051
Aden	+·014
Perim	+·029
Zanzibar	—·002
Seychelles	+·006
Mauritius	—·059

The preceding data show that the mean pressure was in trifling excess at Bushire and Aden, in moderate excess at Perim and in considerable excess at Muscat, while it was in moderate defect at Jask and Baghdad, in considerable defect at Mauritius and in trifling defect at Zanzibar. In Egypt the mean pressure of the month was above the normal.

Relatively to the general condition (—·012″) pressure over India was in excess over the Bombay Presidency, Rajputana, the west of Central India, the west of the Central Provinces, Berar, Mysore and Malabar, as well as over Ceylon, southern Tenasserim and inland Burma. The anomalies were generally small and unimportant but were more than 0·020″ at the following stations :—

STATION.	Variation from normal of mean 8 A. M. pressure of March 1903.	Pressure anomaly, March 1903.
	″	″
Mergui	+·014	+·026
Bhuj	+·014	+·026
Rajkot	+·012	+·024
Bombay	+·012	+·024
Ratnagiri	+·010	+·022

Over the whole of the remainder of India (except in part of north and east Bengal where the anomalies were irregular) pressure was in local defect. The deficiency was generally smaller than the excess, but the area of deficiency was larger. The only places where the deficiency exceeded 0·020″ were as given below :—

STATION.	Variation from normal of mean 8 A. M. pressure of March 1903.	Pressure anomaly, March 1903.
	″	″
Sibsagar	—·034	—·022
Hazaribagh	—·033	—·021
Peshawar	—·033	—·021

The mean pressure of the month was below the normal at all the hill stations—more particularly at those in the Kashmir hills where the variations ranged from —·077″ at Murree to —·143″ at Leh. The deficiency of pressure, on the mean of the month, was in all cases greater at the

elevation of the hill stations than at the level of the neighbouring plains, hence the vertical pressure anomalies were everywhere negative. The following data for nine pairs of stations illustrate this condition :—

HILL STATION.	Variation from normal pressure, March 1903.	PLAIN STATION.	Variation from normal pressure, March 1903.	Vertical pressure anomaly (Hill-Plain).
	"		"	"
Quetta	−·023	Jacobabad	−·013	−·010
Leh	−·143	Lahore	−·023	−·120
Murree	−·077	Peshawar	−·033	−·044
Simla	−·050	Ludhiana	−·026	−·024
Chakrata	−·056	Roorkee	−·011	−·045
Ranikhet	−·027	Bareilly	−·022	−·005
Darjeeling	−·050	Dhubri	−·034	−·016
Mount Abu	−·037	Deesa	−·003	−·034
Pachmarhi	−·017	Khandwa	−·003	−·014

The preceding data show that negative vertical pressure anomalies were common to the whole of northern and central India and that they were largest over the Leh-Lahore section of the country where the vertical anomaly was −·120". Relative defect of pressure in the middle and higher atmospheric strata with respect to the plains is ordinarily associated with more unsettled weather than usual over India, and during the month under review the rainfall of the greater part of north-west and of north-east India was in excess of the normal. The following table gives pressure variation data for eleven meteorological provinces of India for the three months, January, February and March 1903 :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN 8 A.M. PRESSURE OF		
	January 1903.	February 1903.	March 1903.
	"	"	"
Burma Coast and Bay Islands	+·021	+·072	−·010
Burma Inland	+·037	+·084	−·005
Assam	+·024	+·069	−·024
Bengal and Orissa	+·020	+·072	−·021
Gangetic Plain and Chota Nagpur	+·017	+·068	−·021
Upper Sub-Himalayas	+·022	+·076	−·020
Indus Valley and North-West Rajputana	+·018	+·074	−·016
East Rajputana, Central India and Gujarat	+·007	+·074	0
Deccan	+·006	+·064	−·008
West Coast	+·013	+·058	0
South India	+·015	+·056	−·011

The statement shows that during January and February, the mean pressure of the whole Indian area was in excess of the normal, particularly so in February, but that in March a sudden decrease took place and the general pressure was below the average. These variations of pressure were associated with higher temperatures than usual in January and with lower temperatures than usual in February and March, the deficiency of temperature being particularly remarkable in the latter month when pressure was in defect of the normal.

The following summarises the chief features of the mean pressure conditions of the month :—

(1) The mean pressure of the whole Indian area was ·012" in defect.

(2) The pressure was in local excess over lower Sind, Rajputana and the west and south of the Peninsula.

(3) The mean pressure was in local defect over the remainder of India.

(4) The variations from the normal were small in both directions.

Barometric depressions and cyclonic storms of the month.

There were no storms or cyclones over the Indian seas, but in the Indian Ocean a cyclone was formed during the third week of the month. The storm, which was the third cyclone this season, passed over Madagascar on the 22nd and 23rd of March, occasioning heavy gales and torrential rainfall. At Tananarive the lowest pressures were recorded at 4 A.M. of the 23rd when the cyclone was nearest the observatory. At that hour the barometer marked 29·468 inches.

As was the case in March 1902 the weather during the month under review was more disturbed than usual in consequence of the advance of an unusually large number of depressions of the cold weather type. These depressions advanced from west to east, but, unlike the disturbances of the same month last year, the depressions in March 1903 were in some cases of considerable intensity and occasioned a large amount of rain and snow over Afghanistan, Baluchistan and the north-west frontier districts, and a fair amount over the plains of north-west India.

The following gives a brief history of the more important depressions or storms of the month :—

Slight storms of the 1st to the 4th.—A small and shallow depression lay over the central Punjab on the 1st but was apparently filling up as the barometer, though it was falling in parts of Kashmir, was rising within the depression area. The following gives 8 A. M. data for Kashmir and part of north-west India :—

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	
Jacobabad	29·874	+·074	—·092	NNW	10	0	...	Severe gale.
Mooltan	·861	+·076	—·127	NE	1	0	...	
D. I. Khan	·854	+·050	—·133	NW	6	0	...	
Khushab	·847	+·053	—·123	SSW	5	0	...	
Bikaner	·872	+·052	—·075	WSW	9	0	...	Dust haze.
Lahore	·843	+·056	—·122	Calm	5	2	...	
Sialkot	·846	+·026	—·101	SSE	6	5	0·05	Gale of wind.
Rawalpindi	·908	+·049	—·088	Calm	5	0	...	
Peshawar	·920	+·045	—·124	S	2	0	...	
Cherat	...	0	—·064	NNW	6	0	...	
Murree	...	—·014	—·020	SSE	7	0	0·16	Showery.
Srinagar	...	+·005	—·060	NNE	11	8	0·39	Thunder-storm.
Leh	...	—·107	—·114	SSE	1	10	...	
Sonemarg	...	—·112	...	Calm	7	10	1·10	Snowstorm.
Skardu	...	+·006	...	SSW	6	8	0·19	
Dras	...	—·036	...	SW	1	10	0·58	

The preceding data show that heavy snow had fallen over further Kashmir, and light rain over the north-west Himalayas.

March 2nd.—The following gives 8 A.M. data for Kashmir, north-west India and Baluchistan :—

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.	
	"	"	"				Inch.	
Sonemarg	...	—·008	...	Calm	2	4	0·40	Snow-storm.
Srinagar	...	+·005	—·054	SSE	6	10	0·30	Showery.
Skardu	...	+·033	...	W	8	7	...	
Dras	...	+·201	...	W	3	10	0·10	
Cherat	...	—·004	—·067	N	16	2	...	
Leh	...	+·104	—·013	SSE	1	10	0·09	
Murree	...	—·017	—·038	ESE	7	9	...	
Peshawar	29·917	—·003	—·120	Calm	3	8	...	
Rawalpindi	·891	—·017	—·091	NE	3	10	...	
Sialkot	·806	—·040	—·133	NNE	4	6	...	
Lahore	·797	—·046	—·159	E	3	0	...	
Bikaner	·795	—·077	—·151	WSW	5	4	...	
Mooltan	·785	—·076	—·198	Calm	1	4	...	
Khushab	·816	—·031	—·142	ENE	4	5	...	
Jacobabad	·777	—·097	—·186	Calm	1	2	...	Dust haze
Hyderabad	·788	—·081	—·168	SW	6	0	...	
Quetta	...	—·203	—·110	Calm	1	2	...	Dust haze.
Chaman	...	—·230	—·087	SSE	2	5	...	

The barometer had changed irregularly over Kashmir where at some stations there had been a brisk to very rapid recovery. Over north-west India the barometer had fallen briskly to slightly, while in Baluchistan it had fallen very rapidly. The shallow depression over the central Punjab on the first had perhaps travelled quickly along the line of the hills, and entered the United Provinces, while a fresh and larger depression had apparently been developed over the western desert and probably over Baluchistan. There was no rain or disturbed weather at this time over Persia, so that the storm did not, so far as can be ascertained, advance from the Persian area, but was apparently developed over Baluchistan and the north-west of India. The very unsteady pressure conditions in Kashmir were probably attributable to independent disturbed conditions.

March 3rd.—The following gives 8 A.M. data for Kashmir, north-west India and Baluchistan :—

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	
Srinagar	...	—·132	—·185	SSE	7	10	0·27	
Sonemarg	...	+·033?	...	Calm	2	10	1·55	Snowing.
Skardu	...	—·117	...	W	4	10	...	
Dras	...	—·315	...	Calm	1	10	0·51	
Leh	...	—·194	—·210	SSE	1	10	0·06	
Murree	...	—·181	—·220	SE	4	7	0·80	Showery.

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.	REMARKS.
	"	"	"				Inch.	
Cherat	...	—·194	—·260	N	13	5	0·12	
Peshawar	29·764	—·153	—·265	NNW	5	5	0·09	Showery.
Rawalpindi	·675	—·216	—·298	WNW	8	7	0·08	
Lahore	·650	—·147	—·308	S	4	4	...	
Bikaner	·728	—·067	—·220	SSW	10	0	...	Dust haze
Mooltan	·680	—·105	—·297	Calm	1	0	...	
Khushab	·621	—·195	—·329	NNW	17	0	...	Strong wind.
Jacobabad	·752	—·025	—·304	NNW	2	0	...	
Hyderabad	·780	—·008	—·173	SW	10	2	...	
Quetta	...	—·008	—·117	Calm	1	3	...	Frosty.
Chaman	...	+·021	—·066	S	0	0	...	

Pressure had been steady over Baluchistan and Sind, but had fallen fast over the Punjab and Kashmir. This was occasioned by the intensification and advance north-north-eastward of the depression which lay over the western desert, etc., on the 2nd. The winds were strong and squally in the depression area, and rain or snow had fallen over Kashmir, the west Himalayas and the submontane districts.

March 4th.—The following gives 8 A.M. data for Kashmir, north-west India 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.	REMARKS.
	"	"	"				Inch.	
Srinagar	...	+·075	—·108	SSE	8	10	0·03	
Sonemarg	...	—·014	...	Calm	5	10	0·56	Snowing.
Skardu	...	+·016	...	Calm	1	10	0·02	
Dras	...	+·078	...	Calm	1	10	0·24	
Leh	...	+·116	—·097	SSE	1	6	0·29	
Simla	...	+·104	—·051	S	...	10	0·04	Strong wind.
Murree	...	+·032	—·189	SE	3	10	0·09	Wind variable.
Cherat	...	+·150	—·109	S	7	3		
Peshawar	29·921	+·157	—·125	Calm	3	7		
Rawalpindi	·874	+·199	—·113	NE	6	10	0·06	
Lahore	·849	+·199	—·116	Calm	5	6	...	Dust haze.

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.	REMARKS.
	"	"	"				Inches.	
Bikaner	29·858	+·130	—·089	WSW	10	6		
Mooltan	·831	+·151	—·143	NNE	2	7		
Khushab	·848	+·227	—·112	WSW	6	8		
Jacobabad	·873	+·121	—·079	NNW	6	0		
Quetta	...	+·074	—·043	Calm	3	0	...	Dust haze.
Chaman	...	+·059	—·007	SSE	2	6		

Pressure had increased briskly to rapidly all over north-west India and the neighbouring regions, and the storm had filled up considerably though it was still present over the central Punjab. Showers of rain or snow had been received over the west Himalayas and Kashmir, but the winds had died down and the weather was quieter. By the morning of the 5th, the depression had practically disappeared.

Local storm of 5th to 8th.—The following gives 8 A.M. data for Kashmir 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.	REMARKS.
	"	"	"				Inch.	
Srinagar	...	—·028	—·135	NNW	8	0	0·19	Showery.
Sonemarg	...	—·063	...	Calm	1	8	0·24	Snowstorm.
Skardu	..	—·026	...	SSW	6	9	...	
Dras	...	—·074	...	SW	1	10	0·13	
Leh	...	—·103	—·203	SSE	1	7	...	
Murree	...	+·044	—·145	SE	10	7	0·11	Snowstorm.
Cherat	...	—·024	—·131	N	7	2	...	
Peshawar	29·928	+·007	—·110	Calm	3	5	...	
Rawalpindi.	·892	+·018	—·115	NNE	8	4	0·12	Showery.
Sialkot	·868	+·023	—·087	SE	6	0	0·02	
Lahore	·853	+·004	—·106	SE	4	0	...	
Mooltan	·871	+·040	—·102	NW	2	0	...	
Khushab	·859	+·011	—·098	NE	5	0	...	
Jacobabad	·888	+·015	—·061	NNW	8	0	...	Severe gale.
Bikaner	·871	+·013	—·079	WSW	6	0	...	Dust haze.

On this day the barometer was falling briskly to rapidly over Kashmir where the sky was thickly clouded and snow had fallen. Over the plains pressure was steady or increasing slightly, and there were no indications of a disturbance over this area.

March 6th.—The following gives 8 A.M. data for Kashmir and north-west India :—

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.	
Srinagar .	...	+·010	—·125	Calm	8	10	0·01	
Sonemarg .	...	—·044	...	Calm	2	8	0·45	Snowstorm.
Skardu .	...	+·044	...	NNW	9	8	...	
Dras . .	...	+·042	...	Calm	1	9	0·06	
Leh . .	...	+·035	—·171	W	1	10	...	
Murree .	...	+ 019	—·127	Calm	2	10	...	
Cherat .	...	+·028	—·101	N	20	0	...	
Peshawar .	29·954	+·026	—·083	Calm	3	3	...	
Rawalpindi	·877	—·015	—·107	NNW	4	10	...	
Lahore .	·767	—·086	—·181	Calm	3	4	...	
Khushab .	·810	—·049	—·136	N	9	7	...	
Dera Ismail Khan.	·859	—·023	—·114	NW	3	0	...	
Mooltan .	·872	+·001	—·102	NNW	2	0	...	Dust haze.
Bikaner .	·884	+·013	—·066	Calm	11	0	...	Dust haze.
Jacobabad .	·909	+·021	—·039	Calm	4	0	...	

Pressure had given way briskly at the foot of the central Punjab hills and a storm, within which pressure was 0·18″ below the normal, lay over that region. Whether this storm advanced through Kashmir occasioning the barometric fall noticed there on the preceding day it is impossible to say, but it appeared abruptly at the foot of the hills at 8 A.M. on the 6th. Further snow was reported from Kashmir, but otherwise the weather was little affected by the depression.

March 7th.—The following gives 8 A.M. data for Kashmir and north-west India :—

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.	
Srinagar .	...	+·003	—·121	NW	6	8	0·21	Showery.
Sonemarg .	...	+·053	...	ENE	2	4	0·65	Snow storm.
Skardu .	...	—·052	...	Calm	3	10	...	
Dras . .	...	—·042	...	SSW	1	9	0·02	
Leh . .	...	—·073	—·248	WNW	1	8	...	
Murree .	...	+·028	—·099	SSE	3	2	0·03	Snowstorm.
Cherat .	...	+·042	—·057	NNW	1	1	0·04	
Peshawar .	30·009	+·055	—·021	WSW	3	4	...	
Rawalpindi.	29·965	+·088	—·038	ESE	7	10	...	
Lahore .	·857	+·090	—·098	NW	3	3	...	
Ludhiana .	·835	+·055	—·102	Calm	1	9	...	
Montgomery	·867	+·038	—·076	NW	9	0	...	Gale of wind. Dust storm
Khushab .	·885	+·075	—·062	NNW	13	3	...	
Mooltan .	·923	+·051	—·043	Calm	1	0	...	
Bikaner .	·911	+·027	—·046	WSW	9	0	...	Dust aze.
Jacobabad .	·950	+·041	+·010	WNW	9	0	...	Severe gale.

The storm had to a large extent filled up, but was still shown with its centre near Ludhiana where the barometer was 0·10″ below the normal. Light showers had occurred on and near the hills, and snow had fallen over further Kashmir. By the morning of the 8th the depression had broken up, and the barometer was rising briskly to rapidly over north-western India.

Cold weather storm of 7th to 12th.—Thef ollowing gives 8 A.M. data for the Persian area :—

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.	
Baghdad .	29·694	—·278	—·468	Calm	1	8	...	Cloudy.
Busrah .	...	—·231	...	...	...	...	...	Clear.
Teheran .	...	—·135	...	NNE	1	10	...	Overcast.
Ispahan .	...	—·130	...	Calm	2	0	...	
Bushire .	·763	—·179	—·223	SSE	6	9	...	Sea smooth.
Bahrein .	·766	—·198	...	SE	...	...	...	Clear.
Jask . .	·965	—·019	—·016	NNE	12	0	...	Sea slight.

The barometer was falling very rapidly over west Persia, and cloud and a south-south-east wind were reported from Bushire, and rain had commenced at Teheran.

March 8th.—The following gives 8 A.M. data for Persia and Baluchistan :—

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.	
	"	"	"				Inch.	
Baghdad	29·941	+·247	—·227	Calm	3	2	...	Fine.
Busrah	...	+·194	...	...	...	...	...	Clear.
Teheran	...	—·150	...	NNE	5	5	0·02	Cloudy.
Ispahan	...	—·070	...	SW	7	0	...	
Bushire	·762	—·001	—·221	SE	11	6	...	Sea smooth
Bahrein	·956	+·190	...	NNE	...	...	...	Cloudy.
Jask	·894	—·071	—·085	E	16	0	...	Sea rough.
Quetta	...	—·022	—·028	Calm	1	0	...	Frosty.
Chaman	...	—·059	—·029	SE	8	8	...	Gale of wind.

The above shows that the barometer was still falling in Persia with a south-east to east wind and a very light shower at Teheran. The storm was advancing eastwards, and had at 8 A.M. commenced to affect the weather in Baluchistan, where the sky was cloudy and the temperature increasing very rapidly.

March 9th.—The following gives 8 A.M. data for Persia, Baluchistan and the Indus valley :—

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.	
	"	"	"				Inch.	
Baghdad	30·038	+·097	—·141	Calm	3	0	...	
Busrah	...	+·074	...	...	...	...	...	Clear.
Teheran	...	+·060	...	Calm	4	7	...	
Ispahan	...	0	...	SW	6	0	...	
Bahrein	29·864	—·092	...	NW	...	...	...	Clear.
Bushire	·864	+·102	—·116	NW	3	0	0·22	Sea smooth.
Jask	·717	—·177	—·260	E	25	0	...	
Quetta	...	—·084	—·112	SE	6	10	0·20	
Chaman	...	—·127	—·156	SSE	9	7	0·66	Duststorm.
Peshawar	30·020	—·086	+·006	NW	1	10	...	
Khushab	29·975	—·086	+·044	NNW	4	8	...	
Mooltan	·947	—·092	—·003	SE	1	10	...	
Jacobabad	·897	—·126	—·035	SE	1	10	...	

Pressure was recovering at the stations in the Persian Gulf but was falling fast at Quetta, Chaman and in the Indus valley and a complicated depression lay off the north-west frontier. Snow was falling at Kabul and rain at Quetta and Chaman, while south-east and south-south-east winds were reported from Jacobabad, Quetta and Chaman.

March 10th.—The following gives 8 A.M. data for Persia, Baluchistan and north-west India :—

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	
Baghdad	30·182	+·144	—·008	Calm	1	6	...	Cloudy.
Busrah	...	+·028	...	...	...	...	...	Clear.
Teheran	...	+·190	...	SW	2	10	0·02	
Ispahan	...	+·080	...	Calm	3	9	...	
Bushire	29·976	+·112	—·001	NW	9	0	...	Nor' wester and sea slight.
Bahrein	30·017	+·193	...	WNW	...	...	...	Clear.
Jask	29·836	+·119	—·139	NNE	38	2	...	Sea very rough.
Quetta	...	—·108	—·219	Calm	1	10	1·50	Snow-storm.
Chaman	...	—·138	—·294	S	20	7	1·03	Continuous rain.
Kurrachee	29·789	—·139	—·152	E	10	10	0·43	Drizzling.
Hyderabad	·842	—·051	—·087	NW	9	7	0·21	
Bhuj	·856	—·081	—·084	SE	8	5	...	
Ajmer	·907	—·113	—·077	Calm	1	7	..	
Bikaner	·844	—·141	—·083	ENE	5	6	...	
Jaipur	·907	—·111	—·039	WSW	3	7	...	
Jodhpur	·887	—·120	...	NE	3	8	...	
Srinagar	...	—·060	—·091	NNW	8	10	0·39	Snowing.
Sonemarg	...	+·024	...	Calm	1	10	0·36	Snowing.
Skardu	...	—·150	...	Calm	2	10	...	
Dras	...	—·156	...	Calm	0	8	0·16	
Leh	...	—·120	—·183	ENE	0	10	...	

The preceding data show that the barometer was falling over the greater part of north-west India, more particularly over Rajputana where the change exceeded 0·10″. The distribution of pressure and the winds over north-west India were exceedingly irregular and in face of these irregularities, it was very difficult to say with any precision what had occurred, but apparently the depression which on the preceding day was passing through Baluchistan and approaching the north-west frontier, had passed on eastward and was advancing through the Rajputana desert. While this was in progress over the plains of north-west India, pressure was decreasing rapidly (more than—0·10″) in Baluchistan, where a southerly gale was blowing and snow was falling, and even more rapidly in Kashmir where also the weather was unsettled and snowy. The general conditions on this morning were then, so far as can be judged from the available information, as follows:—A shallow storm had passed across the Indus valley and was entering Rajputana where the barometer was falling rapidly and the weather was cloudy; the barometer was falling rapidly in Baluchistan with a southerly gale and snow; and finally the barometer was falling fast in Kashmir where also the weather was unsettled and snowy. The simplest explanation of these conditions appears to be that a deepish depression was advancing eastward in about Lat. 34° N. and that it was accompanied with one or more satellite depressions. This combination is not unusual in European meteorological conditions and appears to explain the conditions described above.

March 11th.—The following gives 8 A.M. data for Kashmir, Baluchistan and north-west India:—

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.			
	″	″	″				Inches.	
Srinagar .	...	—·172	—·262	NNW	5	10	0·17	Showery.
Sonemarg .	...	+·188?	...	Calm	1	10	2·17	Snowing.
Skardu .	...	—·132	...	Calm	4	10	0·04	
Dras . .	...	—·120	...	Calm	1	10	0·25	
Leh . .	...	—·077	—·263	S	1	10	...	
Murree .	...	—·210	—·266	SSE	0	10	0·68	Snowing.
Cherat .	...	—·246	—·280	S	9	0	2·00	Raining.
Peshawar .	29·777	—·279	—·247	N	4	10	1·52	Raining.
Rawalpindi	·800	—·255	—·181	ESE	8	10	0·88	Raining.
Sialkot .	·798	—·250	—·135	E	7	9	0·66	Drizzling.
Lahore .	·772	—·211	—·157	SE	7	10	0·30	
Ludhiana .	·835	—·089	—·081	NE	4	10	0·18	Raining.
Khushab .	·719	—·281	—·214	ENE	16	10	0·21	Showery.
Dera Ismail Khan.	·733	—·294	—·223	Calm	5	7	0·06	
Mooltan .	29·755	—·179	—·189	Calm	3	5	0·08	Duststorm with rain.
Montgomery	·752	—·161	—·166	SW	18	10	0·37	Gale of wind.
Sirsa . .	·834	—·069	—·083	SW	12	10	0·07	
Bikaner .	·811	—·033	—·108	SSW	12	6	...	Duststorm.
Jacobabad .	·773	—·059	—·149	Calm	2	4	...	
Hyderabad .	·762	—·080	—·161	SW	5	6	0·43	
Kurrachee .	·805	+·016	—·132	NNW	6	0	0·12	
Quetta	...	+·054	—·165	Calm	1	0	1·01	Snowstorm.
Chaman .	...	+·159	—·135	SSW	11	8	0·81	Continuous rain.

Pressure had recovered briskly to rapidly over Baluchistan where after heavy snow the weather was clearing, but over the whole of northern India the barometer was falling briskly to very rapidly. The depression which was occasioning the fall of the barometer and the southerly gale at Chaman on the 10th had passed through Afghanistan and entered the west Punjab, while the shallow depression which was passing through Rajputana had reached the Central Provinces. The weather, it will be observed, was very disturbed in north-west India and the neighbouring mountain area where heavy rain and snow had been received.

March 12th.—The following gives 8 A.M. data for the stations in the east Punjab, the United Provinces and the Central Provinces:—

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.	
Ludhiana .	29·864	+·029	—·059	NE	8	8	0·62	Showery.
Umballa .	·866	—·069	—·035?	Calm	5	10	0·17	Showery.
Delhi .	·833	—·043	—·083	Calm	6	1	0·03	
Dehra Dun.	·846	—·118	—·054	Calm	2	2	0·10	Thunder.
Roorkee .	·848	—·075	—·052	WSW	4	4	0·07	
Meerut .	·846	—·086	—·060	SW	2	2	0·05	
Fatehgarh .	·767	—·109	—·102	ESE	4	9	...	
Agra . .	·832	—·037	—·096	NW	11	0	...	Gale of wind.
Jhansi .	·838	—·028	—·101	SW	9	3	0·01	Showery.
Allahabad .	·832	—·045	—·068	ENE	8	10	...	Thunderstorm.
Sutna .	·800	—·044	—·116	ENE	3	5	0·06	Thunderstorm.

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.	REMARKS.
	"	"	"				Inch.	
Jubbulpore.	29·830	+·018	−·086	W	4	0	...	
Hoshangabad.	·902	+·094	−·031	SW	5	0	...	
Nagpur .	·840	+·025	−·056	NW	...	0	...	Gale of wind.
Raipur .	·819	−·008	−·078	SW	8	4	...	
Sambalpur.	·844	−·016	−·058	SE	4	1	...	

Pressure had increased with great rapidity over north-west India and had decreased over part of central and north-east India. The depression from the Punjab had advanced quickly eastward, and lay near Lucknow and Bahraich, while the depression over the Central Provinces had advanced very slowly and was shown in the neighbourhood of Raipur. Both depressions advanced eastward during the day but practically filled up.

Cold weather storms of the 16th to 22nd March.—The weather over north-west India and the countries to the westward was very unsettled during this period, and a series of small storms appeared on the north-west frontier and thence advanced over India. Rain fell at Baghdad on the 20th, at Busrah on the 16th and 21st, at Bahrein on the 16th, at Teheran between the 14th and 18th and on the 21st, at Ispahan on the 17th and 21st, at Bushire on the 16th and 17th, at Kabul on the 18th and 20th and at Chitral and Pishin between the 17th and 20th. This resumé shows that very unsettled conditions prevailed over this area during these days.

March 16th.—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.	REMARKS.
	"	"	"				Inch.	
Baghdad .	30·075	−·078	−·093	Calm	1	●	...	
Busrah .	...	−·128	...	...	...	...	0·69	Raining.
Teheran .	...	−·130	...	SE	1	10	0·10	Raining.
Ispahan .	...	−·160	...	SE	4	9	0·02	Raining.
Bahrein .	29·914	−·141	...	NNE	...	...	0·31	Cloudy.
Bushire .	·954	−·082	−·006	SSE	3	10	0·17	Drizzling.
Jask . .	·897	−·112	−·066	E	7	10	...	
Quetta .	...	−·024	+·084	Calm	2	0	...	Dust haze.
Chaman .	...	−·049	+·060	ESE	6	0	...	

The barometer had fallen rapidly in Persia where the winds had changed to south-east, and rain had fallen and a depression had appeared over that country.

March 17th.—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.	REMARKS.
	°	"	"				Inch.	
Baghdad .	30·077	+·002	−·093	Calm	1	0	...	
Busrah .	...	+·090	...	...	...	...	...	Clear.
Teheran .	...	−·090	...	Calm	1	2	0·24	
Ispahan .	...	+·020	...	NE	2	0	0·27	
Bushire .	29·992	+·030	+·035	NW	6	0	0·06	
Bahrein .	·964	+·050	...	N	...	...	...	Clear.
Jask . .	·905	+·008	−·055	N	9	0	...	
Quetta .	...	−·124	−·039	Calm	2	9	0·05	
Chaman .	...	−·108	−·047	S	7	7	0·06	Showery.

Pressure had been steady in Persia, but the winds had changed and the depression was apparently advancing eastward as the barometer was falling fast in Baluchistan and north-west India. Light rain had fallen at Quetta and Chaman.

March 18th.—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.	REMARKS.
	"	"	"				Inch.	
Baghdad .	30·167	+·090	−·009	Calm	1	2	...	
Busrah .	...	−·097	...	...	...	...	...	Cloudy.
Teheran .	...	−·080	...	Calm	1	10	0·72	Overcast.
Ispahan .	...	−·070	...	W	4	0	...	
Bahrein .	29·976	+·010	...	W	...	...	...	Clear.
Bushire .	·988	−·004	+·034	N	8	0	...	Sea smooth.
Jask . .	·908	+·003	−·050	NW	14	0	...	
Quetta .	...	+·026	−·013	Calm	1	0	0·37	Showery.
Chaman .	...	+·004	−·042	ESE	6	0	0·39	Thunderstorm.

The depression noticed on the previous day had apparently partially filled up while crossing Baluchistan where the weather had cleared, though there had been further rain and snow. Pressure was, however, very unsteady over Persia where further rain had been received.

March 19th.—The following gives 8 A.M. data for the Persian, Baluchistan and north-west India stations :—

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.	
	"	"	"				Inch.	
Baghdad	30·104	—·063	—·065	Calm	1	10	...	
Busrah	...	+·007	...	...	...	...	...	Clear.
Teheran	...	+·075	...	NNE	2	3	...	
Ispahan	...	+·090	...	Calm	6	3	...	
Bushire	29·978	—·010	+·027	N	7	7	...	Sea smooth.
Jask	·879	—·029	—·076	NW	18	0	...	Sea rough.
Quetta	...	—·119	—·132	SSE	4	4	0·07	Showery.
Chaman	...	—·144	—·186	S	11	2	0·02	Severe gale.
Peshawar	29·894	—·161	—·084	W	2	10	...	
Rawalpindi	·858	—·110	—·071	Calm	3	10	...	
Lahore	·801	—·100	—·085	Calm	2	7	...	
Mooltan	·841	—·070	—·057	N	3	8	...	
D. I. Khan	·836	—·096	—·068	NW	5	3	0·02	
Jacobabad	·785	—·083	—·098	Calm	1	8	...	
Hyderabad	·809	—·033	—·077	SW	5	7	...	

Pressure had begun to fall briskly at Baghdad and slightly at Jask where conditions remained slightly unsettled, but the most important falls on this day were in the North-West Frontier Province and north Baluchistan, Peshawar reporting a change of —·161″, Chaman of —·144″ and Quetta of —·119″. A shallow low pressure area was still shown over the Indus valley.

March 20th.—The following gives 8 A.M. data for Persia, Baluchistan and north-west India :—

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.	
	"	"	"				Inch.	
Baghdad	29·853	—·251	—·310	S	1	8	0·15	Strong wind.
Busrah	...	—·140	...	...	...	...	...	Cloudy.
Teheran	...	—·055	...	NNE	1	10	0·02	Overcast.
Ispahan	...	—·120	...	Calm	3	9	...	
Bushire	·784	—·194	—·164	E	5	2	...	Sea smooth.
Bahrein	·957	...	...	SE	...	...	...	Clear.
Jask	·861	—·018	—·092	WNW	11	0	...	
Quetta	...	+·087	—·044	Calm	2	0	0·54	Showery.
Chaman	...	+·160	—·025	S	12	0	...	Dust haze.
Mooltan	29·761	—·080	—·134	Calm	3	0	0·01	Dust-storm.
D. I. Khan	·744	—·092	—·159	E	3	5	0·30	
Peshawar	·810	—·084	—·171	NW	3	10	0·86	Showery.
Rawalpindi	·743	—·115	—·191	W	4	10	0·17	
Khushab	·710	—·110	—·176	NNE	9	10	0·20	Do.
Lahore	·675	—·126	—·199	WNW	4	7	...	
Montgomery	·709	—·093	—·166	NNW	12	3	...	Gale of wind.
Srinagar	...	—·214	—·259	NW	7	10	0·06	Drizzling.
Skardu	...	—·203	..	SW	5	10	...	
Dras	...	—·239	...	Calm	0	10	0·36	Snowing.
Sonemarg	...	—·119?	...	NW	3	10	1·55	Do.
Leh	..	—·190	—·233	SSE	0	0	...	

The rapid fall of the barometer at Peshawar on the 19th had been the first indication of a storm which, advancing from the north-westward, had entered the extreme north-west of India during the day and passed along the line of the hills. The centre at 8 A.M. on the 20th lay near Sialkot where at 8 A.M. the barometer marked 0·255″ below the normal. The fall of the barometer had, at the same time, been very rapid in Kashmir. The weather was very unsettled in the north-west and snow and rain had been received all over that area. While these changes were in progress over north-west India the reports showed that the barometer had fallen 0·250″ at Baghdad with a southerly gale and rain. At the other Persian stations the barometer was also falling but less quickly, while in Baluchistan a recovery had taken place due to the passage of the depression which had entered north-west India.

March 21st.—The following gives 8 A.M. data for Persia, Baluchistan and north-west India :—

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.	
	"	"	"				Inch	
Baghdad	30·063	+·210	—·092	NNW	7	0	...	Clear.
Busrah	...	+·199	...	...	...	..	0·06	Do.
Teheran	...	—·100	...	Calm	8	10	·91	
Ispahan	...	—·080	...	SW	4	0	0·40	

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.	REMARKS.
	"	"	"				Inch.	
Bushire .	29·908	+·124	—·038	NW	19	0	..	Slight sea.
Bahrein .	30·014	+·057	...	NNW	...	—	...	Clear.
Jask . .	29·756	—·105	—·194	E	12	6	...	Slight sea.
Quetta .	...	—·005	—·050	Calm	2	10	0·06	
Chaman .	...	—·075	—·099	S	4	7	·01	Drizzling.
D. I. Khan .	·934	+·190	+·031	NE	2	8	...	
Peshawar .	30·010	+·200	+·024	W	2	8	...	
Rawalpindi .	29·991	+·248	+·042	Calm	3	5	0·22	Showery.
Khushab .	·946	+·236	+·065	NE	5	9	...	
Sialkot .	·942	+·319	+·051	N	6	0	0·02	
Lahore .	·934	+·259	+·051	Calm	3	3	...	
Montgomery	·900	+·191	+·024	ENE	6	4	...	
Jacobabad .	·848	+·055	—·025	Calm	1	5	...	
Hyderabad .	·867	+·029	—·010	SW	6	0	...	

The depression in the Punjab had filled up and the barometer had risen fast over north-west India. At Baghdad the barometer had risen ·210″ and the wind shifted to north-north-west showing that the storm had passed that station. At Jask, Teheran, Ispahan and in Baluchistan pressure was still giving way and the depression was advancing towards Baluchistan and the north-west frontier. In addition to the storm which was traversing Persia a second slight storm was shown over the Indus valley.

March 22nd.—The following gives 8 A.M. data for Persia, 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.	REMARKS.
	"	"	"				Inch.	
Baghdad .	30·174	+·111	+·022	Calm	1	0	...	Clear.
Busrah .	...	—·051	...	...	...	...	...	Cloudy.
Teheran .	...	+·250	...	NE	2	6	...	Do.
Ispahan .	...	+·260	...	Calm	4	0	...	
Bushire .	·020	+·112	+·077	NW	21	0	...	Slight sea.
Bahrein .	·012	—·002	...	N	...	...	...	Clear.
Jask . .	29·885	+·129	—·061	NW	21	0	...	Rough sea.
Quetta .	...	—·034	—·084	SSE	7	9	0·37	Showery.
Chaman .	...	+·029	—·070	SSW	13	8	0·60	Thunderstorm with hail.

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.	REMARKS.
	"	"	"				Inch.	
Kurrachee .	29·850	—·059	—·044	WSW	10	0	...	
Jacobabad .	·835	—·013	—·033	NNW	4	5	...	
Mooltan .	·846	—·048	—·048	NE	3	5	0·07	Duststorm.
Khushab .	·865	—·081	—·015	NE	8	8	0·83	Showery.
D. I. Khan.	·905	—·029	—·002	Calm	2	7	0·63	
Peshawar .	·992	—·018	—·001	W	3	10	0·28	Raining.
Rawalpindi.	·923	—·068	—·025	NW	2	10	0·33	
Sialkot .	·908	—·034	+·021?	NNE	5	9	0·34	Drizzling.
Lahore .	·876	—·058	—·004	NE	3	10	0·05	
Montgomery	·842	—·058	—·033	N	11	10	0·08	Gale of wind.
Sirsa .	·738	—·190	—·125	SE	9	8	...	Duststorm.
Bikaner .	·767	—·152	—·092	WSW	8	7	...	Duststorm.
Jodhpur .	·833	—·127	...	SSW	3	9	...	Drizzling.

The depression noticed over the Indus valley on the preceding day had suddenly advanced north-eastward and intensified. Its centre at 8 A.M. lay near Sirsa and rain was reported over the Punjab and snow in Baluchistan. In Persia and Asiatic Turkey the barometer was rising fast with north-west winds while at Quetta the barometer was falling with south-south-east winds, and rainy, cloudy weather. The Persian storm was thus approaching Baluchistan. This storm subsequently appeared over Sind on the morning of the 23rd, but it had almost filled up and exercised but little influence on the weather.

Cold weather storm of the 23rd to 27th March.

March 23rd.—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.	REMARKS.
	"	"	"				Inch.	
Baghdad .	29·937	—·237	—·195	Calm	0	6	...	Cloudy.
Busrah .	...	—·101	...	...	...	...	...	Clear.
Teheran .	...	—·045	...	SSE	1	10	...	
Ispahan .	...	—·030	...	Calm	1	8	...	
Bushire .	·918	—·102	—·023	SSE	9	9	...	Sea smooth.
Bahrein .	·917	—·095	...	W	...	...	...	Clear.
Jask . .	·949	+·064	+·006	NNW	18	0	...	Duststorm.
Quetta .	...	+·159	+·075	ENE	4	0	...	
Chaman .	...	+·149	+·080	S	10	0	...	Severe gale.

Pressure had fallen 0·237″ at Baghdad and briskly to rapidly over parts of Persia where the weather was cloudy and unsettled, while in Baluchistan the barometer was rising rapidly with clear weather.

March 24th.—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.	REMARKS.
	″	″	″				Inch.	
Baghdad	30·040	+·103	—·077	Calm	1	0	...	Clear.
Busrah	...	+·044	...	...	...	...	...	Dull.
Teheran	...	—·065	...	SE	2	10	0·44	Overcast.
Ispahan	...	—·110	...	Calm	3	0	...	
Bushire	29·876	—·042	—·062	NW	9	10	0·01	Sea smooth.
Bahrein	·856	—·061	...	NW	...	...	...	Clear.
Jask	·950	+·001	+·011	E	10	0	...	
Quetta	...	—·065	+·010	Calm	1	4	...	Dust haze.
Chaman	...	—·106	—·025	Calm	5	8	...	

Pressure had risen 0·103″ at Baghdad, but was falling over Persia and Baluchistan. The storm was advancing unusually rapidly and was already affecting the weather over Baluchistan where the sky was cloudy and the temperature rising quickly.

March 25th.—The following gives 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.	REMARKS.
	″	″	″				Inch.	
Quetta	...	—·063	—·053	Calm	3	2	0·17	Dust haze.
Chaman	...	—·059	—·083	NNE	6	6	0·11	Showery.
Kurrachee	29·880	—·081	—·003	W	10	2	...	Dust haze.
Hyderabad	·806	—·151	—·054	SW	8	2	...	
Jacobabad	·789	—·139	—·062	SE	3	0	...	Dust haze.
Mooltan	·917	—·094	+·035	NE	2	10	...	
D. I. Khan	·953	—·053	+·068	N	2	5	...	
Khushab	·917	—·077	+·054	NE	6	3	...	
Peshawar	30·018	—·073	+·050	Calm	2	9	...	
Rawalpindi	29·990	—·061	+·061	NNW	4	8	0·04	
Lahore	·913	—·079	+·050	N	2	0	...	
Montgomery	·900	—·099	+·040	NNE	6	7	...	
Jodhpur	·892	—·109	...	SE	3	1	...	
Jaipur	·912	—·089	+·022	E	3	6	...	
Leh	...	+·006	—·148	ENE	1	10	...	
Srinagar	...	—·110	—·070	Calm	5	10	0·05	Showery.
Sonemarg	...	+·064	...	Calm	2	8	...	
Skardu	...	—·048	...	W	8	10	...	
Dras	...	—·062	...	Calm	1	10	...	

Pressure was giving way briskly to rapidly over Kashmir, north-west India, and Baluchistan. The storm had continued to advance with great rapidity and was entering north-west India at 8 A.M. and the wind had shifted to north-north-east at Chaman. Rain had fallen over Baluchistan, but the weather was only slightly affected over north-west India.

March 26th.—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.	REMARKS.
	″	″	″				Inch.	
Quetta	...	+·050	—·002	Calm	3	0	...	Dust haze.
Chaman	...	+·071	—·011	SSW	6	0	...	
Kurrachee	29·873	—·007	—·006	Calm	12	6	...	
Jacobabad	·901	+·112	+·055	Calm	8	0	...	Dust haze.
Mooltan	·944	+·027	+·068	NW	2	0	...	
D. I. Khan	·927	—·026	+·045	Calm	1	2	...	
Montgomery	·908	+·008	+·051	NNE	7	2	...	
Ajmer	·854	—·059	—·047	Calm	7	0	...	
Jaipur	·843	—·069	—·034	NE	6	4	...	
Deesa	·875	—·006	—·008	SW	12	10	...	
Neemuch	·873	—·050	—·016	WSW	9	0	...	
Nowgong	·857	—·075	—·005	WSW	2	3	...	
Sutna	·851	—·087	—·005	NNW	3	6	...	

The storm had continued to advance eastward and was passing through Rajputana, the centre lying apparently near Sambhar. The weather was cloudy near the storm, but there had been no rain on the plains, though on the hills there had been some showers and light snow.

March 27th.—The following gives 8 A.M. data for the Bengal 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.	REMARKS.
	"	"	"				Inches.	
Hazaribagh	29·809	—·076	—·014	NW	8	1	...	
Ranchi .	·815	—·083	—·006	WNW	8	1	...	
Chaibassa .	·801	—·093	—·017	WSW	3	0	...	
Purnea .	·804	—·093	—·011	NE	3	1	...	
Darbhanga .	·821	—·051	+·013	Calm	1	0	...	
Patna. .	·831	—·043	+·019	NNW	4	0	...	
Gaya . .	·838	—·053	+·010	NW	6	1	...	
Balasore .	·801	—·116	—·029	SW	7	1	0·04	
Saugor Island.	·804	—·113	—·028	SSW	21	9	...	Sea rough.
Burdwan .	·792	—·105	—·031	SW	5	0	...	
Calcutta .	·817	—·093	—·013	SSW	6	8	...	
Berhampore	·793	—·106	—·022	S	3	0	0·41	Duststorm with rain.
Jalpaiguri .	·808	—·127	—·022	SE	1	4	...	
Dinajpur .	·806	—·091	—·007	SSE	3	1	...	
Bogra .	·800	—·099	+·001	E	3	0	0·86	
Jessore .	·808	—·100	—·018	SSE	1	6	0·09	Thunder.
Mymensingh	·848	—·066	+·006	ESE	4	4	0·14	
Narayanganj	·859	—·071	+·024	SE	6	8	0·68	Thunderstorm with hail.
Barisal .	·875	—·050	+·037	...	3	5	0·01	
Chittagong.	·915	—·026	+·042	ESE	7	3	1·05	Nor'wester with rain.

The strom had again resumed its very rapid march and had advanced eastward about 700 miles, the centre lying over west Bengal. A rapid recovery of pressure had taken place over north-west and brisk to rapid fall over north-east India. The storm had occasioned a considerable amount of rain over north-east India. The storm practically filled up during the day.

Cold weather storms of the 27th to 30th.—These storms were of the complicated character which has been noticed so frequently during the present cold weather.

March 27th.—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.	REMARKS.
	"	"	"				Inch.	
Baghdad.	30·071	—·060	—·031	WNW	3	8	0·30	
Busrah .	...	—·124	...	...	...	...	..	Clear.
Teheran .	...	—·090	...	Calm	3	10	...	
Ispahan .	...	—·150	...	Calm	3	9	...	
Bushire .	29·760	—·167	—·169	Calm	4	10	0·02	Sea smooth.
Bahrein .	·752	—·155	...	NW	...	...	...	Cloudy.
Jask .	·820	—·052	—·106	E	8	3	...	
Quetta .	...	+·055	+·053	Calm	4	9	...	
Chaman .	...	+·014	+·004	ESE	8	8	...	Gale of wind.

The barometer had fallen 0·060″ at Baghdad and even more rapidly in parts of Persia. Rain had fallen at Baghdad and Bushire, and the weather was unsettled all over this area where a depression was apparently developing.

March 28th.—The following gives 8 A.M. data for Persia and Baluchistan:—

STATION.	PRESSUREE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSUREE. Change in past 24 hours.	PRESSUREE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	RKMARKS.
	"	"	"				Inch.	
Baghdad.	30·061	—·010	—·046	Calm	5	0	...	Clear.
Busrah .	...	+·090	...	...	...	...	...	Clear.
Teheran .	...	—·040	...	WSW	2	10	0·52	Overcast.
Ispahan.	...	—·090	...	NW	6	3	...	
Bushire .	29·979	+·219	+·053	NW	18	0	...	Sea slight.
Bahrein .	30·012	+·260	...	NNW	...	...	...	Cloudy.
Jask .	29·798	—·022	—·123	W	13	2	...	Sea slight.
Quetta .	...	—·081	—·027	SSE	5	9	0·13	Showery.
Chaman .	...	—·079	—·074	SSW	6	7	0·02	Showery.

The depression was advancing through Baluchistan where the barometer was falling briskly with rain and a southerly wind. The barometer was falling rapidly at Peshawar and Dera Ismail Khan, where also the weather was cloudy and showery.

March 29th.—The following gives 8 A.M. data for Baluchistan, Kashmir 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.	REMARKS.
	"	"	"				Inch.	
Quetta .	...	—·022	—·049	Calm	6	10	0·49	
Chaman .	...	—·018	—·092	SSW	1	7	0·01	Drizzling.
Srinagar .	...	—·065	—·060	N	7	10	0·03	Showery.
Sonemarg .	...	+·059	...	Calm	6	10	0·55	Snowstorm.
Skardu .	...	—·142	...	SW	3	10	0·26	
Dras . .	...	—·142	...	Calm	0	10	0·23	
Leh . .	...	—·101	—·104	ENE	1	10	...	
Murree .	...	—·049	—·048	SSE	7	10	0·04	
Cherat .	...	—·094	—·071	S	15	2	...	
Peshawar .	29·903	—·060	—·040	Calm	4	10	...	
Rawalpindi	·867	—·090	—·032	Calm	3	10	...	
Sialkot .	·858	—·057	+·024	Calm	1	8	0·02	
Dera Ismail Khan.	·801	—·062	—·066	Calm	1	10	0·13	Showery.
Mooltan .	·814	—·124	—·045	SE	1	10	...	
Lahore .	·831	—·093	+·002	NW	2	10	...	
Bikaner .	·778	—·113	—·057	WNW	7	2	...	Dust haze.

A rapid recovery of pressure had taken place in Persia and at Baghdad, but the barometer was falling briskly to rapidly in north-west India, and the depression, which had been passing through Baluchistan on the preceding day, had entered the south-west Punjab. Rain and snow had fallen over Kashmir and Baluchistan.

March 30th.—The following gives 8 A.M. data for Kashmir 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.	REMARKS.
	"	"	"				Inches.	
Srinagar .	...	—·229	—·288	NE	6	10	0·58	Showery.
Sonemarg .	...	—·166	...	ENE	4	10	4·12	Snowing.
Skardu .	...	—·305	...	SE	3	10	0·26	
Dras . .	...	—·260	...	W	5	10	0·61	
Leh . .	...	—·352	—·447	W	1	10	0·12	Snowing
Murree .	...	—·180	—·227	SSE	6	10	0·58	Showery.
Cherat .	...	—·204	—·275	S	14	5	0·52	
Peshawar .	29·639	—·264	—·294	Calm	3	6	0·12	Showery.
Rawalpindi	·716	—·151	—·182	SE	3	10	0·31	Showery.
Khushab .	·725	—·114	—·117	S	7	5	0·30	Showery.
Dera Ismail Khan.	·718	—·083	—·149	SSW	1	10	0·17	Showery.
Mooltan .	·714	—·100	—·143	Calm	3	0	0·18	Duststorm.
Montgomery	·724	—·080	—·116	S	15	3	0·31	Showery.
Lahore .	·713	—·118	—·121	E	7	10	0·18	
Sialkot .	·707	—·151	—·127	E	6	8	0·72	
Umballa .	·706	—·080	—·093	SE	5	10	...	
Sirsa . .	·770	—·053	—·062	NNW	12	5	...	Dust haze.
Bikaner .	·797	+·019	—·046	NNE	14	0	...	Dust storm.
Delhi .	·744	—·055	—·063	Calm	3	2	...	
Agra . .	·756	—·048	—·073	SW	5	0	...	

Pressure had increased briskly in Baluchistan and upper Sind, and the depression noticed over the south-west Punjab on the 29th had advanced eastward to the neighbourhood of Agra. At the same time a fresh depression had appeared near Peshawar, where the barometer marked 0·294″ below the normal. Southerly and south-easterly winds prevailed over the north Punjab and heavy snow had fallen over further Kashmir. The depression subsequently filled up quickly, and on the 31st had almost disappeared.

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

Snowfall.—The following are the snowfall returns for the month of March. They appear to show that the season was late, but that the snow, when it arrived, was unusually heavy. This appears to have been the case over nearly the whole mountain area as even as far east as Sadiya the reports are of heavy snow.

I.—AFGHAN MOUNTAIN DISTRICTS.

(*1*) *Chitral.*—Snow occurred on the 3rd, lasting from 9 A.M. to 4 P.M. during which time 3½ inches of snow fell.

Snow again fell between 2 A.M. and 5 P.M. on the 11th, the fall on this occasion measuring 5½ inches.

Very heavy winds occurred on the 29th and the following night.

(*2*) *Afghanistan* (*Kabul*).—Snow accompanied in some cases with rain fell on the 3rd, 9th to 11th, 17th to 19th, 21st, 22nd, 24th, and 28th to 30th. There was at the close of the month no accumulation of snow on the plains, but the surrounding hills including the Paghman hills were wholly covered with snow, and the snowfall was greater than in March 1902.

(3) *Wano.*—On the 10th snow fell on the Wano plain to a depth of 2 inches and on the Marwattai hills, to a depth of between one foot and 9 inches.

On the 21st light snow fell on the Wano plain followed by rain; the snow melted away rapidly except in ravines and on the north slopes of the hills, and on the 31st March only a few inches of snow were left on the hills above 8,000 feet on the northern slopes and in ravines.

The snowfall of the month of March was slightly more than usual.

Heavy snow and rain fell all over southern Waziristan at the end of March.

(4) *Dera Ismail Khan.*—Snow to a depth of 1 foot 6 inches fell on the peaks of Ubashta, Mawa Tetra, Gat, Suleman, Maro Masar, Moizai Ghar, and Chasan Ghar. The falls occurred between the 10th and 12th and on the 21st and 22nd. The snow accumulation at the close of the month amounted to about 10 feet.

(5) *Kohat.*—Snow fell on the hills near Kohat as follows :—

	feet.	inches.
March 9th	0	9
„ 10th	3	0
„ 16th	3	0
„ 21st	3	6
Total	10 ft.	3 ins.

(6) *Abbottabad.*—In the Kagan valley snowstorms were late in commencing but were very severe. The following are the depths of snow recorded during the past winter:—

MONTHS.	Narang, 8,000 feet.		Kagan, 6,000 feet.		Janed 5,000 feet.	
	ft.	ins.	ft.	ins.	ft.	ins.
November 1902	3	11	0	6	...	...
December „	11	10	2	5	...	...
January 1903	9	0	5	6	...	...
February „	11	6	3	0	0	5
March „	49	6	16	0	6	10

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Kashmir.*—The following were the depths of snow lying around the higher observatories in Kashmir on the dates given below :—

Observatory.	3rd March.		10th March.		17th March.		24th March.		31st March.	
	ft.	ins.	ft.	ins.	ft.	ins.	ft.	ins.	ft.	ins.
Minimarg	5	4	5	0	5	8	7	2	8	3
Sonemarg	6	5	6	10	7	2½	10	3½	9	7
Dras	3	4	3	4½	3	2	4	8	...	

There was thus a steady increase in the accumulation of snow during the month.

(2) *Leh.*—Snow fell as follows at this station :—

March 3rd	4	inches.
„ 12th	1	inch.
„ 13th	1½	inches.
„ 23rd	½	inch.
„ 30th	3¾	inches.
„ 31st	5	„
Total	15¾	„

(3) *Rawalpindi.*—The falls of snow during the month of March at Murree and on the hills adjacent to Kahuta were as follows :—

Murree—

	feet.	inches.
March 1st	0	2
„ 3rd	0	8
„ 4th	0	1
„ 5th	0	1
„ 10th	0	1
„ 11th	0	7
„ 12th	1	0
„ 20th	0	3
„ 21st	0	8
„ 22nd	0	4
„ 23rd	0	4
„ 24th	0	1
„ 27th	0	1
„ 30th	0	6
„ 31st	0	8
Total	5 ft.	7 ins.

Kahuta—

A slight fall of snow occurred on the 11th and 12th.

(4) *Kailang, Lahoul.*—There was very little snow again this year until the end of February. But since then so much snow has fallen that it is rather doubtful if it will be possible to plough the fields early enough this year. It has been quite impossible for men to move more than one stage out of the station. The wool trade from Tibet has been hindered considerably this year by snow. In the relatively warm valley of Kailang the snow still (April 2nd) lies about 4 feet deep on the fields, and the snow must be enormously thick on the higher passes.

The following is the daily record of snowfall at Kailang for March :—

March, 1st	8	inches
„ 2nd	13	„
„ 3rd	2	„
„ 4th	1	inch.
„ 6th	3	inches.
„ 7th	3	„
„ 9th	2	„
„ 10th	6	„
„ 11th	19	„
„ 12th	1	inch.
„ 17th	1	„
„ 19th	9	inches.
„ 21st	10	„
„ 22nd	3	„
„ 25th	3	„
„ 26th	3	„
„ 29th	8	„
„ 30th	5	„

(5) *Poo.*—The following table shows the rainfall and snowfall converted into water during the winter under review and the previous 5 winters for comparison :—

YEAR.	PRECIPITATION.					
	November.	December	January.	February.	March.	TOTAL.
	Inch.	Inches.	Inches.	Inches.	Inches.	Inches.
1902-1903	0·05	0	2·12	0·19	8·67	11·03
1901-1902	0	0·61	0·19	0·94	8·01	9·75
1900-1901	0	3·24	2·60	2·53	0·30	8·67
1899-1900	0·09	0·04	3·83	2·48	2·24	8·68
1898-1899	0·20	1·90	0·09	2·05	2·04	6·28
1897-1898	0	0·14	0·46	2·16	0·34	3·10

The comparison shows that the snowfall and rainfall during the winter 1902-03 were greater than any recorded since 1897.

November.—Very light showers of snow fell on the 12th and 13th.

December.—No snow fell.

January.—Snow fell on 7 occasions during the month.

February.—There were light falls of snow on the 12th, 16th, 17th and 18th down to 7,200 feet.

March.—Except on ten days there was more or less snow throughout the month and the total amount of snow accumulation exceeded that of the previous year by 0·66 inch.

(6) *Kulu.*—On the 23rd, 24th, 26th, 27th, 30th, and 31st of March it snowed almost all over the sub-division, the snow-line descending to 4,000 feet, but during the snowfalls of the 1st to 4th, 7th to 13th and 20th to 22nd March the falls were confined to the higher peaks. The snowfall during the month under review was as follows:—

Name of Pass.	Amount of snowfall.	Name of Pass.	Amount of snowfall.
	Feet.		Feet.
Rohtang	6	Srikhand	7
Hamta	4	Chul	4
Chandarkhani	4	Hingan	5
Barsai	4	Dundku	4
Buja Dhar	14½	Tikkar	5
Tohri Ajri	4½	Ramgarh	2
Bhubu	8	Tuhnu	3
Minjhang	½	Raghopur	5
Bistari	2	Jalori	5
Sari	8	Hiniri	4
		Shakiran	4
		Gargarasan	6
		Sopakun	5
		Bishleo	5
		Placha	6
		Tirath	6

The following table shows the accumulation of snow on the following passes at the close of the month:—

Name of Pass.	Depth of snow on March 25th.	Name of Pass.	Depth of snow on March 25th.
	Feet.		Feet.
Rohtang	15	Srikhand	16
Hamta	11	Chul	7
Chandarkhani	8	Hingan	7
Barsai	5	Dundku	8
Buja Dhar	12	Tikkar	7
Tohri Ajri	13	Ramgarh	1
Bhubu	5	Tuhnu	3
Minjhang	½	Raghopur	6
Bistari	2	Jalori	5
Sari	8	Hiniri	5
		Shakiran	5
		Gargarasan	11
		Sopakun	7
		Bishleo	9
		Placha	11
		Tirath	12

(7) *Pangi.*—The following gives particulars of the snow fall at Kilar at an elevation of 8,400 feet during the month of March 1903:—

Date.	Depth of snow.		Elevation to which snowline descended.
	Feet.	Inches.	Feet.
1st	...	7	7,300
2nd	1	4	Do.
3rd	...	5	Do.
4th	...	3	Do.
5th	...	2½	Do.
6th	...	3	Do.
7th	...	3	Do.
9th	...	2½	Do.
11th	1	6	Do.
12th	1	4	Do.
16th	...	4	Do,
17th	...	3	Do.
18th	...	3	Do.
19th	1	½	Do.
20th	...	10	Do.
21st	1	4	Do.
22nd	1	8	Do.
23rd	...	11	Do.

Date.	Depth of snow.		Elevation to which snowline descended.
	Feet.	Inches.	Feet.
24th	...	4	7,300
25th	...	2	Do.
26th	...	1	Do.
29th	...	3	Do.
30th	1	6	Do.
31st	...	2	Do.
TOTAL	15	5½	...

The snowfall of the month was unusually heavy and the snow slides were both big and dangerous.

(8) *Dalhousie*—

1 inch of snow fell on the ... 8th
4 inches " " ... 10th
19 " " " ... 12th

(9) *Chamba.*—The following gives particulars of the snowfall in Chamba during March :—

DATE.	Depth of snow.		Elevation to which snow line descended.	Range of hills.
	ft.	ins	ft.	
3rd	...	2		Barmaur.
6th	1	5		
7th	...	4		
9th	3	5		
10th	...	4		
11th	...	6		
12th	3	4	2,500	
20th	...	3	6,000	
22nd	...	9		
23rd	3	5		
7th	1	5	4,500	Olansa.
9th	...	3	5,000	
10th	...	2	6,000	
11th	...	2	6,000	
12th	2	11	2,500	
20th	...	2	6,000	
22nd	...	6	6,000	
23rd	1	5	6,000	

III.—UNITED PROVINCES HIMALAYAS.

(1) *Almora.*—Snow fell as under in this district :—

Malla Johar.

March, 15th to 20th	6 feet
" 30th	4 "
	10 feet

Malla Danpur.

	Ft.	ins.
March, 5th to 7th	1	6
" 9th to 12th	2	0
" 19th and 20th	1	0
" 24th to 26th	1	0
TOTAL	5	6

Byans, Chandas and Darma.

	Ft.	ins.
March, 10th to 12th	4	0
" 20th	0	6
" 25th and 26th	2	0
" 30th	1	0
TOTAL	7	6

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

	Ft.	ins.
Utadhura	10	0
Ralamdhura	7	0
Pindari, Kaphini, Kantela	5	6
Byans, Chandas, Darma	7	6

The season's snowfall was less than in 1901-1902 in Malla Johar and greater in Malla Danpur, Byans, Chandas and Darma.

(2) *Garhwal.*—Light falls of snow occurred on the higher hills on the 3rd, 6th, 11th, 20th, 23rd, 25th, and 30th.

IV.—ASSAM HIMALAYAS.

(1) *Lakhimpur.*—The Assistant Political Officer, Sadiya, says of the year, April 1902 to March 1903, "the weather has been colder this year than in any year of the past 20 years. There was a heavy fall of snow in November and a late one quite as heavy, if not more so in January. The hill men from the interior report that heavy snow has been general during the past season."

(2) *North Lakhimpur.*—The snowfall during the year 1902-03 in the hills north of north Lakhimpur is said to have been below the normal.

Summary of Special Storm Reports.

The following gives a statement of the more important dustsforms, thunderstorms and hailstorms in the Indian area :—

March, 3rd.—A thunderstorm advancing from west passed over Simla between 0-30 A.M. and 8-15 A.M. Hail and rain fell and the total measured 0·45 inch.

" *6th.*—A severe nor'wester passed over Burdwan at 8 P.M. lasting 15 minutes.

" " A thunderstorm occurred at Simla at 4-10 P.M. and continued till 4-40 P.M., beginning again at 5-15 P.M. Hail and sleet fell during the storm and measured about 0·08 inch. The storm came up from south.

" *8th.*—A heavy thunderstorm occurred at Calcutta.

" *11th.*—A dust storm occurred at Jaipur on this day.

" *12th.*—A severe nor'wester with hail occurred at Burdwan at 5-15 P.M. lasting 20 minutes.

" " A thunderstorm occurred at Simla at 1-45 P.M. and lasted 25 minutes.

" *19th.*—A violent duststorm came up over Jacobabad from north-north-west. The storm commenced at 6-53 P.M. and lasted 20 minutes.

" *20th.*—A thunderstorm commenced at Simla at 5-50 P.M. and lasted till 6-30 P.M. with heavy thunder, hail and snow.

" *21st.*—A thunderstorm occurred at Lahore on the evening of the 21st and morning of the 22nd.

" *23rd.*—A slight thunderstorm appeared over Simla at noon and another at 5-10 P.M. Some hail fell during the storms.

" *29th.*—A storm passed over Lahore about 7 P.M. and disturbed weather with light rain prevailed till noon of the 30th.

" *30th.*—A severe thunderstorm passed over Simla from west between 4-45 P.M. and 5-30 P.M. Hail fell heavily. Later in the evening between 5-45 P.M. and 9 P.M. another severe thunderstorm came up from S.-E.

" *31st.*—A duststorm occurred at Pachmarhi at 2 P.M. lasting 15 minutes.

Hailstorms.—The following reports of hailstorms have been received :—

A severe hailstorm passed over parts of the Cachar district on March 4th. The hailstones were the size of a potato.

A severe hailstorm passed over the Roha and Bojali, Tahsils of the Kamrup district on the 7th March. It lasted about 15 minutes and the stones were from 1 to 2 inches in diameter.

Hailstorms occurred in parts of the Cachar district on the 20th and 21st, the hailstones varying from the size of a pea to that of a potato.

A slight storm occurred over the Roha Tahsil of the Nowgong district on the 23rd. The storm lasted 6 minutes and the stones were about 1 inch in size.

On the 25th a slight storm crossed the Kâtigoria Tahsil of Cachar. It only lasted a minute and no damage was done, but the stones were 1½ inches in size. This storm also affected all parts of the sadr sub-division of the district as well as the Naga hills.

In the sadr Tahsil, Sibsagar, a severe hailstorm was experienced on the 26th. The stones were half an inch in diameter.

A severe hailstorm occurred on the 26th in the Namtidal Tahsil, Sibsagar, lasting 15 minutes. The hailstones were the size of a plum and betelnut, and the tobacco crops were damaged.

On the 27th severe hailstorms were experienced in the Khasia and Jaintia hills and in the Rangia Tahsil of the Kamrup district. The stones were of the size of small oranges, and a good deal of damage was done.

Hailstorms occurred in the Myitkyina district, Burma, on the 23rd February and the 7th and 10th of March. The hailstones were of fair size and damage was done to the crops.

At Rangpur in north Bengal, on the 27th or 28th March, there occurred a tornado, of which the following are the newspaper records :—

"Shortly before noon clouds commenced to gather and there was a heavy shower, followed by a thick storm of hailstones. At about 2 A.M. the clouds began to roll away and gather in the south-east, leaving the rest of the sky clear. The sun was shining, and it was thought that it had passed away, when suddenly a terrible rumbling noise was heard, and a tornado approaching from the south was seen advancing. At first it appeared that it would pass right over the town. Had that been the case the loss of life and property would have been simply appalling. But, fortunately, it took a more north-easterly course and passed over only the outskirts of the town. Its course was about 200 yards wide (the length is not yet known), and was marked by the most horrible sights of destruction and desolation. Houses and trees were uprooted and thrown to great distances. Some idea of the great force of the wind may be formed from the fact that sticks and even straws were forced into the trunks of trees.

Five dead bodies were picked up immediately, and 25 persons were taken to hospital with severe injuries, while many others whose injuries were less, could not be admitted for want of room in the hospital."

"The Calcutta papers have little or nothing to say about a regular American tornado, which went through a small part of the town of Rangpur, in the Rajshahi division, in the north of Bengal, on the 28th of March. According to native reports, it lasted about two minutes, was accompanied by a loud roar and a heavy cloud, wrecked everything in its way, killed a number of people and injured about a hundred more. For some reason unknown these torna-

does are confined in India to a narrow strip of eastern Bengal, in some part of which one occurs every three or four years."

The following is an account from the *Englishman* newspaper of the hailstorm of the 21st referred to in paragraphs given above :—

Silchar, March 23rd.

A terrific hail storm broke over the Sylhet district on Saturday and did much damage to the tea bushes.

The most serious report so far comes from Borakai Tea Estate, six miles from here. Hail commenced to fall from about 4 A.M. and lasted some ten minutes, some hailstones being as large as eggs. At five another storm came on, hailstones were smaller, but the wind blew with hurricane force and damaged 1,000 acres of tea. About 250 acres were very badly damaged, the hail stripping leaves and bark from the bushes, 350 coolie huts collapsed, and withering houses and stacks connected with siroccos and firing apparatus were blown down; one woman was found dead among the tea bushes. After the storm a number of coolies had to be dug out of the wrecked huts, only one being seriously hurt. The garden was a scene of devastation. The storm was the worst known to have visited the district for years.

Earthquake reports.—Two small but well-marked earthquakes were recorded at Colaba (Bombay) during the month—on the 22nd and the 30th—their amplitudes being 1·8 m. m. and 0·6 m. m. respectively.

A rather severe earthquake occurred at Chitral at 10-25 P.M. on the 23rd, the shock lasting for ½ minute.

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

Arabian Sea.—The winds were unsteady throughout the month over the Arabian Sea, having been influenced by the large pressure changes over the neighbouring lands. Northerly to north-east winds prevailed over this region from the 1st to the 6th, when the direction drew more into east and south-east and east winds continued till the 10th. On the 11th northerly winds reappeared and between that date and the 19th northerly to north-east winds held steadily over the Arabian Sea. On the 20th pressure was giving way briskly over the land area to the north of the Arabian Sea and variable breezes prevailed over the sea and continued during the 21st and 22nd. There then followed three days of north-east to east winds, but between the 26th and 28th south-east and variable winds were again experienced. These passed away and northerly to north-easterly winds prevailed till the close of the month.

The mean force of the wind for the month was 2·9, the normal force being 2·7. The strength was generally greater than usual but was below the normal on the 9th and 10th, the 17th and 18th, the 22nd, and from the 25th to the 28th. The wind was weakest on the 28th, when the mean force, as determined from the data of 27 vessels, was only 1·9.

Bay of Bengal.—The air motion over the Bay was more unsteady and irregular than over the Arabian Sea. This was due to the number of storms which advancing across the head of the Peninsula, drew the wind into south over a large part of the Bay. The winds blew with this direction as long as the storms were approaching Bengal, after which they returned quickly to northerly directions. Along the Madras, Orissa and south-west Bengal coasts the directions were more or less south-westerly steadily throughout the month but over the centre and east of the Bay the changes described above were occasionally experienced.

The mean force of the wind for the month was 2·6, the normal being 2·4, so that the wind, on the mean of the month, was, as over the Arabian Sea, stronger than usual. The winds were strongest on the 28th and 31st, when their average strength, as determined from the data of 20 vessels, was 3·4. They were feeblest on the 8th, 9th and 13th, when the mean strength was 2·1.

Equatorial Belt.—During the first week of the month the winds were variable over this area. On the 9th northerly winds set in, and from that day on to the end of the month the winds over the Equatorial belt varied between north-west and north-east.

Temperature of the Air.

March, 1903, was considerably colder than usual in all parts of the country except the centre, the greater part of the east and south of the Peninsula part of Chota Nagpur and the Bay area. The temperature conditions were hence in marked contrast with those prevailing in the same month of last year, when the temperature was higher than usual over by far the greater part of the country. This contrast was largely due to the great difference in the weather in the two months. The cold weather of 1901-02 was abnormally dry all over north-west India and the surrounding mountain area, and the rainfall and snowfall of March in the north-west were less than usual, while March, 1903, was unusually stormy over north-west India, Baluchistan and Kashmir and the snowfall was heavy and continuous, so that while the mean temperature of March, 1902, was excessive in all parts of the country except the extreme south of the Peninsula, the mean temperature of March, 1903, was deficient in all places except the centre, east and south of the Peninsula, part of Chota Nagpur and Bay area

The mean day or maximum temperature of the month exceeded the normal over Ceylon, the south and centre of the Peninsula, the east of the Central Provinces, Chota Nagpur and south-west Bengal. The excess was generally

small and unimportant but was more than 2° at the stations for which comparative data are given below:—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	°	°	°
Cocanada	95·5	91·7	+3·8
Colombo	92·1	89·4	+2·7
Cuddapah	104·0	101·7	+2·3
Bangalore	92·9	90·7	+2·2
Secunderabad	100·0	97·9	+2·1

The mean maximum temperature was normal over Tenasserim and central Burma. The following gives data:—

PROVINCE OR DIVISION.	Station.	MEAN MAXIMUM TEMPERATURE.		
		Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
		°	°	°
TENASSERIM	Tavoy	94·0	93·3	+0·7
	Moulmein	94·7	94·1	+0·6
	Mergui	90·6	91·2	—0·6
CENTRAL BURMA	Yamethin	99·4	99·1	+0·3
	Thayetmyo	100·0	99·8	+0·2
	Toungoo	97·7	97·8	—0·1

Over the whole of the remainder of India the mean maximum temperature was below the normal. The deficiency was considerable in parts of Burma, of south-east Bengal and of the west coast, but was greatest and large over north-west India, where it was more than 5°·0 at the following large number of stations:—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	°	°	°
Rawalpindi	69·4	76·5	—7·1
Peshawar	69·2	76·1	—6·9
Dera Ismail Khan	76·7	83·5	—6·8
Sirsa	82·5	88·6	—6·1
Lahore	79·1	85·1	—6·0
Pachpadra	88·6	94·6	—6·0
Montgomery	79·8	85·7	—5·9
Hyderabad (Sind)	87·7	93·1	—5·4
Bhuj	88·6	93·9	—5·3
Mooltan	81·4	86·5	—5·1

The following gives the highest maximum temperature recorded in each division of India:—

PROVINCE OR DIVISION.	Station.	Highest maximum temperature recorded in March 1903.	Date on which recorded.	Highest maximum temperature recorded in March previous to 1903.	Year in which recorded.
		°		°	
BURMA	Thayetmyo	105·0	26th	108·7	1890
ASSAM	Dhubri	92·3	6th	98·3	1896
BENGAL	Midnapore	103·4	31st	107·9	1896, 1902
ORISSA	Cuttack	104·9	31st	108·5	1902
BIHAR	Dehri	102·4	31st	106·4	1892
CHOTA NAGPUR	Chaibassa	104·6	31st	108·1	1892
UNITED PROVINCES.	Jhansi	104·3	31st	110·0	1892
PUNJAB	Delhi	96·2	30th	105·1	1884
NORTH-WEST FRONTIER PROVINCE.	Dera Ismail Khan.	87·3	1st	106·5	1892
SIND	Hyderabad	101·1	28th	112·2	1892
RAJPUTANA	Deesa	103·1	29th	114·5	1892
GUJARAT	Bhavnagar Para	104·5	30th	106·7	1899, 1902
CENTRAL INDIA	Nowgong	102·0	31st	107·2	1880
CENTRAL PROVINCES.	Chanda	108·2	31st	112·2	1892
BERAR	Akola	106·7	31st	111·6	1892
WEST COAST	Cochin	95·3	25th	98·1	1878
BOMBAY DECCAN	Malegaon	105·3	30th	113·8	1889
MYSORE	Chitaldroog	99·7	30th	100·2	1899, 1900
MADRAS COAST	Nellore	104·3	29th	110·8	1892
MADRAS DECCAN	Cuddapah	110·3	31st	110·3	1892
SOUTH INDIA	Salem	104·2	31st	107·5	1892

The preceding data show very clearly the depression of temperature which prevailed during the month under review, as in no case except Cuddapah was the highest maximum as high as the previously recorded readings, while in some divisions the readings were from 9° to 19° below the highest readings previously recorded.

On the hills the mean maximum temperature was lower than usual at all stations except Darjeeling and at most places the deficiency was greater than that at stations on the

neighbouring plains. The following gives comparative data for the hill stations :—

Hill station.	Mean maximum temperature.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	°	°	°
Quetta	54·5	64·5	—10·0
Chaman	57·9	67·3	— 9·4
Murree	47·3	58·3	—11·0
Leh	34·5	43·1	— 8·6
Chakrata	55·2	61·7	— 6·5
Cherat	55·3	61·5	— 6·2
Mount Abu	72·1	77·7	— 5·6
Mussooree	55·2	60·6	— 5·4
Simla	51·1	56·4	— 5·3
Ranikhet	61·2	65·3	— 4·1
Srinagar	51·6	55·4	— 3·8
Pachmarhi	84·0	84·4	— 0·4
Darjeeling	56·8	56·5	+ 0·3

The variations of the mean minimum or night temperature exhibited the same general distribution as did those of the maximum temperature. The mean minimum temperature was higher than usual over the greater part of the south and east of the Peninsula, parts of Chota Nagpur and of east Bengal, and the Bay area. The excess was generally small and only equalled or exceeded 2° at the two following stations: —

Station.	Mean minimum temperature.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	°	°	°
False Point	74·3	72·2	+2·1
Cuttack	74·5	72·5	+2·0

Over the whole of the remainder of India the mean minimum temperature was below the normal and the deficiency was more than 4° at the following stations in north-west, west and central India :—

Station.	Mean minimum temperature.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	°	°	°
Bikaner	58·8	64·7	—5·9
Hyderabad (Sind)	59·5	64·2	—4·7
Hoshangabad	58·2	62·8	—4·6
Poona	59·4	63·9	—4·5
Rajkot	58·2	62·4	—4·2
Jacobabad	55·4	59·6	—4·2

The deficiency was as general and more marked on the hills than on the plains, as is shown by the following data :—

Hill station.	Mean minimum temperature.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	°	°	°
Quetta	32·4	40·0	— 7·6
Chaman	38·0	44·1	— 6·1
Murree	33·0	43·3	—10·3
Simla	40·2	46·0	— 5·8
Leh	15·4	21·1	— 5·7
Cherat	42·6	47·9	— 5·3
Mount Abu	57·1	61·5	— 4·4
Mussooree	40·9	45·1	— 4·2
Chakrata	40·4	44·3	— 3·9
Ranikhet	45·2	49·1	— 3·9
Pachmarhi	58·1	60·4	—2·3
Darjeeling	41·8	42·3	— 0·5
Srinagar	36·7	37·1	— 0·4

The lowest night temperatures were generally recorded over Baluchistan about the 31st, over Kashmir and the north-west Himalayas between the 8th and the 16th, and

over the plains of north-west India between the 8th and the 15th. The following gives the lowest readings recorded.

STATION.	Lowest minimum temperature recorded in March 1903.	Date on which recorded.	Lowest minimum temperature recorded in March previous to 1903.	Year in which recorded.
	°		°	
Dras	−20·4	16th	−22·5	1899.
Sonemarg	− 5·4	8th	11·1	1902.
Minimarg	0·6	15th	3·0	1896.
Leh	0·9	4th	− 1·5	1878.
Kailang	3·0	9th	...	...
Quetta	14·3	31st	15·8	1898.
Astor	16·0	9th	11·7	1897.
Poo	20·2	8th	21·0	1894.
Parachinar	20·4	12th	24·3	1898.
Chaman	26·6	5th	13·1	1898.
Murree	27·0	5th and 10th	20·0	1898.
Skardu	27·6	8th	18·7	1897.
Chitral	28·5	12th	25·0	1898.
Srinagar	29·1	8th	22·1	1895.
Chakrata	29·9	8th	20·7	1874.
Killa Drosh	30·1	13th	24·2	1898.
Simla	30·4	8th	23·4	1898.
Mussooree	31·0	8th and 9th	27·5	1898.
Jacobabad	39·0	8th	39·6	1882, 1892.
Peshawar	40·1	8th	37·9	1891, 1892, 1898 and 1902.
Pachpadra	41·0	8th	33·0	1898.
D. I. Khan	42·1	8th	38·9	1878.
Rawalpindi	42·1	8th	37·9	1878, 1898.
Sambhar	42·9	9th	38·0	1898.
Montgomery	43·5	15th	39·5	1898.
Umballa	43·6	13th	44·0	1898.
Ajmer	43·8	8th	35·9	1898.
Lahore	44·0	8th	40·2	1898.

The preceding data show that in parts of Kashmir and Baluchistan and at Umballa and Jacobabad the minima recorded during March, 1903, were lower than any previously registered in that month.

The variations of the mean temperature conditions of the month were similar to those of the maximum and minimum temperatures. There was a trifling excess over the south and east of the Peninsula and the Bay area, while over the whole of the remainder of the country there was a deficiency. The amount of this deficiency increased towards the north-west and amounted to over 4° at the following places :—

STATION.	MEAN DAILY TEMPERATURE. Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	°	°	°
Bikaner	71·9	77·1	−5·2
Hyderabad (Sind)	73·6	78·7	−5·1
D. I. Khan	64·8	69·6	−4·8
Peshawar	59·3	64·0	−4·7
Pachpadra	71·9	76·5	−4·6
Jacobabad	71·0	75·4	−4·4
Mooltan	68·1	72·5	−4·4
Montgomery	66·5	70·9	−4·4
Rajkot	74·7	79·0	−4·3
Rawalpindi	59·5	63·6	−4·1
Sirsa	68·8	72·9	−4·1
Deesa	75·9	80·0	−4·1
Bhuj	75·6	79·7	−4·1

At all the hill stations the mean temperature of the month was below the normal, and at the following places the deficiency was more than 5°:—

HILL STATION.	MEAN DAILY TEMPERATURE. Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	°	°	°
Quetta	43·5	52·3	− 8·8
Chaman	48·0	55·8	− 7·8
Murree	40·2	50·9	−10·7
Leh	25·0	32·2	− 7·2
Cherat	49·0	54·8	− 5·8
Simla	45·7	51·3	− 5·6
Chakrata	47·8	53·0	− 5·2

The mean temperature was hence most largely in defect at the hill stations, and more particularly at Murree, Leh, Chaman and Quetta.

The chief abnormal features of the temperature conditions of the month were :—

(1) Slightly higher temperatures than usual, both by day and night, over the south and east of the Peninsula and the Bay area.

(2) Normal day temperatures and low night temperatures over the interior of Burma.

(3) Lower temperatures than usual, both by day and night, over the whole of the remainder of India.

(4) Very low temperatures, both by day and night, over the hills and plains of north-west India and over Baluchistan.

The following table gives comparative data of the mean temperature conditions of the month in 57 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	93·1	71·1	82·1	22·0	30·7	0	+0·5	−0·5
	Lower Burma (Deltaic)	91·0	72·7	81·9	18·3	25·0	−1·2	+0·5	−1·7
	Central do.	98·9	65·8	82·4	33·1	46·4	+0·1	−1·7	+1·8
	Upper do.	95·2	65·9	80·6	29·4	45·0	−1·2	−0·5	−0·7
	Arakan	88·6	69·6	79·1	19·0	30·3	−0·5	+0·7	−1·2
Bengal and Assam	Eastern Bengal	86·7	67·0	76·9	19·7	34·3	−2·0	0	−2·0
	Assam (Surma)	84·5	62·3	73·4	22·2	35·6	−1·5	−0·9	−0·6
	Do. Hills	68·1	52·6	60·4	15·5	29·2	...	...	...
	Do. (Brahmaputra)	81·4	60·1	70·8	21·3	36·5	−0·7	−1·5	+0·8
	Deltaic Bengal	90·1	69·8	80·0	20·4	37·1	−1·1	+0·2	−1·3
	Central do.	91·2	65·0	78·1	26·3	42·9	−1·3	−0·9	−0·4
	North do.	85·5	59·8	72·7	25·8	42·1	−0·7	−1·2	+0·5
	Bengal Hills	53·4	34·3	43·8	19·2	32·2	+0·3	−0·5	+0·8
	Orissa	90·0	74·2	82·2	15·8	29·2	−1·0	+1·6	−2·6
	Chota Nagpur	92·2	64·1	78·2	28·0	47·0	+0·8	+0·2	+0·6
	South Bihar	91·2	62·8	77·1	28·4	46·5	−1·1	−0·9	−0·2
	North do.	89·0	60·6	74·8	28·4	44·2	−0·5	−1·4	+0·9
United Provinces of Agra and Oudh.	United Provinces (East)	92·1	59·9	76·1	32·2	55·2	−0·8	−2·1	+1·3
	Oudh (South)	90·6	59·0	74·8	31·6	52·7	−0·9	−1·3	+0·4
	Do. (North)	88·2	59·1	73·7	29·1	50·1	−0·8	+0·3	−1·1
	United Provinces (Central)	89·8	60·2	75·0	29·6	50·9	−1·4	−1·6	+0·2
	Do. do. (West)	86·2	59·3	72·7	27·0	48·8	−2·7	−1·0	−1·7
	Do. do. (Submontane, East).	89·9	60·6	75·3	29·3	43·4	−0·6	−1·9	+1·3
	Do. do. (Submontane, West).	81·8	55·8	68·8	26·0	48·8	−2·4	−0·9	−1·5
	Do. do. (Hills)	57·2	41·5	49·3	15·7	38·8	−5·3	−4·0	−1·3
Punjab	Punjab (South-East)	83·5	60·5?	72·0?	23·0?	46·1	−3·9	−1·7?	−2·2?
	Do. (South)	81·4	55·8	68·6	25·6	47·4	−6·1	−2·1	−4·0
	Do. (Central)	79·1	54·5	66·8	24·6	45·9	−6·0	+0·3	−6·3
	Do. (Submontane)	76·6	53·9	65·2	22·7	43·3	−6·0	−0·4	−5·6
	Do. (Hills)	45·5	28·7	37·1	16·8	39·7	−7·0	−5·5	−1·5
	Do. (West)	79·1	54·3	66·8	24·8	46·1	−5·2	−2·7	−2·5
N.-W. F. Province	N.-W. F. Province	73·0	51·1	62·1	21·9	43·1	−6·9	−2·6	−4·3
Bombay and Malabar Coast Districts (Madras).	Malabar	89·7	76·9	83·3	12·7	18·8	0	+0·3	−0·3
	Madras (South Central)	98·9	71·2	85·1	27·7	40·7	+1·5	+0·9	+0·6
	Coorg	84·9	60·5	72·7	24·4	31·9	+0·3	−1·3	+1·6
	Mysore	93·6	66·6	80·1	27·0	38·5	+1·5	+0·5	+1·0
	Konkan	84·5	71·2	77·9	13·4	24·3	−2·1	−3·0	+0·9
	Bombay Deccan	97·0	64·6	80·8	32·4	48·7	−0·1	−2·5	+2·4
	Hyderabad (North)	96·7	68·3	82·5	28·4	44·7	...	...	...
	Khandesh	96·2	60·7	78·5	35·6	54·3	+0·7	−2·4	+3·1
Central Provinces and Berar.	Berar	98·0	66·3	82·2	31·8	52·6	−0·7	−1·4	+0·7
	Central Provinces (West)	95·1	62·4	78·8	32·7	54·2	−1·4	−2·8	+1·4
	Do. (Central)	95·6	62·0	78·8	33·5	52·3	+0·3	−1·7	+2·0
	Do. (East)	97·8	65·7	81·7	32·1	50·8	+1·4	−0·4	+1·8
Bombay (North)	Gujarat	93·5	63·8	78·6	29·7	49·9	−3·4	+3·2	−0·2
	Kathiawar and Cutch	87·0	62·9	75·0	24·2	45·9	−4·9	−2·7	−2·2
	Sind	86·0	59·8	72·9	26·2	51·1	−4·1	−3·5	−0·6
	Baluchistan Hills	55·9	32·7	44·3	23·2	52·6	−9·7	−6·9	−2·8
Rajputana and Central India.	Central India (East)	89·7	58·6	74·2	31·1	53·7	−2·0	−2·2	+0·2
	Rajputana (East), Central India (West)	87·4	58·8	73·1	28·6	53·0	−3·4	−3·5	+0·1
	Do. (West)	86·8	57·8	72·3	29·0	54·2	−5·2	−4·6	−0·6
Madras	East Coast (North)	90·3	74·8	82·6	15·5	26·3	+2·6	+1·3	+1·3
	Hyderabad (South)	99·4	71·6	85·5	27·9	41·0	+1·1	+0·5	+0·6
	Madras (Central)	102·4	73·4	87·9	28·9	42·9	+1·4	+0·6	+0·8
	East Coast (Central)	94·8	73·3	84·1	21·5	32·6	+1·0	+1·0	0
	Do. (South)	92·2	72·6	82·4	19·6	31·5	−0·1	+0·4	−0·5
	Madras (South)	95·7	73·0	84·2	22·7	33·6	+1·4	−0·4	+1·8

The preceding data show that the hottest area, outlined by the isotherm of 85°, included the south of Hyderabad and central and south-central Madras, and the coolest area the North-West Frontier Province where the mean temperature was only 62°·1. In central Madras the mean maximum temperature of the month was 102°·4 which was 1°·4 above the normal. The mean daily range of temperature was considerably less than usual over the plains of north-west and west India, but was greater than usual over parts of the Peninsula and of north-east India.

The following gives an account of the more important changes of temperature during the month.

At the commencement of the month the mean temperature was in excess over nearly the whole country. The excess was most pronounced in the extreme north-west, both on the hills and plains, and was more than 10° at the stations for which comparative data are given below :—

Station.	Variation from normal of mean temperture of 24 hours preceding 8 A.M. of 1st March 1903.
	°
Sialkot	+12·2
Montgomery	+11·8
Lahore	+11·5
Dera Ismail Khan	+11·2
Mooltan	+10·9
Simla	+10·9
Leh	+10·8
Srinagar	+10·4
Ajmer	+10·4
Khushab	+10·2
Ludhiana	+10·1

On this day (1st March) the mean temperature was slightly lower than usual over Kathiawar, and this area of diminished temperature gradually extended till by the 5th it included a large part of north-western, western and central India. As this area extended the area of excessive heat over the Punjab retreated eastward, and by the 5th had traversed the whole of northern India and was established over Bengal. The following gives data for the divisions of western and northern India from the 1st to 5th and illustrates the extension of the area of diminished temperature over western and north-western India and the eastward retreat of the area of greatest excess of temperature.

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

On the 5th, 6th, and 7th, under the influence of a storm, rain and snow fell over the hills in north-west India and Kashmir and temperature fell fast in north-west India and Baluchistan. By the 6th temperature was reduced to very largely below the normal over north-west India, and from this depression the temperature, owing to frequent falls of rain and snow over the hills and plains of north-west India and Kashmir, never recovered during the whole of the remainder of the month. Further rain and snow occurred in the north-west between the 9th and the 13th and cold waves entered north-west India both after the precipitation of the 5th to 7th, and after that of the 9th to 13th. As these waves followed each other so quickly there was hardly any recovery of temperature between the two, and it is difficult to define exactly the influence which each exerted on the temperature conditions of the period. During this interval thunderstorms occurred over north-east India on the 5th, 6th and 7th, and on the 9th and 13th, and the decrease of temperature, which followed the rainfall due to these storms, helped to mask the extension of the cold waves advancing from the north-west. The following gives data for all divisions for each alternate day from the 5th to the 13th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	5th March.	7th March.	9th March.	11th March.	13th March.
	°	°	°	°	°
Burma	+1·9	+2·0	+1·9	−2·2	−0·5
Assam	+5·1	+2·1	+1·8	−2·4	+1·8
Bengal	+5·1	+1·4	−1·4	−3·8	+1·1
Orissa	+1·9	+2·7	−0·4	−1·9	+1·0

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A. M. OF				
	5th March.	7th March.	9th March	11th March.	13th March.
	°	°	°	°	°
Bihar	+3·2	+2·4	−2·9	−3·8	+0·6
Chota Nagpur	+5·5	+4·7	−2·1	−0·8	+2·4
United Provinces of Agra and Oudh.	+0·7	−0·7	−7·1	−1·0	−1·0
Punjab	−0·2	−4·4	−3·3	−3·6	−9·0
North-West Frontier Province	+0·5	−4·3	−0·8	−8·5	−6·7
Sind	−3·2	−6·9	−5·4	−11·7	−9·7
Baluchistan	−14·2	−15·0	+0·8	−9·9	−15·7
Rajputana	−3·8	−8·5	−9·6	−1·8	−7·2
Gujarat	−5·1	−5·6	−8·6	−2·1	−8·2
Central India	−2·1	−5·2	−8·7	−1·6	−3·3
Central Provinces	−0·4	−4·4	−7·6	+0·2	−0·4
Berar	−0·9	−6·9	−8·7	+1·0	−2·2
West Coast	−1·7	−1·6	−2·7	−2·8	−2·3
Bombay Deccan	−0·8	−5·1	−8·9	−1·8	−3·0
Mysore	+0·6	−0·3	−1·0	−0·1	+0·3
Madras Coast	+1·3	+1·5	+2·3	−0·8	−0·1
Madras Deccan	+1·2	−0·9	−2·9	−1·6	−0·3
South India	−0·8	−0·6	+2·4	−0·2	+3·4

The preceding data show the advance of the first cold wave over north-west India on the 6th, and its intensification on the 7th and 8th, the appearance of the second cold wave on the 10th and 11th, and the fall of temperature due to rainfall over north-east India, and the slight recovery of temperature over eastern India on the 12th and 13th.

The extent of the depression of temperature during this cold period is shown by the following table which gives comparative data for all stations which, between the 5th and the 13th, experienced a variation of more than 12° below the normal.

DATE.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A. M. of date.
		°
5th March	Chaman	−15·6
	Quetta	−13·2
6th ,,	Quetta	−13·7
	Chaman	−13·5
7th ,,	Quetta	−15·5
	Chaman	−14·5
8th ,,	Hyderabad (Sind)	−14·4
	Simla	−14·3
	Chakrata	−13·5
8th March	Deesa	−12·9
	Jacobabad	−12·5
	Mount Abu	−12·5
	Ajmer	−12·2
9th ,,	Malegaon	−12·6
10th ,,	Quetta	−15·1
	Murree	−14·1
11th ,,	Hyderabad (Sind)	−17·8
	Murree	−13·8
	D. I. Khan	−12·6
	Chaman	−12·5
12th ,,	Quetta	−19·2
	Murree	−17·8
	Chaman	−17·5
	Peshawar	−12·5
13th ,,	Quetta	−15·7
	Murree	−15·7
	Chaman	−14·5

Between the 14th and 17th there was practically no rain over the Indian area, and during this period there occurred an irregular increase of temperature, though not sufficient to cancel the existing depression of temperature which continued to prevail with greater or less intensity over the whole of northern India. On the 17th there occurred a rapid rise of temperature over Baluchistan and the Indus valley. The following gives variation data for the 16th and 17th for stations in this area to illustrate this rise :—

STATION.	Variation of mean temperature from normal, 16th March.	Variation of mean temperature from normal, 17th March.
	°	°
Chaman	−0·6	+5·7
Quetta	−6·1	+3·6
Jacobabad	−4·4	+3·0
Mooltan	−4·6	+1·7
D. I. Khan	−3·9	+1·5
Montgomery	−6·5	−1·7

This rise of temperature preceded the appearance of a long period of unsettled weather during which snow fell in Kashmir, rain and snow in Baluchistan, rain in the submontane regions of north-west India, and thunder showers in north-east India. In consequence of these unsettled conditions the mean temperature was generally below the normal over the greater part of the country for the whole period from the 19th to the end of the month.

The following gives data for all divisions for each alternate day from the 19th to the 31st :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	19th Mar.	21st Mar.	23rd Mar.	25th Mar.	27th Mar.	29th Mar.	31st Mar.
	°	°	°	°	°	°	°
Burma	−3·4	−0·1	−0·3	+0·2	−3·2	−1·9	−0·8
Assam	−1·8	+1·3	−3·1	−4·7	−4·7	−6·3	−0·7
Bengal	−1·7	−0·3	−1·8	−3·8	−2·8	−2·5	0
Orissa	+0·3	+1·7	+0·3	−1·0	−1·2	−2·4	+1·9
Bihar	−2·6	+3·5	−0·6	−4·0	−2·5	−1·8	−0·2
Chota Nagpur	−1·0	+3·5	−0·2	−3·3	−1·3	−1·1	+2·6
United Provinces of Agra and Oudh.	+0·3	−0·6	−0·7	−6·4	−4·6	−0·9	+1·4
Punjab	+0·8	−8·3	−9·3	−7·3	−5·8	−1·8	−10·3
North-West Frontier Province	−1·2	−6·7	−12·5	−5·9	−5·3	−2·1	−12·7
Sind	−0·6	−3·0	−2·6	+0·4	−0·6	−0·3	−10·7
Baluchistan	+0·5	−6·6	−11·7	+1·2	−0·9	+2·3	−29·3
Rajputana	−2·7	−6·2	−2·9	−5·4	−2·3	+0·8	−6·0
Gujarat	−2·2	−3·9	−1·5	−1·3	−0·8	+1·3	−3·7
Central India	−1·4	−1·8	+0·5	−5·3	+0·1	+1·0	+1·3
Central Provinces	+0·4	−1·0	−0·1	−2·5	+0·5	+0·2	+2·2
Berar	+2·2	−2·8	+0·5	−2·1	+1·1	+2·0	+2·4
West Coast	−2·0	−3·0	−1·8	−1·4	−2·2	−0·6	+0·5
Bombay Deccan	+0·8	−3·1	−0·6	−2·0	−0·3	+2·2	+2·5
Mysore	+1·5	+0·6	+0·3	+1·2	+0·6	+2·5	+2·6
Madras Coast	+0·4	+0·5	−0·4	−0·6	+1·3	+2·8	+2·0
Madras Deccan	+2·2	+0·3	+1·6	+0·7	+0·6	+1·2	+4·7
South India	−2·3	+0·5	−0·3	+0·3	+2·4	+2·7	+3·0

The preceding data show that on the 19th the variations of the mean temperature from the normal were not large except in parts of Burma and of north-east and western India. On the 20th and 21st a sudden fall occurred in the north-west and on the latter date temperature was more than 10° below the normal over the submontane districts of north-west India. A further fall occurred in north-west and north-east India on the 22nd and 23rd, and on the 24th and 25th the mean temperature was below the normal in nearly all divisions of India. No change of importance occurred on the 26th, but on the 27th there was a rapid fall of temperature over Burma where the mean temperature was largely below the normal. On the 29th there occurred a rise over the Peninsula and the mean temperature over that area exceeded the normal. On the 30th an extraordinarily rapid fall of temperature occurred over Baluchistan and part of the North-West Frontier Province, and this fall extended over north-west India on the 31st on which day the mean temperature was below the normal to the west of a line joining Bombay and Meerut and above the normal to the eastward of that line. The depression of temperature on the last day of the month over north-west India and Baluchistan was very remarkable and amounted to nearly 30° in Baluchistan and to between 10° and 20° over parts of north-west India. The following gives comparative data for the Baluchistan stations and for those stations in India where the deficiency was over 10° :—

STATION.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 31st March 1903.
	°
Quetta	−29·8
Chaman	−28·7
Murree	−20·8
Khushab	−15·1
Montgomery	−15·1
Peshawar	−13·9
Jacobabad	−13·7
Mooltan	−13·2
Sialkot	−13·1
Rawalpindi	−13·0
Bikaner	−12·5
Leh	−12·2
Hyderabad (Sind)	−12·0
Lahore	−11·6
Cherat	−11·6
Dera Ismail Khan	−11·5

The following gives temperature variation data for the extra-Indian stations :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	°	°	°
Trincomalee	82·0	82·0	0
Colombo	83·9	82·1	+1·8
Kabul	40·1	46·4	−6·3
Kashgar	43·4	46·2	−2·8
Teheran	40·6	47·9	−7·3
Ispahan	41·7	48·7	−7·0
Bushire	63·6	65·6	−2·0
Jask	72·1	72·4	−0·3
Muscat	74·4	74·3	+0·1
Baghdad	60·6	60·2	+0·4
Aden	78 8	79·9	−1·1
Perim	79·9	80·6	−0·7
Zanzibar	84·2	82·8	+1·4
Seychelles	80·6	79·9	+0·7
Mauritius	78 8	77·3	+1·5

The above data show that the mean temperature of the month was below the normal over Kashgaria, Afghanistan, Persia and south Arabia and above the normal at Muscat, Baghdad, Colombo, the Seychelles, Zanzibar and Mauritius.

Winds.

The winds in March are usually somewhat unsteady as the month in question forms the transition period between the cold and the hot weather conditions, and at different times during the month these opposite conditions prevail. Down the Gangetic plain the westerly and north-westerly winds of the cold weather ordinarily obtain and easterly winds in Assam and north Bengal, but in south Bengal and along the coasts of the Bay southerly winds of indraught from the Bay are very frequent.

At Port Blair during the month under review the wind was more northerly than usual, but was unsteady, though the velocity was approximately normal. This is shown below :—

SATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, March 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Northerly Deflection.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
				°	°				
Port Blair .	55	64	−9	N 40 E	N 62 E	+22	105	103	+ 2

On the Burma coast the wind varied considerably from the normal. Thus at Rangoon the mean wind direction was south-east instead of south-south-west and at Akyab south-west instead of north-west, while at Diamond Island, though the mean wind direction was approximately normal, the velocity was very considerably in excess of the average. The following gives data for these stations :—

STATION.	MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, March 1903.	Normal, March.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	°	°			
Rangoon . . .	S 36 E	S 22 W	42	114	−72
Akyab . . .	S 35 W	N 53 W	63	93	−30
Diamond Island . .	N 40 W	N 42 W	351	206	+145

Around the head of the Bay the wind's direction, except at Calcutta, was more southerly than the average. This is shown below :—

STATION.	MEAN WIND DIRECTION.		
	Actual, March 1903.	Normal, March.	Southerly deflection.
	°	°	
Chittagong	S 23 W	S 36 W	+13
Calcutta	S 40 W	S 36 W	− 4
Saugor Island	S 16 W	S 26 W	+10
False Point	S 10 W	S 50 W	+40

The steadiness of the wind was greater than usual at False Point and Chittagong, while the velocity varied irregularly from the normal. The following gives comparative data :—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, percentage, March 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	Actual March 1903.	Normal, March.	Variation of actual from normal, March 1903.
Chittagong . .	45	20	+25	137	129	+ 8
Calcutta . .	49	49	0	111	118	− 7
Saugor Island .	53	61	− 8	341	309	+32
False Point . .	60	37	+23	228	266	−38

In the Gangetic plain the wind was more northerly than usual at some stations, but on the whole the coditions in this area were approximately normal. This is shown below :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, March 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	March Actual, 1903.	Normal, March.	March Actual, 1903.	Normal, March.	Variation of actual from normal, March 1903.
				°	°			
Hazaribagh .	55	54	+ 1	N 55 W	N 74 W	215	194	+21
Darbhanga .	21	31	−10	S 87 W	S 78 W	68	113	−45
Allahabad . .	42	40	+ 2	N 49 W	N 62 W	177	110	+67

At Lahore and Ludhiana the wind was unusually northerly, while at the more eastern stations of the upper sub-Himalayas division there was an exceptional amount of westing. This is shown below :—

STATION.	MEAN WIND DIRECTION.	
	Actual, March 1903.	Normal, March.
	°	°
Lahore	N 3 E	N 10 W
Ludhiana	N 3 W	N 45 W
Dehra Dun	S 62 W	N 80 W
Roorkee	N 75 W	N 64 W
Meerut	S 86 W	N 60 W

The wind was more than usually variable, but the velocity generally exceeded the average. The following gives data :—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, March 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
Lahore	21	31	—10	81	70	+11
Ludhiana	16	34	—18	81	50	+31
Dehra Dun	26	27	— 1	34	50	—16
Roorkee	18	25	— 7	103	72	+31
Meerut	53	44	+ 9	55	66	—11

At Kurrachee the wind's direction was approximately normal, but in the upper Indus valley the wind, as at Lahore and Ludhiana, was unusually northerly. The following gives comparative data for this division :—

STATION.	MEAN WIND DIRECTION.	
	Actual, March 1903.	Normal, March.
	°	°
Peshawar	N 1 E	N 18 E
Jacobabad	N 14 E	N 87 E
Kurrachee	S 68 W	S 77 W

The wind was more westerly and steadier than usual in Rajputana. This is shown below :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		
	Actual percentage, March 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Westerly deflection.
				°	°	
Jaipur	53	32	+21	N 89 W	N 39 W	+50
Deesa	55	35	+20	N 67 W	N 66 W	+ 1

The following gives comparative data of the mean air movement of the month over northern India, Burma and the Bay Islands :—

PROVINCE OR DIVISION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, March 1903.	Normal percentage, March	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
Bay Islands	55	64	— 9	105	103	+ 2
Burma	45	54	— 9	152	138	+14
Bengal	49	43	+ 6	200	185	+15
Bihar	21	31	—10	68	113	—45
Chota Nagpur	55	54	+ 1	215	194	+21
Orissa	60	37	+23	228	266	—38
United Provinces of Agra and Oudh.	32	32	0	64	68	— 4
Punjab	19	33	—14	81	60	+21
North-West Frontier Province.	27	16	+11	71	91	—20
Rajputana	54	32	+22	153	161	— 8
Sind	37	38	— 1	172	185	—14

Steady north-westerly winds prevailed throughout the Deccan during March and the velocity was, on the whole, above the normal. The following gives data :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, March 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	March 1903. Actual,	March. Normal,	Variation of actual, from normal, March 1903.
				°				
Belgaum	18	17	+ 1	N 37 W	N 81 W	222	272	—50
Sholapur	42	5	+37	N 31 W	N 44 E	214	190	+24
Akola	53	42	+11	N 44 W	N 43 W	129	113	+16
Buldana	59	47	+12	N 47 W	N 28 W	194	176	+18
Khandwa	48	45	+ 3	N 31 W	N 45 W	144	116	+23
Nagpur	14	12	+ 2	N 46 W	N 1 E	...	...	...
Hyderabad (Deccan)	14	23	— 9	N 25 W	S 41 E	81	105	—24

Fairly normal winds prevailed along the west coast, as is shown by the following comparative data for Bombay and Karwar:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, March 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
				°	°			
Bombay . .	69	52	+17	N 35 W	N 31 W	244	270	—26
Karwar . .	77	77	0	N 59 W	N 75 W	125	96	+29

The winds were generally unsteady in southern India and were, on the whole, somewhat more southerly than usual. This is shown below:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.	
	Actual percentage, March 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.
				°	°
Salem	29	38	— 9	S 34 E	S 66 E
Chitaldroog . . .	18	27	— 9	N 11 E	N 87 E
Bangalore . . .	31	46	—15	S 72 E	S 27 E
Hassan	32	51	—19	N 73 E	S 84 E
Mysore	31	37	— 6	S 65 E	N 84 E
Madras	82	81	+ 1	S 15 E	S 46 E
Bellary	37	19	+18	N 73 W	S 35 E

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 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
Central Provinces . .	31	29	+ 2	144	116	+28
Berar	56	45	+11	162	145	+17
Bombay Deccan . .	30	11	+19	218	231	—13
Madras Deccan . .	26	21	+ 5	99	107	— 8
West Coast . . .	73	65	+ 8	185	183	+ 2
Mysore . . .	28	40	—12	117	128	—11
Madras Coast . .	82	81	+ 1	153	150	+ 3
South India . .	29	38	— 9	121	126	— 5

The winds were steadier than usual at the hill stations, but the directions were even more irregular than usual except at the more eastern stations where conditions were approximately normal. The following gives data for Katmandu and Darjeeling:—

HILL STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, March 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
				°	°			
Katmandu . .	55	48	+ 7	N 76 W	N 82 W	35	32	+ 3
Darjeeling . .	58	44	+14	S 83 W	S 75 W	217	187	+30

At the hill stations in the Central Provinces the winds were unusually northerly. This is shown below:—

HILL STATION.	MEAN WIND DIRECTION.	
	Actual, March 1903.	Normal, March.
	°	°
Pachmarhi	N 36 W	N 57 W
Chikalda	N 29 W	N 53 W

In the Gulf of Aden the winds were approximately normal. The following gives comparative data for the two stations in this region:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, March 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
				°	°			
Aden . . .	71	72	— 1	N 73 E	N 86 E	354	366	—12
Perim . . .	68	55	+13	S 51 E	S 63 E	445	441	+ 4

The wind was very much more easterly and steadier than usual at Zanzibar, while it was more northerly than the average at the Seychelles and Mauritius. The following gives data:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, March 1903.	Normal percentage, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
				°	°			
Zanzibar . .	39	21	+18	S 89 E	S 34 E	135	141	—6
Seychelles . .	36	56	—20	N 2 W	N 31 W	126	127	—1
Mauritius . .	...	...	...	N 85 E	S 80 E	245	238	+7

Humidity and Cloud.

The humidity conditions of the month of March differed considerably from those of February, more particularly over the south of the Peninsula. The area of relatively high humidity which prevailed over this region during the past three months has now commenced to move south-eastward and the only instances of excessive humidities over the Peninsula are reported from the Madras and Salem districts where both the absolute and relative humidities were considerably above the normal. The following gives comparative data for these two stations:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	"	"	"	%	%	
Madras	·821	·772	+·049	79	74	+ 5
Salem	·801	·638	+·163	66	56	+10

The relative humidity was normal at Port Blair where the absolute humidity was in slight defect, but the mean temperature below the normal. This is shown below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	"	"	"	%	%	
Port Blair	·843	·863	—·020	76	76	0

Both the absolute and relative humidities were in slight excess at Rangoon and Chittagong, as is shown below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	"	"	"	%	%	
Rangoon	·676	·671	+·005	66	64	+2
Chittagong	·699	·683	+·016	77	74	+3

The only other region where the relative humidity was higher than usual was the extreme north-west of India. The following gives comparative data for the stations contained within this area:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	"	"	"	%	%	
Lahore	·361	·354	+·007	57	50	+7
Peshawar	·304	·328	—·024	61	57	+4
Deesa	·264	·299	—·035	31	29	+2
Jacobabad	·285	·301	—·016	37	37	0

The preceding data show that at Lahore the absolute humidity was in trifling excess, but that the mean temperature was low and the relative humidity in considerable excess, and that at Peshawar and Deesa the absolute humidity was less than usual, but that owing to the very low temperature prevailing the relative humidity was higher than the normal.

In all other parts of the plains of India, the relative humidity was less than usual, the deficiency amounting to 5 or more at the following large number of stations:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Variation of actual from normal March 1903.
	"	"	"	%	%	
Meerut	·265	·357	—·032	39	49	—10
Hyderabad (Deccan)	·398	·465	—·067	35	45	—10
Sholapur	·251	·344	—·093	22	31	— 9
Bangalore	·384	·455	—·071	41	50	— 9
Jaipur	·214	·305	—·091	28	37	— 9
Allahabad	·283	·359	—·076	34	42	— 8
Nagpur	·288	·355	—·067	26	34	— 8
Hassan	·403	·454	—·051	48	56	— 8
Kurrachee	·493	·591	—·098	58	65	— 7
Belgaum	·303	·400	—·097	35	41	— 6
Buldana	·209	·282	—·073	22	28	— 6
Khandwa	·235	·302	—·067	25	31	— 6
Hazaribagh	·236	·284	—·048	28	34	— 6
Roorkee	·277	·328	—·051	43	49	— 6
Calcutta	·616	·634	—·018	61	66	— 5
Saugor Island	·776	·811	—·035	73	78	— 5
Dehra Dun	·245	·293	—·048	43	48	— 5
Akola	·245	·301	—·056	24	29	— 5

The above shows that there were two areas of maximum relative dryness—one lying over the region outlined by the stations of Meerut and Jaipur, the other covering the

south of the Deccan between the stations of Hyderabad and Sholapur. It will also be seen from the above table that over the whole of this large area the relative humidity was below the normal owing to an actual decrease in the amount of vapour present in the air, the mean temperature being generally lower than the average. The following gives mean data for the different divisions of India for mean temperature and for mean absolute and relative humidities :—

PROVINCE OR DIVISION.	Mean temperature variation, from normal, March 1903.	ABSOLUTE HUMIDITY. Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.	RELATIVE HUMIDITY. Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
		"	"	"	%	%	
Bay Islands	−0·6	·843	·863	−·020	76	76	0
Burma	0	·705	·718	−·013	69	70	−1
Bengal	+0·1	·697	·709	−·012	70	72	−2
Orissa	+1·0	·820	·786	+·034	79	81	−2
Bihar	−0·6	·423	·447	−·024	53	54	−1
Chota Nagpur	+0·6	·236	·284	−·048	28	34	−6
United Provinces	−2·1	·268	·335	−·067	40	47	−7
Punjab	−2·1	·339	·360	−·021	55	52	+3
North-West Frontier Province.	−4·5	·304	·328	−·024	61	57	+4
Sind	−3·5	·389	·446	−·057	48	52	−4
Rajputana	−3·9	·239	·302	−·063	30	34	−4
Central Provinces	−1·0	·262	·329	−·067	26	33	−7
Berar	−1·5	·227	·292	−·065	23	29	−6
Bombay Deccan	−0·8	·277	·372	−·095	29	37	−8
West Coast	−2·3	·655	·733	−·078	71	74	−3
Mysore	+1·1	·407	·443	−·036	43	48	−5
Madras Deccan	+1·9	·409	·443	−·034	34	41	−7
Madras Coast	−0·2	·821	·772	+·049	79	74	+5
South India	+2·4	·801	·638	+·163	66	56	+10

The mean humidity of the month was less than 30 per cent. at the stations for which comparative data are given below :—

STATION.	RELATIVE HUMIDITY. Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	%	%	
Hazaribagh	28	34	−6
Jaipur	28	37	−9
Nagpur	26	34	−8
Khandwa	25	31	−6
Akola	24	29	−5
Buldana	22	28	−6
Sholapur	22	31	−9

The driest areas hence included parts of Rajputana and of the Deccan and the following were the lowest humidities recorded :—

STATION.	Date.	Hour.	Lowest humidity recorded during March 1903.
			%
Bellary	3rd March	4 P.M.	3
Do.	4th ,,	,,	6
Sholapur	6th ,,	10 A.M.	9
Jaipur	7th ,,	4 P.M.	9
Deesa	8th ,,	10 A.M.	2
Do.	,, ,,	4 P.M.	0
Do.	9th ,,	,,	5
Jaipur	15th ,,	,,	8
Deesa	,, ,,	,,	5
Mount Abu	,, ,,	8 A.M.	3
Do.	16th ,,	10 A.M. & 4 P.M.	9
Deesa	,, ,,	4 P.M.	7
Jaipur	,, ,,	,,	6
Mount Abu	17th ,,	10 A.M.	9
Deesa	,, ,,	4 P.M.	8
Mount Abu	18th ,,	10 A.M.	8
Deesa	24th ,,	4 P.M.	9
Jaipur	29th ,,	,,	9
Do.	31st ,,	10 A.M.	9
Do.	,, ,,	4 P.M.	5
Deesa	,, ,,	8 A.M.	4
Do.	,, ,,	10 A.M.	3
Do.	,, ,,	4 P.M.	1

On the hills, including Baluchistan, the absolute humidities were, with the exception of Srinagar, below the normal, but at all the western stations the mean temperature was exceedingly low and the relative humidity was higher than usual. This is shown below :—

HILL STATION.	ABSOLUTE HUMIDITY. Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.	RELATIVE HUMIDITY. Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	"	"	"	%	%	
Quetta	·188	·214	−·026	68	57	+11
Srinagar	·238	·232	+·006	84	77	+ 7
Chakrata	·177	·194	−·017	58	53	+ 5
Simla	·157	·185	−·028	54	50	+ 4
Ranikhet	·202	·232	−·030	55	53	+ 2

On the other hand, at the eastern Himalayan stations and at the central hill stations the mean temperature was normal or in only slight defect and the relative humidity was consequently in defect. The following gives data :—

Hill Station.	Absolute Humidity.			Relative Humidity.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	"	"	"	%	%	
Darjeeling	·210	·252	—·042	60	73	—13
Katmandu	·254	·305	—·051	53	61	— 8
Pachmarhi	·188	·245	—·057	26	34	— 8
Chikalda	·222	·287	—·065	28	33	— 5
Mount Abu	·184	·219	—·035	30	32	— 2

In south Arabia the variations of the relative humidity were small. At Aden both the absolute and relative humidities were in defect, while at Perim both were in excess. The following gives data :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	"	"	"	%	%	
Aden	·674	·705	—·031	68	71	—3
Perim	·739	·736	+·003	73	72	+1

In the south-east Trades region the air was damper than usual. At Zánzibar the relative humidity was exactly normal and at the Seychelles and Mauritius it was in trifling excess :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
	"	"	"	%	%	
Zanzibar	·913	·889	+·024	78	78	0
Seychelles	·867	·814	+·053	81	79	+2
Mauritius	·820	·754	+·066	83	80	+3

The relative distribution of the cloud amount had changed considerably since the month of February. The excess of cloud over the interior of the Peninsula, which had been a marked feature of the weather during the months of December, January and February, had entirely and the excess over Burma had almost wholly, disappeared while, on the contrary, the amount of cloud, relatively to the normal, had increased in a marked manner over part of north-west India.

The cloud returns for the month show that the cloud amount was in excess over and at the foot of the north-west Himalayas. The following gives data for the stations in this area :—

Hill Station.	Mean Cloud Amount.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
Chakrata	6·1	3·9	+2·2
Simla	7·0	4·8	+2·2
Leh	8·4	6·3	+2·1
Srinagar	7·7	5·6	+2·1
Ranikhet	4·8	3·7	+1·1
Dehra Dun	5·0	3·5	+1·5
Roorkee	3·5	2·5	+1·0
Lahore	4·2	3·2	+1·0

Cloud was also in excess but by a small amount at Akyab. This is shown below :—

Station.	Mean Cloud Amount.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
Akyab	2·7	2·0	+0·7

Over the whole of the remainder of India the mean cloud amount of the month was in defect of the normal and

the deficiency equalled or exceeded 1·0 at the following large number of stations :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
Hassan	1·8	3·9	—2·1
Sholapur	0·4	2·4	—2·0
Bangalore	0·4	2·3	—1·9
Diamond Island	0·8	2·7	—1·9
Chitaldroog	0·5	2·3	—1·8
Nagpur	0·8	2·5	—1·7
Kurrachee	1·1	2·7	—1·6
Buldana	0·7	2·2	—1·5
Khandwa	0·4	1·7	—1·3
Rangoon	0·8	2·1	—1·3
Deesa	1·1	2·3	—1·2
Akola	0·6	1·7	—1·1
Bombay	0·5	1·6	—1·1
Madras	1·4	2·4	—1·0
Port Blair	1·9	2·9	—1·0

The preceding data show that the deficiency was large in parts of the Deccan, Mysore and the Burma coast and that the skies were practically clear of cloud (*i.e.*, the mean cloud amount was 0·5 or less) in parts of the Deccan, of the Central Provinces, the west coast and of Mysore. The following gives data for these stations :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
Bombay	0·5	1·6	—1·1
Karwar	0·5	1·4	—0·9
Chitaldroog	0·5	2·3	—1·8
Sholapur	0·4	2·4	—2·0
Khandwa	0·4	1·7	—1·3
Bangalore	0·4	2·3	—1·9

The maximum cloud amount was reported from the stations in the west Himalayas and was more than 6·0 at the stations for which comparative data are given below :—

HILL STATION.	MEAN CLOUD AMOUNT.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903.
Leh	8·4	6·3	+2·1
Srinagar	7·7	5·6	+2·1
Simla	7·0	4·8	+2·2
Chakrata	6·1	3·9	+2·2

The sky was clearer than usual at the stations of Perim and Aden, while in the south-east Trades region the cloud amount was about normal. The following gives data for Zanzibar, Mauritius, and the Seychelles :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, March 1903.	Normal, March.	Variation of actual from normal, March 1903
Zanzibar	5·5	4·9	+0·6
Mauritius	6·7	6·5	+0·2
Seychelles	6·3	6·7	—0·4

Rainfall.

The rainfall of the month was confined practically to north-west and north-east India though there was some local rainfall at a few southern stations.

Thunderstorms and feebly disturbed weather gave light to moderate rain during the month to the south-west of the Peninsula, to west Ceylon and to the south of Tenasserim. Over northern India the rain was due, in north-west India to the occurrence of a series of storms of the cold weather type and in the north-east to the occurrence of thunderstorms and duststorms or nor'-westers. The chart giving the actual rainfall of the month (Pl. IV) shows that, with the exception of local falls at one or two stations, no rain was received during the month over the Peninsula, Gujarat, southern and eastern Rajputana, the Central Provinces, Central India, the greater part of the United Provinces, of north Bihar and of Burma. In the north-west area of rainfall the amount received varied from 0·14″ at Meerut to 3·93″ at Rawalpindi and to 7·08″ at Murree, while in north-east India the total amount ranged from 0·14″ at Cuttack to 10·21″ at Silchar.

The chief periods of rainfall were :—

(1) The 3rd to the 7th when showers fell over north-west India and Kashmir, and thunder showers occurred over north-east India.

(2) The 9th to the 13th when heavy snow fell in Kashmir and rain and snow in Baluchistan, the west Himalayas and sub-Himalayas and occasional thunder-showers in north-east India.

(3) The 18th to the end of the month during which Kashmir received almost daily snow, and showers of rain or snow were frequent over Baluchistan, the west Himalayas and the submontane districts.

(4) The 21st and 22nd when thunder showers fell over north-east India, and

(5) The 24th to the 28th when thunder showers again occurred in the north-east.

The disturbed character of the weather over the north-west Himalayas is clearly shown by the days of snowfall and rainfall during the month. These numbered 15 at Kailang, 20 at Minimarg, 21 at Sonemarg, 15 at Srinagar, 15 at Murree and 10 at Quetta.

The following table gives comparative rainfall data for the 57 meteorological or rainfall divisions:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, March 1903.	Average normal, March.	Average actual, March. 1903.	Average normal, March.	Variation of actual from normal, March 1903.
				Inches.	Inches.	Inches.
Burma	Tenasserim	0·2	1·4	0·18	0·82	−0·64
	Lower Burma (Deltaic)	0	0·3	0	0·18	−0·18
	Central do	0	0·1	0	0·02	−0·02
	Upper do	1·4	0·8	0·45	0·28	+0·17
	Arakan	0·3	0·4	0·28	0·28	0
Bengal and Assam	Eastern Bengal	5·0	3·0	3·35	2·33	+1·02
	Assam (Surma)	10·9	8·9	7·63	7·49	+0·14
	Do. (Hills)	7·5	6·0	5·23	4·12	+1·11
	Do. (Brahmaputra)	7·0	6·5	3·30	3·56	−0·26
	Deltaic Bengal	3·6	2·3	1·96	1·43	+0·53
	Central do.	2·4	1·4	1·17	0·79	+0·38
	North do.	2·2	1·9	1·10	1·30	−0·20
	Bengal Hills	1·4	3·8	0·60	1·71	−1·11
	Orissa	1·2	1·9	0·69	1·10	−0·41
	Chota Nagpur	1·0	1·5	0·38	0·75	−0·37
	Bihar (South)	0·4	0·8	0·09	0·38	−0·29
	Do. (North)	0·2	0·8	0·07	0·39	−0·32
United Provinces of Agra and Oudh.	United Provinces (East)	0	0·7	0·03	0·25	−0·22
	Oudh (South)	0·2	0·6	0·05	0·27	−0·22
	Do. (North)	0·1	0·8	0·03	0·40	−0·37
	United Provinces (Central)	0·1	0·5	0·03	0·26	−0·23
	Do. do. (West)	0·2	0·9	0·06	0·35	−0·29
	Do. do. (East Submontane)	0·2	0·7	0·07	0·30	−0·23
	Do. do. (West do.)	1·0	1·5	0·28	0·70	−0·42
	Do. do. (Hills)	5·6	2·6	2·16	1·39	+0·77
Punjab	Punjab (South-East)	0·3	0·9	0·09	0·35	−0·26
	Do. (South)	1·4	0·9	0·76	0·41	+0·35
	Do. (Central)	3·9	1·8	1·70	0·81	+0·89
	Do. (Submontane)	4·9	2·1	2·74	1·08	+1·66
	Do. (Hills)	11·9	4·3	6·56	2·75	+3·81
	Do. (West)	3·1	1·3	1·00	0·52	+0·48
N.-W. F. Province	North-West Frontier Province	7·5	3·8	3·64	2·06	+1·58
Bombay and Malabar Coast Districts (Madras).	Malabar	0·2	1·0	0·06	0·54	−0·48
	Travancore	0·6	...	0·35	...	...
	Madras (South Central)	0·1	0·9	0·05	0·53	−0·48
	Coorg	0·5	...	0·20	...	...
	Mysore	0	0·7	0·02	0·32	−0·30
	Konkan	0	0·1	0·01	0·06	−0·05
	Bombay Deccan	0	0·5	0	0·26	−0·26
	Hyderabad North	0	0·8	0	0·37	−0·37
	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	0·01	0·51	−0·50
	Do. (East)	0·1	1·4	0·03	0·64	−0·61
Bombay (North)	Gujarat	0	0	0	0·01	−0·01
	Kathiawar and Cutch	0·3	0·1	0·12	0·02	+0·10
	Sind	0·3	0·4	0·17	0·16	+0·01
	Baluchistan Hills	6·0	3·2	2·82	1·15	+1·67
Rajputana and Central India.	Central India (East)	0	0·4	0·01	0·16	−0·15
	Rajputana (East), Central India (West)	0·2	0·5	0·06	0·19	−0·13
	Rajputana (West)	0·8	0·2	0·29	0·07	+0·22
Madras	East Coast (North)	0	1·2	0·06	0·61	−0·55
	Hyderabad (South)	0	0·8	0	0·50	−0·50
	Madras (Central)	0	0·5	0	0·19	−0·19
	East Coast (Central)	0	0·1	0	0·17	−0·17
	Do. (South)	0	0·4	0	0·30	−0·30
	Madras (South)	0·3	1·4	0·12	0·99	−0·87

The total rainfall of the month was less than 0·10″ in amount in 30 of the rainfall divisions including the inland parts of Burma (except upper Burma) Bihar, the United Provinces (except the west and hill divisions) the south-east Punjab, and the greater part of the Peninsula and the central parts of the country. From this area of light rainfall the amount increased and amounted to 7·63 inches in the Surma division of Assam, and to 6·56 inches in the hill division of the Punjab.

The total rainfall of the month was more than 25% greater than the average in the following 15 divisions, *viz.*, upper Burma (+61%), east Bengal (+44%), Assam hills (+27%), deltaic Bengal (+37%), central Bengal (+48%), United Provinces hills (+55%), south Punjab (+85%), central Punjab (+109%), Punjab submontane (+154%), Punjab hills (+139%), North-West Frontier Province (+77%), west Punjab (+92%), Kathiawar and Cutch (+500%), Baluchistan hills (+145%), and west Rajputana (+314%).

The preceding data show that the rainfall, relatively to the normal, was heaviest in Kathiawar, west Rajputana, Baluchistan and parts of the Punjab.

The mean variation of the rainfall of the whole country derived from the fifth figure column of the above table amounted to —0·08″.

The greater part of Burma was rainless throughout the month, but in Mergui there were occasional showers between the 23rd and the 27th, in upper Burma between the 1st and the 10th and again between the 21st and the 30th, and in Arakan between the 26th and 28th. The showers were very light over the plains districts, but were moderate on the hills and exceeded 1·0″ in 24 hours at the following places on the following days:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ruby Mines	Momeik	9th March	1·14
Upper Chindwin	Homalin	21st ,,	1·05
Chin Hills	Tiddim	26th ,,	1·17
Arakan Hill Tracts	Paletwa	27th ,,	1·30
Chin Hills	Haka	,, ,,	1·21
Arakan Hill Tracts	Paletwa	28th ,,	1·40
Chin Hills	Haka	,, ,,	1·38
	Tiddim	,, ,,	1·23
	Fort White	,, ,,	1·05
Ruby Mines	Momeik	29th ,,	1·15

The total rainfall of the month slightly exceeded the small normal fall in upper Burma and was exactly normal in Arakan, while little or none fell in the remaining divisions. The following gives comparative data:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, March 1903.	Average normal, March.	Variation of actual, from normal, March 1903.	Percentage variation from normal.	Average actual, March 1903.	Average normal, March.
	Inch.	Inch.	Inch.			
Tenasserim	0·18	0·82	—0·64	— 78	0·2	1·4
Lower Burma (Deltaic)	0	0·18	—0·18	—100	0	0·3
Central Burma	0	0·02	—0·02	—100	0	0·1
Upper ,,	0·45	0·28	+0·17	+ 61	1·4	0·8
Arakan	0·28	0·28	0	0	0·3	0·4

Assam received scattered showers between the 1st and the 9th and on the 13th and 14th and general showers between the 21st and the 28th. The showers were moderately heavy in the Surma valley and the hill districts on the 4th and 5th and the following gives the falls exceeding 2″ in 24 hours during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Khasi and Jaintia Hills.	Cherra Poonjee (Police Station).	4th March	4·30
Sylhet	Lalakhal	,, ,,	3·53
Khasi and Jaintia Hills.	Wahmaulien	,, ,,	3·32
Cachar	Jatinga valley	,, ,,	2·99
	Dewan	,, ,,	2·95
	Silchar	,, ,,	2·89
	Badarpur	,, ,,	2·34
	Bikrampur	,, ,,	2·21
	Do.	5th ,,	2·46
	Dewan	21st ,,	2·69
Khasi and Jaintia Hills.	Cherra Poonjee (Police Station).	,, ,,	2·45
Kamrup	Boko	,, ,,	2·23
Khasi and Jaintia Hills.	Wahmaulien	22nd ,,	3·23
Kamrup	Chhaygaon	,, ,,	2·40
	Hajo	23rd ,,	5·12
Sylhet	Sephinjuri Bil	,, ,,	2·83
Cachar	Jaffirband	24th ,,	2·06
	Kukicherra	26th ,,	2·54
Lushai Hills	Aijal	,, ,,	2·51
	Sairang	,, ,,	2·17
Khasi and Jaintia Hills.	Cherra Poonjee (Police Station).	27th ,,	2·98
Cachar	Mahur Saddle	28th ,,	2·73
	Paiding	,, ,,	2·48
Sylhet	Sylhet	31st ,,	2·52

At Cherra Poonjee the month's rainfall was somewhat heavier than usual, the total rainfall of the month amounting to 12·12″, while the normal fall is 10·84″. The rainfall of the province varied irregularly in different parts, as is shown by the following comparative data for the eight plains districts:—

District.	Rainfall.			
	Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	7·94	7·90	+0·04	+ 1
Sylhet	6·29	7·11	—0·82	—12
Goalpara	1·71	2·05	—0·34	—16
Kamrup	3·60	1·51	+2·09	+138
Darrang	2·58	2·94	—0·36	—12
Nowgong	3·20	2·64	+0·56	+21
Sibsagar	3·49	4·71	—1·22	—26
Lakhimpur	4·26	5·61	—1·35	—24

In Bengal proper there was a fair amount of rain during March, but in the western divisions the fall was light and scattered. In south-west Bengal there occurred scattered showers between the 4th and the 9th, general showers on the 13th and scattered showers again between the 20th and 27th. Mankur (Burdwan) reported a fall of 2″·0 and Satkhira (Khulna) of 2·84″ in 24 hours on the 7th, and the sadr station of Khulna a fall of 2·50 inches on the 24th, but with these exceptions the showers were generally light or moderate, and except on the 7th, 13th, 21st and 24th seldom exceeded 1·00″. The following gives comparative data for the districts in this division:—

District.	Rainfall.			
	Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burdwan	2·32	1·06	+1·26	+119
Birbhum	1·23	0·68	+0·55	+81
Bankura	1·65	1·00	+0·65	+65
Midnapore	1·65	1·16	+0·49	+42
Hooghly	1·90	1·28	+0·62	+49
Howrah	0·99	1·02	—0·03	— 3
24-Parganas	1·46	1·29	+0·17	+13
Nadia	2·08	1·48	+0·60	+41
Murshidabad	1·53	0·90	+0·63	+70
Jessore	3·05	1·82	+1·23	+68
Khulna	2·86	1·50	+1·36	+91

In north Bengal there were a few scattered showers towards the commencement and close of the month and general showers on the 21st and 22nd. There were no heavy falls during the month but the total amount was nearly normal, as is shown by the following comparative statement for the contained districts:—

District.	Rainfall.			
	Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Rajshahi	1·17	0·95	+0·22	+23
Dinajpur	0·26	0·72	—0·46	—64
Jalpaiguri	1·13	1·68	—0·55	—33
Cooch Behar	1·44	1·67	—0·23	—14
Rangpur	1·44	1·03	+0·41	+40
Bogra	1·19	1·02	+0·17	+17
Pabna	1·52	1·38	+0·14	+10

In east Bengal there were occasional showers between the 7th and 9th and again on the 13th and general showers between the 21st and 28th. On the 26th, 27th and 28th the rainfall was moderately heavy, and the following falls of 2·00″ or more in 24 hours were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Backergunge	Barisal	26th March	3·30
Chittagong	Kodala	27th ,,	3·34
Tippera	Chandpur	,, ,,	2·27
Chittagong	Chittagong	28th ,,	2·44
	Kutubdia	,, ,,	2·33
Backergunge	Daulatkhan	,, ,,	2·27
Chittagong	Fenoa	,, ,,	2·90

The total rainfall of the month was nearly 50 per cent. heavier than usual, as is shown by the following

comparative data for the districts contained in the division :—

District.	Rainfall. Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dacca	2·30	2·43	—0·13	— 5
Mymensingh	2·24	1·87	+0·37	+ 20
Faridpur	2·44	2·25	+0·19	+ 8
Backergunge	3·90	1·65	+2·25	+136
Tippera	4·02	2·93	+1·09	+ 37
Noakhali	3·90	2·90	+1·00	+ 34
Chittagong	3·96	2·28	+1·68	+ 74

In Bihar and Chota Nagpur the rainfall was light and scattered and from 49 per cent. to 82 per cent. below the normal. This is shown below:—

Division.	Rainfall. Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.	Number of rainy days. Average actual, March 1903.	Average normal, March.
	Inch.	Inch.	Inch.			
Chota Nagpur	0·38	0·75	—0·37	—49	1·0	1·5
South Bihar	0·09	0·38	—0·29	—76	0·4	0·8
North Bihar	0·07	0·39	—0·32	—82	0·2	0·8

Orissa received moderate to light rain between the 24th and 27th, the heaviest fall in 24 hours having been 2·20″ at Bhadrak in Balasore. The total fall, except in Balasore, was, however, lighter than usual, as is shown by the following comparative data for the districts in the division :—

District.	Rainfall. Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Cuttack	0·37	1·17	—0·80	—68
Balasore	1·50	1·49	+0·01	+ 1
Angul	0·21	0·96	—0·75	—78
Puri	0·17	0·90	—0·73	—81

The weather was practically rainless over the greater part of the United Provinces, the total rainfall of the month being less than 0·10″ in Oudh and the east, central, east submontane and west divisions of the United Provinces. In the hill and west submontane divisions, however, the fall was heavier, and moderately general rain was received between the 3rd and the 13th, the 20th and the 27th, and on the 30th and 31st, and falls exceeding 1″ in 24 hours were recorded at the following places on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Garhwal	Joshimath	21st March	1·32
	Pauri	,, ,,	1·21
	Joshimath	23rd ,,	2·04
	Do.	31st ,,	1·84
Naini Tal	Ramnagar	,, ,,	1·70

The rainfall was in excess in some parts of these divisions, as is shown by the following comparative data for the hill and submontane districts :—

District.	Rainfall. Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Pilibhit	0·03	0·74	—0·71	— 96
Shahjahanpur	0·04	0·49	—0·45	— 92
Budaun	0·01	0·48	—0·47	— 98
Bareilly	0·01	0·53	—0·52	— 98
Moradabad	0·04	0·69	—0·65	— 94
Bijnor	0·09	0·78	—0·69	— 88
Muzaffarnagar	0·14	0·60	—0·46	— 77
Saharanpur	0·31	0·61	—0·30	— 49
Dehra Dun	1·27	1·20	+0·07	+ 6
Almora	2·31	1·49	+0·82	+ 55
Garhwal	3·54	1·73	+1·81	+105
Naini Tal	0·33	0·98	—0·65	— 66

There were four periods of rainfall during the month in the Punjab. The first fall occurred between the 1st and the 4th, and was mainly confined to the hill and submontane districts, where the rainfall was not heavy. The second rainfall period lasted from the 10th to the 13th. During this period the rainfall extended to nearly all parts of the

province, and was exceptionally heavy and general for the time of year. Falls exceeding 1″ in 24 hours were reported from many districts and falls exceeding 2″ were recorded at the following places on the following dates:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ferozepore	Jalalabad	11th March	2·06
Amritsar	Buggeh	12th ,,	4·00
Amritsar	Buchar	,, ,,	3·50
Amritsar	Tarntaran	,, ,,	2·93
Kangra	Nurpur	,, ,,	2·82
Amritsar	Ajnala	,, ,,	2·69
Gurdaspur	Madhopur	,, ,,	2·65
Gurdaspur	Pathankot	,, ,,	2·38
Gurdaspur	Shakargarh	,, ,,	2·34
Gurdaspur	Gurdaspur	,, ,,	2·32
Gurdaspur	Batala	,, ,,	2·23
Gurdaspur	Aliwal	,, ,,	2·20
Sialkot	Zafarwal	,, ,,	2·15
Amritsar	Amritsar	,, ,,	2·12
Ferozepore	Ferozepore	,, ,,	2·02

The third rainfall period was between the 20th and 25th, and though lighter than during the preceding period the rain extended to most parts of the province, and was moderately heavy on and near the hills, where the following falls exceeding 1″ in 24 hours were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Simla	Kotkhai	20th March	1·03
Simla	Kilba	21st ,,	1·10
Gurdaspur	Dalhousie	22nd ,,	1·83
Kangra	Kulu	23rd ,,	2·82
Kangra	Nagar	,, ,,	2·65
Shahpur	Naushahra	,, ,,	1·28
Simla	Kilba	,, ,,	1·22
Kangra	Plach	,, ,,	1·10
Kangra	Palampur	,, ,,	1·07

The fourth rainfall period occurred on the 30th and 31st. The rainfall, except near the hills, was not heavy. The following falls exceeding 1″ in 24 hours were registered during this period:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Gurdaspur	Dalhousie	30th March	1·77
Kangra	Nagar	,, ,,	1·75
Umballa	Kasauli	,, ,,	1·50
Kangra	Nagar	31st ,,	3·37
Kangra	Kulu	,, ,,	1·96
Rawalpindi	Kahuta	,, ,,	1·77
Kangra	Palampur	,, ,,	1·50
Gurdaspur	Dalhousie	,, ,,	1·14

The following gives comparative data for all the districts of the Punjab and shows that the rainfall was heavier than usual in all districts except Hissar, Gurgaon, Rohtak, Delhi, Karnal and Umballa:—

District.	Rainfall.			
	Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hissar	0·04	0·40	—0·36	— 90
Ferozepore	1·64	0·35	+1·29	+369
Montgomery	0·86	0·31	+0·55	+177
Gurgaon	0·07	0·25	—0·18	— 72
Rohtak	0	0·44	—0·44	—100
Delhi	0·06	0·41	—0·35	— 85
Karnal	0·19	0·47	—0·28	— 60
Lahore	1·16	0·54	+0·62	+115
Umballa	0·75	0·78	—0·03	— 4
Ludhiana	1·12	0·59	+0·53	+ 90
Jullundur	1·88	0·73	+1·15	+158
Hoshiarpur	2·34	1·00	+1·34	+134
Gurdaspur	4·73	1·61	+3·12	+194
Amritsar	3·12	0·74	+2·38	+322
Simla	5·40	3·04	+2·36	+ 78
Kangra	7·62	2·71	+4·91	+181
Gujranwala	1·75	0·78	+0·97	+124
Sialkot	3·25	1·11	+2·14	+193
Gujrat	2·33	1·39	+0·94	+ 68
Jhelum	2·02	1·11	+0·91	+ 82
Rawalpindi	3·69	1·92	+1·77	+ 92
Mianwali	1·09	0·62	+0·47	+ 76
Shahpur	1·76	0·84	+0·92	+110
Jhang	0·71	0·54	+0·17	+ 31
Dera Ghazi Khan	0·41	0·33	+0·08	+ 24
Muzaffargarh	0·42	0·32	+0·10	+ 31
Mooltan	0·55	0·24	+0·31	+129

As over the Punjab there were four periods of rainfall over the North-West Frontier Province, the first extending from the 3rd to the 7th, the second from the 9th to the 13th, the third from the 18th to the 24th, and the fourth and last from the 29th to the 31st. The rainfall was heavy and general during the second period and general but not heavy during the third. This is shown by the following table which gives the falls exceeding 1″ in 24 hours :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M of date.
			Inches.
Tochi	Dattakhel	9th March	1·20
Wano	Wano	,, ,,	1·17
Kohat	Fort Lockhart	10th ,,	3·60
Tochi	Idak	,, ,,	1·55
Kohat	Kohat	11th ,,	2·27
Wano	Wano	,, ,,	1·73
Kohat	Hangu	,, ,,	1·58
Malakand	Malakand	,, ,,	1·50
Peshawar	Lahor	,, ,,	1·50
	Peshawar	,, ,,	1·48
	Nahakki	,, ,,	1·38
Hazara	Oghi	,, ,,	1·15
	Mansahra	,, ,,	1·05
Peshawar	Abazai	,, ,,	1·05
	Lahor	12th ,,	2·00
Malakand	Malakand	,, ,,	1·33
Hazara	Oghi	,, ,,	1·22
Peshawar	Nahakki	,, ,,	1·07
	Nowshera	,, ,,	1·01
Kohat	Fort Lockhart	19th ,,	1·40
Peshawar	Lahor	20th ,,	1·25
Kohat	Hangu	,, ,,	1·19
Malakand	Malakand	,, ,,	1·18
Hazara	Oghi	,, ,,	1·08
Kohat	Fort Lockhart	21st ,,	4·20
Dera Ismail Khan	Shekh Budin	,, ,,	1·20
Wano	Wano	,, ,,	1·05
Bannu	Marwat	22nd ,,	1·07
Kohat	Banda Daudshah	,, ,,	1·05
	Hangu	,, ,,	1·03
Hazara	Oghi	30th ,,	1·32
	Do.	31st ,,	1·05

The total rainfall of the month was considerably heavier than usual, as is shown by the following comparative data for the different districts :—

District.	Rainfall.			
	Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Peshawar	3·58	1·87	+1·71	+ 91
Hazara	7·01	3·55	+3·46	+ 97
Kohat	5·99	2·16	+3·83	+177
Bannu	2·85	1·44	+1·41	+ 98
Dera Ismail Khan	2·06	1·68	+0·38	+ 23

In Baluchistan rain fell between the 8th and 11th, the 16th and 25th and the 27th to the 30th. As in the Punjab and North-West Frontier Province, the heaviest rainfall was due to the second fall of the month between the 9th and 11th when the following amounts exceeding 1·50″ in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Quetta-Pishin	Saranan	9th March	2·12
Zhob	Hindubagh	,, ,,	2·00
Thal Chotiali	Mangi	,, ,,	2·00
Quetta-Pishin	Bostan	,, ,,	1·85
Thal Chotiali	Shahrig	,, ,,	1·80
Quetta-Pishin	Sanzal	10th ,,	2·90
	Shelabagh	,, ,,	2·40
	Pishin	,, ,,	2·16
	Syed Hamid	,, ,,	2·07
Thal Chotiali	Khost	,, ,,	2·05
Zhob	Hindubagh	,, ,,	2·00
Quetta-Pishin	Yarookarez	,, ,,	2·00
	Fuller's Camp	,, ,,	1·80
Chagai	Nushki	,, ,,	1·70
Quetta-Pishin	Quetta	,, ,,	1·60
Bolan Pass	Hirok	,, ,,	1·58
Quetta-Pishin	Shelabagh	11th ,,	1·80

The total rainfall of the month largely exceeded the normal, as is shown by the following comparative data :—

PROVINCE.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.	Average actual, March 1903,	Average normal, March.
	Inches.	Inches.	Inches.			
Baluchistan .	2·82	1·15	+1·67	+145	6·0	3·2

Kashmir received almost constant rain and snow though the falls centred about the periods, the 1st to the 7th, the 10th to the 13th, the 19th to the 26th and the 29th to the 31st. The second fall was particularly heavy and the following amounts exceeding 2″ in 24 hours were then recorded :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
JUMMOO . . .	Jasmiragarh . .	10th March .	2·10
	Sambha . . .	11th ,, .	3·05
	Bisolee . . .	,, ,, .	2·98
	Ramnagar . .	,, ,, .	2·78
	Bhimber . . .	,, ,, .	2·46
	Riasi . . .	,, ,, .	2·46
	Kathua . . .	,, ,, .	2·33
	Udumpur . . .	,, ,, .	2·30
KASHMIR . . .	Sonemarg . . .	,, ,, .	2·17
JUMMOO . . .	Nishowrah . .	,, ,, .	2·10
	Punch . . .	,, ,, .	2·05
KASHMIR . . .	Sonemarg . . .	12th ,, .	4·39
JUMMOO . . .	Doda . . .	,, ,, .	2·80
	Pader . . .	,, ,, .	2·60
	Ramban . . .	,, ,, .	2·50

So far as can be judged, the total rainfall of the month was from two to four times as heavy as usual. The following gives comparative data for the province derived from the limited number of stations possessing averages :—

STATE.	RAINFALL.			
	Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jummoo	8·04	3·47	+4·57	+132
Kashmir	8·20	2·26	+5·94	+263

Rajputana received showers between the 10th and 12th, but the rainfall was generally light and unimportant, though in western Rajputana the small normal rainfall of the month was exceeded.

Central India had practically no rain throughout.

Berar was wholly rainless and in the Central Provinces the only rainfall was a few light unimportant showers on the 19th and 20th.

Over the greater part of the Bombay Presidency there was no rain during the month, but in Gujarat, Kathiawar and Sind there occurred showers on the 10th, 11th and 12th. These showers gave an average actual rainfall of 0·12″ to Kathiawar and of 0·17″ to Sind and the small normal rainfall of the month was exceeded.

In Mysore the month was practically rainless throughout and over the Madras Presidency the only rainfall was a few scattered showers. These showers 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.
TRAVANCORE .	Alleppey . .	2nd March .	1·30
MADURA . .	Periyakulam . .	10th ,, .	1·27
TRAVANCORE .	Velavencode . .	11th ,, .	1·53
GANJAM . .	Rambha . .	26th ,, .	1·70
TRAVANCORE .	Shencottah . .	27th ,, .	1·30
COIMBATORE . .	Mettupalaiyam .	29th ,, .	1·20
TRAVANCORE .	Ambalapuzha . .	30th ,, .	1·56
	Alleppey . .	31st ,, .	1·13
COORG . . .	Napoklu . .	31st ,, .	1·10

The general lightness of the rainfall over the Madras Presidency is shown by the following comparative statement of the rainfall of all districts :—

DISTRICT.	RAINFALL. Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inch.	Inches.	Inches.	
Ganjam	0·20	0·73	−0·53	− 73
Vizagapatam	0·01	0·72	−0·71	− 99
Godavari	0·01	0·37	−0·36	− 97
Kistna	0	0·43	−0·43	−100
Nellore	0	0·17	−0·17	−100
Chingleput	0	0·16	−0·16	−100
Madras	0	0·38	−0·38	−100
North Arcot	0	0·26	−0·26	−100
South Arcot	0	0·25	−0·25	−100
Tanjore	0·01	0·42	−0·41	− 98
Trichinopoly	0	0·40	−0·40	−100
Madura	0·09	0·84	−0·75	− 89
Tinnevelly	0·15	1·32	−1·17	− 89
Malabar	0·07	0·77	−0·70	− 91
South Canara	0	0·13	−0·13	−100
Salem	0·01	0·47	−0·46	− 94
Coimbatore	0·08	0·60	−0·52	− 87
Nilgiris	0·04	1·52	−1·48	− 97
Cuddapah	0	0·18	−0·18	− 100
Anantapur	0	0·15	−0·15	−100
Bellary	0	0·20	−0·20	−100
Kurnool	0	0·21	−0·21	−100

The following gives the rainfall of the month of March 1903 at the extra-Indian stations : —

STATION.	RAINFALL. Average actual, March 1903.	Average normal, March.	Variation of actual from normal, March 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee	0	1·45	−1·45	−100
Colombo	2·53	4·45	−1·92	− 43
Minicoy	0	0·98	−0·98	−100
Kashgar	0·08	0·20	−0·12	− 60
Kabul	1·95	4·90	−2·95	− 60
Meshed	4·40	2·43	+1·97	+ 81
Teheran	3·51	2·80	+0·71	+ 25
Ispahan	0·99	0·99	0	0
Bushire	0·48	1·00	−0·52	− 52
Jask	0	1·15	−1·15	−100
Muscat	0	1·05	−1·05	−100
Baghdad	0·46	1·60	−1·14	− 71
Aden	0·06	0·87	−0·81	− 93
Perim	0	0·27	−0·27	−100
Seychelles	14·52	13·01	+1·51	+ 12
Zanzibar	4·38	6·50	−2·12	− 33
Mauritius	7·61	9·36	−1·75	− 19

The preceding data show that the light rainfall which characterised the whole of the southern and central parts of the Indian region extended over Ceylon and Arabia where the rainfall was everywhere deficient. Further to the southward at the Seychelles the month's fall was somewhat excessive though at Zanzibar and Mauritius the deficiency re-appeared and the total rainfall was only about two-thirds of the average. It is, however, remarkable that while the rainfall of the month was so excessive over Baluchistan, Kashmir, the North-West Frontier Province and the Punjab, the stations of Kashgar, Kabul, Baghdad, and those in the Persian Gulf, all reported a deficiency of rain ranging from 52 per cent. to 100 per cent. This shows that, as was the case in February, the excessive precipitation was mainly confined to the mountain region surrounding the north-west frontier of India.

Crop Report.

Madras.—There was little or no rain received during the month over Madras and water for irrigation purposes was insufficient in parts of Ganjam, the Deccan, north Arcot, Salem and Madura. The ordinary agricultural operations continued during the month and the harvests progressed with fair outturn. At the close of the month the standing crops were generally in fair condition, but pasture was scanty in parts of the Circars, the central and south Deccan and south Canara.

Bombay.—A little rain fell during the month in parts of Sind but the crops were suffering from insufficient moisture in parts of Sukkur though they were generally in good condition elsewhere. They had, however, been damaged by insects, frost or stormy weather in parts of Sukkur, the upper Sind frontier, Ahmedabad and Surat. The cotton crop was in fair condition and picking continued in some places. The water supply was deficient in parts of Bijapur.

Bengal.—Rain fell fairly steadily during the month in Bengal and was heavy in south-east Bengal. More rain was wanted during the month in Purnea. Hail storms during the month did damage in Monghyr, Murshidabad, Mymensingh, and the Patuakhali sub-division. Prospects were generally good, fodder and water generally sufficient, and harvesting and cultivation of the land continued during the month.

United Provinces.—The harvesting and threshing of spring crops and the extraction of opium continued during the month. Rain fell in most districts more particularly towards the close of the month and the only injury to standing crops was occasioned by strong westerly winds in Muttra, Moradabad and Shahjahanpur. Markets were well stocked.

Punjab.—At the commencement of the month rain was badly wanted throughout the province and caterpillars and insects were doing damage in some districts. Rain commenced in the second week and continued till the end of the month, when the condition and prospects of the standing crops were good on irrigated and average on unirrigated lands, except in the case of Hissar where the unirrigated crops had withered for want of rain. Locusts appeared in parts of Lahore and Rawalpindi and slight hail fell in parts of Umballa.

North-West Frontier Province.—Rain occurred fairly generally throughout the month greatly improving the prospects of the standing crops. Snow fell on the hills adjacent to Peshawar during the second week. The canals were running well and land was being prepared for extra spring sowings.

Burma.—The harvesting of main paddy crop was practically completed in the third week. The clearing of hill sides continued throughout the month. Crops on uplands in parts of Pakokku were damaged by drought; otherwise the standing crops were doing well at the close of the month.

Central Provinces.—The month was generally rainless. The harvesting of spring crops was approaching completion, and threshing was generally in progress at the end of the month. The outturn in Bhandara was reported to be poor, an exception to the excellent outturns in most districts. In Saugor the winter crops were better than they have been for years past, and in Mandla and Chhindwara the outturn was quite up to the average. Some damage to standing crops by caterpillars was reported.

Assam.—Only scattered rain was received during the month, but the only district in which more rainfall was desired was Kamrup. Plucking of tea commenced at the end of the month in upper Assam and Sylhet. The outturn of mustard was poor, of linseed fair, and of sugarcane good in Lakhimpur, bad in Cachar, Kamrup and Nowgong, and fair in other districts.

Mysore.—General prospects were good. Rain at the end of the month was wanted in Bangalore and in parts of Tumkur; water and fodder were insufficient.

Coorg.—The threshing of *ragi* was completed by the close of the month. Prices were normal and water and fodder sufficient.

Rajputana.—There was light rain during the month in a few states and the harvesting of the spring crops was in progress during the month; the condition of the standing crops was generally good. Foot and mouth disease was prevalent among the cattle in Merwara.

Berar.—Harvesting of winter crops was almost completed by the end of the month, and preparation of land for ensuing crop was in progress.

Hyderabad.—The spring harvest was nearly completed during the month. The winter rice was in good condition.

Central India.—Light rain occurred at times during the month. At the end of the month crops were fair in Baghelkhand and Indore and good elsewhere. Prices were steady. Opium was good in Gwalior, Malwa, Bhopawar and Indore; fair in Bhopal.

Kashmir.—A considerable amount of rain fell during the month and was beneficial to the standing crops. The condition of the crops was fair to good on irrigated lands and poor elsewhere.

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 230 Stations in India, Burma, etc., in March, 1903.

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		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								91·8	−0·5	71·8	−0·1	81·8	−0·3	20·0					28·1
1	Tenasserim and Bay Islands.	Cat Nicobar*	25	29·936		29·888	30·010	23rd	29·867	21st	·143	81·7	89·5		76·0		82·8		13·5	91·3	30th	71·3	20th	20·0
		Port Blair	61	29·900	−·002	29·892	29·976	26th	29·841	11th	·135	78·2	90·3	−0·7	74·8†	−1·6	82·5†	−1·2	15·5	93·0	20th	72·4	1st	20·6
		Mergui	96	29·875	+·014	29·904	29·943	26th	29·830	17th	·113	78·9	90·6	−0·6	72·8	+0·9	81·7	+0·2	17·8	94·1	28th	68·9	5th	25·2
		Tavoy	26	29·943	−·004	29·900	29·990	26th	29·885	11th	·105	73·3	94·0	+0·7	67·6	?	80·8	?	26·4	96·2	13th	60·0	4th	36·2
		Moulmein	94	29·845	−·015	29·877	29·902	23rd	29·788	17th	·114	77·7	94·7	+0·6	72·8	+0·1	83·8	+0·4	21·9	98·5	19th	67·8	21st	30·7
2	Lower Burma	Rangoon	57	29·893?	−·013?	29·884?	29·961	26th	29·831	16th	·130	73·9	95·4	−1·2	69·9	−1·2	82·7	−1·2	25·5	99·6	26th	65·3	18th	34·3
		Bassein	27	29·923?	?	29·885?	30·001	26th	29·859	16th	·142	78·0	94·2	−0·2	72·1	+1·6	83·2	+0·7	22·1	97·7	2 days	68·7	2 days	29·0
		Diamond Island	41	29·903	−·021	29·879	29·994	26th	29·841	11th	·153	78·7	83·4	−2·2	76·2	+1·2	79·8	−0·5	7·2	85·9	2 days	74·2	19th	11·7
5	Arakan	Akyab	20	29·921	−·024	29·884	29·990	23rd	29·874	14th	·116	74·7	88·6	−0·5	69·6	+0·7	79·1	+0·1	19·0	91·9	2 days	61·6	17th	30·3
3	Central Burma	Toungoo	183	29·742	−·011	29·870	29·817	26th	29·680	16th	·137	75·5	97·7	−0·1	66·2	−2·3	82·0	−1·2	31·5	101·9	25th	58·6	11th	43·3
	II.—Burma Inland				−·005								96·0	−0·9	65·8	−0·6	81·0	−0·8	30·2					45·8
3	Central Burma	Thayetmyo	130	29·789	−·009	29·862	29·876	26th	29·706	16th	·170	77·9	100·0	+0·2	65·4	−1·1	82·7	−0·5	34·6	105·0	26th	55·5	17th	49·5
4	Upper Burma	Minbu	165	29·753	−·001	29·864	29·841	26th	29·673	31st	·168	75·6	97·8	−1·5	69·9	+0·6	83·9	−0·5	27·9	103·2	15th	62·1	2 days	41·1
		Yamethin	657	29·251	−·005	29·865	29·345	26th	29·179	16th	·166	76·5	99·4	+0·3	68·3	+0·2	83·9	+0·3	31·1	104·3	26th	57·7	11th	46·6
		Mandalay	250	29·656	−·005	29·860	29·765	26th	29·574	31st	·191	74·7	96·3	−1·4	66·6	−1·3	81·5	−1·4	29·7	101·1	2 days	55·0	18th	46·1
		Monywa		29·644			29·718	2 days	29·547	31st	·171	73·2	95·7		66·1		80·9		29·6	101·3	6th	55·2	18th	46·1
		Bhamo	381	29·542	?	29·892	29·637	23rd	29·444	31st	·193	65·5	87·0	−2·0	58·5	−1·6	72·8	−1·8	28·5	94·5	2 days	49·2	17th	45·3
4 *a*	Burma Hill Stations.	Maymyo		26·410			26·511	20th	26·359	16th	·152	65·8	82·0		50·8		66·4		31·2	86·0	11th	38·8	17th & 18th.	47·2
		Lashio		27·130	−·005		27·209	26th	27·036	31st	·173	63·6	86·1	−0·1	54·3	−1·4	70·2	−0·8	31·8	89·5	2 days	46·5	18th	43·0
	III.—Assam				−·024								81·9	−1·0	60·5	−1·3	71·2	−1·1	21·5					36·4
7	Surma	Silchar	104	29·838	−·019	29·897	29·918	10th	29·718	31st	·200	68·1	84·5	−1·5	62·3	−0·9	73·4	−1·2	22·2	89·5	8th	53·9	16th	35·6
6	Brahmaputra	Sibsagar	333	29·592	−·034	29·896	29·721	10th	29·489	31st	·232	62·8	79·0	−0·1	59·1	−0·9	69·1	−0·5	19·9	84·3	2 days	51·9	10th	32·4
		Dhubri	115	29·782	−·018	29·857	29·901	10th	29·677	31st	·224	67·3	85·2	−1·3	61·4	−2·0	73·3	−1·7	23·8	92·2	6th	51·8	10th	40·4
		Gauhati	195	29·725		29·882	29·849	10th	29·602	14th	·247	65·7	83·7		59·6		71·7		24·1	88·0	21st	50·6	17th	37·4
		Tezpur	252	29·663		29·885	29·790	10th	29·559	14th	·231	64·2	81·0		61·1		71·1		19·9	85·6	2 days	55·0	16th	30·6
		Dibrugarh	353	29·590		29·918	29·707	10th	29·470	14th	·237	64·4	78·1		59·2		68·7		18·9	84·7	15th	42·9	30th	41·8
	IV.—Bengal and Orissa				−·021								89·0	−1·2	66·7	−0·1	77·9	−0·7	22·3					37·9
9	East Bengal	Chittagong	87	29·839	−·026	29·876	29·930	23rd	29·762	31st	·168	73·2	84·7‡	−2·0‡	67·7	+0·1	76·3‡	−1·0	17·0	87·5	4 days	59·1	17th	28·4
		Noakhali	43	29·873		29·863	29·949	23rd	29·774	31st	·175	75·1	85·5		68·2		76·9		17·3	91·1	30th	57·5	17th	33·6
		Comilla	36	29·879		29·864	29·959	23rd	29·783	31st	·176	73·2	88·7		67·3		78·1		21·4	92·6	20th	56·5	16th & 17th.	36·1
		Sirajganj	49	29·853		29·853	29·947	10th	29·743	29th	·204	69·5	87·7		63·7		75·8		24·0	93·9	20th	52·9	17th	41·0
		Narayanganj	26	29·892	−·009	29·867	29·974	10th	29·788	29th	·186	72·9	86·9	−3·1	68·5	+0·3	77·7	−1·4	18·4	91·6	20th & 31st	59·3	2 days	32·3
		Barisal	13	29·911	−·006?	29·869	29·990	10th	29·815	29th	·175	75·6	88·3	−1·0	68·8	−0·4	78·6	−0·7	19·5	93·8	31st	60·7	17th	33·1
		Mymensingh	59	29·837?	−·032?	29·849?	29·926	10th	29·725	31st	·201	69·8	84·9	−2·0	64·5	+0·1	74·7	−1·0	20·4	89·3	21st	54·3	16th	35·5
10	Deltaic Bengal	Faridpur	46	29·865		29·859	29·953	10th	29·748	29th	·205	72·2	87·4		65·9		76·7		21·5	92·8	20th	55·2	18th	37·6
		Jessore	33	29·865?	−·026?	29·846?	29·961	10th	29·752	29th	·209	73·5	88·8	−3·6	67·5	−0·7	78·2	−2·2	21·3	96·0	31st	56·6	16th	39·4
		Calcutta	21	29·886	−·019	29·853	29·990	10th	29·769	31st	·221	75·4	90·8	0	69·9	+0·4	80·4	+0·2	20·9	99·9	31st	58·9	17th	41·0
		Saugor Island	25	29·875	−·027	29·845	29·964	10th	29·779	31st	·185	78·7	87·5	+0·3	75·8	+0·8	81·7	+0·6	11·7	91·4	2 days	67·0	10th	24·4
		Krishnagar	47	29·858		29·854	29·963	10th	29·737	31st	·226	76·4	92·3		68·7		80·6		23·6	99·2	31st	60·6	1st	38·6
		Midnapore	149	29·744		29·843	29·848	10th	29·636	31st	·212	75·5	93·9		70·7		82·3		23·2	103·4	31st	62·1	17th	41·3

* Observation of 30 days.

‡ Mean of 24 days.

I.

in India, Burma, etc., in March, 1903.

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 1902 to 31st March 1903.	Normal rainfall for period, 1st December to 31st March.	Variation from normal of period, 1st December to 31st March 1903.				
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
																				0·15	0·69	—0·51					I.—Burma Coast and Bay Islands.		
2	11	10		1	1			1	N 22° E	3·3¶	3·3¶			76	·818	6·2	0			0			2·77			0	Car Nicobar§	TENASSERIM AND BAY ISLANDS.	1
1	1	2				1	12	14	N 60° W	3·8	4·3	4·4	− 2	87	·839	1·7	0			0	0·40	− 0·40	12·48	8·44	+4·04	0	Port Blair.		
19	6	2			1		1	2	N 7° W	3·7	3·3	2·0	+ 65	82	·802	3·7	2	4·70	−2·70	1·54	3·28	− 1·74	6·49	6·30	+0·19	0·84	Mergui.		
27							1	3	N 56° W	1·6				86	·711	0·5	0	1·60	−1·60	0	1·24	− 1·24	0·63	2·16	−1·53	0	Tavoy.		
24					2	4	1		S 39° W	3·1	3·4	3·0	+ 13	77	·733	1·9	0	0·60	−0·60	0	0·36	− 0·36	0·83	1·02	−0·19	0	Moulmein.		
10		3		1	3	6	4	4	S 69° W	5·9	5·0	5·0	0	87	·727	1·1	0	0·50	−0·50	0	0·20	− 0·20	1·23	0·72	+0·51	0	Rangoon .	LOWER BURMA.	2
	11	2	1		2	2	2	11	N 27° W	6·5		4·9	+ 33	82	·795	1·0	0	0	0	0	0·01	− 0·01	0·21	0·57	−0·36	0	Bassein.		
1	9	2				2	17		N 30° W	14·7	14·7	7·9	+ 86	76	·753	2·1	0	0	0	0	0·05	− 0·05	1·57	1·03	+0·54	0	Diamond Island.		
	9	11	4	3	1			3	N 37° E°	2·8	2·7	3·7	− 27	86	·748	1·5	0	0·60	−0·60	0	0·52	− 0·52	0·08	1·40	−1·32	0	Akyab .	ARAKAN.	5
10	1	1	2	7	5	3		2	S 24° E	2·8	2·8	2·8	0	67	·608	1·5	0	0·30	−0·30	0	0·11	− 0·11	1·06	0·51	+0·55	0	Toungoo .	CENTRAL BURMA.	3
																				0·15	0·22	−0·07					II.—Burma Inland.		
	2	1	1	1	5	5	8	8	S 87° W	4·9		5·2	− 6	67	·651	1·1	0	0·10	−0·10	0	0·03	− 0·03	0·19	0·24	− 0·05	0	Thayetmyo.	CENTRAL BURMA.	3
6	1			13	1	2		8	S 22° E	5·5	6·5			55	·497	0·2	0	0·10	−0·10	0	0·04	− 0·04	0·03	0·70	− 0·67	0	Minbu .	UPPER BURMA.	4
13	3			9	5			1	S 36° E	1·9	2·0			55	·510	0·3	0	0·30	−0·30	0	0·21	− 0·21	0·15	1·16	− 1·01	0	Yamethin.		
	4	7		6	7	2	1	4	S 77° E	6·9	7·0			55	·473	0·2	1	0·40	+0·60	0·16	0·16	0	0·21	0·55	− 0·34	0·16	Mandalay.		
21	4							6	N 27° W	4·4	4·6			54	·451	0·6	1	0·50	+0·50	0·11	0·23	− 0·12	0·15‖	0·39‖	− 0·24	0·11	Monywa.		
11	3	9	2			1	1	4	N 19° E	2·7	3·2			81	·505	2·1	4	1·90	+2·10	0·64	0·66	− 0·02	0·73	2·19	−1·46	0·25	Bhamo.		
27						4			S 45° W	2·4				56	·357	3·6	1	0·90	+0·10	0·24	0·34	−0·10	0·42	1·15	− 0·73	0·22	Maymyo .	BURMA HILL STATIONS.	‡(a)
		15	8	6	1			1	N 75° E	3·8				70	·416	2·1	2			0·51	0·58	− 0·07	1·35	1·92	− 0·57	0·24	Lashio.		
																				4·67	4·41	+0·27					III.—Assam.		
15		1	9	6					S 76° E	2·1	3·6	3·3	+ 9	85	·593	5·4	15	10·80	+4·20	10·21	8·61	+1·60	13·35	12·10	+ 1·25	2·81	Silchar .	SURMA.	7
13	3	14		1					N 41° E	2·8	2·5	2·8	− 11	95	·545	6·5	9	9·80	−0·80	4·87	5·11	− 0·24	7·84	8·97	− 1·13	1·94	Sibsagar .	BRAHMAPUTRA.	9
	2	11	9	1	1	5	2		N 74° E	4·9	5·8	6·3	− 8	74	·497	1·3	3	2·40	+0·60	1·33	1·88	− 0·55	1·89	2·86	− 0·97	0·66	Dhubri.		
8	4	7	2	4	4	1		1	N 76° E	2·3	2·6			80	·516	2·5	7	5·40	+1·60	3·75	2·82	+ 0·93	5·41	4·43	+ 0·98	1·23	Gauhati.		
	1	9	16	2	1	1	1		N 80° E	5·1	5·4			83	·502	4·1	9	5·50	+3·50	2·83	2·68	+0·15	4·32	4·63	− 0·31	0·45	Tezpur.		
	3	12	9	4	2	1			N 73° E	2·8	2·7			82	·496	5·0	8	10·00	−2·00	5·05	5·34	−0·29	8·96	10·23	− 1·27	1·84	Dibrugarh.		
																				1·78	1·48	+0·30					IV.—Bengal and Orissa.		
	1	10	4	10	3	2		1	S 79° E	5·7	5·6	5·8	− 3	84	·696	4·0	4	2·77	+1·23	5·12	2·74	+ 2·38	13·25	4·87	+ 8·38	2·47	Chittagong.	EAST BENGAL.	6
	2	3	8	5	1	9	2	1	S 40° E	3·3	3·5			84	·744	3·5	5	3·26	+1·74	2·97	2·75	+ 0·22	6·34	4·57	+ 1·77	1·35	Noakhali.		
11				2	15		3		S 7° W	4·4	3·7			85	·704	3·9	7	3·33	+3·07	3·39	2·74	+ 0·65	5·04	4·47	+ 0·57	0·94	Comilla.		
20	1	1	3	2	3	1			S 53° E	2·7	2·8			87	·632	2·8	2	2·20	−0·20	1·98	1·26	+ 0·72	2·47	2·75	− 0·28	0·95	Sirajganj.		
6	1	4	1	2	8	8		1	S 5° W	4·9		4·7	+ 4	86	·707	3·8‡	6	3·18	+2·82	2·97	2·75	+ 0·22	6·22	4·57	+ 1·65	0·92	Narayanganj		
										3·2				86	·760	2·6¶	6	3·03	+2·97	7·79	1·96	+ 5·83	10·25	4·27	+ 5·98	3·80	Barisal.		
13		2	6	7	2	1			S 68° E	2·9	2·6			83	·611	5·1**	7	3·52	+3·48	3·07	2·03	+ 1·04	3·90	3·61	+ 0·29	0·87	Mymensingh.		
4	3			4	13	4		3	S 8° W	4·0	3·4			85	·681	2·8	7	3·50	+3·50	2·30	2·30	0	3·53	4·19	− 0·66	0·75	Faridpur .	DELTAIC BENGAL	10
17			2	5	3	3		1	S 21° E	1·7	1·7	3·2	− 47	86	·717	3·6††	5	3·13	+1·87	1·62	1·93	− 0·31	5·07	3·73	+ 1·34	0·41	Jessore.		
4	1		3	3	4	11	1	4	S 35° W	4·5		5·5	− 18	80	·711	2·3	2	2·00	0	0·77	1·19	− 0·42	2·28	2·73	− 0·45	0·45	Calcutta.		
2	4	3		2	8	10	1	1	S 27° W	14·0		12·3	+ 14	85	·834	4·3‡	1	1·81	−0·81	0·63	1·33	− 0·70	6·36	2·99	+ 3·37	0·60	Saugor Island.		
4	1	1	1	2	11	4	4	3	S 29° W	3·6	4·0			80	·725	2·8	5	1·97	+3·03	2·73	1·11	+ 1·62	4·94	2·74	+ 2·20	0·89	Krishnagar.		
2	7	2		4	10	2		4	S	4·2	3·7			71	·638	1·8	3	2·59	+0·41	1·41	1·67	− 0·26	3·74	3·51	+ 0·23	0·71	Midnapore.		

‡ Mean of 30 days. § Wind variables 4. ‖ Rainfall since 2nd January 1903. ¶ Mean of 29 days. ** Mean of 15 days. †† Mean of 26 days.

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 month.	Date.	Lowest pressure recorded durlog 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	29·578		29·833	29·682	10th	29·451	31st	·231	75·2	93·7		68·3		81·1		25·4	102·1	31st	59·8	17th	42·3
		Raniganj	334	29·554		29·847	29·667	10th	29·420	31st	·247	71·7	92·4		65·4		78·9		27·0	100·2	30th	56·1	17th	44·1
		Burdwan	99	29·791	−·031	29·840	29·883	10th	29·666	31st	·217	72·7	92·0	−1·7	67·6	−0·8	79·8	−1·3	24·4	100·7	31st	57·8	17th	42·9
		Naya Dumka	489	29·394?		29·853?	29·495	10th	29·275	29th	·220	73·9	91·7		64·7		78·2		27·0	97·3	21st	52·3	10th	45·0
		Berhampore	67	29·822	−·025	29·839	29·912	10th	29·696	31st	·216	71·9	91·8	−0·9	65·4	−0·3	78·6	−0·6	26·4	98·8	21st	57·0	10th	41·8
		Rampur Boalia.	70	29·821		29·842	29·932	10th	29·702	31st	·230	71·7	89·6		64·0		76·8		25·6	95·1	21st	54·1	10th	41·0
		Malda	72	29·789?		29·815?	29·896	10th	29·666	31st	·230	71·7	89·4		61·9		75·7		27·5	94·6	5th & 21st	50·2	10th	44·4
		Bogra	61	29·819	−·010	29·835	29·926	10th	29·697	31st	·229	67·8	89·0	−1·2	62·3	−1·6	75·7	−1·4	26·7	94·2	21st	52·7	17th	41·5
12	North Bengal	Dinajpur	123	29·771	−·007	29·853	29·890	10th	29·669	31st	·221	67·6	88·8	−0·3	60·0	−1·3	74·4	−0·8	28·8	93·9	6th	46·4	10th	47·5
		Rangpur	123	29·772		29·854	29·881	10th	29·675	31st	·206	68·4	85·8		60·1		73·0		25·7	91·8	6th	47·7	10th	44·1
		Jalpaiguri	284	29·603	−·024	29·855	29·713	10th	29·489	14th	·224	66·5	83·8	−1·0	58·6	−1·1	71·2	−1·1	25·2	88·4	3 days	50·1	16th	38·3
		Cooch Behar	156	29·743		29·860	29·855	10th	29·634	14th	·221	66·5	83·7		60·3		72·0		23·4	88·2	21st	49·7	10th	38·5
17	North Bihar	Purnea	125	29·761	−·017	29·844	29·884	10th	29·655	31st	·229	67·7	89·5	−0·4	58·8*	−1·6	74·2*	−1·0	30·7	94·2	2 days	47·1	10th & 10th	47·1
14	Orissa	Balasore	50	29·859?	−·023?	29·853?	29·955	10th	29·744	31st	·211	76·4	91·2	−1·5	70·4	+0·8	80·9	−0·4	20·8	100·0	31st	63·7	17th	36·3
		False Point	21	29·886	−·030	29·849	29·969	10th	29·811	31st	·158	79·3	86·4	−0·9	74·3	+2·1	80·4	+0·6	12·1	90·5	29th & 30th	67·0	10th	23·5
		Cuttack	80	29·825	−·027	29·849	29·905	10th	29·746	31st	·159	77·8	96·5	−0·5	74·5	+2·0	85·5	+0·8	22·0	104·9	31st	69·7	9th	35·2
		Puri	24	29·885		29·848	29·975	10th	29·807	31st	·168	79·9	86·0		77·7		81·9		8·3	95·2	29th	73·6	10th	21·6
	V.—Gangetic Plain and Chota Nagpur.				−·021								90·6	−0·5	61·5	−1·0	76·1	−0·8	29·0					47·6
15	Chota Nagpur	Hazaribagh	2,007	27·862	−·033	29·846	27·927	10th	27·766	31st	·161	71·1	88·7	+0·1	63·5	−0·3	76·1	−0·1	25·2	97·7	31st	53·2	10th	44·5
		Ranchi	2,128	27·749	−·027	29·849	27·809	26th	27·670	31st	·139	71·3	88·7	+1·1	63·6	+0·3	76·2	+0·7	25·1	97·1	31st	53·4	10th	43·7
		Daltonganj	730?	29·165		29·868	29·246	15th	29·041	31st	·205	71·6	93·0		59·2		76·1		33·8	103·4	31st	47·8	10th	55·6
		Purulia		29·067		29·844	29·117	10th	28·950	31st	·197	74·5	94·4		66·7		80·6		27·7	102·2	31st	58·3	10th & 16th,	43·9
		Chaibassa	760	29·122	−·022	29·846	29·219	10th	29·025	31st	·194	73·6	96·0	+1·2	67·7	+0·7	81·9	+1·0	28·3	104·6	31st	57·2	10th	47·4
16	South Bihar	Gaya	375	29·516	−·023	29·855	29·607	10th	29·394	31st	·213	72·6	92·2	−1·1	65·1	−1·0	78·7	−1·1	27·1	99·7	2 days	56·8	10th	42·9
		Dehri	351	29·529		29·845	29·623	10th	29·394	31st	·229	72·2	92·1		65·9		79·1		26·2	102·4	31st	57·1	10th	45·3
		Patna	183	29·707	−·017	29·848	29·802	10th	29·577	31st	·225	71·3	89·8	−1·1	63·2	−0·8	76·6	−1·0	26·6	96·3	21st	52·7	9th	43·6
		Arrah	190	?		?	?	?	?	?	?	70·3	90·9		56·9		73·9		34·0	98·7	21st	46·1	17th	52·6
		Buxar	239	29·643		29·845	29·738	10th	29·501	31st	·237	70·6	91·0		62·9		77·0		28·1	100·0	21st	51·9	9th	48·1
17	North Bihar	Bhagalpur	160	29·716		29·832	29·830	10th	29·596	31st	·234	72·6	90·6*		63·6		77·2*		27·0	95·8	21st	51·7	10th	44·1
		Darbhanga	166	29·710	−·022	29·836	29·823	23rd	29·602	31st	·221	68·1	87·4	−0·5	61·7	−1·2	74·6	−0·9	25·7	92·3	31st	49·8	9th	42·5
		Muzaffarpur	178	29·706		29·844	29·811	10th	29·584	31st	·227	68·5	87·8		60·1		74·0		27·7	92·4	21st	48·5	9th	43·9
		Motihari	224	29·658		29·847	29·763	23rd	29·563	31st	·200	68·5	87·6		58·2		72·9		29·4	92·2	21st	49·9	10th	42·3
		Chapra	181	29·695		29·836	29·790	10th	29·570	31st	·220	69·1	90·9		61·1		76·0		29·8	97·9	21st	52·8	10th	45·1
18	United Provinces, (East.)	Benares	267	29·617	−·026	29·847	29·701	10th	29·484	31st	·217	71·2	92·6	−0·2	60·3	−1·5	76·5	−0·9	32·3	102·3	31st	48·1	10th	54·2
		Allahabad	309	29·586	−·019	29·859	29·665	8th	29·464	20th	·201	70·5	91·6	−1·4	59·5	−2·6	75·6	−2·0	32·1	103·6	31st	47·4	10th	56·2
23	United Provinces, (East Sub-montane).	Gorakhpur	257	29·617	?	29·840	29·703	10th	29·510	31st	·193	69·1	89·9	−0·6	60·6	−1·9	75·3	−1·3	29·3	95·5	20th & 31st.	52·1	9th & 10th	43·4
19	South Oudh	Lucknow	368	29·511	−·018	29·850	29·600	8th	29·379	20th	·221	68·1	90·6	−0·9	59·0	−1·3	74·8	−1·1	31·6	101·9	31st	49·2	10th	52·7
20	North Oudh	Bahraich	401	29·456	−·020	29·832	29·537	10th	29·358	28th	·179	67·6	88·2	−0·8	59·1	+0·3	73·7	−0·3	29·1	97·1	30th	47·0	9th	50·1
21	United Provinces (Central).	Cawnpore	416	29·471	−·007	29·856	29·552	8th	29·313	20th	·239	69·0	90·0	−0·8	58·7	−1·7	74·4	−1·3	31·3	102·4	31st	50·5	9th & 10th,	51·9
		Mainpuri	516	29·350?	−·026?	29·843?	29·441	15th	29·163	20th	·278	66·8	88·1	−1·6	56·9	−1·8	72·5	−1·7	31·2	100·8	31st	47·6	8th	53·2

* Mean of 30 days.

I—*continued.*

in India, Burma, etc., in March 1903—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 1902 to 31st March 1903.	Normal rainfall for period, 1st December to 31st March.	Variation from normal of period 1st December to 31st March 1903.				
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
25	1		1		1		2	1	N 63° W	2·4	2·8			56	·490	1·6	2	1·76	+ 0·24	0·88	1·30	− 0·42	1·65	2·80	− 1·15	0·59	Bankura .	Central Bengal	11
28			1				1	1	N 45° W	1·4				64	·499	1·5	3	1·48	+1·52	2·09	0·76	+ 1·33	2·99	2·32	+ 0·67	1·14	Raniganj.		
7	3			5	9	2	5		S 67° W	3·2	3·2	3·4	− 6	74	·607	2·6†	4	2·16	+ 1·84	2·09	1·34	+ 0·75	3·76	2·66	+ 1·10	1·17	Burdwan.		
21	1	1		1	1	1	3	2	N 76° W	2.5	2·7			48	·400	1·2	1	1·41	− 0·41	0·31	0·81	− 0·50	0·92	2·26	− 1·34	0·20	Naya Dumka		
9	1	1		1	4	10	2	3	S 51° W	1·9	2·1	3·4	−38	71	·559	2·2	5	1·73	+ 3·27	1·33	0·97	+ 0·36	2·11	2·46	− 0·35	0·41	Berhampur.		
19		2	1	1	3	2	3		S 14° W	0·8	0·8			78	·610	1·3	4	1·68	+ 2·32	1·78	1·15	+ 0·63	2·14	2·40	− 0·26	1·08	Rampur Boalia.		
	1	2	4	6	3	7	5	3	S 14° W	4·6	4·3			62	·480	0·5	1	1·10	− 0·10	0·11	0·82	− 0·71	1·08	2·49	− 1·41	0·11	Malda.		
6	1	4	8	1	8	2		1	S 56° E	3·6	4·3			81	·562	0·5†	3	1·74	+ 1·26	1·68	1·33	+ 0·35	2·04	2·77	− 0·73	0·86	Bogra.		
	3	9	8	2	2	3	3	1	N 63° E	3·9	3·7			67	·460	2·1*	2	1·19	+ 0·81	0·47	0·67	− 0·20	0·79	1·59	− 0·80	0·28	Dinajpur .	North Bengal .	12
9		5	6	3	4	1	2	1	S 69° E	3·2	3·4			76	·532	1·9	3	1·68	+ 1·32	1·01	1·16	− 0·15	1·64	2·17	− 0·53	0·52	Rangpur.		
	6	7	10	3			2	3	N 50° E	1·1	1·4			70	·469	1·7‡	2	2·10	− 0·10	0·97	1·23	− 0·26	2·03	2·22	− 0·19	0·85	Jalpaiguri.		
9		4	15		1	1	1		N 86° E	2·4	2·5			82	·540	1·7	2	2·41	− 0·41	1·92	1·66	+ 0·26	2·36	2·59	− 0·23	1·37	Cooch Behar		
5	2	13	1	1		2	2	5	N 17° E	5·3	4·7	3·4	+38	59	·743	0·7	0	0·83	− 0·83	0·03	0·44	− 0·41	0·71	1·57	− 0·86	0·03	Purnea .	North Bihar .	17
11	4	1			6	9			S 37° W	4·9				76	·693	1·9§	4	2·87	+ 1·13	1·62	1·82	− 0·20	6·69	3·47	+ 3·22	0·95	Balasore .	Orissa . .	14
4	1				3	14	3	6	S 65° W	9·7	9·3	10·9	−15	85	·858	4·9*	1	1·48	− 0·48	0·19	1·15	−0·96	3·84	3·25	+ 0·59	0·19	False Point.		
17		2	3	1	2	5	1		S 11° E	3·1		3·5	−11	82	·784	2·8	0	1·77	− 1·77	0·14	1·23	− 1·09	4·61	2·12	+ 2·49	0·08	Cuttack.		
6						21	2	2	S 54° W	15·8	14·8			88	·902	3·8*	0	1·05	−1·05	0	0·65	− 0·65	4·02	2·55	+1·47	0	Puri.		
																				0·13	0·51	−0·38					V.—Gangetic Plain and Chota Nagpur.		
1	2		2	2	5	5	4	10	S 85° W	10·0	8·9	7·4	+20	33	·260	1·2	1	1·81	− 0·81	0·16	0·80	− 0·64	1·75	2·24	− 0·49	0·12	Hazaribagh.	Chota Nagpur.	15
3	1	1	1	3	4	2	4	12	N 73° W	6·4	7·5			38	·297	0·6	1	2·58	− 1·58	0·51	1·37	− 0·86	2·34	3·11	− 0·77	0·42	Ranchi.		
15	1		4	3		4	4		S 14° W	5·4	4·4			39	·292	0·9	0	1·67	−1·67	0·14	0·63	− 0·49	1·30	2·21	− 0·91	0·09	Daltonganj.		
12	1				1	1	14	2	N 86° W	2·7	3·3			45	·378	0·9	1	2·17	−1·17	0·39	1·01	− 0·62	1·50	2·65	− 1·15	0·26	Purulia.		
24						3	3	1	S 81° W	1·7	1·5			58	·485	0·5	1	2·19	−1·19	0·19	1·05	− 0·86	2·61	2·55	+ 0·06	0·18	Chaibassa.		
5	1	1	1	3	2	10	7	1	S 51° W	5·5	4·1	3·3	+33	52	·427	1·8	0	1·03	− 1·03	0·04	0·55	− 0·51	0·20	1·94	− 1·74	0·04	Gaya .	South Bihar .	16
2		1	1		7	9	9	2	S 54° W	5·5	4·9			45	·373	1·5	1	1·00	0	0·13	0·53	− 0·40	0·46	1·96	− 1·50	0·13	Dehri.		
2	1	4	4	1	1	6	5	7	N 67° W	5·8	6·5	3·4	+91	53	·410	1·3	1	0·74	+ 0·26	0·24	0·39	− 0·15	0·48	1·65	− 1·17	0·24	Patna.		
16		2	1	1		2	2	7	N 51° W	2·9	2·8			51	·376	0·3	1	0·81	+ 0·19	0·17	0·47	− 0·30	0·17	2·09	− 1·92	0·15	Arrah.		
1	2	2	6	3	2	7	7	1	S 31° W	9·0	8·5			42	·314	1·6	0	0·87	− 0·87	0·10	0·28	− 0·18	0·18	1·78	− 1·60	0·07	Buxar.		
?	?	?	?	?	?	?	?	?	?	?	?			50	·405	0·5*	1	0·84	+ 0·16	0·23	0·44	− 0·21	0·65	1·74	− 1·09	0·16	Bhagalpur .	North Bihar .	17
11	2	2	4	2		2	5	3	N 34° W	2·5		4·5	−44	61	·428	1·2	0	0·83	− 0·83	0·05	0·46	− 0·41	0·32	1·66	− 1·34	0·03	Darbhanga.		
7	1	1	4	2		5	8	3	S 83° W	5·0				64	·449	0·3	0	0·97	− 0·97	0	0·43	− 0·43	0·19	1·76	− 1·57	0	Muzaffarpur		
8		2	7			6	5	3	S 72° W	5·8	5·5			68	·476	1·2	0	0·77	− 0·77	0·05	0·49	− 0·44	0·19	1·59	− 1·40	0·05	Motihari.		
15		1	4		1	3	5	2	S 76° W	3·9	3·5			52	·376	1·1	0	0·71	− 0·71	0·12	0·38	− 0·26	0·20	1·70	− 1·50	0·07	Chapra.		
9		1	4	1	2	12	1	1	S 25° W	3·7	4·2	4·8	−13	45	·346	1·3	0	0·80	−0·80	0·03	0·25	− 0·22	0·31	1·59	− 1·28	0·03	Benares .	United Provinces (East).	18
6		2	3	2	1	5	7	5	S 83° W	6·3	7·2	4·6	+57	40	·300	1·6	0	0·60	−0·60	0	0·26	− 0·26	0·06	1·73	− 1·67	0	Allahabad.		
1	8	5	2		3	2	7	3	N 29° W	3·4		3·6	− 6	53	·390	2·7	0	0·70	− 0·70	0·02	0·33	− 0·31	0·28	1·72	− 1·44	0·02	Gorakhpur	United Provinces (East Sub-Montane).	23
9	2	2	1	1		3	10	3	N 76° W	3·2	3·5	4·0	−13	48	·334	1·6	0	0·90	− 0·90	0·03	0·33	− 0·30	0·62	2·11	− 1·49	0·03	Lucknow .	South Oudh .	19
2	3	2	4	4		1	3	12	N 24° W	4·5	4·2			54	·377	2·1	0	1·00	−1·00	0·03	0·57	− 0·54	0·78	2·84	− 2·06	0·03	Bahraich .	North Oudh .	20
1	1	5	3	2	1	4	9	5	N 69° W	5·3				42	·305	1·0	0	0·70	−0·70	0	0·26	− 0·26	0·12	1·59	− 1·47	0	Cawnpore .	United Provinces (Central).	21
5	1	1	3	3	1	2	6	9	N 66° W	2·2	2·2			49	·318	2·3	1	0·50	+0·50	0·22	0·04	+ 0·18	0·58	2·07	− 1·49	0·22	Mainpuri.		

† Mean of 20 days. ‡ Mean of 25 days. § Mean of 26 days.

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
	VI.—Upper Sub-Himalayas.				-·020								79·9	-4·1	55·0	-0·8	67·4	-2·5	24·8					46·4
24	United Provinces (West Sub-montane).	Bareilly	568	29·292	-·022	29·847	29·376	8th	29·168	20th	·208	66·0	85·4	-2·1	58·7	-0·3	72·1	-1·2	26·7	97·4	30th	48·7	9th & 15th.	48·7
		Dehra Dun	2,233	27·629	-·022	29·881	27·713	10th	27·538	29th	·180	66·0	77·4	-2·3	53·6	-1·4	65·5	-1·9	23·8	89·5	30th	42·5	8th	47·0
		Roorkee	899	28·967	-·011	29·874	29·062	13th	28·869	29th	·193	62·0	82·5	-2·9	55·0	-1·1	68·8	-2·0	27·5	95·7	30th	45·1	9th	50·6
22	United Provinces West.	Meerut	738	29·125	-·025	29·860	29·215	8th	28·988	20th	·227	63·1	85·1	-1·5	56·7	-1·0	70·8	-1·3	28·4	96·6	30th	46·2	8th & 9th	50·4
26	South-East Punjab.	Delhi	718	29·162	-·018	29·873	29·264	13th	29·002	20th	·262	64·8	83·5	-3·9	50·5?	-1·7?	72·0?	-2·8?	23·0?	96·2	30th	50·1	7th & 8th	46·1
28	Central Punjab.	Lahore	762	29·171	-·023	29·882	29·321	13th	28·948	3rd	·373	60·2	79·1	-6·0	54·5	+0·3	66·8	-2·9	24·6	89·9	1st	44·0	8th	45·9
27	South Punjab	Sirsa	662	29·226	-·014	29·886	29·371	13th	29·061	20th	·310	61·9	82·5	-6·1	55·1	-2·1	68·8	-4·1	27·4	94·3	30th	44·6	8th	49·7
		Patiala	818	29·053		29·872	29·174	13th	28·884	30th	·290	63·4	90·2		56·4		68·3		23·8	91·1	30th	46·0	8th	45·1
29	Punjab Sub-montane.	Ludhiana	812	29·049	-·026	29·869	29·172	13th	28·850	20th	·322	60·4	78·2	?	55·9	-1·6	67·1		22·3	88·1	30th	45·6	8th	42·5
		Sialkot	830	29·042	-·019?	29·886	29·194	10th	28·791	20th	·403	59·7	76·8	-4·9	55·9	+0·3	66·4	-2·3	20·9	87·6	1st	48·2	14th	39·4
		Umballa	892	28·975	-·006?	29·872	29·096	13th	28·835	30th	·261	62·6	81·0	-2·0	54·1*	?	67·6*	?	27·8*	94·0	30th	43·6	13th	50·4
		Rawalpindi	1,674	28·202	-·025	29·935	28·350	13th & 27th	27·971	3rd	·359	55·0	69·4	-7·1	49·6	-1·1	59·5	-4·1	19·8	82·9	2nd	42·1	8th	40·8
	VII.—Indus Valley and North-West Rajputana.				-01·6								82·0	-5·2	56·2	-3·3	69·1	-4·3	25·8					49·0
31	West Punjab	Khushab	612	29·280	-·010?	29·894	29·464	13th	29·021	3rd	·443	61·0	76·1	-4·5	55·2	-1·6	65·7	-3·1	20·9	88·8	1st	46·5	8th	42·3
		Montgomery	558	29·327	-·018	29·881	29·498	13th	29·088	3rd	·410	60·8	79·8	-5·9	53·1	-2·8	66·5	-4·4	26·7	92·0	1st	43·5	15th	48·5
		Mooltan	420	29·484	-·024	29·897	29·664	13th	29·271	3rd	·393	59·9	81·4	-5·1	54·7	-3·7	68·1	-4·4	26·7	91·8	1st	44·4	6th	47·4
32	N.-W. Frontier Province.	Peshawar	1,110	28·812	-·033	29·866	28·968	13th	28·505	30th	·463	55·7	69·2	-6·9	49·4	-2·5	59·3	-4·7	19·8	81·1	1st	41·0	8th	40·1
		D. I. Khan	590	29·332	-·025	29·903	29·507	13th	29·115	3rd	·392	59·4	76·7	-6·8	52·8	-2·7	64·8	-4·8	23·9	87·3	1st	42·1	8th	45·2
47	Sind	Jacobabad	186	29·727	-·013	29·883	29·902	13th	29·596	3rd	·306	63·9	86·6	-4·5	55·4	-4·2	71·0	-4·4	31·2	97·0	18th	39·0	8th	58·0
		Hyderabad	96	29·843	-·004	29·896	30·014	13th	29·708	11th	·306	67·3	87·7	-5·4	59·5	-4·7	73·6	-5·1	28·2	100·1	28th	44·5	8th	55·6
		Kurrachee	30	29·944	+·008	29·926	30·136	13th	29·807	10th	·329	69·6	83·7	-2·4	64·4	-1·7	74·1	-2·1	19·3	91·4	17th	51·7	8th	39·7
51	West Rajputana	Bikaner	771	29·117	-·015	29·887	29·281	14th	28·961	3rd	·320	64·9	84·9	-4·4	58·8	-5·9	71·9	-5·2	26·1	98·1	30th	50·1	7th & 15th.	48·0
		Pachpadra	380	29·565	?	29·920	29·703	14th	29·416	20th	·287	64·7	88·6	-6·0	55·1	-3·2	71·9	-4·6	33·5	103·0	29th	41·0	8th	62·0
		Jodhpur	782	29·138		29·933	29·279	8th	29·034	3rd	·245	65·5	86·9		59·5		73·2		27·4	100·7	29th	48·2	4th & 8th	52·5
	VIII.—East Rajputana, Central India and Gujarat.				0								88·4	-3·5	60·8	-2·7	74·7	-3·1	27·6					50·2
50	East Rajputana	Jaipur	1,431	28·483	-·011	29·918	28·574	8th	28·366	20th	·208	66·5	86·5	-3·2	57·4	-3·4	72·0	-3·3	29·1	99·2	30th	45·5	9th	53·7
		Bharatpur	585	29·318		29·889	29·420	8th	29·163	20th	·257	64·1	87·1		57·4		72·3		29·7	99·4	30th	49·3	7th	50·1
		Kotah	819	29·093		29·956	29·207	8th	28·984	30th	·223	70·9	90·5		63·4		77·0		27·1	103·0	30th	54·0	8th & 9th.	49·0
		Sambhar	1,254	28·659	-·605	29·919	28·753	14th	28·547	20th	·206	63·2	86·0	-2·7	55·5	-3·3	70·8	-3·0	30·5	99·5	30th	42·9	9th	56·6
		Ajmer	1,611	28·296	?	29·925	28·396	8th & 13th.	28·195	3rd	·201	64·5	83·9	-5·2?	59·4	?	71·7	?	24·5	96·4	30th	43·8	8th	52·6
		Udaipur	1,925	28·007		29·933	28·103	8th	27·913	20th	·190	68·1	86·2		58·3		72·3		27·9	98·0	30th	45·2	8th	52·8
		Deesa	466	29·477	-·003	29·913	29·587	8th	29·383	11th	·204	70·1	91·7	-4·4	60·1	-3·7	75·9	-4·1	31·6	103·1	29th	46·6	8th	56·5
51	Kathiawar and Cutch.	Bhuj	395	29·568	+·014	29·928	29·683	13th	29·450	11th	·233	70·6	88·6	-5·3	62·6	-2·8	75·6	-4·1	26·0	101·8	29th	53·0	9th	48·8
		Jamnagar	61	29·922		29·929	30·038	8th	29·819	11th	·219	66·4	87·3		61·3		74·3		26·0	97·1	29th	48·8	8th	48·3
		Rajkot	429	29·540	+·012	29·936	29·625	13th	29·444	11th	·181	68·5	91·2	-4·4	58·2	-4·2	74·7	-4·3	33·0	101·4	28th	45·0	8th	56·4
		Veraval	18	29·968	+·033?	29·928	30·041	13th	29·846	11th	·195	69·9	81·4	-4·9	63·9	-1·0	72·7	-3·0	17·5	88·6	17th	54·3	9th	34·3
		Dwarka	37	29·945		29·928	30·042	13th	29·830	11th	·212	73·5	80·6		68·4		74·5		12·2	89·4	17th	57·6	8th	31·8
		Bhavnagar Para	55	29·935	+·008	29·938	30·020	13th	29·808	11th	·212	70·6	93·1	?	62·8	-4·0	78·0	?	30·3	104·5	30th	49·0	8th	55·5
49	Central India	Nowgong	757	29·145	-·017	29·889	29·252	8th	29·037	20th	·215	67·0	90·0	-2·4	58·1	-2·7	74·1	-2·6	31·9	102·0	31st	48·0	9th & 15th.	54·0
		Indore	1,823	28·117	+·006	29·927	28·175	8th	28·000	11th	·175	69·2	90·0	-2·5	57·1	-3·3	73·6	-2·9	32·9	100·3	30th	44·6	8th	55·7
		Neemuch	1,630	28·302	-·003	29·935	28·404	8th	28·187	11th	·217	67·7	88·8	-2·6	58·7	?	73·8	?	30·1	101·0	30th	46·8	8th	54·2
45	Gujarat	Surat	39	29·938	+·006	29·920	30·018	13th	29·839	11th	·179	72·1	93·5	-3·1	63·5	-2·5	78·5	-2·8	30·0	103·7	30th	53·6	8th	50·1
		Ahmedabad	163	29·798	+·007	29·914	29·894	8th	29·676	11th	·218	71·3	93·4	-3·6	64·0	-3·8	78·7	-3·7	29·4	103·8	30th	54·2	8th	49·6

* Mean of 25 days.

I—*continued.*

in India, Burma, etc., in March, 1903—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).	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 1902 to 31st March 1903.	Normal rainfall for period 1st December to 31st March.	Variation from normal of period 1st December to 31st March 1903.			
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	0·79	+0·22					VI.—Upper Sub-Himalayas		
3	2	1	4	2	2	7	6	4	S 69° W	1·1	1·0	4·3	−77	57	·359	2·2	0	1·82	−1·82	0·04	0·76	−0·72	1·58	2·88	−1·30	0·02	Bareilly	UNITED PROVINCES (WEST SUB-MONTANE).	24
17	1		3	1	2	1	4	2	S 67° W	1·3		2·3	−43	50	·262	4·6	3	2·60	+0·40	0·47	0·91	−0·47	2·24	6·33	−4·09	0·17	Dehra Dun.		
9	1	1	2	4	2		2	10	N 42° W	4·8		2·9	+66	57	·319	3·4	1	1·90	−0·90	0·30	0·69	−0·39	1·99	4·30	−2·31	0·10	Roorkee.		
10	1		1	2		3	9	5	N 85° W	2·3	2·3	2·7	−15	52	·309	2·5	0	1·40	−1·40	0·14	0·63	−0·49	0·77	3·36	−2·59	0·05	Meerut	UNITED PROVINCES WEST.	22
5	1	1	1	2	1	2	9	9	N 73° W	5·6	5·1	3·9	+31	47	·292	2·0	1	1·50	−0·50	0·15	0·50	−0·35	0·85	2·97	−2·12	0·12	Delhi	SOUTH-EAST PUNJAB.	26
8	2	4	3	3	1		3	7	N	3·5		3·1	+13	71	·370	4·2	2	1·70	+0·30	0·64	0·65	−0·01	1·21	3·25	−2·04	0·30	Lahore	CENTRAL PUNJAB.	28
	3	4	4	4	2	6	3	5	N 73° W	6·2	5·6	3·8	+47	60	·335	2·1	0	1·10	−1·10	0·09	0·32	−0·23	0·09	1·80	−1·71	0·07	Sirsa	SOUTH PUNJAB.	27
	3	2	4	8	1		2	11	N 9° E	6·8	6·9			60	·352	4·4	3			1·06			2·32			0·60	Patiala.		
4	3	6	1	7	1	1	1	7	N 16° E	3·6	3·2	1·8	+78	59	·316	3·8	6	1·70	+4·30	1·58	0·79	+0·79	2·55	4·71	−2·16	0·64	Ludhiana	PUNJAB (SUB-MONTANE).	29
1	10	6	2	3	2	1	2	4	N 14° E	4·5		1·9	+137	69	·354	4·3	5	2·90	+2·10	3·22	1·14	+2·08	4·47	5·97	−1·50	1·11	Sialkot.		
14			1	7				9	N 18° W	3·8				64	·370	4·3	3	1·40	+1·60	0·55	0·37	+0·18	2·84	5·22	−2·38	0·20	Umballa.		
15	3	3	1	2			2	5	N 8° W	4·3	4·0	2·6	+54	71	·309	6·1	11	4·20	+6·80	3·93	1·89	+2·04	4·78	7·61	−2·83	0·92	Rawalpindi.		
																				0·97	0·51	+0·46					VII.—Indus Valley and North-West Rajputana		
6	5	11	3		3	1	1	1	N 39° E	6·4	5·4			61	·324	4·3	6	1·70	+4·30	2·14	1·13	+1·01	2·46	3·18	−0·72	0·83	Khushab	WEST PUNJAB.	31
	6	7	3	2	3	1	2	7	N 10° E	7·4	6·4			55	·291	3·2	3	1·20	+1·80	1·01	0·35	+0·66	1·08	2·28	−1·20	0·37	Montgomery		
11	3	10	1	2		1		3	N 25° E	1·6	2·0	2·1	− 5	58	·302	3·3	1	1·20	−0·20	0·40	0·39	+0·01	0·64	1·46	−0·82	0·18	Mooltan.		
15	2	2		1	2		6	3	N 63° W	2·6	2·8	3·7	−24	71	·317	2·4	6	3·90	+2·10	3·72	2·04	+1·68	5·13	5·19	−0·06	1·52	Peshawar	N.-W.F. PROVINCE	32
12	4	3	1			1		10	N 23° W	2·9	3·1	2·1	+48	59	·302	4·5	4	2·50	+1·50	1·51	0·89	+0·62	1·71	2·33	−0·62	0·63	D. I. Khan.		
15	7	1	1	3				4	N 7° E	3·6	3·7	3·9	− 5	44	·269	2·3	0	0·70	−0·70	0·02	0·15	−0·13	0·08	0·85	−0·77	0·02	Jacobabad.	SIND.	47
5	7					13		6	N 81° W	6·3	6·6	8·3	−20	50	·342	1·5	2	0·30	+1·70	0·64	0·16	+0·48	0·65	0·67	−0·02	0·43	Hyderabad.		
3	2	3	2	1		4	6	5	N 61° W	8·4	10·5	11·8	−11	63	·479	1·7	2	0·50	+1·50	0·55	0·19	+0·36	0·92	1·29	−0·37	0·43	Kurrachee.		
4	3	2	2		1	6	5	8	N 68° W	7·5		4·3	+74	41	·278	1·9	0	0·50	−0·50	0	0·19	−0·19	0·17	1·01	−0·84	0	Bikaner	WEST RAJPUTANA	51
	1	4	3	2	7	8	2	1	S 8° W	7·7	6·7	4·1	+63	50	·322	0	1	0·30	+0·70	0·29	0·11	+0·18	0·35	0·69	−0·34	0·20	Pachpadra.		
6		10	1	1	3	7	3		N 39° E	5·8	5·2			38	·243	2·6	1	0·20	+0·80	0·38	0·01	+0·37	0·40	0·50	−0·10	0·31	Jodhpur.		
																				0·09	0·12	−0·03					VIII.—East Rajputana, Central India and Gujarat		
8	4	5	1			4	4	5	N 35° W	4·4		5·7	−23	35	·231	2·1	0	0·70	−0·70	0·03	0·34	−0·31	0·18	1·30	−1·12	0·03	Jaipur	EAST RAJPUTANA	50
19		3	1		1		3	4	N 37° W	3·9	3·6			60	·368	1·4	1			0·31			0·47			0·29	Bharatpur.		
9	3	3		2		2	5	7	N 47° W	7·9	6·3			30	·230	0·6	0	0·40	−0·40	0	0·07	−0·07	0·46	0·76	− 0·30	0	Kotah.		
20	2	1	1		1	1	3	2	N 54° W	7·4		6·2	+19	42	·250	1·6	0	0·80	−0·80	0·08	0·28	−0·20	0·29	1·20	− 0·91	0·08	Sambhar.		
16		3				7	2	3	S 84° W	6·5	5·8	3·6	+61	42	·299	1·8	1	0·60	+0·40	0·18	0·16	+0·02	0·44	1·11	− 0·67	0·14	Ajmer.		
16	3	1	1	1		1	4	4	N 45° W	5·4	4·8			46	·324	0·5	0	0·30	−0·30	0·01			0·42			0·01	Udaipur.		
	7	7	2	4	2	3	3	3	N 9° E	8·4†		8·9	− 6	47	·340	1·8	0	0·18	−0·18	0·04	0·05	−0·01	0·09	0·33	− 0·24	0·04	Deesa.		
	3	1		1	1	5	13	7	N 80° W	11·6	9·7	8·3	+17	68	·517	0·7	1	0·10	+0·90	0·20	0·06	+0·14	0·20	0·29	− 0·09	0·20	Bhuj	KATHIAWAR AND CUTCH.	46
	2	2	2	1	6	9	7	2	S 52° W	15·6	18·9			69	·518	1·4	0			0			0			0	Jamnagar.		
2	1	2	2	1	1	4	11	7	N 79° W	8·2	8·1	8·1	0	63	·455	1·2	0	0	0	0·03	0	+0·03	0·11	0·17	−0·06	0·03	Rajkot.		
1	14	5					2	9	N 11° W	9·9	9·9	6·6	+50	72	·535	1·5	1	0	+1·00	0·47	0	+0·47	1·56	0·10	+1·46	0·47	Veraval.		
	6	3				5	9	8	N 58° W	11·9				73	·612	1·5	0			0			0·07			0	Dwarka.		
	3					1	8	19	N 55° W	7·8‡	7·3			50	·385	0·5	0	0·10	−0·10	0·02	0·08	−0·06	0·49	0·29	+0·20	0·02	Bhavnagar Para.		
4	2		3	2	6	7	4	3	S 39° W	2·4	2·4	2·3	+ 4	39	·263	1·6	0	0·70	−0·70	0	0·22	−0·22	0	1·96	−1·96	0	Nowgong	CENTRAL INDIA.	49
2	6	4	2	1			9	7	N 33° W	5·8	4·7	3·7	+27	44	·327	0·6	0	0·10	−0·10	0	0·04	−0·04	1·18	0·55	+0·63	0	Indore.		
3	1	14	1	1	1	5	4	1	N 28° E	8·0	7·2	9·1	−21	52	·383	0·6	0	0·10	−0·10	0·01	0·04	−0·03	0·17	0·70	−0·53	0·01	Neemuch.		
6	3	5	2	1	5	4			N 48° E	4·8	4·2	6·5	−35	61	·500	0·2	0	0	0	0	0	0	0·84	0·14	+0·70	0	Surat	GUJARAT.	45
	9	5	2			4		16	N 28° W	2·6	4·3			48	·380	1·1	0	0	0	0	0·06	−0·06	0·11	0·30	−0·19	0	Ahmedabad		

† Mean of 30 days. ‡ Mean of 25 days.

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	29·339	−·031?	29·876	29·439	8th	29·171	20th	·268	67·3	87·3	−3·8	61·8	−0·9	74·6	−2·4	25·5	99·0	31st	51·9	9th	47·1
21	United Provinces Central.	Jhansi	858	29·061	−·016	29·900	29·157	15th	28·937	20th	·220	70·4	91·4	−1·7	65·0	−1·3	78·2	−1·5	26·4	104·3	31st	56·7	10th	47·6
	IX.—Deccan				−·008								96·8	0	65·6	−1·5	81·2	−0·8	31·2					48·4
38	Bombay Deccan	Belgaum	2,539	27·410	−·006	29·884	27·448	26th & 27th	27·362	10th & 11th	·086	73·8	93·5	−0·4	62·2	−2·0	77·9	−1·2	31·3	100·3	31st	54·9	9th	45·4
		Sholapur	1,590	28·343	−·007	29·891	28·383	6th & 8th.	28·287	11th & 17th	·096	76·8	99·7	−0·7	67·3	−2·0	83·5	−1·4	32·4	105·2	31st	56·6	9th	48·6
		Poona	1,840	28·108	−·011	29·935	28·147	26th	28·041	11th	·106	67·9	97·0	−0·7	59·4	−4·5	78·2	−2·6	37·6	104·5	30th	48·5	9th	56·0
		Bijapur	1,946	27·995	+·006	29·885	28·032	26th	27·936	11th	·096	77·6	97·7	+1·3	69·3	−1·3	83·5	0	28·4	103·9	31st	59·2	9th	44·7
40	Khandesh	Malegaon	1,430	28·507	−·013	29·916	28·568	13th	28·418	11th	·150	72·1	97·5	+0·2	60·2	−3·4	78·9	−1·6	37·3	105·3	30th	46·2	9th	59·1
		Ahmednagar	2,152	27·810	?	29·920	27·851	8th	27·749	12th	·102	73·6	94·9	+1·1	61·1	−1·4	78·0	−0·2	33·8	100·9	29th & 31st	51·4	9th	49·5
41	Berar	Akola	930	28·996	−·001	29·893	29·042	16th	28·909	11th	·133	74·4	98·3	−0·9	64·1	−1·9	81·2	−1·4	34·2	106·7	31st	47·9	9th	58·8
		Amraoti	1,215	28·708	+·001	29·891	28·761	16th	28·630	11th	·131	76·1	97·7	−0·4	68·4	−0·8	83·1	−0·6	29·3	105·3	30th & 31st.	59·0	7th	46·3
42	Central Provinces, West.	Khandwa	1,041	28·837	−·003	29·911	28·958	13th	28·774	11th	·184	71·7	96·1	−1·5	62·4	−2·5	79·3	−2·0	33·7	105·7	30th	46·6	9th	59·1
		Hoshangabad*	1,006	28·939	−·005	29·934	29·010	16th	28·820	11th	·190	69·0	90·7	−2·9	58·2	−4·6	74·5	−3·8	32·5	97·3	19th	50·3	16th	47·0
		Nagpur	1,025	28·892	−·004	29·885	28·974	16th	28·826	11th	·148	76·8	98·5	+0·2	66·7	−1·1	82·6	−0·5	31·8	106·6	31st	56·2	9th	50·4
43	Central Provinces, Central.	Chanda	634	29·289	+·001	29·876	29·361	16th	29·223	11th	·138	77·5	101·3	+1·6	65·4	−1·6	83·4	0	35·9	108·2	31st	54·6	9th	53·6
		Seoni	2,033	27·889	−·013	29·879	27·967	16th	27·823	11th	·144	74·6	93·6	+0·4	62·8	−0·7	78·2	−0·2	30·8	102·3	31st	53·0	10th	49·3
		Jubbulpore	1,327	28·573	−·022	29·890	28·646	16th	28·492	11th	·154	68·8	91·8	−1·0	57·9	−2·9	74·8	−2·0	33·9	101·0	31st	46·9	9th	54·1
		Saugor	1,807	28·112	−·006	29·905	28·184	8th & 16th	28·021	11th	·163	70·0	89·0?	−3·1?	53·1	−1·4	76·1?	−2·3?	25·9?	99·4	30th	54·1	8th & 9th	45·3
49	Central India	Sutna	1,040	28·850	−·026	29·878	28·936	15th	28·759	20th	·177	69·8	90·1	−1·2	60·5	−0·7	75·3	−1·0	29·6	101·0	31st	50·3	9th	50·7
44	Central Provinces, East.	Raipur	970	28·930	−·020	29·862	28·993	16th	28·872	31st	·121	77·1	97·4	+0·9	64·5	?	80·9	?	32·9	105·5	31st	54·4	9th	51·1
		Sambalpur	486	29·427?	−·015?	29·870?	29·497	16th	29·326	31st	·171	76·5	98·1	+1·4	66·9	−0·4	82·5	+0·5	31·2	106·1	31st	55·7	17th	50·4
39	Hyderabad (North).	Aurangabad	1,905	28·045		29·903	28·087	9th	27·992	18th	·095	75·5	94·8		63·9		79·3		30·9	102·0	31st	53·2	10th	48·8
		Indur		28·734			28·797	10th	28·693	28th	·104	79·7	96·6		66·6		83·6		30·0	103·7	30th & 31st	56·3	9th	47·4
		Bidar	2,165	27·758		29·852	27·828	2nd	27·690	17th	·138	79·5	96·3		72·4		84·6		24·4	102·5	31st	64·5	8th	38·9
53	Hyderabad (South).	Gulbarga	1,503	28·424	−·004	29·872	28·465	28th	28·385	11th	·080	81·3	100·4	+1·2	70·9	+0·2	85·7	+0·7	29·5	105·5	31st	63·1	9th	42·4
		Raichur	1,326	28·586	−·004	29·862	28·619	2nd	28·548	16th	·071	80·7	99·2	+0·4	73·1	−0·9	86·2	−0·3	26·1	105·0	31st	65·1	8th	39·9
		Hyderabad (Deccan).	1,690	28·234	−·004	29·874	28·266	21st	28·201	31st	·065	78·3	98·4	+0·5	71·2	+1·6	84·8	+1·1	27·2	103·9	30th, 31st	63·7	9th	40·2
		Secunderabad	1,787	28·141	?	29·881	28·172	21st	28·116	15th & 19th	·056	77·0	100·0	+2·1	70·8	+1·2	85·4	+1·7	29·2	106·2	31st	63·6	9th	42·6
		Hanamkonda	871	29·047		29·871	29·082	23rd	28·991	31st	·091	78·3	99·2		71·9		85·5		27·3	105·2	31st	65·2	9th	40·0
	X.—West Coast				0								86·5	−1·4	73·3	−1·9	79·9	−1·7	13·1					22·2
37	Konkan	Bombay	37	29·943	+·012	29·920	29·992	26th	29·863	17th	·129	73·7	93·9	−1·8	70·6	−2·8	77·3	−2·3	13·3	87·5	1st & 30th.	64·5	9th	23·0
		Ratnagiri	110	29·850	+·010	29·900	29·927	26th	29·784	17th	·143	75·0	84·5	−3·3	69·6	−2·8	77·1	−3·1	14·9	88·3	31st	62·9	9th	25·4
		Mormugao	60	29·904	+·015	29·899	29·977	26th	29·845	17th	·132	76·2	85·1	−1·8	72·6	−2·9	78·9	−2·4	12·5	89·0	2nd	65·8	9th	23·2
		Goa	199									76·0	82·8	−4·5	73·5	−0·7?	78·1	−2·6?	9·3	88·0	9th	66·0	9th	22·0
		Karwar	44	29·905	−·010	29·882	29·974	26th	29·854	17th	·120	72·4	86·4	−1·4	69·6	−3·4	78·0	−2·4	16·8	90·3	15th & 16th	62·5	9th	27·8
33	Madras	Cochin	10	29·945	−·006	29·883	29·983	27th	29·911	10th & 17th	·072	82·1	92·6	+1·4	78·4	+1·4	85·5	+1·4	14·2	95·3	25th	73·7	10th	21·6
		Calicut	27	29·927	−·008	29·884	29·976	26th	29·883	10th	·093	81·2	90·5	+0·2						92·3	15th, 18th & 20th			
		Mangalore	65	29·886	−·015	29·883	29·945	26th	29·840	10th	·105	80·5	88·0	−1·1	75·2	−0·8	81·6	−1·1	12·8	89·7	2nd	70·5	9th	19·2
		Trivandrum	198	29·756	+·019?	29·886	29·806	27th	29·706	11th	·100	80·7	88·4	+1·3	77·2	+2·5?	82·8	+1·9?	11·2	90·0	28th, 29th 30th	74·5	10th	15·5
	XI.—South India				−·011								94·9	+1·1	72·0	+0·5	83·4	+0·8	23·0					34·8
57	Madras (South)	Pamban	37	29·926		29·889	29·967	2nd	29·833	11th	·084	82·8	90·6		75·9		82·9		14·1	94·3	31st	72·2	19th	22·1
		Tinnevelly	168	29·788	+·004	29·887	29·826	2nd	29·751	9th	·075	81·4	98·4	+1·9	75·3	−0·3	86·8	+0·8	23·1	103·4	31st	67·9	19th	35·5
		Madura	447	29·508	−·010	29·893	29·549	2nd	29·475	29th	·074	81·2	97·6	+0·9	72·3	−0·5	85·0	+0·2	25·3	101·5	27th & 30th	65·1	19th	36·4
		Periyakulam	945	29·012			29·044	2nd	28·978	11th	·066	77·3	96·7		68·6		82·1		28·1	101·3	31st	61·1	7th	40·2

* Observation of 29 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 December 1902 to 31st March 1903.	Normal rainfall for period, 1st December to 31st March.	Variation from normal of period, 1st December to 31st March 1903.				
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		1		2		16		7	S 63° W	5·4	6·2	4·5	+38	43	·286	1·5	1	0·80	+0·20	0·43	0·26	+ 0·17	0·76	1·37	− 0·61	0·43	Agra .	United Provinces West.	22
1		3	1			15	2	9	S 82° W	4·8	5·3	3·4	+56	38	·285	0·7	0	0·50	−0·50	0·01	0·26	− 0·25	0·15	1·53	− 1·38	0·01	Jhansi .	United Provinces Central.	21
																				0	0·44	−0·44					IX.—Deccan.		
15	5	1	1	2	1		1	5	N 12° W	9·3†		11·6	−20	41	·333	1·0	0	0·90	−0·90	0	0·43	− 0·43	7·60	0·62	+ 6·98	0	Belgaum .	Bombay Deccan	38
2	2	5	1		1	1	3	16	N 35° W	7·4	9·0	7·4	+22	29	·265	0	0	0·60	−0·60	0	0·26	− 0·26	5·15	0·79	+ 4·36	0	Sholapur.		
	4	3		1	1	2	7	13	N 50° W	9·3		8·3	+12	48	·335	0·1	0	0·30	−0·30	0	0·04	− 0·04	2·42	0·33	+ 2·09	0	Poona.		
								8	N 17° W					51	·493	0·3	0	0·70	−0·70	0	0·49	− 0·49	3·35	0·59	+ 2·76	0	Bijapur.		
2	17	1			1	2																							
	5					1	12	13	N 58° W	6·5	7·5	6·4	+17	30	·246	4·4	0	0·10	−0·10	0	0·04	− 0·04	1·32	0·44	+ 0·88	0	Malegaon .	Khandesh.	10
								7	N 4° E	8·9	10·9			44	·380	0·2	0	0·30	−0·30	0	0·32	− 0·32	1·96	1·23	+ 0·73	0	Ahmednagar.		
5	10	9																											
9					1	3	6	12	N 72° W	5·2	5·1	4·4	+16	29	·252	0·3	0	0·90	−0·90	0	0·43	− 0·43	1·59	1·68	− 0·09	0	Akola .	Berar.	11
		4	4	1	2	10	7	3	S 61° W	7·4	6·6	4·0	+65	42	·391	0·4	0	0·80	−0·80	0	0·32	− 0·32	0·60	1·45	− 0·85	0	Amraoti.		
9	3	4					5	10	N 36° W	5·9		4·6	+28	29	·232	0·3	0	0·30	−0·30	0	0·12	− 0·12	0·28	0·86	− 0·58	0	Khandwa .	Central Provinces, West.	12
		10				10			Calm	3·5	3·6	2·6	+38	43	·316	0	0	0·40	−0·40	0	0·18	− 0·18	1·64	1·24	+ 0·40	0	Hoshangabad.		
13	4	2		2			3	7	N 29° W					29	·273	0·2	0	1·10	−1·10	0	0·48	− 0·48	1·62	1·77	− 0·15	0	Nagpur.		
12	4		2	2	1	2	4	4	N 58° W	2·2	2·0	3·2	−38	33	·320	0·1	0	1·40	−1·40	0·04	1·19	− 1·15	0·63	2·32	− 1·69	0·04	Chanda .	Central Provinces Central.	13
	10	10	2	1	2	1	1	4	N 17° E	5·4		3·4	+59	28	·252	0·3	0	1·70	−1·70	0	0·59	− 0·59	1·51	2·52	− 1·01	0	Seoni.		
3	4	1		5	9	4	2	3	S 18° W	3·0	2·6	3·0	−13	43	·306	0·3	0	1·20	−1·20	0	0·43	− 0·43	0·36	2·04	− 1·68	0	Jubbulpore.		
	6	1	3	3		9	7	2	S 88° W	6·2	7·1	3·2	+122	24	·176	0·7	0	0·60	−0·60	0	0·29	− 0·29	0·30	2·04	− 1·74	0	Saugor.		
1	1	1	3	1		2	13	9	N 70° W	4·2	3·8	5·5	−31	27	·197	1·9	0	1·00	−1·00	0·06	0·43	− 0·37	0·37	2·43	− 2·06	0·06	Sutna	Central India	13
7	1	5	3	2	1	6	4	2	S 66° W	5·2	4·8	4·7	+2	29	·270	0·5	0	1·80	−1·80	0·02	0·65	− 0·63	0·86	1·45	− 0·59	0·02	Raipur .	Central Provinces, East.	14
	3	9	2	7	2	2	4	2	N 69° E	4·2	4·1	2·0	+105	49	·462	1·1	0	1·80	−1·80	0	1·07	− 1·07	2·57	2·10	+ 0·47	0	Sambalpur.		
16	3	7	2			1	2		N 30° E	9·5	9·4			28	·262	0·1	0	0·50	−0·50	0	0·14	− 0·14	2·87	0·98	+ 1·89	0	Aurangabad	Hyderabad (North).	30
16		2		1		3	1	8	N 69° W	4·5	3·8			32	·329	0·2	0	0·80	−0·80	0	0·48	− 0·48	1·12	0·99	+ 0·13	0	Indur .		
	7	8	2		2	3	2	7	N 4° W	7·2	6·0			67	·665	2·7	0	1·40	−1·40	0	0·50	− 0·50	0·80	1·22	− 0·42	0	Bidar.		
5	1	18	2		4	1			N 57° E	8·7	8·3			41	·443	0	0	0·80	−0·80	0	0·52	− 0·52	0·97	0·88	+ 0·09	0	Gulbarga .	Hyderabad (South).	33
1	5	1	2	5	1	7	1	8	N 70° W	7·3	6·9			32	·338	0·1	0	0·70	−0·70	0	0·44	− 0·44	0·20	0·68	− 0·48	0	Raichur.		
23	1	3	1	1			1	1	N 34° E	3·5	3·4			46	·448	0·1	0			0	0·58	− 0·58	0·79	0·96	− 0·17	0	Hyderabad (Deccan).		
3	6	5	5	2		3	2	5	N 14° E	5·2		5·0	+4	49	·453	0·1	0	1·10	−1·10	0	0·58	− 0·58	0·68	0·96	− 0·28	0	Secunderabad.		
	2	2	3	17	2	2		3	S 52° E	7·1	6·0			60	·590	1·5	0	0·70	−0·70	0			1·43			0	Hanumkonda		
																				0·12	0·51	−0·39					X.—West Coast.		
1	13	10	2	1	1			3	N 20° E	10·1		11·5	−12	78	·659	1·9	1	0	+1·00	0·17	0·02	+ 0·15	0·98	0·20	+0·78	0·17	Bombay .	Konkan.	37
2	14	10	4	1					N 30° E	12·7	12·6	9·9	+27	68	·594	0·4	0	0·10	−0·10	0	0·01	− 0·01	1·90	0·24	+ 1·66	0	Ratnagiri.		
2	7	4	4	1	1	2	7	3	N 19° W	10·7‡				75	·684	0·7	0			0	0	0	3·46	0·05	+ 3·41	0	Mormugao.		
1	8	7	8	2		1		4	N 18° E					74	·671	0·8	0			0	0	0	2·72	0·31	+ 2·41	0	Goa.		
7	1	4	16	1			2		N 80° E	5·2				82	·649	1·5	0	0	0	0	0	0	3·21	0·18	+ 3·03	0	Karwar.		
2	1	23	5						N 51° E	7·6				78	·865	1·6	1	2·60	−1·60	0·93	2·15	− 1·22	6·21	5·22	+ 0·99	0·90	Cochin .	Malabar.	33
8	4	8	6					5	N 32° E	9·0	11·3			77	·825	1·0	0	0·90	−0·90	0	0·58	− 0·58	4·68	1·89	+ 2·79	0	Calicut.		
23			3	5					S 61° E	2·1		3·4	−38	75	·781	1·5	0	0·20	−0·20	0	0·07	− 0·07	2·27	0·60	+ 1·67	0	Mangalore.		
11	12	5	1					2	N 10° E	5·5				74	·786	1·0	0	2·60	−2·60	0	1·78	− 1·78	5·65	5·29	+ 0·36	0	Trivandrum.		
																				0·08	0·45	−0·38					XI.—South India.		
5		1	10	4	6	3	1	1	S 45° E	6·2	6·6			74	·836	1·7	0	0·90	−0·90	0	0·72	− 0·72	7·89	13·09	− 5·20	0	Pamban .	Madras (South)	37
	10	2	1	1		4	5	8	N 38° W	4·4	4·2			74	·800	1·3	0	2·30	−2·30	0·03	1·03	− 1·00	9·37	7·28	+ 2·09	0·03	Tinnevelly.		
9	5	1	5	4	1			6	N 35° E	2·6	3·0	4·1	−27	72	·779	1·1	0	1·90	−1·00	0	0·47	− 0·47	4·68	3·09	+ 1·59	0	Madura.		
21	3	1	3	1			2		N 34° E	2·1	2·3			65	·617	0·7	2	2·30	−0·30	1·61	1·73	− 0·12	10·67	4·89	+ 5·78	1·27	Periyakulam.		

† Mean of 28 days.

‡ Mean of 25 days.

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	29·028	−·026	29·912	29·067	1st	28·994	30th	·073	79·9	100·3	+1·7	71·8	+1·0	86·1	+1·4	28·5	104·2	31st	60·9	4th	43·3
		Coimbatore	1,348	28·609	−·013	29·908	28·635	2nd	28·579	29th	·056	77·6	97·5	+1·2	70·6	+0·8	84·0	+1·0	26·9	101·9	30th	63·8	3rd & 4th	38·1
35	Coorg	Mercara	3,781	26·273	+·007		26·312	26th	26·228	11th	·084	63·4	84·9	+0·3	60·5	−1·3	72·7	−0·5	24·4	89·0	24th	57·1	25th	31·9
36	Mysore	Chitaldroog	2,405	27·556	0	29·867	27·611	26th	27·497	17th	·114	79·3	95·2	+0·8	70·2	0	82·7	+0·4	25·0	99·7	30th	64·9	4th & 7th.	34·8
		Bangalore	3,021	26·978	−·008	29·892	27·024	26th	26·950	11th	·074	74·1	92·9	+2·2	66·0	+1·3	79·5	+1·8	26·9	97·8	30th	56·9	3rd	40·9
		Hassan	3,091	26·923?	+·010?	29·923?	26·958	26th	26·879	10th	·079	73·0	91·3	+0·3	62·5	+0·2	76·9	+0·3	28·8	96·1	30th	55·7	4th & 9th	40·4
		Mysore	2,518	27·467	+·004	29·907	27·512	26th	27·425	11th	·087	74·5	94·9	+1·4	67·5	+0·3	81·2	+0·9	27·4	99·1	30th	61·4	th	37·7
56	Madras, East Coast, South.	Negapatam	31	29·924	−·014	29·884	29·960	3rd	29·887	11th	·073	82·8	88·2	−0·5	77·0	+1·5	82·6	+0·5	11·2	90·2	31st	71·5	2nd	18·7
		Cuddalore	12	29·949	+·008?	29·890	29·986	2nd	29·917	29th & 31st	·069	80·3	88·9	−0·4	72·3	+0·1	80·6	−0·2	16·6	95·2	31st	66·2	4th	29·0
		Trichinopoly	255	29·705	−·014	29·895	29·747	2nd	29·672	29th & 31st	·075	80·1	98·8	+0·9	72·2	−0·6	85·5	+0·2	26·6	103·6	29th.	66·4	4 days	37·2
		Madras	22	29·932	−·020	29·885	29·979	2nd	29·893	29th	·086	79·8	89·5	−0·5	72·6	+0·4	81·1	−0·1	16·9	95·0	31st	67·0	4th	28·0
		Vellore	707	29·238		29·895	29·269	1st & 2nd	29·200	29th	·069	75·9	95·8		69·1		82·4		26·7	102·9	29th	58·4	4th	44·5
55	Madras, East Coast, Central.	Nellore	71	29·862	−·005?	29·867	29·911	2nd	29·815	30th & 31st	·096	79·7	97·2	+1·0	73·5	+1·1	85·4	+1·1	23·7	104·3	29th	68·6	6th	35·7
		Masulipatam	15	29·930	−·017	29·880	29·978	2nd	29·896	19th	·082	80·9	92·4	+1·0	73·1	+0·8	82·8	+0·9	19·3	96·6	7th & 29th	67·2	4th	29·4
54	Madras, Central	Cuddapah	433	29·485	−·012	29·855	29·520	2nd	29·442	29th & 30th	·078	85·4	104·0	+2·3	76·0	+1·0	90·0	+1·7	28·0	110·3	31st	67·5	3rd	42·8
		Kurnool	945	28·964	−·014	29·853	29·008	26th	29·927	31st	·081	80·8	101·5	+0·6	71·0	−0·5	86·3	+0·1	30·5	106·3	30th & 31st	61·8	9th	44·5
		Bellary	1,475	28·454	−·006	29·873	28·518	26th	28·409	17th	·109	80·6	101·6	+1·3	73·3	+1·2	87·5	+1·3	28·3	106·0	31st	64·7	4th	41·3
52	Madras, East Coast, North.	Cocanada	26	29·922	−·012	29·883	29·968	2nd	29·883	31st	·085	80·5	95·5	+3·8	74·7	+1·2	85·1	+2·5	20·8	100·6	29th	70·0	3rd & 4th	30·6
		Waltair (Vizag.)	226	29·700	−·031?	29·869	29·755	26th	29·650	31st	·105	79·6	87·6	?	75·2	+1·8	81·4	?	12·4	92·4	7th	72·4	3rd	20·0
		Gopalpur	21	29·878?	−·028?	29·839?	29·964	10th	29·796	31st	·168	79·4	87·9	+1·3	74·5	+1·3	81·2	+1·3	13·4	98·3	29th	70·1	29th	28·2
	XII.—Hill Stations.																							
48	Baluchistan	Sharigh																						
		Pishin											55·2		27·7		41·5		27·5	68·3	26th & 29th	14·0	6th & 7th	54·3
		Quetta	5,502	24·630	−·023		24·761	15th	24·436	10th	·325	39·8	54·5	−10·0	32·9	−7·1	43·8	−8·6	21·6	68·7	26th	21·3	12th	47·4
		Chaman	4,311	25·691	−·025		25·862	1st	25·426	10th	·436	45·4	57·9	−9·4	38·0	−6·1	48·0	−7·8	19·9	75·8	29th	26·6	5th	49·2
30	Punjab & N.-W. Frontier Province,	Leh	11,503	19·549	−·143		19·714	17th	19·267	30th	·447	20·9	34·0	−9·1	15·5	−5·6	24·8	−7·4	19·5	46·5	1st	−3·1	8th	49·6
		Srinagar	5,204	24·851	−·079		24·984	14th	24·634	30th	·350	39·3	51·6	−3·8	36·7	−0·4	44·2	−2·1	14·9	62·0	29th	29·1	8th	32·9
		Sonemarg		21·802?			21·982	11th	21·583?	8th	·399?	24·5	38·6		18·2		28·4		20·4	49·2	28th	−5·4	8th	54·6
		Astor (Kashmir)		22·421			22·623	14th	22·127	30th	·496	30·0	41·4		25·7		33·6		15·7	51·0	2nd	16·0	9th	35·0
		Minimarg		21·242			21·386	14th & 16th.	21·036	30th	·350	23·1	42·3		16·6		29·5		25·7	57·4	28th	0·6	15th	56·8
		Skardu		22·768			22·964	14th	22·468	30th	·496	35·0	45·4		31·8		38·6		13·6	53·0	28th	27·6	8th	25·4
		Dras		20·671			20·872	15th	20·421	30th	·451	13·6	30·8		5·3		18·1		25·5	49·8	8th	−20·4	16th	70·2
		Gilgit	4,890	25·066			25·291	14th	24·712	30th	·579	45·6	55·4	−6·3	42·0	−3·2	48·8	−4·8	13·4	60·6	26th	35·1	10th	25·5
		Chitral		24·554			24·640	1st	24·522	14th	·118	38·3	50·6		35·2		42·9		15·4	61·1	3rd	28·5	12th	32·6
		Killa Drosh										38·2	51·2		35·8		43·5		15·4	62·3	2nd	30·1	13th	32·2
		Para Chinar	6,000	24·404			24·547	27th	24·163	11th	·384	39·3	51·9		33·6		42·8		18·3	62·0	2nd	20·4	12th	41·6
		Cherat		25·660	−·054		25·830	27th	25·426	30th	·404	45·5	55·3	−6·2	42·6	−5·3	49·0	−5·8	12·7	69·3	1st	37·0	7th	32·3
		Murree	6,333	23·770	−·077		23·918	27th	23·582	11th	·336	40·7	47·2	−11·0	33·0	−10·3	40·2	−10·7	14·3	58·2	18th	27·0	5th & 10th	31·2
		Kailang	10,087	20·847			20·986	16th	20·669	31st	·317	23·5	35·5		18·5		27·0		17·0	49·2	1st	3·0	9th	46·2
		Poo											45·3		28·6		37·0		16·7	60·0	1st	20·2	8th	39·8
		Simla	7,224	23·055	−·050		23·148	1st	22·941	3rd	·207	43·6	51·1	−5·3	40·2	−5·3	45·7	−5·6	10·9	64·4	30th	30·4	8th	31·0

I—*continued.*

in India, Burma, etc., in March, 1903—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 1902 to 31st March 1903.	Normal rainfall for period, 1st December to 31st March.	Variation from normal of period, 1st December to 31st March 1903.				
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	4		3	3	1		S 45° E	5·4	4·8	5·5	−13	77	·777	0·8	0	1·20	−1·20	0	0·71	− 0·71	3·32	2·53	+ 0·79	0	Salem	Madras, (South Central).	34
24			4				2	1	N 60° E	0·8	0·7	3·3	−79	79	·761	2·6	0	1·10	−1·10	0	0·50	− 0·50	3·08	2·25	+ 0·83	0	Coimbatore.		
25	2	3	1						N 37° E	4·4	4·1	3·4	+21	76	·529	8·0	0	2·00	−2·00	0	0·81	− 0·81	9·16	1·48	+ 7·68	0	Mercara	Coorg	35
5	1	1	1	2	1	9	9	2	S 67° W	4·4	3·8			47	·475	0·4	0	0·50	−0·50	0	0·34	− 0·34	2·83	0·51	+ 2·32	0	Chitaldroog.	Mysore	36
1			1	6	8	9	6		S 21° W	7·3	6·4	3·6	+78	61	·525	0	0	1·00	−1·00	0	0·48	− 0·48	1·00	1·19	− 0·19	0	Bangalore.		
3	1	2	1	3	4	5	7	5	S 68° W	2·6	2·3			67	·540	1·0	0	0·90	−0·90	0	0·38	− 0·38	5·54	0·62	+ 4·92	0	Hassan.		
	1		1	2	5	12	8	2	S 51° W	6·5	7·0			71	·593	1·2	0	1·00	−1·00	0	0·23	− 0·23	2·08	0·62	+ 1·46	0	Mysore.		
11		4	1	9		5	1		S 39° E	8·9	7·8	3·6	+117	73	·833	3·6	0	0·50	−0·50	0	0·52	− 0·52	17·55	15·26	+ 2·29	0	Negapatam.	Madras, East Coast, South.	56
26				1		2	1	1	S 59° W	2·2	2·7			85	·889	2·4	0	0·40	−0·40	0	0·30	− 0·30	18·69	10·00	+ 8·69	0	Cuddalore.		
29			1					1	N 23° E	2·7		3·8	−29	75	·770	0·7	0	0·50	−0·50	0	0·41	− 0·41	7·55	4·23	+ 3·32	0	Trichinopoly		
		1	1	3	24	2			S 5° E	6·3		6·4	− 2	82	·842	1·1	0	0·80	−0·80	0	0·21	− 0·21	15·88	6·98	+ 8·90	0	Madras.		
26	1				2		1	1	S 76° W	2·5	2·5			76	·689	1·1	0	0·30	−0·30	0	0·19	− 0·19	5·27	3·69	+ 1·58	0	Vellore.		
				15	16				S 22° E	6·5				79	·812	1·1	0	0·30	−0·30	0	0·08	− 0·08	15·07	2·37	+12·70	0	Nellore	Madras, East Coast, Central.	55
8		1		5	15	2			S 8° E	6·8	6·5	6·8	− 4	83	·874	2·7	0	0·40	−0·40	0	0·12	− 0·12	3·72	1·19	+ 2·53	0	Masulipatam.		
		7	2	9	1	9	2	1	S 28° E					52	·643	0·1	0	0·20	−0·20	0	0·04	− 0·04	2·41	1·41	+ 1·00	0	Cuddapah.	Madras, Central	54
16	2	1		3	1	7	1		S 31° W	5·1				48	·510	0·4	0	0·60	−0·60	0	0·41	− 0·41	0·04	0·62	− 0·58	0	Kurnool.		
9	2		1		1		7	11	N 59° W	4·4	4·7	4·6	+ 2	39	·420	1·1	0	0·50	−0·50	0	0·14	− 0·14	0·08	0·36	− 0·28	0	Bellary.		
14				1	1	5	8	2	S 73° W	6·2	5·2			82	·852	3·4	0	0·70	−0·70	0·02	0·47	− 0·45	1·09	1·75	− 0·66	0·02	Cocanada	Madras, East Coast, North	52
2					1	28			S 43° W	15·3				76	·773	2·8	0	0·60	−0·60	0	0·32	− 0·32	2·24	2·45	− 0·21	0	Waltair (Vizag.).		
5	4	1			2	17	1	1	S 56° W	18·3	17·9	11·5	+52	85	·837	0·2	1	1·00	0	0·10	0·65	− 0·55	0·97	2·00	− 1·03	0·10	Gopalpur.		
																											XII.—Hill Stations.		
																										Sharigh	Baluchistan	48
																	11	5·00	+6·00	6·18	1·83	+ 4·35	9·27	8·05	+ 1·22	2·16	Pishin.		
24		1	1	2	2			1	N 45° E	5·9	6·2	4·8	+50	81	·200	2·9	10	4·00	+6·00	5·30	1·84	+ 3·46	8·01	6·89	+ 1·12	1·50	Quetta.		
3		1	2	6	15	4			S 11° E	6·5	7·2			60	·192	3·3	7	4·70	+2·30	3·94	1·31	+ 2·63	5·79	5·28	+ 0·51	1·03	Chaman.		
	1	5	9	5	7	1	2	1	S 64° W	1·4				46	·055	7·6	4	1·00	+3·00	1·52	0·22	+ 1·30	3·07	1·07	+ 2·00	0·59	Leh	Punjab & N.-W. Frontier Province.	30
4	6	2		2	5	2	1	9	N 45° W	6·2	5·8			89	·218	7·6	15	6·60	+8·40	6·09	3·14	+2·95	9·81	10·34	− 0·53	1·55	Srinagar.		
28		1	1					1	N 41° E	2·9	2·6			93	·118	6·4	21			27·28			46·47			4·35	Sonemarg		
5		1			11	14			S 24° W	7·2				70	·123	7·3	8			3·13			7·48			1·25	Astor (Kashmir).		
21		3	4				2	1	N 50° E	3·5	3·7			71	·092	7·5	20			9·89			19·26			1·40	Minimarg.		
11	1			1	2	10	6		S 54° W	6·0	6·0			75	·154	7·2	4	2·70	+1·30	1·15	1·20	− 0·05	2·69	4·77	− 2·08	0·29	Skardu.		
24		1	1			3	2		S 59° W	1·5	1·5			96	·088	7·4	17	10·80	+6·20	5·32	4·39	+ 0·93	9·31	13·13	− 3·82	0·61	Dras.		
29			1				1		Calm	3·5	3·1			50	·154	7·8	2	1·40	+0·60	0·23	0·59	− 0·36	2·07	1·05	+ 1·02	0·13	Gilgit.		
28		1			1	1			S					83	·196	2·8	11			4·80			7·43			1·00	Chitral.		
23	2		3	2		1			S 89° E					82	·192	6·1	10			5·49			7·70			1·40	Killa Drosh.		
15	3	3	2	1		2	3	2	N 14° W	6·5	5·9			68	·166	5·2	11	9·00	+2·00	6·50	4·76	+ 1·74	8·97	8·11	+ 0·86	1·82	Para Chinar.		
	15	2		1	6	1		6	N 13° W	9·5	8·8			64	·195	2·1	9			6·15	3·79	+ 2·36	7·65	10·17	− 2·52	2·00	Cherat.		
9	3			13	5			1	S 39° E	6·1	6·6	9·4	−30	65	·163	6·3	15	4·90	+10·10	7·08	4·05	+ 3·03	12·75	12·70	+ 0·05	1·15	Murree.		
	1	1	4	6	2	1	9	7	S 87° W	0·6				82	·109	7·7	15			10·82						2·09	Kailang*.		
23	2	1	2	3					N 79° E							6·1	16			8·67	4·11	+ 4·56	10·98	12·29	− 1·31	1·27	Poo.		
2	11			2	16				S E			2·8		51	·144	5·9	9	4·30	+4·70	3·20	2·07	+ 1·13	6·87	9·01	−2·14	0·72	Simla.		

* Total rainfall since 1st January 1903.

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
25	United Provinces	Chakrata .	7,022	23·237	−·056		23·320	1st	23·175	31st	·145	44·6	55·2	−6·5	40·2	−4·1	47·7	−5·3	15·0	67·5	30th	29·9	8th	37·6
		Mussooree .	6,705	23·519	−·035		23·610	1st	23·463	31st	·147	45·9	55·2	−5·4	40·9	−4·2	48·1	−4·8	14·3	67·2	30th	31·0	8th & 9th	36·2
		Ranikhet .	6,069	24·080	−·027		24·161	11th	24·025	20th	·136	49·7	61·2	−4·1	45·2	−3·9	53·2	−4·0	16·0	75·0	30th	35·0	8th	40·0
		Muktesar .	7,600	22·818			22·891	1st	22·751	8th	·140	45·9	57·0		39·5		48·2		17·5	71·1	30th	29·9	8th	41·2
13	Bengal . .	Yatung . .	10,380?										50·0		26·7		38·3		23·3	57·1	28th & 30th	19·9	9th	37·2
		Darjeeling .	7,376	22·955	−·050		23·032	7th	22·861	14th	·171	48·4	56·8	+0·3	41·8	−0·5	49·3	−0·1	15·0	64·1	21st	37·0	22nd	27·1
8	Assam Hill Tracts.	Shillong .	4,920	25·118			25·205	23rd	25·039	28th	·166	59·7	70·0		51·5		60·8		18·5	76·6	21st	42·0	10th	34·6
		Cherra Poonjee	4,309	25·686			25·780	23rd	25·605	28th	·175	58·9	66·2		53·7		60·0		12·5	72·3	21st	48·5	16th	23·8
	Central India .	Mount Abu .	3,945	26·055	−·037		26·134	27th	25·946	20th	·188	63·0	72·1	−5·6	57·1	−4·4	64·6	−5·0	15·0	82·7	28th	47·0	8th	35·7
		Pachmarhi .	3,528	26·478	−·017		26·596	13th	26·404	11th	·192	69·2	84·0	−0·4	58·1	−2·3	71·0	−1·4	25·9	92·2	31st	46·8	10th	45·4
	South India	Wellington .	6,200																					
		Kodaikanal .	7,688	22·873			22·914	27th	22·812	11th	·102	59·8	70·5		51·4		58·9		19·1	74·5	24th	46·9	2nd	27·6
		Ootacamund .	...	23·107			23·153	27th	23·049	11th	·104	60·7	70·9		47·9		57·4		23·0	74·5	30th	39·7	2nd	34·8
		Dodabetta* .	*	22·077			22·123	26th	22·007	11th	·116	61·3	62·6		47·2		54·9		15·4	64·7	22nd	42·7	11th	22·0
	XIII.—Extra India.																							
	Ceylon . .	Trincomalee .	12	29·951	+·018?	29·889	29·986	27th	29·896	11th	·090	78·8	89·0	+1·0	75·0	−1·0	82·0	0	14·0	94·0	31st	72·0	4th, 5th & 7th.	22·0
		Colombo .	40	29·915	−·011	29·581	29·964	26th & 27th.	29·866	11th	·098	82·3	92·1	+2·7	75·7	+0·8	83·9	+1·8	16·4	94·0	15th & 25th	73·0	9th	21·0
												34·1			28·5	−9·9						14·0	30th	
	Persia . .	Meshed . .	3,104																					
		Teheran . .	...	26·015‖			26·205	3days	25·800	8th & 21st	·405	38·7	48·7	−8·5	32·4	−6·0	40·6	−7·3	16·3	58·7	7th & 9th.	16·1	29th	42·6
		Ispahan . .	...	24·233‖			24·460	30th & 31st	24·020	21st	·440	39·5	56·4	−4·7	26·9	−9·3	41·7	−7·0	29·5	67·5	25th	13·6	29th	53·9
		Bushire . .	14	29·992	+·005	29·965	30·219	31st	29·769	8th	·430	62·0	69·8	−2·5	57·3	−1·5	63·6	−2·0	12·5	84·1	21st	49·3	4th	34·8
		Bahrein . .	30	29·999			30·199	31st	29·780	27th	·419	66·1	73·5		61·0		67·3		12·5	85·1	21st	53·3	13th	31·8
		Jask . .	...	29·960	−·028		30·225	31st	29·747	9th	·478	70·5	78·5	−0·2	65·8	−0·3	72·1	−0·3	12·7	87·3	27th	55·3	6th	32·0
		Muscat . .	20	30·024†	+·051†	29·992†	30·240	30th	29·745	9th	·495	74·1	76·8	+0·2	71·9	−0·1	74·4	+0·1	4·9	89·3	22nd	68·1	1st 2nd & 3rd.	21·2
	Arabia .	Baghdad .	220	29·900	−·035	30·108	30·132	30th	29·492	7th	·640	54·7	72·0	−0·3	49·2	+1·0	60·6	+0·4	22·8	78·7	7th	41·8	29th	36·9
		Bussrah . .	...	30·069			30·244	1st	29·763	7th	·481		70·9		54·8		62·9		16·1	77·2	13th	44·5	1st	32·7
		Aden . .	94	29·911	+·014	29·937	30·011	31st	29·840	10th	·171	77·7	82·5	−1·9	75·0	−0·2	78·8	−1·1	7·5	86·3	25th & 30th	71·4	5th	14·9
		Perim . .	201	29·766	+·029	29·903	29·855	30th	29·684	4th & 7th	·171	78·6	84·6	−0·7	75·1	−0·7	79·9	−0·7	9·5	86·7	12th & 31st	72·6	10th	14·1
	Afghanistan .	Kabul . .	...									34·9	51·5	−5·6	28·6	−7·0	40·1	−6·3	22·9	64·2	17th	20·8	12th	43·4
	Central Asia .	Kashgar. .	4,255	25·509‡			25·740	17th	25·310	30th	·430	39·8	51·2	−5·0	35·5	−0·6	43·4	−2·8	15·7	66·3	27th	25·8	2nd	40·5
	Arabian Sea Islands.	Amini Devi .	13																					
		Minicoy .	7	29·969		29·901	30·014	27th	29·923	11th	09 1	82·6	86·1	−2·0						88·5	20th			
	Africa . .	Zanzibar .	73	29·903	−·002	29·903	30·012	30th	29·819	21st	·193	83·3	88·1	+1·8	80·2	+0·9	84·2	+1·4	7·9	91·6	10th	75·3	2nd	16·3
		Do. Dunga	...	29·843			29·950	30th	29·702	21st	·248	80·6	88·7		74·8		81·8		13·9	91·5	2nd & 21st,	71·4	2nd	20·1
	Straits Settlements.	Penang ¶ .	20	29·933			29·963	14th	29·909	17th	·054	83·0	91·9		74·8		83·4		17·1	94·0	3 days	73·0	4 days	21·0
		Singapur ¶ .	10	29·929			30·087	1st	29·896	12th	·191	83·2	88·1		74·1		81·1		14·0	90·2	3rd	71·0	23rd	19·2

* 1 P.M. Observations. † Mean of 29 days. ‡ Aneroid corrected. ‖ Aneroid uncorrected.

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

¶ 9 hour observation.

I—*concluded.*

in India, Burma, etc., in March 1903—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 1902 to 31st March 1903.	Normal rainfall for period, 1st December to 31st March.	Variation from normal of period 1st December to 31st March 1903.				
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	17	2	1	2	3			4	N 3° E	9·3		5·9	+58	58	·169	4·6	9	4·50	+4·50	3·51	2·30	+ 1·21	8·15	11·39	— 3·24	0·69	Chakrata .	United Provinces	25
	1	4	11			1	10	4	N 3° E					57	·177	5·2	6	4·10	+1·90	1·45	1·28	+ 0·17	5·75	10·58	— 4·83	0·30	Mussooree.		
19		4	3	1		1	3		N 66° E	2·5	2·9	2·6	+12	59	·208	3·4	7	3·40	+3·60	1·73	1·95	— 0·22	4·34	7·61	— 3·27	0·45	Ranikhet.		
1	2	1	6	10	1		1	9	N 81° E	7·3	6·8			53	·163	3·9	8			2·94			5·92			0·61	Muktesar.		
																	1	6·83	— 5·83	2·17	2·33	— 0·16	5·70	4·02	+ 1·68	1·89	Yatung .	Bengal . .	13
8	2	6	1	1		2	10	1	N 50° W	9·7	8·9	6·6	+35	57	·195	2·1	2	3·35	— 1·35	0·37	1·55	— 1·18	1·08	3·50	— 2·42	0·11	Darjeeling.		
4	1	1			4	19	1	1	S 43° W	7·7	8·7			48	·247	2·1	5	4·40	+ 0·60	2·47	1·82	+ 0·65	3·77	3·42	+ 0·35	1·00	Shillong .	Assam Hill Tracts.	8
3	1	1	2	1	1	13	8	1	S 60° W	9·3	10·7			72	·365	4·1	6	9·00	— 3·00	12·11	13·83	— 1·72	13·23	16·95	— 3·72	4·30	Cherra Poonjee.		
2	3	4	2	1		12	5	2	S 78° W	9·2	9·3	6·7	+39	35	·196	1·6	0	0·50	— 0·50	0	0·13	— 0·13	0·37	0·96	— 0·59	0	Mount Abu	Central India.	
4	1	6	1	3		3	1	12	N 24° W	7·0	7·2	4·6	+57	27	·196	0·7	0	0·90	— 0·90	0	0·33	— 0·33	2·63	1·92	+ 0·71	0	Pachmarhi.		
																											Wellington	South India.	
	4	14	7	5	1				N 66° E	11·5				43	·217	0·8	1	3·20	— 2·20	0·29	3·59	— 3·30	12·38	11·81	+ 0·57	0·23	Kodaikanal		
9	1	6	10	3			2		N 78° E	3·4	3·2			52	·276	1·0	0	1·80	— 1·80	0·02	1·00	— 0·98	12·10	3·38	+8·72	0·02	Ootacamund		
														47	·250	3·8	0				0		20·84			0	Dodabetta.		
																											XIII.—Extra India.		
10						21			S 45° W					85	·850	1·6	0			0	1·45	—1·45	24·68	24·71	—0·03	0	Trincomalee	Ceylon.	
	1	2	14	6	4	2	1	1	S 68° E	5·8		5·0	+16	78	·861	1·5	3			2·53	4·45	—1·92	17·27	16·73	+0·54	1·20	Colombo.		
														87	·170	6·3	8			4·40	2·43	+1·97	8·43	4·57	+3.86	1·39	Meshed .	Persia.	
11	2	8	2	3	1	2	1		N 67°E	1.5	2·0			69	·163	6·1	8			3·51	2·80	+0·71	8·09	6·28	+1·81	0·91	Teheran.		
23		1		1		3	2	1	S 72° W	3·3	4·3			74	·182	2·5	3			0·99	0·99	0	3·00	1·96	+1·04	0·40	Ispahan .		
4	11	2	1	2	2			9	N 9° W	8·3	9·9	8·9	+11	70	·387	3·1	2			0·48	1·00	—0·52	4·01	9·71	—5·70	0·22	Bushire.		
	9	2		4			6	9	N 30° W					85	·545		1			0·31			1·82			0·31	Bahrein.		
	7	6	9				2	7	N 22° E	13·3§	11·0			67	·514	1·2	0			0	1·15	—1·15	2·18	3·77	—1·59	0	Jask.		
9		2		4				16	N 35° W	5·4	5·6			66	·559	0·5	0			0	1·05	—1·05	0·92	3·37	—2·45	0	Muscat.		
27	1	1			1			1	N	1·3	1·8			63	·275	1·9	2			0·46	1·60	—1·14	2·70	6·79	—4·09	0·30	Baghdad .	Arabia.	
																	1			0·75			3·06			0·69	Bussrah.		
1		19	10					1	N 59° E	17·9	14·5	14·9	— 3	76	·714	4·2	0			0·06	0·87	—0·81	4·44	1·85	+2·59	0·03	Aden.		
			5	20	1		3	2	S 47° E	20·5	18·5			76	·747	2·8	0			0	0·27	—0·27	1·47	0·95	+0·52	0	Perim.		
		2	1	5	5	13		5	S 28° W					72	·143	5·5	5			1·95	4·90	—2·95	4·45	7·41	—2·96	0·82	Kabul .	Afghanistan.	
23		1		1				3	N 27° W	1·7	1·5			54§	·132§	2·7	0			0·08	0·20	—0·12	0·17	0·78	—0·61	0·05	Kashgar .	Central Asia.	
																					0			0·51			Amini Devi.	Arabian Sea Islands.	
	17	4						10	N 8° W	4·0	4·3			74	·824	2·8	0			0	0·98	—0·98	8·17	8·08	+0·09	0	Minicoy.		
	4	7	6	4	7	2		1	S 81° E	6·0	5·7			83	·949	6·5	8			4·38	6·50	—2·12	20·57	14·02	+6·55	1·79	Zanzibar .	Africa.	
20	1	6				3		1	N 27° E	4·3	4·2			91	·954	5·7	14			10·22			28·47			1·41	Do. Dunga		
2	13	12	1	2				1	N 25° E	2·9						0	1			0·32			8·77			0·18	Penang .	Straits Settlements.	
1	8	14	4	1				3	N 34° E							5·3	9			6·23			34·59			1·40	Singapur .		

[t]he data for that station are not utilized in calculating the provincial variations.

§ Mean of 30 days.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 62 Stations in India, Burma, etc., in March, 1903.

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	29·930	29·806	·124	29·857	+·006	29·849	90·4	74·8†	15·6	93·0	72·4	20·6	84·8	88·2	80·9†	−0·6	73·0	78·0	79·1	76·7
	Rangoon	57	·897	·752	·145	·827	−·014	·821	95·2	69·8	25·4	99·9	65·3	34·6	83·4	91·5	79·9	−0·6	68·3	73·0	75·5	72·3
	Diamond Island	41	·927	·809	·118	·857	−·023	·833	83·4	76·2	7·2	86·0	74·2	11·8	81·2	81·7	78·3	−0·1	71·0	74·2	74·6	73·3
	Cocos Island	119							Not recorded.													
	Akyab	20	·941	·823	·118	·877	−·021	·840	88·7	69·6	19·1	91·9	61·6	30·3	82·5	84·2	78·6	+0·6		74·4	75·7	
Bengal and Orissa.	Chittagong	87	·859	·742	·117	·795	−·029	·830	84·8§	67·7	17·1	87·6	59·2	28·4	80·2	82·0	76·1§	−0·7	66·5	73·2	73·6	71·1
	Calcutta (Alipore)	21	·903	·766	·137	·828	−·025	·794	91·1	70·0	21·1	99·9	62·1	37·8	82·9	89·1	79·6	+0·4	66·1	72·3	72·5	70·3
	Saugor Island	25	·900	·775	·125	·831	−·025	·800	87·6	75·7	11·9	91·5	66·8	24·7	82·5	85·0	79·9	+0·5	71·7	75·5	76·1	74·4
	False Point	21	·910	·785	·125	·847	−·034	·809	86·5	74·3	12·2	90·5	67·0	23·5	81·0	84·1	78·7	+1·0	72·7	76·9	77·1	75·6
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·886	27·774	·112	27·825	−·037	·761	89·2	63·5	25·7	99·3	53·2	46·1	79·4	86·5	76·0	+0·6	52·4	58·4	60·3	57·0
	Darbhanga	166	29·735	29·600	·135	29·663	−·023	·783	87·9	61·7	26·2	97·8	49·8	48·0	78·9	87·2	75·0	−0·6	56·9	65·1	67·6	63·2
	Allahabad	309	·610	·478	·132	·533	−·017	·795	91·6	59·5	32·1	103·6	47·6	56·0	81·5	90·5	75·4	−2·4	52·2	61·9	64·1	59·4
Upper Sub-Himalayas.	Dehra Dun	2,233	27·651	27·575	·076	27·605	−·025	·822	77·3	53·3	24·0	89·7	42·6	47·1	67·9	72·9	64·1	−2·8	47·2§	54·2	55·1	52·2
	Roorkee	899	28·990	28·890	·100	28·933	−·023	·811	82·7	55·1	27·6	95·7	45·1	50·6	72·8	79·8	68·1	−1·6	50·0	58·2	59·2	55·8
	Meerut	738	29·150	29·049	·101	29·092	−·023	·803	84·8	56·7	28·1	96·8	46·2	50·6	74·3	82·2	69·9	−1·4	51·3	57·9	59·3	56·2
	Lahore	702	·197	·116	·081	·150	−·018	·838	78·7	54·5	24·2	88·4	44·2	44·2	69·4	76·8	65·9	−1·9	51·0	59·8	61·8	57·5
	Ludhiana	812	·080	28·995	·085	·032	−·018	·832	77·9	56·1	21·8	88·1	45·5	42·6	68·0	76·4	66·5	−2·3	52·0	57·0	59·2	56·1
N. W. Frontier Province, Indus Valley and N.-W. Rajputana.	Peshawar	1,110	28·839	·755	·084	28·791	−·021	·924	68·8	49·5	19·3	78·1	41·0	37·1	62·6	67·0	58·5	−4·5	46·2	54·4	55·5	52·0
	Jacobabad	186	29·753	29·631	·122	29·686	+·001	·833	86·6	55·3	31·3	97·1	39·0	58·1	76·2	83·9	70·1	−4·8	46·8	59·9	63·8	56·8
	Kurrachee	30	·964	·863	·101	·910	+·014	·891	83·6	64·4	19·2	91·2	51·5	39·7	78·0	79·6	73·1	−2·2	59·3	65·3	67·9	64·2
E. Rajputana, C. India and Gujarat.	Jaipur	1,431	28·505	28·400	·105	28·446	−·004	·842	86·2	57·4	28·8	99·1	45·3	53·8	76·4	84·0	71·2	−3·4	47·4	56·6	59·2	54·4
	Udaipur	1,925	·019	27·904	·115	27·962		·836	86·2	58·3	27·9	98·1	45·4	52·7	78·0	84·2	71·8		51·8	60·7	64·3	58·9
	Deesa	466	29·493	29·372	·121	29·426	+·004	·846	91·6	60·1	31·5	102·9	46·6	56·3	80·7	89·9	76·4	−4·3	50·9	61·9	62·7	58·5
	Jamnagar	61	·947	·831	·116	·889		·896	87·3	61·2	26·1	96·9	48·6	48·3	78·9	84·2	73·5		56·5	64·7	64·8	62·0
Deccan.	Belgaum	2,539	27·428	27·310	·118	27·368	+·008	·772	93·6	62·2	31·4	100·2	55·0	45·2	84·6	90·1	76·5	−0·6	55·5	60·4	65·3	60·4
	Sholapur	1,590	28·356	28·201	·155	28·275	−·007	·772	99·9	67·3	32·6	105·0	56·6	48·4	87·5	98·2	83·2	−0·9	53·0§	62·1	66·8	60·6
	Akola	930	29·015	·860	·155	·932	+·004	·801	98·3	64·0	34·3	106·5	47·9	58·6	86·4	97·1	81·7	−1·0	52·2	62·2	66·7	60·4
	Buldana	2,132	27·822	27·690	·132	27·751	−·004	·791	92·0	67·2	24·8	101·4	57·8	43·6	81·1	90·6	80·1	−2·0	52·3	58·7	61·6	57·5
	Khandwa	1,041	28·903	28·750	·153	28·822	+·002	·808	95·9	62·4	33·5	105·7	46·4	59·3	84·0	95·0	79·3	−1·7	50·6	60·6	64·3	58·5
	Nagpur	1,025	·909	·755	·154	·827	+·005	·786	98·6	66·7	31·9	106·8	56·2	50·6	86·5	96·9	83·1	−0·2	53·1	63·4	67·7	61·4
	Do. (Sanitary Commr.'s Office).	1,013	·907	·768	·139	·833		·784	99·6	66·5	33·1	107·8	56·9	50·9	87·7	97·9	82·6		54·4	66·1	72·0	64·2
	Hyderabad (Deccan).	1,690	·248	·113	·135	·177	−·003	·766	98·7	71·3	27·4	104·2	63·9	40·3	89·6	97·1	84·6	+2·5	61·1	67·1	69·5	66·0
West Coast.	Bombay	37	29·955	29·842	·113	29·893	+·019	·870	83·8	70·6	13·2	87·7	64·3	23·4	77·4	79·8	76·4	−2·4	66·8	70·3	71·1	69·4
	Karwar	44	·916	·824	·092	864	+·001	·839	86·4	69·6	16·8	90·2	62·7	27·5	80·5	84·8	77·8	−2·2	67·4	71·2	74·6	71·1

† Mean of 24 days. ‡ Mean of 29 days. § Mean of 30 days.

II.

at 62 Stations in India, Burma, etc., for March, 1903.

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
																									%	%						
.783†	.874	.872	.843	−.020	91†	72	65	76	0	2·0	1·8	1·9	−1·0		5	35	1	8	2		6	5	N 49° E	N 62° E	55	64	105* ††	103	0	0	Port Blair .	Burma Coast and Bay Islands.
.674	.677	.676	.676	+.005	92	60	46	66	+ 2	0·4‡	1·1	0·8	−1·3	1	3	4	6	25	5	6	6	6	S 38° E	S 22° W	34	56	42* ††	114	0	0	Rangoon .	
.685	.752	.764	.734	−.031	76	70	70	72	− 3	0·9	0·6	0·8	−1·9		9	3	1				8	41	N 40° W	N 42° W	84	83	351*	206	0	0	Diamond Island	
																															Cocos Island .	
	.751	.776				67	66			3·2	2·1	2·7	+0·7			4	10	12	3	10	12	11	S 35° W	N 53° W	16	24	63*	93	0	0	Akyab .	
.645	.729	.722	.699	+.016	94	70	66	77	+ 3	3·3	2·2	2·8	−0·4		2	4	3	9	14	19	6	5	S 23° W	S 36° W	45	20	137*	129	6·15	2·47	Chittagong .	Bengal and Orissa.
.598	.663	.587	.616	−.018	81	59	44	61	− 5	2·7	1·9	2·3	−0·2	1	4	1	2	6	14	20	8	6	S 40° W	S 36° W	49	49	111	118	0·77	0·45	Calcutta (Alipore).	
.734	.801	.792	.776	−.035	82	72	66	73	− 5	4·3	2·6	3·5	−0·2		6	2		4	32	11	2	5	S 16° W	S 26° W	53	61	341	309	0·63	0·60	Saugor Island.	
.788	.832	.840	.820	+.034	93	71	72	79	− 2	3·7	2·2	3·0	−0·2		2	4	7	1	24	23	1		S 10° W	S 50° W	60	37	228*	266	0·19	0·19	False Point .	
.264	.238	.205	.236	−.048	44	23	16	28	− 6	1·5	2·4	2·0	−0·7		11	1	2	2	5	5	11	25	N 55° W	N 74° W	55	54	215*	194	0·16	0·12	Hazaribagh .	Gangetic Plain and Chota Nagpur.
.409	.440	.420	.423	−.024	73	44	32	53	− 1	0·8	0·4	0·6	−0·7	17		1	8	6		5	16	9	S 87° W	S 78° W	21	31	68	113	0·05	0·03	Darbhanga .	
.302	.297	.249	.283	−.076	58	28	17	34	− 8	1·2	1·7	1·5	−0·5	4	4	5	7	2	2	2	16	20	N 49° W	N 62° W	42	40	177*	110	0	0	Allahabad .	
.258§	.258	.219	.245	−.048	64§	38	28	43	− 5	4·4	5·6	5·0	+1·5	14		3	7	2	6	9	14	6	S 62° W	N 80° W	26	27	34‖	50	0·47	0·17	Dehra Dun .	Upper Sub-Himalayas
.298	.298	.235	.277	−.051	68	37	23	43	− 6	3·5	3·5	3·5	+1·0	4	1	2	5	13	3	5	6	23	N 75° W	N 64° W	18	25	103	72	0·30	0·10	Roorkee .	
.317	.269	.208	.265	−.092	67	32	19	39	−10	2·1	2·6	2·4	−0·1	6	3	2	1	5	1	11	25	8	S 86° W	N 60° W	53	44	55*	66	0·14	0·05	Meerut .	
.333	.392	.357	.361	+.007	78	55	39	57	+ 7	3·8	4·6	4·2	+1·0	1	13	5	10	7	5	1	10	16	N 3° E	N 10° W	21	31	81	70	0·64	0·30	Lahore .	
.339	.327	.282	.316	−.048	75	48	32	52	− 2	3·3	3·5	3·4	−0·7	2	2	12	2	16	1		11	16	N 3° W	N 45° W	16	34	81*	50	1·58	0·64	Ludhiana .	
.230	.327	.306	.304	−.024	77	58	48	61	+ 4	4·5	5·0	4·8	0	9	7	15	5	4	1	3	11	7	N 1° E	N 18° E	27	16	71*	91	3·72	1·52	Peshawar .	N.-W. Frontier Provinces, Indus Valley and N.-W. Rajputana.
.217	.305	.331	.285	−.016	49	34	29	37	0	2·0	2·5	2·3	−0·7	14	8	6	3	11	3	2	3	12	N 14° E	N 87° E	14	15	91*	91	0·02	0·02	Jacobabad .	
.459	.477	.541	.493	−.098	72	49	53	58	− 7	0·9	1·2	1·1	−1·6		4	1	2	3	5	22	19	6	S 68° W	S 77° W	59	60	250*	281	0·55	0·43	Kurrachee .	
.211	.220	.210	.214	−.091	43	24	17	28	− 9	1·6	2·7	2·2	−0·8	1	3	5	2	1	2	17	19	12	N 89° W	N 39° W	53	32	99	113	0·03	0·03	Jaipur .	E. Rajputana, C. India Gujarat.
.313	.325	.363	.334		64	34	31	43		0·5	1·5	1·0		3	2	7	9	8	2	12	17	2	S 44° W		18		109*		0·01	0·01	Udaipur .	
.264	.310	.218	.264	−.035	49	30	15	31	+ 2	1·5	0·7	1·1	−1·2		7	7	4		3	9	20	12	N 67° W	N 66° W	55	35	207	209	0·01	0·01	Deesa .	
.163	.334	.260	.401		73	44	32	49		1·1	0·6	0·9		8	8	6	1		1	12	17	9	N 71° W		45		146* ††		0	0	Jamnagar .	
.361	.227	.321	.303	−.097	64	19	23	35	− 6	0·5	1·5	1·0	−0·9	4	9	10	5	1	2	12	7	4	N 37° W	N 81° W	18	17	222 ‡‡	272	0	0	Belgaum .	Deccan.
.231§	.254	.275	.251	−.093	33§	19	15	22	− 9	0	0·7	0·4	−2·0	1	11	11	1	3	2	9	4	20	N 31° W	N 44° E	42	5	214*	190	0	0	Sholapur .	
.242	.244	.251	.245	−.056	40	19	14	24	− 5	0·5	0·7	0·6	−1·1	1	4	5	4	4		5	7	32	N 44° W	N 43° W	53	42	129*	113	0	0	Akola .	
.214	.222	.190	.209	−.073	32	22	13	22	− 6	0·6	0·7	0·7	−1·5		13	3	2	2	2	4	13	23	N 47° W	N 28° W	59	47	191*	176	0	0	Buldana .	
.234	.246	.225	.235	−.067	40	21	14	25	− 6	0·3	0·5	0·4	−1·3	2	6	9	6		2	4	7	26	N 31° W	N 45° W	48	45	144	116	0	0	Khandwa .	
.244	.302	.317	.288	−.067	36	24	18	26	− 8	0·4	1·2	0·8	−1·7	14	8	3	6	4	5	4	8	10	N 46° W	N 1° E	14	12	?	133	0	0	Nagpur .	
.281	.330	.469	.377		43	29	27	33		0·6	1·0	0·8		20		7		9		5		21	N 36° W		19		33*		0	0	Do. (Sanitary Commr.'s Office)	
.422	.390	.382	.398	−.067	55	28	22	35	−10	0	1·8	0·9	−0·9	32	5	6	3	1		5	5	5	N 25° W	S 41° E	14	23	81*	105	0	0	Hyderabad (Deccan).	
.615	.653	.653	.640	−.072	81	69	64	71	− 1	0·8	0·2	0·5	−1·1		9	4	4	1	1		7	36	N 35° W	N 31° W	69	52	244	270	0·17	0·17	Bombay .	West Coast.
.649	.640	.720	.670	−.083	89	61	60	70	− 4	0·6	0·4	0·5	−0·9	1	1	5	1				26	28	N 59° W	N 75° W	77	77	125	96	0	0	Karwar .	

* Corrected. †† Mean of 30½ days. ‡‡ Mean of 26 days. ‖ Mean of 30½ days.

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.						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	915	29·020	28·858	·162	28·947			96·8	68·6	28·2	101·3	61·1	40·2	85·5	95·3	82·3		64·6	72·7	72·3	69·7
	Salem	940	·037	·869	·168	·959	−·023	29·817	100·4	72·0	28·4	104·4	61·1	43·3	87·2	98·1	84·4	+2·4	68·6	77·4	82·6	76·2
	Chitaldroog	2,405	27·564	27·429	·135	27·495	+·008	·765	95·2	70·3	24·9	100·1	65·0	35·1	85·7	93·7	82·4	+0·8	60·0	66·7	68·3	65·0
	Bangalore	3,021	26·995	26·861	·134	26·930	−·008	·777	93·1	66·0	27·1	97·9	57·1	40·8	83·0	91·1	79·1	+2·2	58·8	65·5	64·5	62·9
	Hassan	3,091	·929	·800	·129	·867	+·011	·785	91·4	62·5	28·9	96·1	55·7	40·4	82·0	89·4	76·5	+0·5	59·9	64·7	63·9	62·8
	Mysore	2,518	27·476	27·325	·151	27·401	+·068	·780	95·1	67·5	27·6	99·0	61·6	37·4	82·9	93·1	80·8	+0·8	62·4	67·7	65·6	65·2
	Madras	22	29·949	29·820	·134	29·884	−·020	·836	89·9	72·6	17·3	98·6	67·2	31·4	85·7	85·4	80·6	−0·2		76·5	77·4	75·7
	Bellary	1,475	28·473	28·317	·156	28·393	−·009	·775	101·6	73·2	28·4	106·0	64·7	41·3	89·1	98·9	86·8	+1·2	58·2	69·1	72·2	66·5
	Waltair	226	29·719	29·597	·122	29·658		·825	87·7	75·2	12·5	92·4	72·2	20·2	84·5	84·0	80·6		72·2	74·5	75·8	74·2
Hill Station, Baluchistan.	Quetta	5,502	24·643	24·578	·065	24·603	−·016		54·4	32·9	21·5	68·8	21·2	47·6	46·3	50·7	42·8	−8·3	31·9	40·1	42·3	38·1
Hill Stations, Northern India.	Leh	11,503	19·567	19·506	·061	19·542	−·118		33·8	15·5	18·3	42·6	−3·1	45·7	26·1	30·4	24·3	−7·6	11·6	18·1†	19·5	16·4
	Srinagar	5,204	24·873	24·804	·069	24·832	−·067		51·4	36·7	14·7	62·0	29·0	33·0	42·7	48·2	43·3	−2·1	35·0	40·8	45·7	40·5
	Simla (Ridge)	7,224	23·088	23·034	·054	23·054	−·013		50·7	39·8	10·9	64·4	30·4	34·0	45·9	47·8	44·7	−5·8	34·5	38·2	39·8	37·5
	Chakrata	7,022	·263	·215	·048	·232	−·046		55·0	40·2	14·8	67·5	29·9	37·6	48·1	50·2	46·6	−4·7	35·6	40·9†	42·2†	39·6
	Ranikhet	6,069	24·108	24·036	·072	24·065	−·018		60·9	45·2	15·7	75·0	35·1	39·9	54·2	56·7	52·2	−4·3	40·4	45·0	45·6	43·7
	Muktesar	7,600	22·848	22·786	·062	22·817			56·6	39·5	17·1	71·1	29·9	41·2	49·9	51·2	46·7		34·9	41·3	42·5	39·6
	Katmandu	4,388	25·691	25·578	·113	25·635	P		76·2	44·7	31·5	82·3	37·6	44·7	64·4	72·1	59·4	−1·1	42·6	53·4	54·3	50·1
	Darjeeling	7,376	22·969	22·912	·057	22·940	−·038		57·0	41·8	15·2	65·1	37·0	28·1	51·8	54·4	48·8	+0·6	37·7	44·1	46·3	42·7
Hill Stations, Central India.	Mount Abu	3,945	26·080	26·008	·072	26·038	−·030		72·0	57·1	14·9	82·7	47·0	35·7	67·0	69·7	63·9	−5·0	45·4	50·4	52·1	49·3
	Pachmarhi	3,528	·514	·416	·098	·461	−·001		84·1	58·4	25·7	92·4	47·0	45·4	74·7	81·9	72·6	−1·2	47·6	53·6	56·8	52·7
	Chikalda	3,642	·365	·279	·104	·326	−·020		85·1	63·1	22·0	91·9	53·1	38·8	75·4	83·5	75·5	−1·7	50·6	55·9	58·7	55·1
Hill Stations, South India.	Kodaikanal	7,688	22·896	22·830	·066	22·852			70·6	51·4	19·2	74·5	46·9	27·6	66·0	64·3	59·0		43·2	51·2	54·9	49·6
	Ootacamund		23·128	23·052	·076	23·090			71·0	47·9	23·1	74·5	39·8	34·7	67·3	66·8	58·4		44·6	52·7	55·0	50·8
Extra India.	Aden	94	29·936	29·811	·125	29·862	+·016	·888	82·7	75·0	7·7	86·5	71·5	15·0	79·6	81·7	78·9	−0·3	69·7	72·5	71·9	71·4
	Perim	201	·781	·664	·117	·711	+·034	·845	84·7	75·1	9·6	86·9	72·6	14·3	81·5	82·0	79·2	−0·7	71·4	74·2	74·3	73·3
	Minicoy	7	·988	·909	·079	·939		·871	86·0			·885			84·9	84·9				77·1	76·8	
	Zanzibar	73	·903	·793	·110	·848	+·002	·847	88·2	80·2	8·0	91·6	75·3	16·3	84·9	87·5	84·1	+1·6	76·2	80·0	80·1	78·8
	Port Victoria (Seychelles)‖	15	·956	·865	·091	·911	+·006	·849	85·4	76·1	9·3	88·0	72·9	15·1	83·7	84·7	80·6	+0·7	75·2	77·7	77·6	76·8
	Mauritius (Pamplemouses)	181				·708	−·059	·844				87·6	70·8	16·8			78·8	+1·5				75·5

† Mean of 30 days. ‡ Mean of 29 days.

II—*concluded.*

in India, Burma, etc., for March, 1903—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
																									%	%						
·557	·634	·486	·561		79	52	29	51		0·6	2·0	1·3		8	2	10	24	4	1	4	7	2	S 81° E		37		55*		1·61	1·27	Periyakulam	South India.
·664	·819	·919	·801	+·163	85	63	51	66	+10	0·5	2·5	1·5	—0·9	18		6	13	2	12	8	3		S 34° E	S 66° E	29	38	121*	126	0	0	Salem	
·398	·423	·382	·401	+·004	53	34	24	37	— 1	0·4	0·5	0·5	—1·8	2	7	7	11	8	3	2	9	13	N 11° E	N 87° E	18	27	89*	154	0	0	Chitaldroog	
·419	·430	·303	·384	—·071	65	38	21	41	— 9	0·1	0·6	0·4	—1·9	1	4	6	19	11	5	6	6	4	S 72° E	S 27° E	31	46	152*	100	0	0	Banga ore	
·493	·411	·304	·403	—·051	86	38	22	48	— 8	0·9	2·7	1·8	—2·1	2	4	17	14	7	3	7	4	4	N 73° E	S 84° E	32	51	55*	74	0	0	Hassan	
·506	·495	·292	·431	—·024	74	44	19	46	— 2	2·1	2·5	2·3	0		5	9	11	15	9	4	5	4	S 65° E	N 84° E	31	37	173*	182	0	0	Mysore	
	·793	·835	·821	+·049		64	68	79	+ 5	1·7	1·0	1·4	—1·0				3	24	36	9			S 15° E	S 46° E	82	81	153	150	0	0	Madras	
·307	·476	·478	·420	—·001	37	34	25	32	— 4	0·5	2·2	1·4	—0·8	2	8	3	4	2	7	7	15	14	N 73° W	S 35° E	37	19	117*	109	0	0	Bellary	
·752	·722	·784	·753		86	61	67	71		1·9	1·5	1·7						2	32	28			S 19° W		90		164		0	0	Waltair	
·178	·194	·191	·188	—·026	91	61	52	68	+11	3·3	4·6	4·0	—0·1	8	10	3	2	6	5	4	12	12	N 60° W	S 74° W	27	33	70*	102	5·30	15·0	Quetta	Hill Station, Baluchistan.
·047	·046†	·037	·043	—·059	49	31†	21	34	P	7·7	9·0	8·4	+2·1			8	12	11	19	6	4	2	S 34° E	S 40° W	47	22	33	45	1·52	0·59	Leh	Hill Stations, Northern India.
·128	·239	·238	·238	+·006	85	85	83	84	+ 7	7·5	7·8	7·7	+2·1	4	10	4	1	6	7	2	9	19	N 49° W	N 7° W	34	8	157*	83	6·09	1·55	Srinagar	
·149	·155	·167	·157	—·029	61	51	51	54	+ 4	6·2	7·8	7·0	+2·2	10	16			1	34		1		S 1° W	S 37° W	31	8		136	3·20	0·72	Simla (Ridge)	
·164	·183†	·184†	·177	—·017	67	55†	52†	58	+ 5	5·5	6·6†	6·1	+2·2	5	18	3	2	9	23		1	1	S 45° E	S 52° W	19	11	226	150	3·51	0·69	Chakrata	
·205	·207	·193	·202	—·030	69	51	44	55	+ 2	3·5	6·0	4·8	+1·1	12	4	10	2	2	1	9	15	7	N 65° W	S 57° W	27	27	70*	78	1·73	0·45	Ranikhet	
·158	·176	·186	·173		67	51	52	57		4·1	7·0	5·6		2	6	5	9	16	4	2	1	17	N 61° E		18		163*		2·94	0·61	Muktesar	
·255	·286	·222	·254	—·051	85	47	28	53	— 8	3·1	3·5	3·3	—0·3		10	1	7		2	3	37	2	N 76° W	N 82° W	55	48	35	32	0·79	0·51	Katmandu	
·185	·213	·223	·210	—·042	69	55	55	60	—13	3·2	4·0	3·6	—1·6	4		4	5		1	13	31	4	S 83° W	S 75° W	58	44	217*	187	0·37	0·11	Darjeeling	
·173	·178	·195	·184	—·035	37	27	27	30	— 2	1·3	1·6	1·5	—1·0		6	7	1	1	3	24	14	6	S 79° W	N 81° W	47	38	225*	164	0	0	Mount Abu	Hill Stations, Central India.
·212	·173	·178	·188	—·057	43	20	16	26	— 8	0·7	0·7	0·7	—1·4	1	3	12	1	3		7	4	31	N 36° W	N 57° W	53	32	194*	115	0	0	Pachmarhi	
·229	·227	·211	·222	—·065	39	26	18	28	— 5	0·8	1·0	0·9	—1·5	13	12	1			1	2	2	10	N 29° W	N 53° W	32	30	180*	173	0	0	Chikalda	
·206	·231	·342	·265		54	37	58	53		2·1	4·9	3·5			7	17	13	10	4			2	N 73° E		52		275		0·29	0·23	Kodaikanal¶	Hill Stations, South India.
·267	·250	·315	·277		78	38	48	55		1·7	3·7	2·7		9	4	10	21	9	5	1	1	2	N 89° E		50		73*		0·02	0·02	Ootacamund	
·661	·704	·656	·674	—·031	76	69	60	68	— 3	5·1	0·7	2·9	—0·3	5		26	21	7		2		1	N 73° E	N 86° E	71	72	354*	366	0·06	0·03	Aden	Extra India.
·720	·749	·748	·739	+·003	82	70	68	73	+ 1	1·3	0·2	0·8	—1·2				10	43			4	5	S 51° E	S 63° E	68	55	445*	441	0	0	Perim	
	·825	·812				69	68			2·2	2·5	2·4			34	8	1				1	18	N 8° W		85		104*		0	0	Minicoy	
·849	·962	·929	·913	+·024	82	80	71	78	0	5·6	5·3	5·5	+0·6		9	15	10	8	15	2		2	S 89° E	S 34° E	39	21	135*	141	4·38	1·79	Zanzibar	
·870	·875	·855	·867	+·013	96	76	71	81	+ 2	6·1	6·5	6·3	—0·4	6	9	6	7	5	2	1	2	18	N 2° W	N 31° W	36	56	126**	127	14·52	6·05	Port Victoria (Seychelles.)‖	
			·820	+·066				83	+ 3			6·7	+0·2										S 85° E	N 80° E			245	238	7·61	1·15	Mauritius (Pamplemouses).	

¶ Wind variable 9. ‖ Observations of 28 days. ** Mean of 27½ days. * Corrected.

G. I. C. P. O. No 203 Meteor.—31-7-03—385.

The lines of [illegible] indicate the barometric pressure [illegible] are filled in by means of the shore observations, and [illegible] of the Bay of Bengal prepared by Mr. [illegible] the Meteorological Department. [illegible] they deviate very little from the [illegible]

The mean 8 [illegible] wind, and are calculated by means of Lambert's formula [illegible] wind directions for the hill stations are indicated [illegible] The mean velocity of the winds during the month [illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible] to 10	[illegible]	[illegible]
[illegible] to 20	[illegible]	[illegible]
over 20	[illegible]	[illegible]

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 close 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.

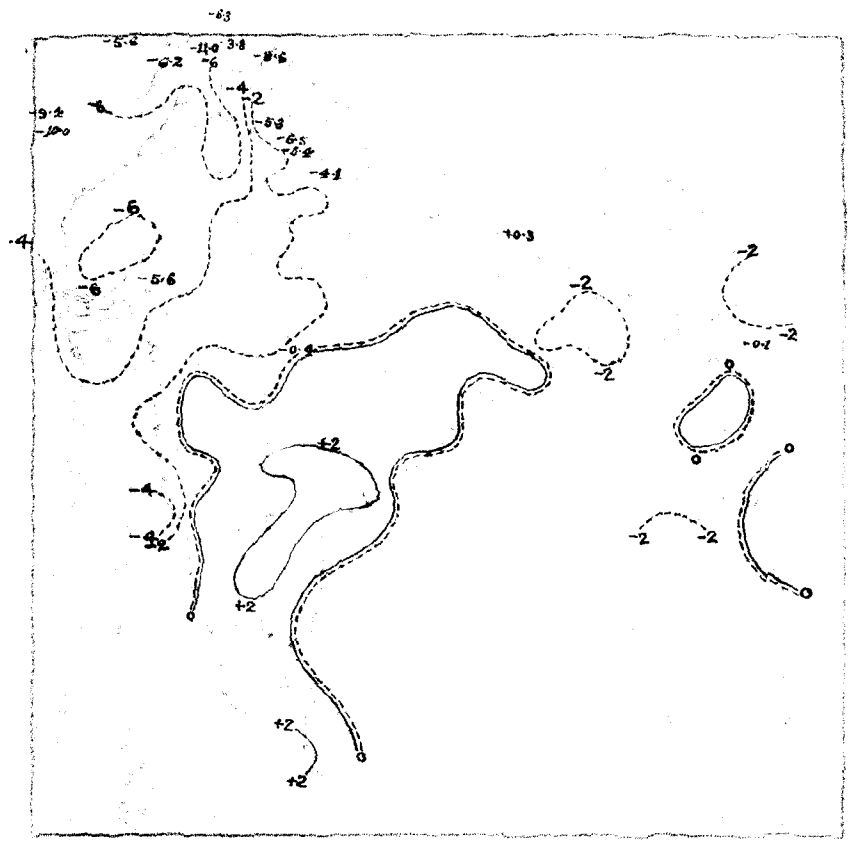
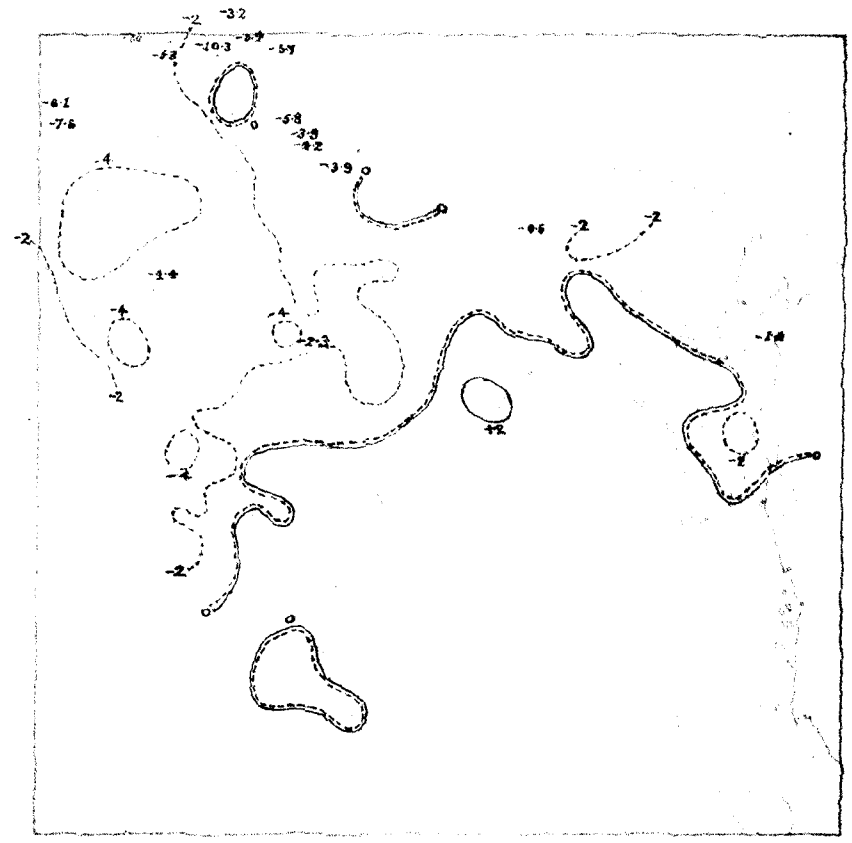


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous lines indicate that the mean maximum 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 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 VARIATION OF THE MEAN DAILY TEMPERATURE OF THE MONTH FROM THE NORMAL.

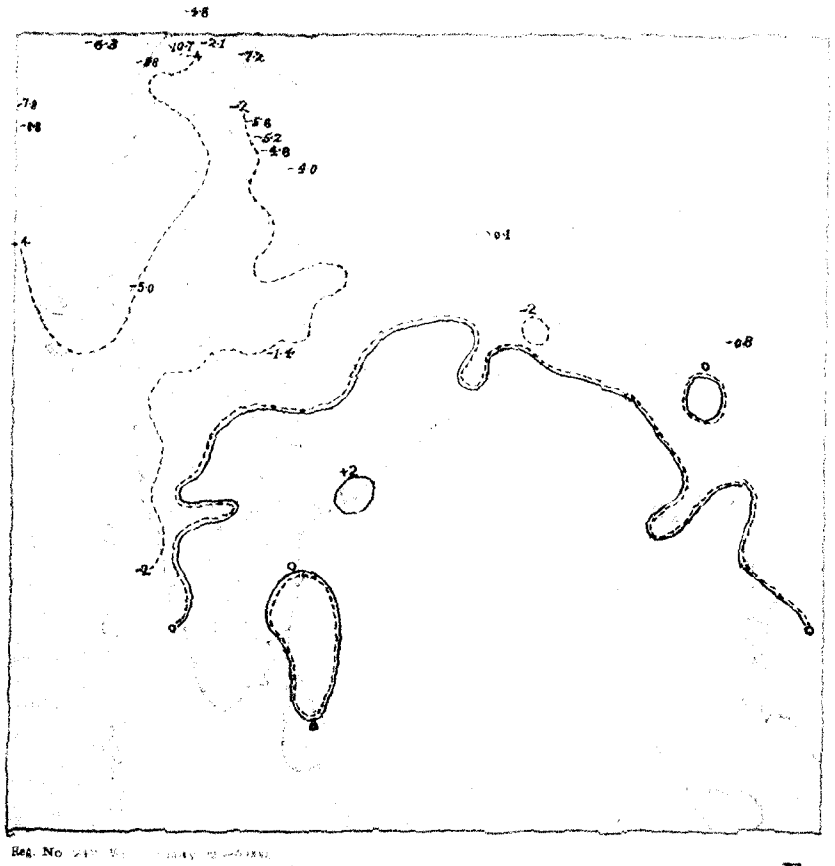
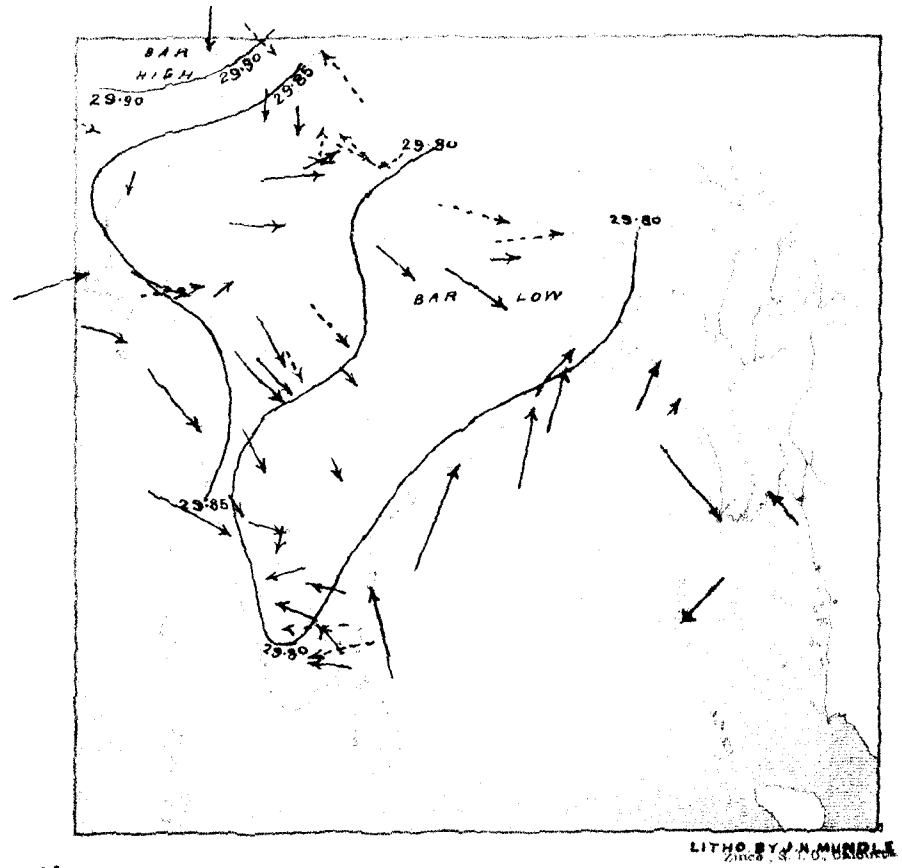


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF MARCH 1903.



LITHO BY J. H. 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 previously to 1880 appeared in the Annual Reports, the only alteration made being that pressures are reduced to constant gravity (32°). 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 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.

Explanation

[illegible] the variations of the rainfall of the month [illegible] over the whole of India and [illegible] of Upper Burma, for which [illegible] for a sufficient number of years to [illegible]. The country is divided into [illegible] meteorological conditions are fairly [illegible] similar in character; and the means both actual and normal for the months have been calculated, [illegible] centre of each division, usually within [illegible] the difference between the actual [illegible] rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign [illegible] 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. Central 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. Central Provinces, Central	36. Mysore	51. West Rajputana
6. East Bengal	22. Do. do. West	37. Konkan	52. Madras, East Coast, North
7. Assam, Sylhet	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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1903

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, APRIL, 1903.

INTRODUCTION.

THIS review of the weather in India during the month of April, 1903, 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 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 April, 1903.

The month of April 1903 was unusually disturbed over the extreme north-west of India and the countries lying to the westward, but over north-east India the weather was generally quiet and the hot weather storms which occurred were less severe and gave less general rain than is ordinarily received in this month. Over the Peninsula and the central parts of the country conditions were approximately normal.

During the first four days of the month the weather was generally fine and settled, though light showers were received in Assam on the 1st and 2nd. The principal feature in the weather at this time was the cold wave which had entered north-west India during the closing days of the previous month and had spread out over a large part of northern and western India during the commencement of the month under review. On the 1st this cold wave covered the whole of north-western and a large part of central and western India extending from the Indus as far east as Benares and as far south as Mangalore. The wave exhibited the greatest intensity over Baluchistan and the north-west dry area of India, and the mean temperature was more than 15° below the normal 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 1st April 1903.
	°
Chaman	−21·0
Quetta	−18·2
Murree	−19·2
Montgomery	−19·6
Bikaner	−16·9
Sirsa	−16·4
Mooltan	−16·3
Jaipur	−15·2

The depression was somewhat more marked in the day than in the night temperature and amounted to 20°·5 at Murree and to 22°·5 at Montgomery. This cold wave lasted with comparatively little change until the 9th and during this period it was practically only in Assam and Burma that the mean temperature exceeded the normal. On the 6th and 7th thundershowers occurred over parts of Bihar and Chota Nagpur and these showers, though very light, intensified the already existing depression of temperature, and mean temperatures more than 12° below the normal were reported from the following places on these two dates :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
6th April	Benares	−17·8
	Gaya	−17·6
	Darbhanga	−12·9
	Purnea	−12·5
	Patna	−12·4
7th „	Gaya	−16·8

Duststorms and thunderstorms occurred over north-east India on the 9th, 10th and 11th, keeping temperature low over that area, but generally between the 10th and the 13th the heat increased over the Indian area and the mean temperature was approximately normal except in the extreme north-west on the 14th and 15th. Showers fell around the north-west frontier between the 11th and the 15th and snow occurred in further Kashmir. As a result, there occurred a rapid fall of temperature over Baluchistan and north-west India and the mean temperature was in very large defect in those areas, the maximum temperature having been 18½° below the normal at Chaman, 17° at Peshawar and Cherat and 12½° at Quetta on the 15th. A second cold wave hence entered north-west India at this time, but it was never very important and hardly extended beyond the Punjab, Rajputana and Sind. Between the 14th and the 18th or 19th, the weather was generally fine and dry over the Indian area, so that temperature rose, and between the 14th and the 20th was generally higher than usual. The following gives comparative data for all divisions for the 18th and shows the general conditions prevailing :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 18th April.	Mean minimum temperature, 18th April.	Mean daily temperature, 18th April.
	°	°	°
Burma	+2·1	+2·2	+2·2
Assam	+5·9	−1·0	+2·5
Bengal	+6·9	+1·0	+4·0
Orissa	+3·7	+2·1	+2·9
Bihar	+5·1	−2·4	+1·4
Chota Nagpur	+1·3	+3·8	+2·6
United Provinces of Agra and Oudh	+0·3	−1·9	−0·8
Punjab	+0·7	+3·2	+2·0
North-West Frontier Province	+2·7	+4·2	+3·5
Sind	+0·3	+1·8	+1·1
Rajputana	+1·2	+0·8	+1·0
Gujarat	+3·3	+1·1	+2·2
Central India	+0·4	+1·2	+0·8
Central Provinces	+3·8	+2·7	+3·3
Berar	+5·3	+6·4	+5·9
West Coast	0	+0·8	+0·4
Bombay Deccan	+4·5	+3·1	+3·8
Mysore	+5·2	−1·7	+1·8
Madras Coast	−1·5	−1·4	−1·5
Madras Deccan	+3·1	−2·4	+0·4
South India	+2·3	+1·8	+2·1

Occasional thunderstorms and nor'westers were reported over north-east India during this period, but the accompanying rainfall was lighter and more irregularly distributed than usual and the day temperature was high both over north-east and central India. The following gives data for those stations where the excess of the maximum temperature between the 14th and 20th was more than 9° :—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
16th April	Narayanganj	104·1	93·4	+10·7
17th „	Dhubri	100·2	88·8	+11·4
	Narayanganj	104·6	93·3	+11·3
	Mymensingh	101·2	90·6	+10·6
	Dinajpur	104·8	94·8	+10·0
	Bogra	106·4	96·8	+9·6
	Jessore	107·0	97·6	+9·4
18th „	Dhubri	100·7	88·6	+12·1
	Dinajpur	105·8	94·6	+11·2
	Bogra	107·8	96·6	+11·2
	Mymensingh	100·2	90·4	+9·8
19th „	Dinajpur	104·8	94·5	+10·3

The weather became more unsettled both in north-west and north-east India after the 18th, and two low pressure areas or slight storms, giving showers to Baluchistan, the north-west frontier and north-west India, entered north-west India from the westward between the 20th and the close of the month, while daily thundershowers occurred over parts of Assam and Bengal. In neither region, however, were the rainfall amounts heavy and though Cherrapoonjee occasionally reported falls of from 1 to 5 inches, these amounts were far from being heavy for this station. On the 21st a fresh fall of temperature appeared in the north-west and another fall on the 23rd. These two falls reduced temperature to more or less below the normal over a large part of north-western and central India. The following gives comparative data for the divisions affected:—

Date.	Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
21st April	Punjab	−2·5
	North-West Frontier Province.	−5·9
	Sind	−0·3
	Rajputana	−0·9
	Gujarat	−1·5
	Central India	−0·3
	Berar	−0·9
	Bombay Deccan	−1·9
23rd „	Punjab	−1·1
	North-West Frontier Province.	−8·4
	Sind	−1·3
	Rajputana	−1·1
	Gujarat	−1·4
	Berar	−1·3

Between the 25th and the end of the month, the mean temperature remained low in the extreme north-west and extreme north-east of the Indian area, but was higher than usual elsewhere. In Bengal and Bihar strong hot westerly winds were blowing at this time and on the following dates and at the following places the day temperature was more than 12° above the normal:—

Date.	Station.	Maximum temperature.		
		Actual, of date.	Normal, of date.	Variation of actual from normal of date.
		°	°	°
26th April	Bogra	108·3	94·8	+13·5
27th „	Bogra	109·3	94·6	+14·7
	Mymensingh	103·2	89·5	+13·7
	Dinajpur	106·2	93·4	+12·8
28th April	Bogra	107·8	94·6	+13·2
	Dinajpur	106·2	93·2	+13·0
29th „	Bogra	108·3	94·5	+13·8
	Mymensingh	103·2	89·4	+13·8
	Berhampore	112·3	98·9	+13·4
	Jessore	108·6	96·4	+12·2
	Burdwan	112·5	100·4	+12·1
	Dhubri	101·8	86·2	+15·6
30th „	Bogra	109·3	94·5	+14·8
	Mymensingh	103·7	89·4	+14·3
	Dinajpur	106·7	93·0	+13·7
	Berhampore	111·3	98·8	+12·5
	Calcutta	107·4	95·2	+12·2

On the 27th, owing to showers in the surrounding mountain regions and in the North-West Frontier Province, a brisk to very rapid fall of temperature occurred in the extreme north-west and the day or maximum temperatures at Chaman, Cherat and Peshawar were from 16½° to 18½° below the normal. Showers continued in Kashmir, Baluchistan, the Indus valley and the Punjab until the 29th and temperature was more or less below the normal over north-west India during the last few days of the month, but particularly so on the 29th when at the following stations the deficiency in the mean temperature was over 12°:—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 29th April 1903.
	°
Chaman	−14·6
Cherat	−18·1
Murree	−13·9
Peshawar	−15·7
Rawalpindi	−12·6
Khushab	−12·5

Pressure.—The mean pressure of the Indian land area was 0·029″ above the normal. Relatively to this general condition pressure was in excess over north-west and

central India, the relative excess having been largest and more than 0·04″ over the western desert. Over the Peninsula, Burma and north-east India pressure was in local defect. The deficiency was more than 0·02″ over Burma, Assam, part of Bengal and along the west coast of the Peninsula and amounted to about 0·04″ along the foot of the eastern Himalayas. The vertical pressure anomalies were generally negative, and in the Sind-Baluchistan and Punjab-Kashmir areas were considerable.

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, 1903.	Pressure anomaly, April, 1903.
	″	″
Burma Coast and Bay Islands	+·006	—·023
Burma, Inland	+·006	—·023
Assam	—·002	—·031
Bengal and Orissa	+·009	—·020
Gangetic plain and Chota Nagpur	+·034	+·005
Upper Sub-Himalayas	+·056	+·027
Indus Valley and North-West Rajputana	+·072	+·043
East Rajputana, Central India and Gujarat	+·049	+·020
Deccan	+·023	—·006
West Coast	+·009	—·020
South India	+·014	—·015

Temperature.—The mean maximum temperature of the month was in moderate to large defect over north-west India and part of central and north-east India, the deficiency extending as far east as Chaibassa and as far south as Jubbulpore, Hoshangabad and Indore. On the plains the deficiency was greatest and between 6° and 8° over the Punjab and North-West Frontier Province, and on the hills it was greatest around the north-west frontier and over Baluchistan where it varied between 8° and 11°. The mean maximum temperature was likewise in defect along the west coast where the variations were between —2·°0 and —3·°5 at Ratnagiri and Goa.

Over the remainder of the country, alike on the hills and plains, the mean maximum temperature was generally excessive. The excess was greatest and between 4° and 5° over central and north Bengal and part of Assam.

The mean minimum temperature of the month exceeded the normal over the south of the Peninsula, over Burma and over east Bengal; was exactly normal over Chota Nagpur and the east of the Central Provinces and was below the normal over the remainder of the country. The deficiency was greatest over north-west India and the excess greatest over central Burma and around the gulf of Martaban. The following gives the stations showing the largest opposite variations from the normal:—

LARGEST NEGATIVE VARIATIONS.		LARGEST POSITIVE VARIATIONS.	
Stations.	Variation.	Stations.	Variation.
	°		°
Chaman	—8·5	Yamethin	+3·3
Murree	—7·4	Bassein	+2·3
Cherat	—5·6	Mergui	+2·3
D. I. Khan	—5·0	Moulmein	+2·1
Jocobabad	—4·8		
Montgomery	—4·5		
Leh	—4·3		
Bikaner	—4·1		

The variations in the mean temperature of the month exhibited a deficiency over north-western and western and part of central and north-east India, as well as along the Madras coast. The deficiency was on the whole greater on the hills than on the plains and amounted to 9·8° at Chaman, to 7·7° at Murree, to 7·°4 at Cherat and to 6·5° at Montgomery. Over the remainder of the country the mean temperature was in excess, the largest variations having been +3.°4 at Yamethin, +2·°6 at Toungoo, +2·°5 at Bogra and +2·4° at Mymensingh.

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

METEOROLOGICAL PROVINCE.	VARIATION OF ACTUAL FROM NORMAL OF		
	Mean maximum temperature, April, 1903.	Mean minimum temperature, April, 1903.	Mean daily temperature, April, 1903.
	°	°	°
Burma Coast and Bay Islands	+1·2	+1·7	+1·5
Burma Inland	+3·0	+1·1	+2·0
Assam	+2·0	—0·2	+0·9
Bengal and Orissa	+2·3	0	+1·2
Gangetic plain and Chota Nagpur	—1·0	—0·4	—0·7
Upper Sub-Himalayas	—4·5	—1·9	—3·2
Indus Valley and North-West Rajputana	—6·2	—4·2	—5·2
East Rajputana, Central India and Gujarat.	—3·0	—2·9	—3·0
Deccan	+0·2	—0·5	—0·1
West Coast	—1·0	—0·9	—1·0
South India	+0·8	+0·1	+0·5

Winds.—The winds were unusually southerly over the interior and east of the Peninsula and on the Burma and Orissa coasts, where also the velocity was generally lower

than the normal. Over northern India a very steady and generally strong west-north-westerly wind prevailed, the direction on the whole being more westerly than usual. Over the northern part of the equatorial belt the wind, though unusually steady, was irregular in direction and the south-east trades during April did not apparently extend beyond the latitude of Mauritius.

Humidity.—The air was much damper than usual at Quetta and Jocobabad and slightly damper over the west Punjab, the North-West Frontier Province, the mid west coast (represented by Karwar), the Madras coast and Chota Nagpur. In all other parts of the country the air was drier than the average, the deficiency in the relative humidity having been considerable over the east Punjab (Ludhiana—9), the west of the United Provinces (Dehra Dun— 9), Rajputana (Deesa—8), the west of the Central Provinces (Khandwa—9), the Deccan (Hyderabad —10) and Mysore (Mysore—10). At Srinagar there was a local excess in the relative humidity but at the other Himalayan stations the air was drier than usual, the deficiency at the eastern stations having been large. In the south-east trades region both the absolute and relative humidities were in excess.

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

Meteorological Province.	Mean absolute humidity.		Mean relative humidity.	
	Average actual, April, 1903.	Variation of actual from normal, April, 1903.	Average actual, April, 1903.	Variation of actual from normal, April, 1903.
	"		%	
Burma Coast and Bay Islands	·877	+·023	72	—1
Bengal and Orissa	·846	—·016	73	—3
Gangetic plain and Chota Nagpur	·391	—·028	34	—3
Upper Sub Himalayas	·301	—·065	33	—4
Indus Valley and North-West Rajputana.	·542	—·029	61	0
East Rajputana, Central India and Gujarat.	·244	—·099	21	—7
Deccan	·328	—·069	26	—6
West Coast.	·816	—·008	75	+1
South India.	·594	—·015	52	—3

Cloud.—The mean cloud amount of the month was in excess over the extreme north-west of India, the Gangetic plain and the extreme south of the Peninsula. The variations were generally small but amounted to +2·1 at Dehra Dun, to +1·6 at Lahore and to +2·6 at Mysore. Over nearly the whole of the remainder of India the mean cloud amount was less than the normal. The deficiency was more than 1·0 in lower Burma (Rangoon —1·8), at the head of the Bay (Saugor Island —1·5 and False Point —1·9), and in north Mysore (Chitaldroog —1·5). On the hills the cloud amount varied irregularly from the normal. At most of the western hill stations the cloud amount was generally greater than usual, while at the eastern and central stations it was less. At Katmandu the deficiency was as much as 2·1.

The following table gives variation data of the mean cloud amount in nine meteorological provinces of India :—

Meteorological Province.	Mean cloud amount.	
	Average actual, April, 1903.	Variation of actual from normal, April, 1903.
Burma Coast and Bay Islands	2·1	—1·4
Bengal and Orissa	2·2	+1·5
Gangetic plain and Chota Nagpur	1·8	0
Upper Sub-Himalayas	3·2	+0·7
Indus Valley and North-West Rajputana	3·0	+0·1
East Rajputana, Central India and Gujarat	1·7	—0·3
Deccan	2·0	—0·5
West Coast	1·4	—1·0
South India	3·7	—0·1

Rainfall.—The rainfall of the month was locally heavy over Chota Nagpur and part of Bihar where general showers occurred during the first week. Rain was also in excess over east Persia and Afghanistan and this excess extended into Baluchistan and the west Punjab. In all other places the rainfall was lighter than usual and over parts of Burma, the United Provinces, the east Punjab and the central parts of the country the rainfall of the month was actually or practically *nil*. The heaviest rainfall was reported from Assam where it varied between 4″ and 8″ and Travancore where it amounted to 5½″, but even in these areas the total rainfall was apparently little more than half the average amount. In Burma and east Bengal the rainfall was exceptionally scanty for the time of year. In the south-east trades region the month's rainfall was heavier than usual.

The following gives comparative rainfall data of the eleven meteorological provinces for the month :—

Meteorological Province.	Rainfall.			
	Mean actual for April, 1903.	Mean normal for April.	Variation of actual from normal, April, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	0·72	2·80	—2·07	—74
Burma, Inland	0·08	1·13	—1·05	—93
Assam	6·32	8·23	—1·91	—23
Bengal and Orissa	0·68	2·59	—1·91	—74
Gangetic plain and Chota Nagpur	0·51	0·44	+0·07	+16
Upper Sub-Himalayas	0·08	0·52	—0·45*	—87

METEOROLOGICAL PROVINCE.	RAINFALL. Mean actual for April, 1903.	Mean normal for April.	Variation of actual from normal, April, 1903.	Percentage variation from normal.
	Inch.	Inches.	Inches.	
Indus Valley and North-West Rajputana.	0·28	0·36	−0·08	−22
East Rajputana, Central India and Gujarat.	0	0·06	−0·06	−100
Deccan	0·18	0·51	−0·35*	−69
West Coast	0·50	2·00	−1·51	−76
South India	0·50	1·42	−0·92	−65

* 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:—The information for the month of April for the western Siberian area was very fragmentary and afforded very little assistance in determining the changes in progress over that region. There occurred a brisk fall of pressure over the Caspian area at the beginning of the month and this was apparently associated with a fall of the barometer over Asiatic Turkey and Persia, but was not felt over Kashgaria or further Kashmir. On the 7th there occurred a fall of the barometer at Kashgar (of nearly 0·60″) and Gilgit, and at other stations in further Kashmir on the 8th and 9th, but the change appears to have been largely confined to this region as it is difficult to find any traces of its influence in other parts of the Indian area. Another general fall of the barometer was recorded on the 10th, 11th and 12th over the Caspian and Siberian areas but though this was a period of deficiency of pressure over the monsoon area as a whole, it is difficult to trace any connection between the Siberian decrease of pressure and the changes over India, as at Kashgar, Gilgit, Bushire and Teheran pressure at this time was increasing. The next fairly general fall occurred between the 16th and the 19th and the last general fall between the 27th and the end of the month. Over Egypt the month opened with an area of high pressure over the Levant and Asia Minor. On the 3rd this began to give way before a depression over Greece. This depression passed eastward and led to unsettled weather over Egypt on the 6th and 7th. Anti-cyclonic conditions succeeded and with a temporary interruption on the 15th lasted till the 24th, when another depression affected the weather in upper Egypt. The mean pressure of the month in Egypt was above the normal while there was a considerable deficiency of rain over the country. The periods of disturbed weather over the Indo-Persian area were as follows,—the 9th to the 15th, the 21st to the 24th, and the 27th to the 29th, so that there existed a certain agreement between the disturbed periods in the two regions showing that general actions were in progress which affected the whole or nearly the whole of this large area. In the south of the monsoon area the weather was in many respects peculiar. In fact the summer was a most exceptional one over a large part of the south Indian ocean. The most remarkable feature was the phenomenal number of cyclonic disturbances which traversed the south Indian ocean between December and April. The Royal Alfred Observatory at Mauritius received definite information of eleven, and several more were suspected. During April the mean pressure of the equatorial belt was below the normal during the greater part of the month—more particularly from the 11th onward, and this relatively low pressure was associated with exceptional winds over the northern half of the belt though at Mauritius the variations from the normal were small. So far as the information available shows, the rainfall over this region during April was heavier than usual, but at Mombassa the rainfall of the whole season appears to have been approximately normal as the total fall from the 1st of January to the 31st of March 1903, was 4·79″, while the mean for these three months derived from six years' observations is 5·42″, showing a deficiency of only 0·63″.

The following table gives the daily variations of pressure from the normal for certain selected stations over the monsoon area:—

DAILY VARIATIONS OF PRESSURE FROM NORMAL, APRIL, 1903.

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	″	″	″	″	″	″	″	″	″
1	+·221	+·181	+·163	+·105	+·054	+·042	+·046	−·069	+·094
2	+·164	+·095	+·136	+·075	+·016	−·008	+·022	−·048	+·059
3	+·157	+·274	+·157	+·096	+·022	+·008	+·009	+·026	+·092
4	+·169	+·186	+·188	+·082	+·039	+·014	+·017	+·050	+·094
5	+·167	+·212	+·186	+·078	+·019	−·019	+·021	+·081	+·093
6	+·195	+·212	+·187	+·105	+·006	+·043	+·027	+·092	+·106
7	+·110	+·107	+·085	+·095	+·005	+·036	+·023	+·070	+·058
8	+·032	−·003	−·025	+·048	0	+·017	+·011	+·018	+·017
9	−·088	−·094	−·047	−·019	0	+·019	+·028	+·006	−·022
10	−·151	·073	−·094	−·018	+·014	+·013	+·084	+·063	−·018
11	−·102	−·166	−·109	−·041	−·011	−·003	+·092	+·067	−·032
12	−·084	−·178	−·125	−·114	−·084	−·036	+·031	+·017	−·069
13	−·001	−·072	−·019	−·052	−·059	−·031	+·002	+·008	−·030
14	+·026	+·119	+·057	+·015	−·028	+·004	−·008	+·021	+·023
15	+·099	+·102	+·081	+·055	+·015	+·017	−·005	+·048	+·053
16	+·093	+·105	+·067	+·048	−·030	−·021	−·025	+·010	+·034
17	+·094	+·032	+·049	+·058	−·032	−·033	+·022	+·052	+·034
18	+·058	+·023	+·047	+·076	+·001	−·009	+·049	+·089	+·045
19	+·104	+·114	+·078	+·072	−·004	−·020	+·021	+·039	+·054
20	−·077	−·070	−·083	+·029	−·039	−·023	−·017	−·045	−·033
21	−·131	−·061	−·082	−·067	−·074	−·067	+·006	−·039	−·064
22	−·281	−·034	+·001	−·085	−·085	−·070	+·017	−·067	−·074
23	−·020	−·031	−·067	−·049	−·082	−·068	−·001	−·056	−·04
24	−·045	−·007	−·059	−·029	−·050	−·036	−·093	−·074	−·046

DAILY VARIATIONS OF PRESSURE FROM NORMAL, APRIL, 1903.

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	"	"	"	"	"	"	"	"	"
25 .	—·010	—·041	—·033	—·035	—·096	—·059	—·076	—·072	—·050
26 .	—·010	—·027	—·017	—·058	—·079	—·032	—·017	—·044	—·037
27 .	+·002	—·039	+·017	+·024	—·087	—·027	—·054	+·016	—·015
28 .	+·029	+·085	+·040	+·030	—·065	—·021	—·015	+·036	+·016
29 .	+·069	+·113	+·071	+·058	—·038	+·005	—·018	+·020	+·034
30 .	+·037	+·088	+·069	+·018	—·026	—·016	—·035	+·028	+·021

The preceding data show that, on the mean of the whole number of stations, pressure was above the normal from the 1st to the 8th. On the five following days pressure was relatively low with a maximum deficiency on the 12th. It then rose and from the 14th to the 19th ruled above the normal. A sudden and large fall occurred between the 19th and 20th and a period of considerable deficiency set in and lasted till the 27th during which the barometer read below the normal over practically the whole monsoon area. The last three days of the month exhibited excessive pressures but the variations were not large.

Solar and Magnetic Disturbances.

The Director of the Kodaikanal observatory telegraphed as follows :—

April 16th.—No spots on visible hemisphere of the sun but a group of six large disturbed prominencies at the western limb.

" *28th.*—Fresh outbreak of solar activity, four groups of large spots all rapidly changing. Prominence at limb unimportant.

" *30th.*—Great development of spots, enormous prominence at eastern limb preceding a new spot just come into view.

" *6th.*—Large disturbance of magnetic force from 13 hours 40 minutes to 18 hours 10 minutes on April 6th.

Note on the Colaba Magnetic Record.

The magnetic traces for the month do not show any unusually large disturbances. There were twelve calm days, ten days of small, seven days of moderate and one day of great disturbance, the last being recorded on the 6th.

Small period movements.—Nine serrated movements (the oscillations continuing for some time), and 37 abrupt movements (appearing as if suddenly damped in their propagation) have been recorded.

The selected quiet days of the month were the 2nd, 13th, 16th, 20th, and 29th.

The means of the observed absolute values of the several elements for the month were as follows :—

Declination . . . . . 0° 16′ 29″E.
Horizontal Force . . . . . ·37431 C. G. S. units.
Dip . . . . . 21° 40′·7

There were three well-marked earthquakes recorded at Colaba during the month, one on the 25th and two on the 29th. The first on the 29th, which occurred at 4 hours and 43 minutes, was the largest, its amplitude being 3·5 mm.

The means of the observed absolute values of the several elements for the four months were as follows :—

MONTHS.	January, 1903.	February, 1903.	March, 1903.	April, 1903.
Declination .	0° 18′ 17″E.	0° 8′ 1″E.	0° 17′ 58″E.	0° 16′ 29″E.
Horizontal Force	C. G. S. units. 0·37430	C. G. S. units. 0·37436	C. G. S. units. 0·37442	C. G. S. units. 0·37431
Dip . . .	21° 40′·7	21° 40′·3	21° 41′·3	21° 40′·7

Mauritius.—At the Royal Alfred Observatory, Mauritius mangetic disturbances were registered from the 5th to 9th and on the 15th, 16th, 18th, 19th, 21st, 22nd, 26th and 27th.

The extent of the solar disturbance, as observed from Mauritius, was very large. Three groups of spots were recorded on the 1st, 2nd and 3rd, one group on the 13th and 14th, two groups on the 26th, four on the 27th and 28th and three on the 29th and 30th, while two spots were recorded on the 5th, one on the 6th and 7th, two on the 8th, one on the 9th, two on the 10th, one on the 13th and 14th, one on the 23rd, and two on the 26th. Faculæ were observed on all days except the 16th, 17th, 20th and 21st when there were apparently none present and on the 4th, 11th, 12th, 24th and 25th when the sky was cloudy.

The preceding observations show that there occurred a great outbreak of solar activity during the last five days of the month.

Atmospheric Pressure.

The mean 8 A.M. pressure of the Indian land area averaged 0·029″ above the normal as compared with 0·012″ below in March, showing a rise, relatively to the normal pressure conditions, of 0·041″ between the two months.

Plate I gives the actual distribution of the mean pressure of the month and shows that the barometer read highest over the North-West Frontier Province, relatively high over Bombay, part of Mysore and of south India, Tenasserim and the upper Assam valley and lowest over Bengal and the Gangetic plain. The mean pressure was higher than usual in all parts of the plains of India except the Assam valley, north Bengal, and the Arakan coast where it was a trifle lower than usual. The excess was greatest and more than 0·06″ over the extreme north-west of India. This excess extended westward through Baluchistan to Persia and Arabia but in Asiatic Turkey, if the observations be correct, it disappeared and was replaced at Baghdad by a deficiency of 0·048″. The doubt about the pressure observations at Baghdad arises from the fact that in Egypt the excess of pressure was as marked as in Arabia and Persia. The excess of pressure did not extend southward to any extent and at the Seychelles, Zanzibar, and Mauritius the mean monthly pressures were below the normal.

Compared with the general condition over India, *viz.*, a mean excess of 0·029″, pressure was in defect over the Peninsula, north-east India and Burma. The negative anomalies were more than 0·02″ along the west coast of the Peninsula, over the greater part of north-east India and over Burma and were more than 0·03″ at the stations for which comparative data are given below :—

Station.	Variation from normal of mean 8 A.M. Pressure of April 1903.	Pressure anomaly, April, 1903.
	″	″
Jalpaiguri	—·011	—·040
Dinajpur	—·009	—·038
Sibsagar	—·009	—·038
Mymensingh	—·005	—·034
Dhubri	—·003	—·032
Bogra	—·002	—·031
Akyab	—·002	—·031

Over north-west and central India pressure, relatively to the general condition, was in excess and the excess was more than 0·04″ at the following stations :—

Station.	Variation from normal of mean 8 A.M. pressure of April 1903.	Pressure anomaly, April, 1903.
	″	″
Jacobabad	+·079	+·050
Montgomery	+·078	+·049
Lahore	+·073	+·044
Bikaner	+·072	+·043
Sirsa	+·071	+·042
Kurrachee	+·070	+·041

Pressure was generally in excess at the level of the hill stations in India, the only exceptions having been at Chakrata and Leh. The excess was generally small in amount and less than the excess at the neighbouring plains stations, so that the vertical pressure anomalies were, except in Sikkim, in all cases negative.

The following data illustrate this condition :—

Hill Station.	Variation from normal pressure, April, 1903.	Plain Station.	Variation from normal pressure, April, 1903.	Vertical pressure anomaly (Hill—Plain).
	″		″	″
Quetta	+·033	Jacobabad	+·079	—·046
Leh	—·013	Lahore	+·073	—·086
Murree	+·020	Peshawar	+·067	—·047
Simla	+·010	Ludhiana	+·049	—·039
Chakrata	—·003	Roorkee	+·046	—·049
Ranikhet	+·020	Bareilly	+·043	—·023
Darjeeling	+·012	Dhubri	—·003	+·015
Mount Abu	+·021	Deesa	+·039	—·018
Pachmarhi	+·028	Seoni	+·030	—·002

The negative anomalies in the north-west were considerable to large and were accompanied with heavier rain than usual to the west of the Indus while the positive anomalies in the Bengal-Sikkim area were accompanied with less rain than usual over north-east India. The following table gives the vertical pressure anomalies for nine pairs of stations in northern India for the four months January to April 1903 and shows that negative anomalies have prevailed fairly continuously over north-west India during the past cold season :—

Station.	Vertical pressure anomaly (Hill—Plain) for			
	January, 1903.	February, 1903.	March, 1903.	April, 1903.
	″	″	″	″
Quetta—Jacobabad	+·013	+·030	—·010	—·046
Leh—Lahore	—·019	+·015	—·120	—·086
Murree—Peshawar	+·002	+·016	—·044	—·047
Simla—Ludhiana	—·006	—·003	—·024	—·039
Chakrata—Roorkee	—·017	—·025	—·045	—·049
Ranikhet—Bareilly	+·012	—·002	—·005	—·023
Darjeeling—Dhubri	—·020	—·032	—·016	+·015
Mount Abu—Deesa	—·008	—·019	—·034	—·018
Pachmarhi—Seoni	—·006	—·020	—·014	—·002

The following is a summary of the chief abnormal features of the pressure distribution during the month under review :—

1. Pressure was in excess by amounts a veraging 0·029."

2. Relatively to the general condition pressure was in excess over the whole of north-western and central India, the excess having been greatest over the western desert.

3. Pressure was in local defect over the Peninsula, north-east India and Burma. The deficiency was greatest in north Bengal.

4. The vertical pressure anomalies were negative except in the Bengal-Sikkim district.

5. Pressure was in defect over the south Indian ocean-most so at Mauritius.

Barometric depressions and cyclonic storms of the month.

At the commencement of the month a shallow depression was shown over Bengal occasioning rain over Assam. This depression had disappeared by the 3rd and unusually high pressures with low temperatures and quiet weather prevailed over India until the 7th. On the 7th the barometer fell briskly to very rapidly and on the following day a shallow depression was shown over the south-west Punjab. This depression had apparently formed over the Baluchistan plateau as there are no signs of its having advanced from the Persian area. The storm lay over the central and south Punjab on the 9th, and advanced into the United Provinces on the 10th, where it filled up. The storm gave no rain and was associated with excessively low humidities, so that it differed in a marked manner from the depressions which enter the Indian area from Persia.

From the morning of the 6th to the morning of the 9th pressure gave way rapidly at Baghdad. Thus on the 6th pressure marked 30·202", on the 7th, 30·089", on the 8th, 29·955", and on the 9th 29·756", showing a decrease of 0·446" in seventy-two hours. The wind was easterly at Bahrein and Bushire, south-easterly at Bussrah and southerly at Baghdad on the morning of the 9th when a storm was approaching Baghdad from the westward. During the 9th the storm advanced eastward into Persia and on the morning of the 10th the wind was northerly at Baghdad, north-north-westerly at Teheran, and south-south-westerly at Bushire and Bunder Abbas. It was difficult on this day to locate the centre of the disturbance, but apparently it was situate in the neighbourhood of Ispahan. On the 11th the barometer fell briskly over Baluchistan and the Indus valley and a locally formed storm was shown over Jacobabad, while the Persian storm apparently lay to the south of Meshed and Herat. On the 12th the Persian storm was apparently entering Sind and on the 13th had filled up. It occasioned unsettled showery weather over Kashmir, the North-West Frontier Province and Baluchistan.

The weather was quiet from the 13th to the 20th. On the 19th the barometer gave way over Persia and the fall became rapid on the 20th, when the winds apparently showed that a depression existed over the head of the Persian Gulf and pressure was in considerable defect at Bushire. By the morning of the 22nd the depression over the Persian Gulf had intensified considerably and the barometer read 0·281" below the normal at Bushire where rain was falling. On the 23rd the depression was approaching Baluchistan and rain had been received at all the Persian stations. On the 24th the barometer was falling fast over the Punjab and the depression had apparently entered north-west India, where light scattered showers had been received.

Between the 24th and the 27th the weather remained nusettled and showery in the extreme north-west, but there was no depression of any importance. A rapid oscillation of pressure then took place in Asiatic Turkey, the barometer at Baghdad marking 29·968" on the 27th, 29·888" on the 28th, with a southerly wind, and 29·987" on the 29th with a northerly wind. These observations show that a depression passed from west to east across Asiatic Turkey and unsettled showery weather prevailed up to the close of the month over Persia, Baluchistan and the north-west frontier but the depression itself was never clearly defined.

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) *Wano.*—Snow fell on the Marwattai hills (10,000 ft.) on the 11th, 12th and 22nd April. The snowfall of the present winter was much heavier than that of the past year.

(2) *Killa Drosh.*—Between the 1st December 1902 and 14th May 1903 snow fell on twenty-one occasions, *viz.*, on five days in December, on seven days in January, on four days in February and five days in March. The accumulated snow measured 4½ feet on the medium hills, 12 feet on the high hills and 20 to 30 feet on the Lowari pass at the close of the period. The snowfall of the winter was much greater than in previous winters.

(3) *Hazara.*—The following gives the snowfalls at Narang in the Kagan valley :—

30th March	1'	6
31st ,,	0	6
4th April	0	6
10th ,,	0	6½
11th ,,	0	8
12th ,,	0	2
24th ,,	0	3½
25th ,,	0	5

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Kashmir.*—The following gives the depth of snow

on the ground around the observatories in further Kashmir at weekly intervals during the month :—

Observatory.	7th April.	14th April	21st April.	28th April.
	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.
Dras	4 6	4 6	3 3	2 4
Sonemarg . . .	5 7½	4 9	3 7½	2 2

The above shows that the snow was steadily melting during the month.

The following is the snowfall report for this province :—

The past winter was not much colder than that of 1901-1902. Sleet and snow began to fall somewhat earlier than usual. The higher ranges received their first fall on the 5th of October and their last on the 18th of May 1903 when the snowfall descended to 6,500 feet. The first fall of sleet in the valley was on the 14th November 1902, on which date heavy snow fell on the higher ranges. The heaviest fall of snow (1 foot 2½ inches) recorded in Srinagar was on the 23rd January. On the same day 3 feet of snow were measured at Sonemarg, 1 foot 2 inches at Dras, and 1 foot at Skardu. On the 24th and 27th January 1903 half an inch of snow fell at Srinagar and heavier snow in the neighbourhood. The snowfall was light in February but March was unusually wet. The following table gives the total snowfall up to 1st April 1903 as measured at Srinagar :—

Month.	Total amount of snowfall.
1903.	Ft. Ins.
January	2 3½
February	0 1
March	0 4½
April	0 2½

There was evidence of much heavier snow on the higher ranges.

(2) *Poo.*—Light snow fell on the 1st and 10th April.

(3) *Kulu.*—Snow fell on the high peaks and passes on the 21st, 25th and 26th of April. The falls were slight as is shown by the following table which gives the snowfall during the period under report :—

Kulu.		Plach.	
Rotang . . .	2 feet.	Srikhand . .	2 feet.
Hamta . . .	1 foot	Chul . . .	1 foot.
Chandarkhani .	1 „	Hingan . . .	1 „
Barsai . . .	2 feet.	Dundku . . .	1 „
Bujadhar . . .	½ foot.	Tikkar . . .	1 „
Bhubu . . .	*Nil*	Tohnu . . .	*Nil*
Sairi . . .	2 feet.	Raghopur . .	1 „
		Jalori . . .	1 „
		Bhimri . . .	1 „
		Sakiran . . .	½ „
		Gargarasan . .	1 „
		Sopakun . . .	1 „
		Bishleo . . .	1 „
		Placha . . .	1 „
		Tirath . . .	1 „

(4) *Chamba.*—The snowfall between the middle of March and the middle of April was as follows :—

Date.	Depth.	Elevation to which snowline descended.	District.
	Ft. Ins.	Ft.	
March 20th . . .	0 3	6,000	Barmaur.
22nd . . .	0 9	6,000	
23rd . . .	3 5	6,000	
March 20th . . .	0 2	6,000	Olansa.
22nd . . .	0 6	6,000	
23rd . . .	1 5	6,000	
March 25th . . .	0 2	.....	Kalatop.
26th . . .	0 2	.....	

An unusual amount of rain and snow fell towards the close of the winter.

(5) *Pangi.*—At Kilar (8,400 feet) snow fell on the 8th 19th, 20th and 28th April and the snowfall was unusually late and heavy.

(6) *Simla.*—In the Bushahr hills snow fell on the 1st, 10th, 11th, 20th, 21st, 23rd and 29th April. The fall descended on most occasions to between 9,000 and 11,000 feet, but on the 10th snow fell as low as 7,500 feet.

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

Rupin Pass	12 feet.
Bruin „	12 „
Harang „	3 „
Shatul „	12 „
Buldar „	11 „
Runang „	6 „

The winter's snowfall was about the average.

III.—United Provinces Himalayas.

(1) *Almora.*—Snow fell as under :—

Malla Johar.

1st April	3 feet.
10th „	1 foot.
Total .	4 feet.

Malla Danpur.

10th April	6 inches.

Byans, Chandas, and Darma.

10th April	1 foot.

The snowfall was less than that of the previous year.

Summary of Special Storm Reports.

The following gives notes of the chief local storms of which reports have been received.

April 8th.—A duststorm passed over Nagpur at 3-15 P.M. coming from south.

" *11th.*—A severe nor'wester was felt at Cocanada at 5-10 P.M. It lasted 15 minutes and was accompanied with thunder and lightning.

" " A dust and thunderstorm passed over Cuddapah between 2-45 and 4 P.M.

" *12th.*—A sudden duststorm passed over Chitaldroog between 9-30 and 10-15 A.M. The storm came on very suddenly and the sky was brick-red colour all round.

" *14th.*—A thunderstorm lasting from 2-45 to 3 P.M. passed over Lahore occasioning light showers of rain; the temperature fell about 13° during the storm

" *19th.*—At Simla a thunderstorm occurred at 4 P.M. and lasted till 4-45 P.M. The rain and hail measured 0·11".

" *20th.*—A duststorm was experienced at Patiala between 5-55 P.M. and 6-40 P.M.

At 7-30 P.M. a thunderstorm passed over Simla and lasted till 8-15 P.M.

A slight thunderstorm visited Srinagar with strong winds and light rain.

" *22nd.*—A duststorm passed over Srinagar between 2-30 P.M. and 3-30 P.M. followed by light drizzling rain.

" *23rd.*—A duststorm was reported from Saugor at 10 A.M. lasting 25 minutes.

" *24th.*—A heavy duststorm passed over Hoshangabad at 0-15 A.M. travelling from south-west to north-east. It lasted 15 minutes.

" *25th.*—A duststorm followed by light rain was reported from Cuddapah at about 2 P.M.

At 2-15 A.M. a thunderstorm visited Simla and lasted till 3 A.M., with heavy rain and hail. The rain and hail measured 0·19".

" *28th.*—A severe thunderstorm passed over Simla between 5-45 and 6-45 P.M. The rain and hail measured 0·39".

" *30th.*—Heavy duststorms passed over Hoshangabad between 3 P.M. and 6 P.M.

" " At 6 P.M. a duststorm with strong winds was experienced at Khandwa and lasted about 15 minutes.

A thunderstorm with hail and rain passed over Belgaum between 2 and 3 P.M. The hail and rain measured 0·57".

The following brief records of the occurrence of hailstorms have been received:—

April 2nd.—A slight hailstorm occurred at Chhatak, Assam and lasted 10 minutes.

" *4th.*—A slight hailstorm occurred at Chhatak, and lasted 8 or 9 minutes.

" *10th.*—Pottangi, Vizagapatam.—The storm lasted 20 minutes and the hailstones were as big as bouducnuts.

April 10th.—A hailstorm occurred at Raipur at 5-30. P.M. and lasted 15 minutes.

" *11th.*—Pottangi.—The storm lasted 25 minutes and the stones were as large as gooseberries.

" *17th.*—Cherrapoonjee.—The storm lasted 6 minutes and the stones were the size of a pea.

" " Niz Katigora (Cachar).—The stones were the size of a big potato, but the damage was slight.

" *18th.*—A severe hailstorm occurred at Chhatak, Assam, lasting 5 or 6 minutes. The hailstones weighed 2 tolas and chillies were damaged.

" *19th.*—A severe hailstorm occurred at Jagannathpur, Sunamganj sub-division, Assam, lasting 10 minutes. The storm was accompanied by exceptionally severe thunder.

" *19th and 20th.*—Severe hailstorms occurred at Hingajiya, Assam, lasting 15 minutes. The stones were large and damaged tea.

" *19th.*—Cachar sub-division.—The storm lasted 15 minutes and the stones were the size of a pea.

" " Niz Katigora (Cachar).—The storm lasted 2 minutes and the stones were from 2 to 3 inches in diameter.

" " Nowgong Sadr Tahsil.—The storm was severe lasting 15 minutes with stones of the size of a potato.

" " Roha Tahsil, Nowgong.—Storms occurred on the 19th, 21st and 26th, lasting about 5 minutes each. The last was severe with stones about 2 to 3 inches in size.

" *20th.*—Kohima.—A severe storm lasting 7 minutes with stones varying in size from a pea to a marble.

" " A moderate hailstorm occurred at Sunamganj, Assam, lasting 10 minutes. The hailstones weighed from 5 to 10 tolas and some injury was caused to life and crops. A slight hailstorm occurred at Derai, Sunamganj, lasting 10 minutes.

" *21st.*—A slight hailstorm occurred at Maulvi Bazar, south Sylhet, lasting 3 minutes.

" " Nowgong Sadr Tahsil.—Slight storm lasting 10 minutes.

" " Kamrup.—A slight storm lasting half an hour with stones varying in size from a plum to an egg.

" *23rd.*—Larkhana and Labdaria Talukas (Sind).—A slight storm lasting about 5 minutes withhail stones about ¼ inch in diameter.

" *25th.*—Niz Katigora (Cachar).—A storm lasting two minutes with stones of the size of a potato and pea.

" " Dharwar.—Storms lasting between 5 minutes and 1 hour with stones between ¼ and ½ inch in diameter.

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

Arabian Sea.—During the first week of April the winds were of the normal character blowing from north and north-west over the east of the sea and from east and north-east in the west and centre. On the 9th the weather became unsettled over the Persian area and the winds fell light and variable over the Arabian Sea. On the 11th they shifted to south over the west and north of the sea in sympathy with the depression passing through Persia. These southerly winds continued till the 13th when, with the disappearance of the depression in the north, the winds returned to their normal directions. Normal winds continued till the 20th when conditions again became unsettled over the Persian area and light variable winds re-appeared over the Arabian Sea. These variable winds were succeeded by southerly winds between the 21st and 23rd. On the 24th the normal circulation was re-established, but on the 25th, south-easterly winds sprang up over the west of the sea and south-easterly to easterly winds continued till the end of the month. In the Persian Gulf the winds were very irregular but blew principally from south-easterly and north-westerly directions under the influence of the storms crossing the Persian area.

The mean force of the wind was more or less above its normal strength from the 1st to the 8th. It then fell off quickly and was very light on the 10th. From the 11th to the 14th and on the 16th, 22nd and 23rd, the mean force was above the normal, while on the 19th and 20th the wind was very light. The mean air movement of the month for the whole of the Arabian Sea was 2·8 or 0·1 above the normal. Occasional rain squalls and strong winds were experienced in the Persian Gulf between the 9th and 12th, the 21st and 24th, and the 28th and 30th.

Bay of Bengal.—Southerly and south-south-westerly winds prevailed over a large part of the Bay during the first four days of the month. On the 5th the directions became irregular and northerly winds were reported from the north of the Bay on the 6th. Between the 8th and the 10th the winds were generally fairly normal, but on the 11th north-westerly and north-easterly winds set in and continued during that and the following days. From this date onward to the close of the month ordinary southerly and south-westerly winds prevailed along and across the Madras and Bengal coasts blowing strongly close to the coast. Over the centre of the Bay, as is ordinarily the case at this season, the winds were more or less variable and irregular.

The mean air movement of the month was exactly normal. The mean strength exceeded the normal on the 1st, 6th, 7th, 8th, 11th, 20th, 21st, 22nd and 25th to 30th, while the force was very low on the 15th and 16th.

Equatorial Belt.—Northerly and north-westerly winds prevailed over the west of the belt between the 1st and the 5th. On the 6th south-east trade winds began to appear in Lat. 10°S., but they quickly retreated again and northerly winds continued till the 9th. On the 10th the winds over this area were very variable and from that date to the 20th southerly to easterly light winds and calms were reported over the belt. Northerly winds re-appeared on the 21st, but only temporarily, and south-east and variable winds prevailed from the 2nd to the end of the month.

Temperature of the Air.

In April 1903 the heat was less than usual over the greater part of north-western, central and western India, the upper Assam valley, the greater part of the west coast and the Madras coast, and was greater than usual elsewhere.

The mean maximum or day temperature of the month was less than usual over the greater part of northern, north-western and central India, the west coast, the upper Assam valley and south-east Madras. The variation was moderate along the west coast and was moderate to very large in the north-west where at the following stations it amounted to over 5° :—

Station.	Mean maximum temperature.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	°	°	°
Montgomery	91·7	100·1	−8·4
Sirsa	93·6	101·1	−7·5
Lahore	91·2	98·2	−7·0

Station.	Mean maximum temperature.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	°	°	°
Peshawar	80·2	86·9	−6·7
Khushab	88·8	95·3	−6·5
Dera Ismail Khan	88·5	94·5	−6·0
Bikaner	95·4	101·3	−5·9
Ludhiana	91·7	97·4	−5·7
Mooltan	93·4	99·0	−5·6
Jacobabad	97·6	103·1	−5·5
Rawalpindi	83·0	88·4	−5·4
Agra	97·2	102·6	−5·4

Over the remainder of the country the mean maximum temperature was higher than usual. The excess was

greatest in central Bengal and amounted to more than 4° at the following three stations :—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	°	°	°
Dinajpur	99·5	94·6	+4·9
Dhubri	93·2	88·7	+4·5
Bogra	100·4	96·2	+4·2

The highest maximum temperatures of the month were generally recorded during the second half of the month and at many stations quite at the close of the month. The following gives the highest maximum temperatures exceeding 110°, registered during the month :—

STATION.	Highest maximum temperature recorded in April 1903.	Date on which recorded.	Highest maximum temperature recorded in April, previous to 1903.	Year in which reorded.
	°		°	
Purulia	113·2	29th	111·7	1901
Khandwa	113·2	19th	115·2	1896
Bankura	112·9	29th	116·1	1889
Sambalpur	112 6	29th & 30th	113·3	1889
Cuttack	112·5	28th	117·7	1879
Midnapore	112·4	29th	115·4	1889
Burdwan	112·3	,,	113·0	1897
Berhampore	112·3	,,	111·7	1881
Cuddapah	112·3	25th	111·3	1888, 95 & 96
Chanda	112·2	18th & 20th	116·1	1879
Akola	112·1	28th	114·5	1898
Chaibassa	111·9	29th	114·1	1896
Nagpur	111·7	18th	114·9	1892
Mandalay	111·6	30th	110·6	1900 & 1901
Ahmedabad	111·3	17th& 18th	115·3	1896
Raniganj	111·3	29th	114·5	1898
Deesa	111·1	18th	115·0	1897
Raipur	111·0	29th	113·7	1892
Bhagalpur	110·7	,,	110·1	1898
Yamethin	110·4	30th	112·6	1901
Amraoti	110·4	6 days	114·5	1896 & 1898
Gaya	110·3	21st & 29th	11·32	1881
Daltonganj	110·1	27th	112·6	1900
Minbu	110·1	29th & 30th	110·6	1900
Krishnagar	110·1	29th	110·7	1839
Naya Dumka	110·1	,,	112·0	1898

A comparison with a similar table given in the Weather Review of April 1902 will show that the maxima in the month under review, particularly in north-west India, were much lower than those recorded last year.

The maximum temperatures of the month at the north-west Himalayan and Baluchistan hill stations and in Kashgaria were slightly to very largely below the normal. The following gives comparative data :—

HILL STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	°	°	°
Chaman	70·5	81·6	—11·1
Quetta	66·3	74·2	—7·9
Kashgar	67·4	71·5	—4·1
Cherat	66·3	75·5	—9·2
Leh	48·2	57·1	—8·9
Murree	60·8	68·8	—8·0
Srinagar	62·0	68·2	—6·2
Gilgit	67·4	72·7	—5·3
Mussooree	68·3	72·4	—4·1
Chakrata	67·1	70·3	—3·2
Simla	63·1	65·2	—2·1
Ranikhet	74·1	74·8	—0·7

On the other hand, at Darjeeling and at the central and southern hill stations the mean maximum temperature was in slight excess.

The variations of the mean minimum or night temperature differed somewhat from those of the mean maximum temperature. They exhibited some excess over the south of the Peninsula and Ceylon, over Burma and over east Bengal, but the variations in these areas were generally small and exceeded 2° only at the following stations :—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	°	°	°
Yamethin	79·4	76·1	+3·3
Bassein	77·8	75·5	+2·3
Mergui	76·0	73·7	+2·3
Moulmein	78·5	76·4	+2.1

In west Bengal and part of the Central Provinces the mean minimum temperature of the month was about normal, but in all other parts of India the mean night temperature was below the normal, the absolutely greatest variations having been reported from some of the hill stations. The following gives data for those stations where the variation was more than 4° :—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	°	°	°
Chaman	49·5	58·0	−8·5
Murree	44·9	52·3	−7·4
Cherat	52·3	57·9	−5·6
D. I. Khan	61·1	66·1	−5·0
Jacobabad	64·9	69·7	−4·8
Montgomery	63·6	68·1	−4·5
Leh	26·6	30·9	−4·3
Bikaner	71·5	75·6	−4·1

These low night temperatures extended westward over the north-west frontier into Afghanistan, Persia and Arabia, but were not experienced in Asiatic Turkey where the mean minimum temperature of the month exceeded the normal. The following gives data for the extra-Indian stations :—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	°	°	°
Trincomalee	78·6	77·6	+1·0
Colombo	76·5	76·0	+0·5
Kashgar	43·5	49·0	−5·5
Kabul	38·9	45·2	−6·3
Meshed	44·4	48·1	−3·7
Teheran	49·2	49·9	−0·7
Ispahan	39·8	45·6	−5·8
Bushire	66·0	66·7	−0·7
Jask	70·9	73·3	−2·4
Muscat	76·0	80·5	−4·5
Baghdad	61·1	56·8	+4·3
Aden	77·5	77·3	+0·2
Perim	77·8	78·8	−1·0
Zanziabr	78·1	77·6	+0·5

The following gives the lowest temperatures of the month recorded in Persia, Afghanistan, Baluchistan, Kashmir, the western Himalayas and the Indus valley :—

STATION.	Lowest minimum temperature recorded in April, 1903.	Date on which recorded.	Lowest minimum temperature recorded in April previous to 1903.	Year in which recorded.
Meshed	31·5	1st	35·0	1893' 98 & 1900
Bushire	53·8	„	50·4	1880
Jask	62·8	2nd	62·8	1894
Teheran	37·2	1st	23·3	1900
Ispahan	30·1	1st & 2nd	34·7	1896
Bahrein	57·8	1st, 2nd & 3rd.	66·0	1902
Kabul	25·4	1st	29·6	1901
Quetta	28·8	„	29·4	1886
Chaman	35·1	„	40·1	1900
Dras	−12·9	3rd	6·1	1899 & 1901
Leh	8·9	2nd	16·3	1886
Sonemarg	15·6	1st	19·1	1902
Skardu	29·1	2nd	19·7	1898
Srinagar	34·1	1st, 2nd & 5th	32·1	1900
Gilgit	39·1	1st	36·1	1900
Poo	29·1	„	28·8	1897
Murree	30·5	„	28·5	1900
Chitral	32·0	„	37·0	1900
Killa Drosh	33·5	„	34·8	1901
Para Chinar	33·6	2nd	35·3	1900
Simla	35·2	1st	26·6	1878
Chakrata	39·4	10th	32·1	1878
Muktesar	39·4	1st	35·9	1900
Cherat	40·0	„	40·0	1900
Mussooree	40·0	1st, 2nd & 4th.	36·5	1900
Ranikhet	43·0	10th	37·0	1877
Peshawar	41·9	1st	42·2	1886
D. I. Khan	44·1	„	43·8	1886
Mooltan	47·9	„	50·6	1886
Jacobabad	48·0	2nd & 4th	51·3	1886
Hyderabad Sind	53·5	3rd	56·7	1886
Kurrachee	57·2	2nd	59·5	1881

It will be noticed that at several stations these absolute minima were very low for the time of year and were lower than the lowest readings previously recorded.

The mean temperature of the month was above the normal over the Peninsula, except the west and Madras coasts, over north-east India and over Burma. The excess was generally small and was most pronounced in two small areas, one over the interior of Bengal, the other over the

interior of Burma. In these two areas the excess was more than 2°, as is shown below:—

Province.	Station.	Mean daily temperature. Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
		°	°	°
Bengal	Bogra	86·6	84·1	+2·5
	Mymensingh	83·9	81·5	+2·4
Burma	Yamethin	92·6	89·2	+3·4
	Toungoo	90·8	88·2	+2·6

Over the remainder of India the mean temperature was below the normal. The variations were slight to moderate over the central parts of the country but increased north-westward and were 5° or more over the western desert and the Indus valley. This is shown below:—

Station.	Mean daily temperature. Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	°	°	°
Montgomery	77·7	84·2	−6·5
D. I. Khan	74·8	80·3	−5·5
Peshawar	68·6	73·9	−5·3
Sirsa	79·6	84·8	−5·2
Jacobabad	81·3	86·5	−5·2
Khushab	76·7	81·7	−5·0
Bikaner	83·5	88·5	−5·0

The mean temperature was in moderate to very large defect over the Himalayas, Baluchistan and Afghanistan. The following gives data in illustration:—

Hill Station.	Mean daily temperature. Actual, April, 1903.	Normal, April.	Variation of actual from normal, April 1903.
	°	°	°
Chaman	60·0	69·8	−9·8
Quetta	54·5	60·3	−5·8
Kabul	51·0	58·4	−7·4
Murree	52·9	60·6	−7·7
Cherat	59·3	66·7	−7·4
Leh	37·4	44·0	−6·6
Gilgit	58·9	63·4	−4·5
Srinagar	52·8	56·8	−4·0
Mussooree	59·9	63·3	−3·4
Chakrata	58·6	61·2	−2·6
Simla	56·3	58·8	−2·5
Ranikhet	64·6	66·0	−1·4

In Persia and northern Arabia the deficiency in the mean temperature, though less marked than on the Indian frontier and in Afghanistan, was still considerable, but in Asiatic Turkey it disappeared and was replaced by an excess. This is shown below:—

Station.	Mean daily temperature. Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	°	°	°
Teheran	59·9	60·6	−0·7
Ispahan	55·2	59·3	−4·1
Bushire	71·8	74·2	−2·4
Jask	77·1	80·3	−3·2
Muscat	78·3	83·3	−5·0
Baghdad	73·9	69·2	+4·7

In the south-east trades region the variations of the mean temperature were irregular, Zanzibar showing a slight excess and the Seychelles a slight deficiency, while at Mauritius the mean temperature was exactly normal.

The following gives a summary of the chief features of the temperature variations of the month in the Indian area:—

(1) Temperature was lower than usual, both by day and night, over north-west India both on the hills and plains.

(2) Temperature was lower than usual, both by day and night, over the west coast of the Peninsula.

(3) Temperature was higher than usual, both by day and night, over Burma and part of north-east India.

(4) Over the remainder of India the variations were generally small, but the heat was generally slightly greater than usual by day and less than usual by night.

(5) Temperature was lower than usual, both by day and night, over the Himalayan region and westward over Baluchistan, Afghanistan and Persia.

The following gives mean temperature data for the month for the 57 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	94·0	76·6	85·3	17·4	23·8	+0·5	+1·9	—1·4
	Lower Burma (Deltaic)	97·7	77·5	87·6	20·3	28·9	+1·2	+2·3	—1·1
	Central do.	104·8	77·2	91·0	27·6	35·4	+3·1	+1·3	+1·8
	Upper do.	103·6	75·8	89·8	27·8	39·9	+3·1	+1·1	+2·0
	Arakan	93·2	77·4	85·3	15·8	28·2	+1·4	+1·4	
Bengal and Assam	Eastern Bengal	94·1	73·9	84·0	20·2	36·7	+1·9	+0·7	+1·2
	Assam (Surma)	90·8	70·6	80·7	20·2	33·2	+2·3	+1·4	+0·9
	Do. (Hills)	75·8	60·1	68·0	15·7	28·3	...	...	...
	Do. (Brahmaputra)	86·6	67·1	76·9	19·5	34·8	+1·9	—1·0	+2·9
	Deltaic Bengal	99·1	76·4	87·7	22·6	38·9	+1·9	—0·3	+2·2
	Central do.	101·4	74·1	87·8	27·3	44·3	+2·8	+0·1	+2·7
	North do.	94·8	68·6	81·8	26·2	45·7	+2·8	—0·3	+3·1
	Bengal Hills	61·2	41·9	51·5	19·3	32·1	+3·2	+0·7	+2·5
	Orissa	95·0	77·6	86·4	17·4	30·8	+1·7	—0·2	+1·9
	Chota Nagpur	99·3	74·4	86·9	25·0	45·3	—1·5	+0·1	—1·6
	Bihar (South)	101·3	73·3	87·3	28·0	49·4	+0·4	+1·4	—1·0
	Do. (North)	99·9	69·8	84·9	30·1	50·2	+3·1	—1·0	+4·1
United Provinces of Agra and Oudh.	United Provinces (East)	102·0	70·8	86·4	31·3	53·3	—1·5	—1·4	—0·1?
	Oudh (South)	101·1	70·5	85·8	30·6	53·7	—1·3	—0·4	—0·9
	Do. (North)	100·2	67·3	83·8	32·9	55·5	+0·6	—2·4?	+3·0
	United Provinces (Central)	100·0	69·1	84·6	30·9	53·9	—1·7	—2·1	+0·4
	Do. do. (West)	96·4	68·3	82·4	28·1	50·8	—4·2	—2·6	—1·6
	Do. do. (East Submontane).	101·4	72·1	86·8	29·3	51·1	+1·0	—0·3	+1·3
	Do. do. (West Submontane).	96·0	66·3	81·1	29·8	55·2	—2·8	—1·5	—1·3
	Do. do. (Hills)	69·7	51·6	60·7	18·2	38·2	—2·7	—2·2	—0·5
Punjab	Punjab (South-East)	94·9	72·3?	83·6?	22·6?	47·1	—4·8	—1·2?	—3·6?
	Do. (South)	92·7	65·3	79·0	27·4	53·1	—7·5	—2·9	—4·6
	Do. (Central)	91·2	62·6	76·9	28·6	52·9	—7·0	—1·7	—5·3
	Do. (Sub-montane)	90·2	63·3	76·8	26·9	51·4	—4·5	—1·6	—2·9
	Do. (Hills)	57·0	39·3	48·2	17·8	41·8	—7·0	—4·3	—2·7
N.-W. F. Province	Do. (West)	91·3	64·6	78·0	26·7	52·1	—7·5	—4·0	—3·5
	North-West Frontier Province	84·4	59·1	71·7	25·3	51·1	—6·4	—4·4	—2·0
Bombay and Malabar Coast Districts (Madras).	Malabar	90·7	78·9	84·8	11·8	17·8	+0·6	+0·5	+0·1
	Madras (South Central)	100·3	75·3	87·8	25·0	35·5	+1·3	+0·7	+0·6
	Coorg	86·4	63·7?	75·1?	22·7?	35·9	+2·5	—0·5?	+3·0?
	Mysore	95·8	69·6	82·7	26·2	35·3	+2·2	—0·4	+2·6
	Konkan	87·9	76·9	82·4	11·0	23·4	—1·7	—1·5	—0·2
	Bombay Deccan	101·4	71·3	86·4	30·1	45·7	+1·3	—1·0	+2·3
	Hyderabad (North)	102·5	75·9	89·2	26·6	40·8	...	...	...
	Khandesh	102·3	69·8	86·1	32·5	55·5	+0·8	—1·9	+2·7
Central Provinces and Berar.	Berar	105·7	75·5	90·6	30·2	50·1	+0·4	+0·7	—0·3
	Central Provinces (West)	105.2	74·6	89·9	30·5	51·5	0	—0·7	+0·7
	Do. (Central)	102·2	73·4	87·8	28·8	49·0	—0·8	—0·3	—0·5
	Do. (East)	105·5	76·4	90·9	29·1	45·6	+1·2	+0·1	+1·1
Bombay (North)	Gujarat	102·3	72·4	87·4	30·0	52·4	—2·2	—2·3	+0·1
	Kathiawar and Cutch	94·6	68·5	81·6	26·1	48·3	—1·6	—3·2	+1·6
	Sind	95·2	68·3	81·8	27·0	50·4	—5·0	—4·2	—0·8
	Baluchistan Hills	68·1	43·6	55·9	24·5	46·5	—9·5	—6·1	—3·4
Rajputana and Central India.	Central India (East)	98·6?	69·2?	83·9?	29·4?	53·5?	—3·1?	—1·8?	—1.
	Rajputana (East), Central India (West)	98·5	69·7	84·1	28·8	53·9	—4·5	—3·2	—1·3
	Do. (West)	97·8	69·7	83·7	28·1	53·8	—5·9	—4·1	—1·8
Madras	East Coast (North)	92·0	77·5	84·8	14·5	23·3	+1·4	—0·6	+2·0
	Hyderabad (South)	103·4	76·5	90·0	26·9	39·1	...	...	...
	Madras (Central)	105·8	78·7	92·3	27·1	37·1	+1·7	—0·6	+2·3
	East Coast (Central)	97·8	77·0	87·4	20·8	31·4	+0·2	—0·3	+0·5
	Do. (South)	95·2	77·2	86·2	17·9	28·8	—0·7	+0·6	—1·3
	Madras (South)	96·7	77·3	86·7	19·4	28·6	—0·7	+0·8	—1·5

The hottest area outlined by the isotherm of 92° included central Madras while the coolest area was the North-West Frontier Province with a mean temperature of 71°·7. The mean daily range was 30° or more in north Bihar, Oudh, the east and centre of the United Provinces, the Deccan, Khandesh, Berar, the west of the Central Provinces and Gujarat and thence decreased to 14½° over the east coast north, to 11°·8 in Malabar and

to 11° in the Konkan On the whole the mean daily range was less than usual.

On the 30th of March rain had fallen over Baluchistan and the Punjab plains and heavy snow on the Kashmir Himalayas. This had been followed by a rapid fall of temperature all over the north-west, and on the 1st April a strongly marked cold wave had spread over north-west India and had extended as far as Benares in the east and Mangalore in the south. On the 1st of April the greatest deficiency was shown over Baluchistan, the western desert and at Murree and amounted to 16° or more 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 1st April 1903.
	°
Chaman	−21·0
Quetta	−18·2
Murree	−19·2
Montgomery	−19·6
Bikaner	−16·9
Sirsa	−16·4
Mooltan	−16·3

The cold wave was of very exceptional extent and intensity and continued to cover the greater part of the Indian area from the 1st to the 10th. The following gives comparative data for all divisions for each alternate day from the 2nd to the 10th and shows to what an extent the temperature conditions were affected:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	2nd April.	4th April.	6th April.	8th April.	10th April.
	°	°	°	°	°
Burma	+1·4	+1·6	+2·8	+1·0	+0·3
Assam	+1·8	+1·5	+1·6	−1·4	−1·2
Bengal	+1·5	−1·1	−3·4	−4·7	−3·4
Orissa	+1·4	−3·1	−1·3	−1·1	−5·2
Bihar	−2·3	−3·0	−13·9	−7·6	−1·2
Chota Nagpur	−1·1	−6·9	−9·2	−7·7	−6·7
United Provinces of Agra and Oudh.	−11·0	−8·3	−9·8	−7·3	−0·3
Punjab	−14·3	−8·9	−8·6	−4·6	−5·1
North-West Frontier Province.	−11·6	−7·0	−4·9	−1·7	−1·9
Baluchistan	−14·5	−11·3	−7·2	−5·1	−7·9
Sind	−11·7	−9·0	−4·2	−2·6	−6·0
Rajputana	−15·8	−10·7	−6·4	−7·7	−4·9
Gujarat	−12·1	−7·1	−0·5	−3·5	−5·7
Central India	−13·6	−7·2	−7·8	−7·5	−3·1
Central Provinces	−8·2	−1·9	−3·5	−2·5	−2·3
Berar	−9·9	−1·9	+0·7	−0·1	−4·6
West Coast	−3·9	−3·1	−1·5	−1·0	−2·8
Bombay Deccan	−8·5	−2·3	0	−0·9	−5·0
Mysore	+0·5	−0·2	+0·2	+0·3	+0·9
Madras Coast	+2·2	−1·5	−1·7	−0·3	+0·7
Madras Deccan	−0·3	−2·0	−2·4	+0·7	+1·0
South India	+2·2	+0·1	−1·8	−3·0	−0·8

The preceding data show that with the exception of Burma, the whole country, during this period, experienced lower temperatures than usual, the amount of the deficiency increasing north-westward and being greatest over the Punjab, Sind and Baluchistan. The weather was disturbed and showery in Bihar on the 6th; in Chota Nagpur and the south of the Peninsula on the 7th and 8th and in Bengal, Assam and Kashmir on the 9th and 10th, and the fall of temperature resulting from these showery conditions being superimposed on the already existing deficiency, produced very large local variations in temperature, as is shown by the figures for Bihar on the 6th and for Bengal on the 8th and 10th.

The day temperature was generally more affected than the night temperature by the cold wave and the local unsettled conditions, and maxima of more than 18° below the normal were recorded at the following places on the following dates between the 1st and the 10th:—

DATE.	STATION.	MAXIMUM TEMPERATURE.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
1ST APRIL	Chaman	52·3	75·9	−23·6
	Montgomery	73·0	95·5	−22·5
	Quetta	48·2	69·7	−21·5
	Murree	44·1	64·6	−20·5
	Bikaner	78·1	96·8	−18·7
2ND ,,	Montgomery	76·0	95·8	−19·8
	Sirsa	77·2	96·8	−19·6
3RD ,,	Leh	32·0	53·7	−21·7
4TH ,,	Leh	30·5	54·1	−23·6
6TH ,,	Benares	73·2	101·4	−28·2
	Gaya	77·4	101·6	−24·2
	Patna	81·0	99·9	−18·9
	Darbhanga	76·6	95·5	−18·9
7TH ,,	Gaya	77·9	101·8	−23·9
9TH ,,	Leh	37·0	55·8	−18·8

On the 10th the temperature was rising and between the 10th and the 13th there were no important variations to record. The mean temperature remained low generally but there was a general tendency to rise during this period and on the 13th the variations from the normal, except in

the north-west, were not large. The following gives comparative data for all districts on the 13th :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 13th April.	Mean minimum temperature, 13th April.	Mean daily temperature, 13th April.
	°	°	°
Burma	+0·9	+0·8	+0·9
Assam	+4·1	−2·4	+0·9
Bengal	−0·5	−3·5	−2·0
Orissa	+0·9	−1·2	−0·2
Bihar	−0·8	−5·3	−3·1
Chota Nagpur	−5·2	−1·3	−3·3
United Provinces of Agra and Oudh	−1·9	−3·4	−2·7
Punjab	−5·2	+0·2	−2·5
North-West Frontier Province	−0·7	+1·6	−4·1
Sind	−6·6	−1·3	−4·0
Rajputana	−2·3	+0·1	−1·1
Gujarat	−1·4	−4·9	−3·2
Central India	−3·0	−3·7	−3·4
Central Provinces	−2·4	−3·5	−3·0
Berar	−1·5	−3·8	−2·7
West Coast	−1·1	−1·3	−1·2
Bombay Deccan	−1·2	−0·8	−1·0
Mysore	+0·2	+0·3	+0·3
Madras Coast	+0·4	−0·9	−0·3
Madras Deccan	−3·2	−2·0	−2·6
South India	−1·2	−0·4	−0·8

Rain and snow fell over Afghanistan, Baluchistan, and the north-west Himalayas between the 12th and the 14th and a cold wave followed. This cold wave appeared at Kabul on the 12th, and in Baluchistan and the extreme north-west of India on the 14th, when the mean temperature fell suddenly between 5° and 10°. This cold wave never extended far into India and had practically disappeared by the 19th. The following variation data for Baluchistan and north-west India illustrate the extent and intensity of this cold 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.	18th April.	19th April.
	°	°	°	°	°	°
Punjab	−1·0	−1·9	−3·1	−3·7	+2·0	+0·5
North-West Frontier Province.	−11·0	−8·1	−4·8	−1·5	+3·5	−2·7
Baluchistan	−10·5	−7·3	−4·6	−2·3	−1·9	−4·7
Sind	−1·1	−1·1	−1·3	+2·7	+1·1	+1·9

In other parts of the country between the 14th and the 19th the mean temperature was normal or above the normal and the weather fine and settled. 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					
	14th April.	15th April.	16th April.	17th April.	18th April.	19th April.
	°	°	°	°	°	°
Burma	+1·1	+0·9	+1·5	+2·2	+2·2	+0·8
Assam	+1·3	+2·8	+4·9	+4·3	+2·5	+2·5
Bengal	+1·1	+2·8	+3·5	+4·5	+4·0	+3·4
Orissa	+1·1	+2·0	+2·7	+3·8	+2·9	+0·9
Bihar	+0·1	+1·6	+2·6	+2·5	+1·4	+2·9
Chota Nagpur	−2·5	+0·8	+2·3	+2·6	+2·6	+1·4
United Provinces	+0·7	+2·3	+2·4	−0·5	−0·8	+1·6
Rajputana	+0·4	+0·7	+1·9	−1·6	+1·0	+3·1
Gujarat	+0·9	+3·2	+3·6	+4·0	+2·2	+3·1
Central India	−0·9	+2·1	+3·5	+1·8	+0·8	+2·6
Central Provinces	−0·5	+0·7	+2·3	+2·7	+3·3	+4·2
Berar	−0·5	−0·2	+1·8	+5·5	+5·9	+7·6
West Coast	+0·1	+0·1	+0·4	+0·5	+0·4	+0·3
Bombay Deccan	+1·7	+3·7	+3·4	+3·5	+3·8	+4·4
Mysore	+0·8	+1·5	+0·8	+0·5	+1·8	+2·2
Madras Coast	−0·8	−0·7	−1·7	−1·4	−1·5	−0·8
Madras Deccan	−0·7	+0·3	−0·3	−0·4	+0·4	+0·3
South India	−0·9	−2·0	−0·9	+1·5	+2·1	−1·7

The day temperature was very high in Assam and Bengal during this period and at the following places on the following dates maximum or day temperatures more than 10° above the normal were recorded :—

DATE.	STATION.	MAXIMUM TEMPERATURE.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
16TH APRIL	Narayanganj	104·1	93·4	+10·7
17TH ,,	Dhubri	100·2	88·8	+11·4
	Narayanganj	104·6	93·3	+11·3
	Mymensingh	101·2	90·6	+10·6
18TH ,,	Dhubri	100·7	88·6	+12·1
	Bogra	107·8	96·6	+11·2
	Dinajpur	105·8	94·6	+11·2
19TH ,,	Dinajpur	104·8	94·5	+10·3

On the 18th and 19th showers fell in Afghanistan, Baluchistan, the North-West-Frontier Province and the north-west Punjab, while thunderstorms occurred in the Assam valley. These showers reduced temperature, as is shown by the following temperature data for the 20th and 21st for certain selected stations :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	20th April.	21st April.
	°	°
Cherat	−4·7	−8·4
Peshawar	−1·2	−7·6
Khushab	−2·9	−6·0
Dera Ismail Khan	−2·2	−4·1
Murree	−5·5	−10·8
Sibsagar	−1·1	−7·8

On the 22nd or 23rd the general weather conditions became very unsettled in the north-west. In Afghanistan rain was received daily from the 23rd to the 30th; in Baluchistan rain fell on the 22nd, 24th, 25th and 28th; rain and snow fell in Kashmir from the 23rd to the end of the month and occasional showers were received over the north-west Himalayas and the plains of north-west India during the last week of the month. As a consequence a rapid fall of temperature took place over Afghanistan, Baluchistan and north-west India on the 23rd and from that date till the close of the month the mean temperature was below the normal all over the north-west. The following gives data for this area for each alternate day from the 22nd to the 30th :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	22nd April.	24th April.	26th April.	28th April.	30th April.	
	°	°	°	°	°	°
Afghanistan	−0·5	−9·0	−7·0	−8·1	−10·7	
Baluchistan	−7·5	−10·6	−5·6	−7·7	−11·9	
Punjab	+0·6	+0·5	−0·9	−2·5	−5·2	
North-West Frontier Province.	+0·7	−2·6	−3·7	−2·3	−10·1	
Sind	+0·3	−4·6	−2·5	−4·7	−4·0	
Rajputana	+1·0	−0·1	−1·4	−0·5	−1·4	

As was the case with the previous cold waves the reduction of temperature was mainly displayed in the maximum or day temperatures which were 15° or more below the normal at the following stations on the following dates :—

DATE.	STATION.	MAXIMUM TEMPERATURE.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
23RD APRIL	Chaman	69·3	84·3	−15·0
24TH ,,	Quetta	61·2	77·0	−15·8
25TH ,,	Chaman	67·8	85·4	−17·6
	Cherat	61·3	78·8	−17·5
27TH ,,	Chaman	69·3	86·8	−17·5
	Cherat	61·3	80·0	−18·7
	Peshawar	75·6	91·9	−16·3
29TH ,,	Chaman	70·3	88·6	−18·3
	Peshawar	70·7	93·1	−22·4
	Cherat	60·3	82·2	−21·9
	Rawalpindi	73·4	93·7	−20·3
	Khushab	83·2	101·0	−17·8
	Sialkot	84·6	100·0	−15·4
30TH ,,	Chaman	71·3	90·1	−18·8
	Cherat	65·3	83·2	−17·9

Over the remainder of India with the local exception of the Madras coast the mean temperature was in excess of the normal during this period. 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				
	22nd April.	24th April.	26th April.	28th April.	30th April.
	°	°	°	°	°
Burma	−0·1	+2·0	+2·6	+3·0	+3·9
Assam	−2·0	0	0	+2·8	+5·4
Bengal	+1·8	+4·9	+5·5	+5·7	+6·2
Orissa	+0·9	+1·8	+1·9	+2·8	+1·3
Bihar	+3·0	+3·6	+4·7	+5·9	+6·7
Chota Nagpur	+3·0	+4·0	+6·0	+4·2	+2·9
United Provinces	−0·2	+2·3	+2·5	+3·1	+0·5
Gujarat	−1·7	+1·0	−0·6	+1·7	+1·3
Central India	+0·4	+0·3	+1·7	+1·2	+0·5
Central Provinces	+0·6	+0·3	+2·5	+2·6	+3·1
Berar	+0·1	−1·5	+4·3	+6·6	+1·1
West Coast	−0·7	+0·8	+1·4	+1·3	+1·0
Bombay Deccan	−1·2	+2·2	+3·5	+2·1	+3·2

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	22nd April.	24th April.	26th April.	28th April.	30th April.
	°	°	°	°	°
Mysore	+2·2	+4·7	+1·5	+2·2	+2·2
Madras Coast	+1·2	+1·1	—0·1	—1·5	—1·6
Madras Deccan	+2·6	+3·8	+2·3	+1·1	+1·4
South India	+2·1	+1·8	+1·9	+1·0	+1·0

The preceding data show that throughout the above period the excess was large and most pronounced over Bengal and particularly over central Bengal where the maximum temperature rose to between 108° and 112° and was considerably higher than usual. The following shows the dates and the stations at which the day or maximum temperature rose to over 12° above the normal between the 22nd and the 30th April :—

DATE.	STATION.	MAXIMUM TEMPERATURE.		
		Actual of date.	Normal of date.	Variation of Actual from normal of date.
		°	°	°
26TH APRIL	Bogra	108·3	94·8	+13·5
27TH "	Bogra	109·3	94·6	+14·7
	Mymensingh	103·2	89·5	+13·7
	Dinajpur	106·2	93·4	+12·8
28TH "	Bogra	107·8	94·6	+13·2
	Dinajpur	106·2	93·2	+13·0
29TH "	Bogra	108·3	94·5	+13·8
	Mymensingh	103·2	89·4	+13·8
	Berhampore	112·3	98·9	+13·4
	Jessore	108·6	96·4	+12·2
	Burdwan	112·5	100·4	+12·1
30TH "	Dhubri	101·8	86·2	+15·6
	Bogra	109·3	94·5	+14·8
	Mymensingh	103·7	89·4	+14·3
	Dinajpur	106·7	93·0	+13·7
	Berhampore	111·3	98·8	+12·5
	Calcutta	107·4	95·2	+12·2

The excess of temperature which the above figures disclose, was largely due to the comparative infrequency of the thunderstorms and nor'westers which ordinarily prevail over this division of India during April. At Sibsagar in the upper Assam valley the storms were somewhat more frequent and the rainfall somewhat heavier than the normal and the temperature conditions in the Brahmaputra valley were hence in marked contrast to those prevailing over central Bengal. The following were the daily temperature variations for the Brahmaputra valley from the 22nd to the 30th :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF								
	22nd April.	23rd April.	24th April.	25th April.	26th April.	27th April.	28th April.	29th April.	30th April.
	°	°	°	°	°	°	°	°	°
Brahmaputra Valley.	—2·0	—0·3	0	—1·1	—0·8	+1·1	+1·1	—0·2	+4·8

The following gives mean temperature data for the extra-Indian stations for the month of April :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual. April 1903.	Normal, April.	Variation of actual from normal, April 1903.
	°	°	
Trincomalee	85·5	84·3	+1·2
Colombo	83·6	82·4	+1·2
Kashgar	55·5	60·3	—4·8
Kabul	51·0	58·4	—7·4
Teheran	59·9	60·6	—0·7
Ispahan	55·2	59·3	—4·1
Bushire	71·8	74·2	—2·4
Jask	77·1	80·3	—3·2
Muscat	78·3	83·3	—5·0
Baghdad	73·9	69·2	+4·7
Aden	82·1	83·3	—1·2
Perim	82·9	83·9	—1·0
Zanzibar	81·7	81·2	+0·5
Seychelles	79·5	80·7	—1·2
Mauritius	75·5	75·5	0

Winds.

The winds blew from the normal north-westerly direction at Diamond Island where the velocity was high, but were somewhat more southerly and lighter than usual both at Rangoon and Akyab. The following gives data for these stations :—

Station.	Mean wind Direction.		Mean wind velocity in miles per diem.		
	Actual, April 1903.	Normal, April.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
	°	°			
Diamond Island . .	N 57 W	N 60 W	277	187	+90
Rangoon . . .	S 14 E	S 25 W	47	136	−89
Akyab . .	S 51 W	S 65 W	68	96	−28

This increased southing and low velocity were reproduced at False Point, as is shown below :—

Station.	Mean wind Direction.			Mean wind velocity in miles per diem.		
	Actual, April 1903.	Normal, April.	Southerly deflection.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
	°	°				
False Point .	S 18 W	S 31 W	+13	279	341	−62

In Bengal, on the contrary, the wind was unusually westerly and of about the normal strength. The following gives data :—

Station.	Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual, April 1903.	Normal, April.	Westerly deflection.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
	°	°				
Chittagong .	S 45 W	S 9 W	+36	165	126	+39
Calcutta .	S 37 W	S 7 W	+30	135	169	−34
Saugor Island .	S 24 W	S 14 W	+10	416	419	−3

In the Gangetic plain the wind was fairly normal in direction except at Darbhanga where the wind was west-south-westerly instead of south-easterly. The steadiness was very great at Allahabad where also the velocity was above the normal. The following gives data :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
				°	°			
Hazaribagh .	53	46	+7	N 46 W	N 74 W	232	216	+16
Darbhanga .	33	15	+18	S 83 W	S 46 E	79	142	−63
Allahabad .	68	35	+33	N 58 W	N 54 W	170	117	+53

Very steady winds, generally from between north-west and west-north-west, prevailed during the month in the upper sub-Himalayas with a velocity and steadiness on the whole in excess of the normal. This is shown below :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
				°	°			
Dehra Dun . .	48	28	+20	S 75 W	N 82 W	39	54	−15
Roorkee . .	47	20	+27	N 61 W	N 72 W	92	78	+14
Meerut . . .	60	45	+15	N 84 W	N 60 W	52	60	− 8
Lahore . .	42	27	+15	N 43 W	N 23 W	82	77	+ 5
Ludhiana . .	55	28	+27	N 63 W	N 54 W	73	54	+19

In the Indus valley the variations of the wind from the normal were irregular. At Peshawar the mean wind direction was more westerly and at Jacobabad more southerly than usual, while at Kurrachee the direction was about normal. At Jacobabad the percentage of steadiness was very low. The following gives data for these stations :—

Station.	Mean steadiness.			Mean wind direction	
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.
				°	°
Peshawar . . .	30	25	+ 5	N 21 W	N 8 E
Jacobabad . . .	9	13	− 4	S 16 E	S 65 E
Kurrachee . . .	72	81	− 9	S 60 W	S 69 W

Over Rajputana the wind was west-north-westerly and generally less steady and lighter than the average. The following gives data for Jaipur and Deesa:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal April 1903.	Actual, April 1903.	Normal, April.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
				°	°			
Jaipur . .	48	52	— 4	N 84 W	N 52 W	93	124	—31
Deesa . .	38	57	—19	N 75 W	S 88 W	216	228	—12

The following gives mean comparative data of air movement for the different divisions of northern India and for Burma and the Bay Islands:—

PROVINCE OR DIVISION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal April.	Variation of actual from normal, April 1903.
Bay Islands . .	52	40	+12	115	116	— 1
Burma . . .	56	56	0	131	140	— 9
Bengal . . .	53	64	—11	242	251	— 9
Bihar . . .	33	15	+18	79	142	—63
Chota Nagpur .	53	46	+7	232	216	+16
Orissa . . .	85	79	+6	279	341	—62
United Provinces of Agra and Oudh.	56	32	+24	88	77	+11
North-West Frontier Province.	30	25	+ 5	59	104	—45
Punjab .	49	28	+21	78	66	+12
Rajputana . .	43	55	—12	155	176	—21
Sind . . .	41	47	— 6	155	215	—60

The winds were on the whole more southerly than usual at the Deccan stations and were generally more unsteady than usual, while the velocity varied irregularly from the normal. This is shown below:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
				°	°			
Belgaum . .	25	35	—10	S 59 W	S 77 W	212	320	—108
Sholapur . .	3	13	—10	S 41 E	N 5 E	264	213	+51
Akola . . .	38	58	—20	N 42 W	N 48 W	150	139	+11
Buldana . .	49	58	— 9	N 48 W	N 33 W	182	212	—30
Khandwa . .	47	62	—15	N 25 W	N 49 W	161	148	+13
Nagpur . .	33	21	+12	S 61 W	N 65 W	...	...	...
Hyderabad . .	15	2	+13	S 38 E	N 58 W	103	113	—10

Along the west coast the wind was steady from west-north-west.

At Madras the wind was unusually southerly and in Mysore easterly, but elsewhere in south India the directions varied irregularly from the normal. The following gives data of direction and velocity:—

STATION.	MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, April 1903.	Normal, April.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
	°	°			
Salem . . .	S 73 E	S	99	110	—11
Chitaldroog . .	E	N 32 W	111	178	—67
Bangalore . .	S 64 E	S 33 W	176	101	+75
Hassan . . .	N 74 E	N 21 E	71	95	—24
Mysore . . .	S 67 E	S 79 E	193	189	+4
Madras . . .	S 29 E	S 37 E	158	185	—27
Bellary . . .	S 13 E	S 63 W	135	127	+ 8

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

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
Central Provinces	40	42	— 2	161	148	+13
Berar	44	58	—14	166	176	—10
Bombay Deccan	14	24	—10	238	266	—28
Madras Deccan	21	5	+16	119	120	— 1
West Coast	72	66	+ 6	171	181	—10
Mysore	34	18	+16	138	141	— 3
Madras Coast	80	83	— 3	158	185	—27
South India	30	30	0	99	110	—11

At Quetta the wind velocity was very low, but the direction and steadiness were about normal. This is shown below:—

Hill Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
				°	°			
Quetta	27	34	—7	N 63 W	N 81 W	47	92	—45

At Leh there was an abnormal east-north-east wind of low velocity and steadiness, while at Srinagar there was an unusually strong and steady north-west wind. The following gives data:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
				°	°			
Leh	12	25	—13	N 82 E	S 62 W	49	70	—21
Srinagar	52	12	+40	N 46 W	N 5 W	132	96	+36

In the western Himalayas the variations from the average were irregular, while, on the contrary, in the eastern Himalayas fairly normal conditions prevailed. The following gives data for the two eastern stations:—

Hill Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
				°	°			
Katmandu	47	44	+3	N 85 W	N 86 W	69	36	+33
Darjeeling	38	44	—6	S 68 W	S 71 W	232	206	+26

At the central hill stations the wind was unusually northerly but the steadiness was low. The following gives data:—

Hill Station.	Mean steadiness.			Mean wind direction.		
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal April.	Northerly Deflection.
				°	°	
Mount Abu	34	56	—22	N 81 W	S 87 W	...
Pachmarhi	32	43	—11	N 10 W	N 62 W	+52
Chikalda	22	40	—18	N 29 W	N 47 W	+18

In the Gulf of Aden the wind was stronger and steadier than usual, but the mean direction was fairly normal. In the south-east trades region, on the contrary, the winds were irregular. At Zanzibar the mean wind direction was west by south, while the normal for the month is south by east, while at the Seychelles the mean wind direction was north-north-west, the normal being east-south-east. At Mauritius, on the contrary, the mean wind direction and velocity were about normal. The following gives data for these three stations:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, April 1903.	Normal percentage, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
				°	°			
Zanzibar	85	81	+4	S 84 W	S 5 E	173	174	—1
Seychelles	48	10	+38	N 26 W	S 69 E	111	?	?
Mauritius	...	...	...	S 69 E	S 71 E	221	214	+7

The preceding table appears to show that during April the south-east trade winds extended as far north as Mauritius, but that to the northward of that place the winds were unaffected by the Trades circulation.

The following summarises the chief abnormal features of the wind circulation:—

(1) The wind was lighter and more southerly than usual on the Burma and Orissa coasts.

(2) The wind was more westerly and on the whole stronger than usual over northern India.

(3) There was somewhat more southing than usual over the interior of the Peninsula except in Mysore where the direction was more easterly than the average.

(4) The winds were variable over the northern part of the equatorial area.

Humidity and Cloud.

The relative humidity of the month was in defect over the greater part of the country, but over the central and west Punjab, the North-West Frontier Province and upper Sind, over the mid-west coast, over the south of the east coast and over Chota Nagpur it was more or less in excess. The variations from the normal were large at Jacobabad, considerable at Karwar and slight elsewhere. In all other places, as mentioned above, the mean relative humidity of the month was in defect, the variations from the normal having been considerable over the Deccan, Khandesh, Gujarat, the Central India Plateau, the east Punjab, the west of the United Provinces and north-east India.

The mean absolute humidity was greater than usual over the Bay Islands and on the Burma coast, but the mean temperature was in excess of the average and the mean relative humidity was normal or in defect. The following gives data:—

Station.	Absolute humidity.			Relative humidity.		
	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
	"	"	"	%	%	
Port Blair . .	·954	·929	+·025	76	77	—1
Rangoon . .	·819	·784	+·035	66	66	0
Diamond Island .	·859	·851	+·008	74	76	—2

In Bengal the variations of the mean absolute humidity from the normal were irregular, but the mean temperature was everywhere above the average and the mean relative humidity was normal or in defect. This is shown below:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
	"	"	"	%	%	
Chittagong . .	·819	·816	+·003	74	74	0
Calcutta . .	·721	·791	—·070	60	68	—8
Saugor Island .	·931	·935	—·004	78	79	—1

At Hazaribagh the mean absolute humidity and the mean temperature were about normal and the mean relative humidity was in trifling excess. The following gives data for this station:—

Station.	Absolute humidity.			Relative humidity.		
	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
	"	"	"	%	%	
Hazaribagh . .	·304	·303	+·001	29	28	+1

With the above exception all the stations in northern India exhibited a deficiency in the amount of vapour present in the air. At Lahore and Peshawar this deficiency was relatively small and as the mean temperature was very low, the mean relative humidity was in some excess, but at all the remaining stations the deficiency was large so that notwithstanding the low temperature prevailing, the mean relative humidity was more or less in defect. At Jacobabad the variations of the humidity are very doubtful. The following gives mean humidity data for Burma, the Bay Islands and the different divisions of northern India:—

Province or Division.	Absolute humidity.			Relative humidity.		
	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.	Actual, April 1903.	Normal, April.	Variation of actual from normal, April 1903.
	"	"	"	%	%	
Bay Islands . . .	·954	·929	+·025	76	77	—1
Burma . . .	·839	·817	+·022	70	71	—1
Bengal . . .	·824	·848	—·024	71	74	—3
Bihar	·543	·572	—·029	46	52	—6
Chota Nagpur . .	·304	·303	+·001	29	28	+1
United Provinces . .	·286	·354	—·068	30	35	—5
Punjab . . .	·343	·399	—·056	37	40	—3
N.-W. F. Province .	·382	·410	—·028	55	52	+3
Sind	·702	·732	—·030	67	70	—3
Rajputana . . .	·244	·343	—·099	21	28	—7

In the Deccan the mean absolute humidity was in defect of the normal and the mean temperature generally in some excess, so that the mean relative humidity was considerably below the normal. This is shown below:—

STATION.	MEAN STEADINESS.			RELATIVE HUMIDITY.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	"	"	"	%	%	
Belgaum	·440	·520	—·080	45	51	—6
Sholapur	·358	·399	—·041	26	30	—4
Akola	·266	·301	—·035	19	23	—4
Buldana	·214	·301	—·087	17	24	—7
Khandwa	·246	·339	—·093	17	26	—9
Nagpur	·337	·385	—·048	24	28	—4
Hyderabad	·438	·536	—·098	34	44	—10

Along the west coast the variations from the normal were irregular and the mean relative humidity in defect at Bombay and in excess at Karwar. In southern India also the variations of humidity were irregular, Salem and Madras exhibiting some excess, while all the remaining stations showed a deficiency. This deficiency was considerable to large in Mysore, as is shown by the following comparative data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	"	"	"	%	%	
Hassan	·456	·559	—·103	51	61	—10
Bangalore	·450	·536	—·086	44	53	—9
Chitaldroog	·458	·480	—·022	39	45	—6
Mysore	·567	·568	—·001	56	58	—2

At Quetta and Srinagar there was a trifling excess in the mean absolute humidity while the mean temperature was largely below the normal, so that the mean relative humidity was in large excess. The following gives data for these two stations:—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	"	"	"	%	%	
Quetta	·264	·258	+·006	62	50	+12
Srinagar	·335	·328	+·007	81	71	+10

At all the remaining hill stations the mean absolute humidity was in defect and the mean relative humidity more or less below the normal. At Katmandu and Darjeeling this deficiency was large. The following gives data:—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	"	"	"	%	%	
Katmandu	·272	·373	—·101	45	60	—15
Darjeeling	·294	·326	—·032	60	76	—16

In the gulf of Aden the variations of mean humidity were irregular but in the south-east trades region both the absolute and relative humidities were in excess. The following gives mean humidity data for the stations in the trades region:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	"	"	"	%	%	
Zanzibar	·868	·847	+·021	82	81	+1
Seychelles	·867	·821	+·046	83	77	+6
Mauritius	·728	·704	+·024	83	80	+3

The mean humidity of the month was below 30 per cent. at the following stations:—

STATION.	RELATIVE HUMIDITY.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
	%	%	
Hazaribagh	29	28	+1
Roorkee	29	34	−5
Allahabad	28	31	−3
Dehra Dún	28	37	−9
Sholapur	26	30	−4
Nagpur	24	28	−4
Chikalda	23	26	−3
Mount Abu	22	28	−6
Jaipur	22	28	−6
Pachmarhi	21	26	−5
Deesa	20	28	−8
Akola	19	23	−4
Buldana	17	24	−7
Khandwa	17	26	−9

The area of greatest dryness, on the mean of the month, hence included the Gangetic plain, Rajputana, Central India, Gujarat, and the Deccan, and within these areas the following low humidities were recorded during the month:—

STATION.	Date.	Hour.	Lowest humidity recorded during April 1903.
			%
Deesa	1st April	4 P.M.	0
Pachmarhi	2nd „	10 A.M.	0
Buldana	1st „	4 P.M.	3
Deesa	4th „	Do.	3
Do.	3rd „	Do.	4
Do.	4th „	10 A.M.	4
Pachmarhi	9th „	Do.	4
Deesa	11th „	4 P.M.	4
Do.	1st „	10 A.M.	5
Do.	2nd „	10 A.M. and 4 P.M.	5
Buldana	„ „	10 A.M.	5
Khandwa	„ „	4 P.M.	5
Deesa	10th „	Do.	5
Do.	30th „	Do.	5
Akola	1st „	Do.	6
Buldana	„ „	10 A.M.	6
Nagpur	14th „	4 P.M.	7

The mean cloud amount of the month was above the normal over north-west India and the Gangetic plain as represented by the following stations:—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
Dehra Dún	4·9	2·8	+2·1
Meerut	2·3	2·0	+0·3
Roorkee	2·1	2·0	+0·1
Lahore	4·0	2·4	+1·6
Peshawar	5·2	4·4	+0·8
Jaipur	2·4	2·3	+0·1
Hazaribagh	3·3	2·8	+0·5

The mean cloud amount was likewise in excess of the normal over the south of the Peninsula, as is shown by the following comparative data:—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
Mysore	7·1	4·5	+2·6
Salem	4·3	3·7	+0·6

There was also a slight local excess of cloud at Bellary and Akyab. The following gives comparative data for these two stations:—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
Bellary	3·5	3·4	+0·1
Akyab	3·3	3·2	+0·1

Over the whole of the remainder of the country the mean cloud amount of the month was less than usual.

The deficiency was generally slight but was 1·0 or more at the stations for which comparative data are given below:—

Hill Station.	Mean cloud amount.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
Cocos Island	0·9	3·1	—2·2
Port Blair	3·1	4·3	—1·2
False Point	1·5	3·4	—1·9
Rangoon	1·6	3·4	—1·8
Diamond Island	1·7	3·4	—1·7
Saugor Island	3·2	4·7	—1·5
Chitaldroog	2·0	3·5	—1·5
Calcutta	1·3	2·7	—1·4
Chittagong	2·9	4·1	—1·2
Bombay	1·2	2·2	—1·0
Bangalore	2·3	3·3	—1·0

At the hill stations the variations in the mean cloud amount from the normal were irregular. At Quetta, Srinagar, Simla, and Chakrata there was some excess and at all the remaining stations a deficiency. The variations in both directions were more than 1·0 at the stations given below:—

Hill Station.	Mean cloud amount.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
Srinagar	6·3	4·3	+2·0
Simla	5·6	4·1	+1·5
Chakrata	4·6	3·5	+1·1
Darjeeling	4·7	6·1	—1·4
Katmandu	2·2	4·3	—2·1

In the south-east trades region the cloud amount was generally normal or above the normal. This is shown below:—

Station.	Mean cloud amount.		
	Actual, April, 1903.	Normal, April.	Variation of actual from normal, April, 1903.
Zanzibar	7·2	5·7	+1·5
Seychelles	6·3	5·1	+1·2
Mauritius	5·9	5·6	+0·3

The mean cloud amount of the month was less than 1·5 at the stations for which comparative data are given below:—

Station.	Mean cloud amount.
	Actual April, 1903.
Allahabad	1·4
Udaipur	1·4
Akola	1·4
Buldana	1·4
Calcutta	1·3
Bombay	1·2
Deesa	1·0
Jamnagar	0·9
Cocos Island	0·9
Darbhanga	0·6

The preceding data show that the sky was most clear of cloud in Berar, over parts of Bengal, of the Gangetic plain, of Rajputana, of Gujarat, of the west coast, and of the Deccan, and was most serene at Darbhanga.

Rainfall.

The month of April 1903, was drier than usual over by far the greater part of India. In Persia, northern Arabia and Afghanistan the weather during the month was more disturbed and rainy than usual, and this unsettled weather extended through Baluchistan into the west Punjab, but apparently ceased in the Indus valley. Local thunderstorms about the 6th and 7th gave moderately heavy rain to south Bihar and Chota Nagpur and the rainfall in parts of this area was about 50 % in excess of the normal. With the above exceptions the rainfall of the month was everywhere below the normal. Moderate to heavy snow fell on the higher ranges of the north-west Himalayas.

The following table gives comparative rainfall data for 57 meteorological or rainfall divisions of the empire :—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, April, 1903.	Average normal, April.	Average actual, April, 1903.	Average normal, April.	Variation of actual, from normal, April, 1903.
				Inches.	Inches.	Inches.
Burma	Tenasserim	1·2	5·0	1·15	3·99	—2·84
	Lower Burma (Deltaic)	0·1	2·5	0·05	1·83	—1·78
	Central do.	0	1·7	0·02	0·95	—0·93
	Upper do.	0·6	2·2	0·16	1·15	—0·99
	Arakan	0·3	1·7	0·17	1·50	—1·33
Bengal and Assam	Eastern Bengal	1·3	5·0	0·78	4·21	—3·43
	Assam (Surma)	8·3	12·2	8·34	13·07	—4·73
	Do. (Hills)	4·5	9·0	3·82	8·00	—4·18
	Do. (Brahmaputra)	8·8	11·5	5·05	8·09	—3·04
	Deltaic Bengal	2·3	3·5	1·15	2·30	—1·15
	Central do.	2·0	2·5	0·79	1·44	—0·65
	North do.	0·5	5·1	0·35	3·97	—3·62
	Bengal Hills	3·4	8·4	1·78	4·35	—2·57
	Orissa	1·4	2·2	0·83	1·28	—0·45
	Chota Nagpur	3·1	1·7	1·29	0·86	+0·43
	Bihar (South)	0·7	0·7	0·23	0·28	-0·05
	Do. (North)	0·2	1·3	0·07	0·81	—0·74
United Provinces of Agra and Oudh.	United Provinces (East)	0·3	0·3	0·09	0·13	—0·04
	Oudh (South)	0	0·3	0	0·10	—0·10
	Do. (North)	0	0·4	0	0·17	—0·17
	United Provinces (Central)	0	0·3	0	0·09	—0·09
	Do. do. (West)	0	0·5	0	0·16	—0·16
	Do. do. (East Sub-montane)	0	0·5	0	0·25	—0·25
	Do. do. (West do.)	0·1	0·8	0·02	0·32	—0·30
	Do. do. (Hills)	0·8	2·6	0·40	1·15	—0·75
Punjab	Punjab (South-East)	0	0·6	0·01	0.18	—0·17
	Do. (South)	0·3	0·5	0·05	0·22	—0·17
	Do. (Central)	0·5	1·3	0·12	0·52	—0·40
	Do. (Sub-montane)	0·5	1·6	0·12	0·72	—0·60
	Do. (Hills)	2·3	3·3	0·73	1·93	—1·20
	Do. (West)	1·2	0·9	0·40	0·38	+0·02
North-West Frontier Province.	North-West Frontier Province.	3·7	3·0	1·17	1·47	—0·30
Bombay and Malabar Coast Districts (Madras).	Malabar	1·3	4·8	0·78	3·35	—2·57
	Travancore	7·9	...	5·47	...	...
	Madras (South-Central)	0·5	2·8	0·26	1·71	—1·45
	Coorg	2·2	...	0·90	...	...
	Mysore	1·0	2·4	0·45	1·20	—0·75
	Konkan	0·1	0·8	0·05	0·45	—0·40
	Bombay Deccan	0·7	2·3	0·28	1·13	—0·85
	Khandesh	0	0·3	0	0·13	—0·13
Central Provinces and Berar.	Berar	0·2	0·6	0·06	0·24	—0·18
	Central Provinces (West)	0·2	0·6	0·05	0·24	—0·19
	Do. (Central)	0·2	0·8	0·07	0·30	—0·23
	Do. (East)	0·8	1·2	0·25	0·50	—0·25
Bombay (North)	Gujarat	0	0·1	0	0·02	—0·02
	Kathiawar and Cutch	0	0·1	0	0·03	—0·03
	Sind	0·4	0·3	0·07	0·13	—0·06
	Baluchistan Hills	5·0	1·3	1·60	0·50	+1·10
Rajputana and Central India.	Central India (East)	0	0·2	0·01	0·07	—0·06
	Rajputana (East), Central India (West)	0	0·3	0	0·11	—0·11
	Do. (West)	0	0·2	0	0·06	—0·06
Madras	East Coast (North)	0·7	1·5	0·38	0·85	—0·47
	Madras (Central)	0·5	1·3	0·30	0·61	—0·31
	East Coast (Central)	0	0·9	0·02	0·46	—0·44
	Do. (South)	0·5	1·4	0·29	0·91	—0·62
	Madras (South)	3·2	3·4	1·52	2·22	—0·70

The preceding data show that the total rainfall of the month was actually or practically *Nil* (*i.e.*, less than one-tenth of an inch) over deltaic and central Burma, north Bihar, all the divisions of the United Provinces except the hills, the south-east and south Punjab, the Konkan, Khandesh, Berar, the west and central divisions of the Central Provinces, Gujarat, Kathiawar, Sind, all the divisions of Central India and of Rajputana, and the central division of the east coast. From these areas, the amount of rainfall increased, but the average actual rainfall was less than one inch in total amount over all parts of the country with the exception of the areas for which comparative data are given below:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, April, 1903.	Average normal, April.	Variation of actual from normal, April, 1903.	Percentage variation from normal.	Average actual, April, 1903.	Average normal, April.
	Inches.	Inches.	Inches.			
Tenasserim . .	1·15	3·99	—2·84	—71	1·2	5·0
Assam Surma .	8·34	13·07	—4·73	—36	8·3	12·2
Assam Hills . .	3·82	8·00	—4·18	—52	4·5	9·0
Assam Brahmaputra	5·05	8·09	—3·04	—38	8·8	11·5
Deltaic Bengal .	1·15	2·30	—1·15	—50	2·3	3·5
Bengal Hills . .	1·78	4·35	—2·57	—59	3·4	8·4
Chota Nagpur .	1·29	0·86	+0·43	+50	3·1	1·7
North-West Frontier Province	1·17	1·47	—0·30	—20	3·7	3·0
Travancore . .	5·47	...	...	...	7·9	...
Baluchistan Hills .	1·60	0·50	+1·10	+220	5·0	1·3
Madras, South .	1·52	2·22	—0·70	—32	3·2	3·4

The heaviest rainfall was reported from the Surma valley of Assam but even there it was only about two thirds of the normal amount, and in the following large number of divisions, the rainfall of the month was more than 90% below the normal:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, April, 1903.	Average normal, April.	Variation of actual from normal, April, 1903.	Percentage variation from normal.	Average actual, April, 1903.	Average normal, April.
	Inch.	Inches.	Inches.			
Lower Burma, Deltaic .	0·05	1·83	—1·78	—97	0·1	2·5
Central Burma . .	0·02	0·95	—0·93	—98	0	1·7
North Bengal . .	0·35	3·97	—3·62	—91	0·5	5·1
North Bihar . .	0·07	0·81	—0·74	—91	0·2	1·3
South Oudh . .	0	0·10	—0·10	—100	0	0·3
North „ . .	0	0·17	—0·17	—100	0	0·4
United Provinces, Central.	0	0·09	—0·09	—100	0	0·3
„ „ West	0	0·16	—0·16	—100	0	0·5
„ „ East Submontane.	0	0·25	—0·25	—100	0	0·5
„ „ West Submontane.	0·02	0·32	—0·30	—94	0·1	0·8
South-East Punjab .	0·01	0·18	—0·17	—94	0	0·6
Khandesh . . .	0	0·13	—0·13	—100	0	0·3
Gujarat . . .	0	0·02	—0·02	—100	0	0·1
Kathiawar and Cutch .	0	0·03	—0·03	—100	0	0·1
Rajputana East, Central India, West.	0	0·11	—0·11	—100	0	0·3
West Rajputana . .	0	0·06	—0·06	—100	0	0·2
East Coast Central .	0·02	0·46	—0·44	— 96	0	0·9

Thunder showers occurred in Tenasserim between the 7th and the 21st and the rainfall amounted to over 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.
Mergui . . .	Mergui . . .	7th April .	1·12
Tavoy . . .	Launglon . .	14th „ .	1·06
	Tavoy . . .	15th „	2·75
	Launglon . .	18th „ .	1·44

In other parts of Burma only light scattered showers were received principally between the 19th and the 22nd and the total rainfall of the month was insignificant. Occasionally storms have appeared over the Bay during this month and the resulting rainfall has been heavy over Burma but during the month under review the weather was uniformly quiet over the Bay and the rainfall over Burma has been correspondingly scanty.

In the Surma valley of Assam thunderstorms gave moderate to heavy rain between the 1st and the 3rd, and between the 20th and the 26th, and at the following places

on the following dates the rainfall amounting to over 2″ in 24 hours was recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Cachar	Jatinga valley	1st	3·24
	Dewan	,,	2·95
Sylhet	Lalakhal	,,	2·75
	Sylhet	,,	2·24
Cachar	Barkhola	2nd	3·50
	Bikrampur	,,	3·43
Sylhet	Karimganj	,,	3·30
Cachar	Badarpur	,,	3·04
	Hailakandi	,,	2·69
Sylhet	Lalakhal	,,	2·62
Cachar	Monierkhal	,,	2·07
	Badarpur	20th	3·02
	Bikrampur	,,	2·72
Sylhet	Sephinjuri Bil	,,	2·50
	Dullabcherra	,,	2·45
Sylhet	Habiganj	21st	2·95
	Sephinjuri Bil	,,	2·80
	Dullabcherra	,,	2·10
	Sephinjuri Bil	22nd	2·11
	Lalakhal	23rd	3·35
Cachar	Bikrampur	,,	3·06
Sylhet	Lalakhal	26th	2·48

In the Assam hills the rainfall of the month was less than half the usual amount and at Cherrapoonjee the total fall of the month was 25·75″ instead of the normal 32·42″. The heaviest fall in 24 hours at this station was 5·38″ on the 23rd.

In the Brahmaputra valley rain fell on the 1st and 2nd, the 9th to 11th and between the 18th and the end of the month, the heaviest falls exceeding 2 inches in 24 hours having been recorded at the following places on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Sibsagar	Amguri	20th April	2·40
Lakhimpur	Dhakuakhana	24th ,,	2·40
Sibsagar	Diflu	,, ,,	2·30
Darrang	Atatrikhat	25th April	4·50
	Kabira	,, ,,	3·73
	Kopati	26th ,,	2·75
Lakhimpur	Moran	,, ,,	2·10
Sibsagar	Amguri	27th ,,	3·75
	Nazira	,, ,,	2·64
	Seleng	,, ,,	2·50
	Sibsagar	,, ,,	2·26
Lakhimpur	Margherita	,, ,,	2·11
Sibsagar	Amguri	28th ,,	3·60
	Seleng	,, ,,	3·56
Darrang	Majbat	,, ,,	2·24
Lakhimpur	Dhakuakhana	29th ,,	2·20
	Wilton	30th ,,	2·87
	North Lakhimpur	,, ,,	2·81
	Balijan	,, ,,	2·55
	Dibrugarh	,, ,,	2·35

The following gives comparative data for the eight plains districts of this province :—

District.	Rainfall.			
	Average actual, April, 1903.	Average normal, April.	Variation of actual from normal, April, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	7·08	13·07	—5·99	—46
Sylhet	7·49	13·08	—5·59	—43
Goalpara	0·63	7·76	—7·13	—92
Kamrup	3·33	7·79	—4·46	—57
Darrang	5·41	6·95	—1·54	—22
Nowgong	3·71	5·53	—1·82	—33
Sibsagar	9·38	8·83	+0·55	+ 6
Lakhimpur	9·79	10·40	—0·61	— 6

In Bengal the general rainfall was light. Between the 4th and the 9th fairly general showers occurred over Chota Nagpur and the adjacent parts of south-west Bengal

and of south Bihar. The following falls exceeding 1·50″ in 24 hours were recorded during this showery period:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Singhbhum	Monaharpur	4th April	2·13
	Chaibassa	,, ,,	1·90
Sonthal Parganas	Deoghur	8th ,,	1·64
Balasore	Jellasore	9th ,,	5·95
Orissa Tributary Mahals.	Baripada	,, ,,	3·83
Midnapore	Dantan	,, ,,	2·56
Singhbhum	Katbari	,, ,,	2·19
Midnapore	Contai	,, ,,	2·00
24-Parganas	Budge-Budge	,, ,,	1·64
Ranchi	Ranchi	,, ,,	1·57
24-Parganas	Canning Town	,, ,,	1·51

Between the 7th and 11th showers were moderately general over the western half of the province and a few light showers extended to the eastern districts but from the 11th to the end of the month there was practically no rain except on the 21st when fairly numerous showers were recorded in the east of the province. During this period the rainfall was exceptionally light for the time of year over east and north Bengal. The following gives comparative data for the different divisions of Bengal and shows that except in Chota Nagpur, where the total rainfall was in excess and in south Bihar where it was normal, the fall was much below the average:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, April, 1903.	Average normal, April.	Variation of actual from normal, April, 1903.	Percentage variation from normal.	Average actual, April, 1903.	Average normal, April.
	Inches.	Inches.	Inches.			
Eastern Bengal	0·78	4·21	—3·43	— 81	1·3	5·0
Deltaic Bengal	1·15	2·30	—1·15	— 50	2·3	3·5
Central Bengal	0·79	1·44	—0·65	— 45	2·0	2·5
North Bengal	0·35	3·97	—3·62	— 91	0·5	5·1
Bengal Hills	1·78	4·35	—2·57	— 59	3·4	8·4
Orissa	0·83	1·28	—0·45	— 35	1·4	2·2
Chota Nagpur	1·29	0·86	+0·43	+ 50	3·1	1·7
South Bihar	0·23	0·28	—0·05	— 18	0·7	0·7
North Bihar	0·07	0·81	—0·74	— 91	0·2	1·3

In the east of the United Provinces there were a few showers on the 5th and 6th, but with this exception the only rainfall reported over this area was recorded in the hill and sub-montane divisions and even in these divisions it was very much lighter than usual.

Rain fell over the Punjab between the 19th and the 21st and beween the 24th and the end of the month. The fall was practically confined to the hill and west divisions, the total rainfall of the month having been insignificant in the south-east and south divisions and amounting to only 0·12″ in the central and sub-montane divisions. In the west division the rainfall of the month was a trifle above the normal, but in the hills division it was less than half the usual amount. The following gives comparative data:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, April, 1903.	Average normal, April.	Variation of actual from normal, April, 1903.	Percentage variation from normal.	Average actual, April, 1903.	Average normal, April.
	Inch.	Inches.	Inches.			
South-East Punjab	0·01	0·18	—0·17	—94	0	0·6
South Punjab	0·05	0·22	—0·17	—77	0·3	0·5
Central ,,	0·12	0·52	—0·40	—77	0·5	1·3
Punjab Sub-montane	0·12	0·72	—0·60	—83	0·5	1·6
,, Hills	0·73	1·93	—1·20	—62	2·3	3·3
West Punjab	0·40	0·38	+0·02	+ 5	1·2	0·9

There were three showery periods over the North-West Frontier Province, the first on the 14th and 15th, the second on the 19th and 20th and the third between the 24th and the end of the month. The amounts received were generally light or moderate, but the total rainfall of the month was about normal, as is shown by the following comparative data:—

Province.	Rainfall.				Number of rainy days.	
	Average actual, April, 1903.	Average normal, April.	Variation of actual from normal, April, 1903.	Percentage variation from normal.	Average actual, April, 1903.	Average normal, April.
	Inches.	Inches.	Inch.			
N.-W. F. Province	1·17	1·47	—0·30	—20	3·7	3·0

In Baluchistan there were three showery periods, *viz.*, between the 11th and the 14th, on the 17th and 18th, and between the 21st and the 28th. The showers were moderate during the last rainy period and the total rainfall of the

month was in large excess of the normal, as is shown by the following comparative data for the province :—

PROVINCE.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, April, 1903.	Average normal, April.	Variation of actual from normal, April, 1903.	Percentage variation from normal.	Average actual, April, 1903.	Average normal, April.
	Inches.	Inch.	Inches.			
Baluchistan Hills .	1·60	0·50	+1·10	+220	5·0	1·3

In Kashmir the first week was fine, but on the 9th scattered showers commenced and continued till the close of the month. The falls were irregular and the total fall was probably about normal.

Rajputana and Central India received no rain during the month.

Beyond some insignificant showers there was no rain in Berar throughout the month. Showers occurred in parts of the Central Provinces between the 4th and the 12th and at the following places on the following dates the showers amounted to 1·00″ or more in 24 hours :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
FEUDATORY STATES .	Bhawanipatam . .	9th April .	1·03
	Sonepur . . .	,, ,, .	1·00
	Jagdalpur . . .	11th ,, .	1·38

In the west and central divisions of the Central Provinces the total rainfall of the month was less than 0·10″ but in the east division averaged one quarter of an inch.

In Mysore there were two rainy periods, the first between the 6th and the 12th, the second between the 23rd and 26th. At the following places the showers amounted to over 1·00″ in 24 hours :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
MYSORE . . .	Yedatore . . .	8th April .	1·32
HASSAN . . .	Hole Narsipur . .	10th ,, .	1·40
MYSORE . . .	Heggaddevankote .	11th ,, .	1·08
HASSAN . . .	Belur . . .	26th ,, .	1·22

The total fall of the month amounted to about one third of the average amount.

In the Bombay presidency the rainfall was everywhere short of the normal and in the northern divisions there was practically no rain throughout the month. In the Konkan there were a few showers between the 25th and 28th. In the Karnatic a few scattered showers occurred on the 7th and 8th and again between the 25th and the end of the month. The showers were most general on the 28th and amounted to 1·15″ at Gargoti and to 1·60″ at Miraj in Kolhapur. In the south Deccan there were also showers at the end of the month but they were light and insignificant except at Talegaon where a local fall of 2·70″ was reported on the 30th. In the north Deccan and Gujarat there was no rain throughout but in Sind a few light scattered showers were received.

In Travancore there were frequent showers during the month, more particularly between the 4th and the 12th and between the 18th and the 30th. During the latter period the showers were frequently heavy and amounted to over 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.
TRAVANCORE STATE .	Kunnattur . .	18th April .	2·22
	Karunagapally .	19th ,, .	4·08
	Alleppey . .	20th ,, .	3·04
	Changanacherry .	,, ,, .	2·57
	Pattanapuram .	,, ,, .	2·26
	Kartigapally . .	,, ,, .	2·21
	Kunnattur . .	,, ,, .	2·01
	Kartigapally . .	21st ,, .	2·30
	Shertalley . .	23rd ,, .	3·28
	Mavelikura . .	29th ,, .	2·44
	Padmanabhapuram	30th ,, .	2·32
	Pattanapuram .	,, ,, .	2·08

In Malabar and South Canara the rainfall was much lighter than in Travancore but occurred on about the same dates. The total rainfall was only about one quarter of the normal amount, as is shown by the following comparative data :—

DISTRICT.	RAINFALL.			
	Average actual, April, 1903.	Average normal, April.	Variation of actual from normal, April, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Malabar	1·40	4·09	—2·69	—66
South Canara	0·12	2·04	—1·92	—94

South Madras received showers between the 4th and the 12th and a few scattered showers towards the close of the month. The total rainfall was about two thirds of the average, as is shown by the following data for the two districts:—

District.	Rainfall.			
	Average actual, April 1903.	Average normal, April.	Variation of actual from normal, April 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madura	0·96	2·37	−1·41	−59
Tinnevelly	2·22	2·22	0	0

A few light scattered showers were received over south-central Madras during the month, but the total amount was insignificant. The following gives comparative data for the contained districts:—

District.	Rainfall.			
	Average actual, April 1903.	Average normal, April.	Variation of actual from normal, April 1903.	Percentage variation from normal.
	Inch.	Inches.	Inches.	
Salem	0·22	1·39	−1·17	−84
Coimbatore	0·40	2·13	−1·73	−81

Central Madras received showers between the 10th and 13th and again on the 26th. The falls were moderately heavy in places and amounted to over 1″ in 24 hours at the following stations:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Anantapur	Gooty	12th April	1·50
Kurncol	Pyapali	,, ,,	1·50
Anantapur	Kalyandrug	13th ,,	2·61
Bellary	Harpanahalli	26th ,,	1·48

The total rainfall of the month was about half as heavy as usual, as is shown below:—

District.	Rainfall.			
	Average actual, April 1903.	Average normal, April.	Variation of actual from normal, April 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Cuddapah	0·08	0·51	−0·43	−84
Anantapur	0·58	0·63	−0·05	− 8
Bellary	0·32	0·76	−0·44	−58
Kurnool	0·28	0·59	−0·31	−53

The north division of the east coast experienced a slight burst of rain between the 9th and 12th and a few showers between the 20th and 22nd. The following gives data for the districts in the division:—

District.	Rainfall.			
	Average actual, April 1903.	Average normal, April.	Variation of actual from normal, April 1903.	Percentage variation from normal.
	Inch.	Inches.	Inch.	
Ganjam	0·45	1·02	−0·57	−56
Vizagapatam	0·31	0·82	−0·51	−62
Godavari	0·19	0·58	−0·39	−67
Kistna	0·26	0·45	−0·19	−42

In the central division of the east coast there was no rain during the month but in the southern districts of the south division of the east coast showers were received between the 4th and the 7th and again on the 29th and 30th. The rainfall amounted to over 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.
Tanjore	Mayavaram	4th April	1·75
	Muttupet	5th ,,	1·41
	Vedarannivam	7th ,,	2·36
	Mannargudi	,, ,,	1·27
Trichinopoly	Manappari	,, ,,	1·15
Tanjore	Vallam	,, ,,	1·03
	Kattumavadi	30th ,,	1·40

The following gives the total rainfall of the districts for the month:—

DISTRICT.	RAINFALL.			
	Average actual, April 1903.	Average normal, April.	Variation of actual from normal, April 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Madras	0	0·60	—0·60	—100
Chingleput	0	0·59	—0·59	—100
North Arcot	0·04	0·64	—0·60	— 94
South Arcot	0·01	0·74	—0·73	— 99

The rainfall returns for the extra Indian stations exhibited large variations in the amounts received. In the Persian Gulf district (Bushire, Jask and Muscat) the month's rainfall was in large excess and this excess extended to Afghanistan but in Asiatic Turkey (Baghdad) the total rainfall was only about half the average and at Aden and Perim there was no rain. At Kashgar the month was also rainless. Ceylon and the Laccadives reported less rain than usual while, on the contrary, in the south-east trades region the month's rainfall was everywhere in excess of the normal.

The following gives data for these stations:—

STATION.	RAINFALL.			
	Average actual, April 1903.	Average normal, April.	Variation of actual from normal, April 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee	0·60	1·81	—1·21	—67
Colombo	7·60	12·03	—4·43	—37
Minicoy	1·16	3·67	—2·51	—68
Kashgar	0	0·12	—0·12	—100
Kabul	6·11	2·24	+3·87	+173
Meshed	1·36	1·78	—0·42	—24
Teheran	1·20	1·18	+0·02	+ 1
Ispahan	0·23	0·38	—0·15	—39
Bushire	0·71	0·53	+0·18	+34
Jask	0·23	0·03	+0·20	+667
Muscat	0·44	0·03	+0·41	+1367
Baghdad	0·45	0·96	—0·51	—53
Aden	0	0·38	—0·38	—100
Perim	0	0·02	—0·02	—100
Zanzibar	11·85	10·39	+1·46	+14
Seychelles	17·12	3·91	+13·21	+338
Mauritius	6·51	4·92	+1·59	+32

Crop Report.

Madras:—The rainfall during the month was scattered but fairly good. Irrigation supplies were generally sufficient. Ploughing, sowing and transplanting continued. The standing crops were generally fair and harvests continued with fair outturn. Pasture was scanty in parts. The condition of the cattle was good and prices were nearly stationary generally.

Bombay:—Scattered rain occurred during the month and the rainfall did some damage to the crops in parts of the upper Sind frontier and storms or insects did damage in other places. Picking of cotton was almost completed in Baroda but continued during the month in Broach, Surat and the Carnatic. The fodder supply was sufficient except in parts of Sukkur, Larkana and the upper Sind frontier and the agricultural stock was in good condition and sufficient generally. Water supply was failing at the end of the month in parts of Ahmednagar and Bijapur.

Bengal:—Light rain occurred in most districts during the month and ploughing and sowing were progressing but more rain was required for carrying on agricultural operations and at the close of the month prospects were not favourable for want of rain. Scarcity of water was reported from Burdwan, Midnapore, Murshidabad, Rajshahi, Noakhali and the Sonthal Parganas.

United Provinces:—The harvesting of the spring crops was nearing completion at the close of the month and autumn crops were being sown in places. Strong westerly winds did some damage to the poppy crop, and fodder was reported scarce in Cawnpore and Jalaun.

Punjab:—Rain fell in places during the month and the sowing of autumn crops was in progress in Delhi, Ferozepore, Sialkot and Mooltan. The prospects and outturn of the irrigated and unirrigated crops were generally good to average but the unirrigated crops in Hissar had generally withered for want of rain. Hail had done slight damage and young locusts were hatched out in parts of

Sialkot and Rawalpindi but were being destroyed. Cattle were generally in good condition and fodder generally sufficient.

North-West Frontier Province :—More rain than usual fell during the month and at the close the weather was still cloudy and unsettled and causing anxiety as to maturing and harvesting of crops. Hail storms damaged the wheat crop in some villages of th Dera Ismail Khan district. Fodder was abundant but the price of wheat was rising.

Burma :—The rainfall was generally slight in Burma during the month. The reaping of dry weather paddy continued during the month and the preparation of fields for wet weather paddy progressed in places. The crops promised well at the end of the month but in Minbu and Mandalay dry weather paddy was suffering from want of rain.

Central Provinces :—The weather was hot and occasionally cloudy during the month but the only rainfall was a few light scattered showers. The preparation of land for sowings was generally in progress. Fodder was generally sufficient but scarcity of water was being felt in several districts.

Assam :—The rainfall of the month was irregularly distributed and much more rain was required in the Surma valley, the hills and lower Assam. Plucking of tea continued during the month and the outturn was good in Lakhimpur and fair elsewhere. Pressing of sugarcane continued in Darrang and Sibsagar with a good outturn. Ploughing was in progress during the month. Fodder was scarce in Sylhet and water was insufficient in the Khasi and Jaintia hills and in parts of Sylhet.

Mysore:—At the close of the month prospects were generally good but more rain was wanted throughout the province.

Coorg:—Coffee blossomed about the middle of the month.

Berar:—The weather was hot. Light rain fell towards the end of the month and the preparation of land for the monsoon crops was in progress.

Hyderabad:—The winter rice was in good condition and the harvest continued during the month. Lands were being prepared for monsoon sowings.

Rajputana:—Harvesting and threshing of spring crops continued during the month and the prospects of the harvest were fair generally but were poor in Bikaner. Fodder was sufficient and the condition of the cattle good.

Central India:—There was no rain of importance during the month. Agricultural operations were still in progress in Baghelkhand, Bhopawar and Indore but were completed by the end of the month elsewhere. Crops were average in Baghelkhand, and good elsewhere.

Kashmir:—Occasional rain fell during the month. The standing crops were fair to good on irrigated lands but poor on others. Fodder was insufficient in places.

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 228 Stations in India, Burma, etc., in April, 1903.

Table

Abstract of Observations taken at 8 A.M. at 228

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
	I.—Burma Coast and Bay Islands.				+ 006								96·0	+ 1·2	77·4	+ 1·7	86·0	+ 1·5	18 5					26 4
1	Tenasserim and Bay Islands.	Car Nicobar	25																					
		Port Blair	61	29·875	+ ·022	29·867	29·962	6th	29·789	24th	·173	83·0	93·2	+ 0·7	79·7*	+ 0·9	86·4*	+ 0·8	13·5	96·1	27th	75·7	3rd	20·4
		Mergui	96	29·849	?	29·878	29·922	5th	29·769	24th	·153	82·1	92·4	+ 0·5	76·0	+ 2·3	84·2	+ 1·4	16·4	94·6	17th & 18th	72·4	8th & 19th	22·2
		Tavoy	26	29·916	+ ·002	29·873	29·999	6th	29·821	24th	·178	80·5	91·0	0	75·4	+ 1·2	84·7	+ 0·6	18·6	96·2	5th	70·5	9th	25·7
		Moulmein	94	29·814	?	29·846	29 917	6th	29·729	24th	·188	83·6	95·7	+ 1·1	78·5	+ 2·1	87·1	+ 1·6	17·2	98·4	10th	74·8	7th	23·6
2	Lower Burma	Rangoon	57	29·857	+ ·006	29·8:2	29·955	6th	29·758	24th	·197	81·4	98·0	- 0·6?	77·1	+ 0·9	87·6	+ 0·2?	20·9	103·1	20th	72·9	1st & 2nd	30·2
		Bassein	27	29·886	?	29·848	29·981	6th	29·793	24th	·188	83·9	97·4	+ 1·2	77·8	+ 2·3	87·6	+ 1·8	19·6	102·2	16th	74·6	1st	27·6
		Diamond Island	41	29·875	0	29·851	29·967	5th	29·780	24th	·187	83·1	87·7?	—1·0?	80·3	+ 2·0	84·0?	+ 0·5?	7·4?	89·9	23rd	78·2	1st	11·7
5	Arakan	Akyab	20	29·876	—·002	29·839	29·968	6th	29·782	24th	·186	82·6	93·2	+ 1·4	77·4	+ 1·4	85·3	+ 1·4	15·8	98·9	13th.	70·7	9th	28·2
3	Central Burma	Toungoo	183	29·701	?	29·825	29·799	5th	29·607	24th	·192	87·3	103·9	+ 3·5	77·6	+ 1·6	90·8	+ 2·6	26·3	106·8	25th	73·6	22nd	33·2
	II.—Burma Inland				+ ·006								104·0	+ 3·0	76·0	+ 1·1	90·0	+ 2·0	28·0					39·5
3	Central Burma	Thayetmyo	130	29·743	+ ·007	29 813	29·844	5th	29·658	22nd	·186	84·	105·6	+ 2·6	76·8	+ 1·0	91·2	+ 1·8	28·8	109·5	30th	72·0	22nd	37·5
4	Upper Burma	Minbu	165	29·694	+ ·003	29 802	29·813	5th	29·590	25th	·223	83·2	105·0	+ 1·6?	78·3	+ 1·4	91·7	+ 1·5?	26·7	110·1	29th & 30th	72·1	21st	38·0
		Yamethin	657	29·205	+ ·004	29·807	29·321	5th	29·108	24th	·213	85·8	105·8	+ 3·5	79·4	+ 3·3	92·6	+ 3·4	26·4	110·4	30th	73·2	10th	37·2
		Mandalay	250	29·593	?	29·789	29·733	5th	29·476	25th	·257	87·1	105·5	+ 3·2	78·4	+ 0·6	92·0	+ 1·9	27·1	111·6	30th	72·1	10th	39·5
		Monywa		29·577		29·781	29·705	5th	29·454	26th	·251	84·7	105·2		76·2		90·7		29·0	112·2	30th	68·8	2nd	43·4
		Bhamo	387	29·481	+ ·009	29·820	29 619	5th	29·356	25th	·263	74·2	99·6	+ 2·7	66·9	- 0·7	81·8	+ 1·0	29·7	103·5	30th	62·1	1st	41·4
4(a)	Burma Hill Stations.	Maymyo		26·412			26·490	4th	26·326	20th	·161	78·0	89·5		66·2		74·8		29·3	94·0	26th & 30th	53·8	4th	40·2
		Lashio		27·100	- ·013		27·219	5th	26·994	25th	·225	74·7	93·9	+ 3·0	64·3	+ 1·4	79·1	+ 2·2	29·6	100·5	30th	59·0	10th	41·5
	III.—Assam				—·002								87·3	+ 2·0	67·7	- 0·2	77·6	+ 0·9	19·6					34·6
7	Surma	Silchar	104	29·782	+ ·005	29·840	29·932	5th	29·661	22nd	·271	76·9	90·8	+ 2 3	70·6	+ 1·4	80·7	+ 1·9	20·2	96·6	16th & 17th	63·4	9th	33·2
6	Brahmaputra	Sibsagar	333	29·538	- ·009	29·836	29·697	10th	29·388	29th	·309	69·6	81·8	- 0·7	65·5	- 1·0	73·7	- 0·9	16·3	91·2	16th	60·9	7th & 9th	30·3
		Dhubri	115	29·718	—·003	29·793	29·886	6th	29·560	29th	·326	76·7	93·2	+ 4·5	69·7*	- 1·0*	81·6*	+ 1·8	23·5	101·8	30th	62·2	5th	39·6
		Gauhati	195	29·666		29·821	29·832	5th	29·509	29th	·323	73·2	89·2		67·1		78·2		22·1	95·0	18th	58·1	7th	37·9
		Tezpur	252	29·603		29·820	29·768	10th	29·447	29th	·321	72·2	86·9		67·6		77·3		19·3	95·6	16th	60·0	7th	35·6
		Dibrugarh	353	29·534		29 855	29·695	5th	29·397	29th	·298	70·5	81·9		65·7		73·8		16·2	92·2	16th	61·5	10th	30·7
	IV.—Bengal and Orissa				+ ·009								97·4	+ 2·3	74·0	0	85·7	+ 1·2	23·4					40·0
6	East Bengal	Chittagong	87	29·793	+ ·002	29·829	29·902	5th & 6th	29·633	22nd	·239	80·4	96·0	+ 1·1	74·3	+ 0·6	82·2	+ 0·9	15·7	96·0	15th	68·1	7th	27·9
		Noakhali	43	29·818		29·808	29·878	6th	29·676	22nd	·302	82·2	90·6		74·7		82·7		15·9	95·9	16th	65·0	6th & 7th	33·9
		Comilla	36	29 821		29·805	29·888	6th	29·675	22nd	·313	81·3	94·1	-	74·5		84·3		19·6	103·1	16th	66·1	9th	37·0
		Sirajganj†	49	29·777		29·776	29·963	6th	29·604	29th	·359	79·7	99·6		71·2		85·4		28·4	108·3	30th	64·2	20th	44·1
		Narayanganj	26	29·824	+ ·013	29·798	29·992	6th	29·671	22nd	·321	81·0	94·2	+ 1·0	76·0?	+ 1·7?	85·1?	+ 1·4?	18·2?	104·5	17th	68·2	9th	36·3
		Barisal	13	29·833	?	29·791	29·999	6th	29·687	22nd	·312	82·2	93·0	+ 0·8	75·9	+ 0·5	84·5	+ 0·7	17·1	101·3	17th	67·6	6th	33·7
		Mymensingh	59	29·775	- ·005	29·785	29·944	5th	29·639	20th	·305	78·8	94·7	+ 3·9	73·1	+ 0·9	83·9	+ 2·4	21·6	103·8	30th	63·1	7th	39·7
		Faridpur	46	29·800		29·794	29·973	5th	29·639	20th	·334	81·0	96·5		73·3		85·0		23·2	105·5	30th	64·6	7th	40·9
10	Deltaic Bengal	Jessore	33	29·798	+ ·003	29·778	29·970	5th	29·634	21st	·336	81·6	99·6	+ 2·4	75·0	- 0·1	87·3	+ 1·2	24·6	108·3	2 th	66·2	7th	42·4
		Calcutta	21	29·820	+ ·018	29 787	30·010	6th	29·642	20th	·368	81·8	98·4	+ 2·8	75·2	- 0·5	86·8	+ 1·2	23·2	107·4	30th	68·0	6th & 9t	39·4
		Saugor Island	25	29·819	+ ·016	29 788	30·008	6th	29·672	21st	·336	83·6	91·5	+ 0·7	79·5	- 0·4	85·5	+ 0·2	12·0	91·9	7th	70·0	6th & 9th	24·9
		Krishnagar	47	29·795		29·791	29·988	6th	29·622	20th	·366	83·4	102·5		75·0		88·8		27·5	110 1	23th	66·2	7th	43·9
		Midnapore	146	29·688		29 784	29·886	6th	29·516	20th	·370	83·3	103·3		77·4		90·3		25·9	112·4	29th	68·7	9th	43·7

* Mean of 29 days.

† Observations for 29 days.

I.

Stations in India, Burma, etc., in April, 1903.

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. 1902 to 30th April 1903.	Normal rainfall for period, 1st Dec. to 30th April.	Variation from normal of periods 1st Dec. 1902 to 30th April 1903.	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
																				0·72	2·80	−2·07					I.—Burma Coast and Bay Islands.		
																											Car Nicobar	Tenasserim and Bay Islands	1
	1	3		2	1	2	11	10	N 65° W	4·4	5·0	4·9	+ 2	83	·941	3·1	0			0·01	3·33	− 3·32	12·52	11·77	+ 0·75	0·04	Port Blair		
17	6	1			1			5	N 17° W	2·9	2·6	2·1	+24	83	·890	3·9	3	6·70	−3·70	2·05	6·54	−4·49	8·54	12·84	− 4·30	1·12	Mergui.		
29								1	N 45° W	1·6				87	·896	2·2	2	5·30	−3·30	3·39	3·78	− 0·39	4·02	5·94	− 1·92	2·90	Tavoy.		
21					2	6	1		S 40° W	3·6	4·0	3·2	+25	72	·826	3·8	0	5·00	−5·00	0	3·11	− 3·11	0·83	4·13	− 3·30	0	Moulmein.		
5				3	6	10	5	1	S 36° W	7·3	6·1	4·0	+53	80	·833	4·6	0	2·20	−2·20	0	1·83	− 1·83	1·23	2·55	− 1·32	0	Rangoon .	Lower Burma .	2
3	12					1	3	11	N 31° W	6·4		5·7	+12	77	·898	1·4	0	2·10	−2·10	0·01	1·55	− 1·54	0·22	2·12	− 1·90	0·01	Bassein.		
	1			1			7	21	N 51° W	11·6	11·6	5·1	+127	76	·870	2·6	0	2·09	−2·09	0	1·46	− 1·46	1·57	2·49	− 0·92	0	Diamond Island.		
	2	7	3	8		5		5	N 79° E	2·9	2·8	7·2	− 61	82	·920	3·7	1	1·80	−0·80	1·03	1·28	− 0·25	1·11	2·68	− 1·57	1·03	Akyab .	Arakan .	5
				16	13	1			S 23° E	4·8	4·8	4·0	+20	70	·909	3·0	0	3·10	−3·10	0	2·28	− 2·28	1·06	2·79	− 1·73	0	Toungoo .	Central Burma.	3
																				0·08	1·13	−1·05					II.—Burma Inland.		
	2			2	14	9	2	1	S 22° W	5·7		7·0	−19	73	·871	1·4	0	1·60	−1·60	0	0·90	− 0·90	0·19	1·14	− 0·95	0	Thayetmyo .	Central Burma.	3
9	1			19				1	S 48° E	6·2	7·4			59	·672	1·8	0	1·20	−1·20	0·07	0·85	− 0·78	0·10	1·55	− 1·45	0·07	Minbu .	Upper Burma .	4
4				14	12				S 24° E	1·9	2·0			61	·737	0·2	0	3·60	−3·60	0·05	1·52	− 1·47	0·20	2·68	− 2·48	0·05	Yamethin.		
	8	1		1	13	6		1	S 23° W	7·2	7·3			48	·613	0·1	0	2·40	−2·40	0·10	1·12	− 1·02	0·31	1·67	− 1·36	0·08	Mandalay.		
11	9			5	2			3	S 14° E	2·8	2·9			45	·552	0·1	0	2·00	−2·00	0·05	0·71	− 0·66	0·20	1·10	− 0·90	0·03	Monywa.		
12		13	1			1		3	N 35° E	3·8	4·4			67	·572	1·2	1	4·20	−3·80	0·18	1·66	− 1·48	0·91	3·85	− 2·94	0·10	Bhamo.		
26						4			S 45° W	4·1				52	·458	3·1	1	4·30	−3·30	0·17	2·80	− 2·63	0·59	3·95	− 3·36	0·17	Maymyo.	Burma Hill Stations.	4(a)
	1	8	6	5	3	4		3	S 87° E	4·4				58	·486	1·9	1			0·27	2·20	− 1·93	1·62	4·12	− 2·50	0·25	Lashio.		
																				6·32	8·23	−1·91					III.—Assam.		
19			5	5				1	S 69° E	7	4·6	3·4	+35	81	·763	6·5	12	13·70	−1·70	10·97	13·62	− 2·65	24·32	25·72	− 1·40	1·96	Silchar .	Surma.	7
9		21							N 45° E	3·4	3·1	2·9	+ 7	91	·654	6·0	14	11·50	−0·50	12·58	9·50	+ 3·08	20·37	18·47	+ 1·90	2·26	Sibsagar .	Brahmaputra .	9
2		9	10	3		3	1	2	N 76° E	6·5	7·7	8·0	− 4	69	·635	2·9	0	7·40	−7·40	0	4·73	−4·73	1·89	7·59	− 5·70	0	Dhubri.		
3	9	11	4	2	1				N 43° E	2·5	2·8			76	·628	3·1	8	10·20	−2·20	3·06	5·87	− 2·81	8·47	10·30	− 1·83	0·73	Gauhati.		
1	1	6	21	1					N 80° E	7·3	7·7			76	·600	4·7	9	11·00	−2·00	3·80	5·92	− 2·12	8·12	10·55	− 2·43	0·91	Tezpur.		
	3	13	8	4	1			1	N 65° E	3·0	2·9			82	·596	5·3	13	13·50	−0·50	7·57	9·76	− 2·19	16·53	19·39	− 3·46	2·35	Dibrugarh.		
																				0·68	2·59	−1·91					IV.—Bengal and Orissa.		
	2	7	2	9	8	1		1	S 60° E	7·0	7·0	7·1	− 1	72	·824	3·3	1	4·42	−3·42	1·26	3·85	− 2·59	14·51	8·72	+ 5·79	1·26	Chittagong .	East Bengal .	6
	5	2	1	1	17	2	1	1	S	5·1	5·5			70	·871	3·4	1	4·61	−3·61	0·58	4·66	− 4·08	6·92	9·23	− 2·31	0·48	Noakhali.		
6				5	19				S 10° E	7·0	5·9			80	·839	4·0	1	6·46	−5·46	0·91	6·27	− 5·36	5·95	10·74	− 4·79	0·88	Comilla.		
10		1	1	6	7	3		1	S 14° E	4·2	4·4			72	·815	2·8	0	4·60	−4·60	0	2·95	− 2·95	2·47	5·70	− 3·23	0	Sirajganj.		
1		2	1	3	11	7	3	2	S 18° W	?		6·7	?	80	·838	3·6	2	6·59	−4·59	0·51	4·51	− 4·00	6·73	9·08	− 2·35	0·33	Narayangani		
3	1	1		3	11	6	1	4	S 21° W	5·6				77	·883	3·1	2	4·29	−2·29	0·96	3·12	− 2·16	10·91	7·39	+3·52	0·33	Barisal.		
19			6	11	3				S 52° E	3·5	3·9			71	·776	4·1‡	1	6·23	− 5·23	1·02	5·37	− 4·35	4·92	8·98	− 4·06	0·90	Mymensingh.		
1	1		1	3	14	5	3	2	S 16° W	6·5	5·5			76	·808	2·6	2	6·00	−4·00	0·63	4·16	− 3·53	4·16	8·35	− 4·19	0·48	Faridpur.		
10	1	1	1	6	5	5		1	S 11° E	2·5	2·5	4·5	−44	77	·829	3·0*	2	4·68	−2·68	0·41	3·18	− 2·77	5·48	6·91	− 1·43	0·14	Jessore .	Deltaic Bengal.	19
	2		1	2	5	16		4	S 43° W	5·9		7·5	−21	77	·849	2·6	2	2·92	−0·92	1·71	1·43	+ 0·28	3·99	4·16	− 0·17	1·30	Calcutta.		
	1			1	8	18	1	1	S 35° W	17·4		16·7	+ 4	83	·953	3·5	1	2·09	−1·09	1·25	0·85	+ 0·40	7·61	3·84	+ 3·77	1·10	Saugor Island		
1	2	2	2	2	3	10	6	2	S 55° W	4·3	4·7			66	·754	2·0	2	3·39	−1·39	0·57	2·43	− 1·86	5·51	5·17	+ 0·34	0·27	Krishnagar.		
5	4				16	3		2	S 17° W	5·1	4·5			62	·720	0·8	2	3·10	−1·10	0·65	1·78	− 1·13	4·39	5·29	− 0·90	0·49	Midnapore.		

‡ Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M. at 228

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	29·513		29·761	29·707	4th	29·324	20th	·383	84·4	103·2		77·1		90·2		26·1	112·9	29th	60·1	9th	43·8
		Raniganj	334	29·490		29·773	29·679	5th	29·298	20th	·381	81·6	101·4		74·7		88·1		26·7	111·3	29th	67·9	6th	43·4
		Burdwan	99	29·734	+·023	29·781	29·921	6th	29·547	20th	·374	82·0	102·9	+2·3	75·3	−0·4	89·1	+1·0	27·6	112·3	29th	69·8	7th	42·5
		Naya Dumka	489	29·332		29·777	29·544	6th	29·148	20th	·396	85·1	101·0		73·5		87·8		26·5	110·1	29th	65·4	7th & 10th	44·7
		Berhampore	67	29·754	+·014	29·769	29·958	6th	29·570	20th	·388	81·1	101·8	+1·8	74·4	−0·2	88·1	+0·8	27·4	112·3	29th	66·7	7th & 10th	45·6
		Rampur Boalia.	70	29·752		29·771	29·973	6th	29·585	20th	·388	81·9	99·8		73·3		86·6		26·5	108·5	29th & 30th	64·1	11th	44·4
		Malda	72	29·713		29·737	29·912	6th	29·547	20th	·365	81·9	100·7		71·1		86·0		29·6	108·0	27th & 30th	63·0	3rd	45·0
		Bogra	61	29·748	−·002	29·762	29·931	6th	29·593	26th	·338	78·7	100·4	+4·2	72·7	+0·8	86·6	+2·5	27·7	109·3	30th	64·2	3rd, 5th & 6th	45·1
12	North Bengal	Dinajpur	123	29·684	−·009	29·763	29·874	6th	29·521	26th	·353	78·0	99·5	+4·9	68·4	−2·3?	84·0	+1·3?	31·1	106·5	30th	56·9	3rd	49·6
		Rangpur	123	29·704		25·783	29·881	6th	29·541	29th	·340	78·7	96·1		68·8		82·5		27·3	103·4	27th	56·1	3rd	47·3
		Jalpaiguri	284	29·537	−·011	29·782	29·710	5th & 10th	29·370	30th	·340	76·1	92·3	+2·8	67·9	−0·3	80·1	+1·3	24·4	97·8	18th	53·9	7th	43·9
		Cooch Behar	156	29·679		29·793	29·848	5th	29·518	26th	·330	75·4	91·3		69·4		80·4		21·9	97·2	30th	55·2	3rd	42·0
17	North Bihar	Purnea	125	29·687	+·013	29·767	29·898	5th	29·522	26th	·376	78·3	100·1	+3·1	69·0	−1·0	84·6	+1·1	31·1	107·1	30th	58·6	8th	48·5
14	Orissa	Balasore	50	29·801	+·022	29·794	29·990	6th	29·638	21st	·352	82·5	98·8	+1·3	75·7	−0·3	87·3	+0·5	23·1	107·5	28th	66·3	11th	41·2
		False Point	21	29·842	+·020	29·804	30·019	6th	29·708	22nd	·311	83·5	89·4	−0·5?	77·4	−0·2	83·5	−0·4?	12·0	91·5	4 days	69·6	7th	21·9
		Cuttack	80	29·778	+·025	29·801	29·970	6th	29·652	21st	·318	82·7	104·1	+2·1	77·9	−0·1	91·0	+1·0	26·2	112·5	28th	72·2	10th	40·3
		Puri	24	29·843		29·806	30·029	6th	29·709	22nd	·320	82·1	87·8		79·5		83·7		8·3	90·7	12th & 17th.	71·1	10th	19·6
	V.—Gangetic Plain and Chota Nagpur.				+·034								100·4	−1·0	71·4	−0·4	85·9	−0·7	29·0					50·3
15	Chota Nagpur	Hazaribagh.	2,007	27·834	+·026	29·774	28·016	5th	27·670	20th	·346	81·9	96·8	−1·3	73·1	+0·6	85·0	−0·4	23·7	105·1	29th	61·4	4th	43·7
		Ranchi	2,128	27·729	+·030	29·792	27·892	5th	27·579	20th	·313	79·9	95·5	−1·6	72·2	+0·1	83·9	−0·8	23·3	104·1	29th	61·9	4th & 9th	42·2
		Purulia		29·014		29·772	29·209	4th	28·824	20th	·385	85·3	102·9		76·5		89·7		26·4	113·2	29th	66·4	9th	46·8
		Chaibassa	760	29·073	+·031	29·783	29·259	6th	28·905	20th	·354	82·3	102·0	−1·5	75·6	−0·4	86·8	−1·0	26·4	111·9	29th	63·5	1st	48·4
16	South Bihar	Daltonganj	730?	29·111		29·796	29·330	4th	28·915	20th	·415	82·8	102·4		71·9		87·2		30·5	110·1	27th	60·5	3rd	49·6
		Gaya	375	29·446	+·032	29·774	29·675	5th	29·252	20th	·423	84·9	101·4	−2·0	76·3?	+1·4?	88·9?	−0·3?	25·1?	110·3	21st & 29th	62·2	6th	48·1
		Dehri	351	29·468		29·773	29·689	6th	29·268	20th	·421	84·9	101·3		77·9?		89·6?		23·4?	109·4	5 days	63·0	6th	46·4
		Patna	183	29·629	+·022	29·764	29·875	4th	29·436	20th	·439	84·7	101·0	+0·4	74·9	+1·4	88·0	+0·9	26·1	109·0	29th	63·0	7th	46·0
		Arrah	190	?		?	?		?		?	83·4	102·0†		68·6?		†85·7?		33·1?	108·6	27th & 29th	51·5	3rd	57·1
		Buxar	239	29·573		29·768	29·800	4th	29·370	20th	·430	82·8	100·4		73·1		86·8		27·3	108·5	21st	55·9	6th	52·6
17	North Bihar	Bhagalpur	160	29·643		29·756	29·856	6th	29·476	22nd	·380	83·2	101·5		73·5		87·5		28·0	110·7	29th	65·3	3rd	47·4
		Darbhanga	166	29·638	+·007	29·760	29·842	6th	29·475	20th	·367	78·8	98·2	+2·1	69·5	−2·4?	83·9	−0·2	28·7	106·5	29th	58·9	8th	47·6
		Muzaffarpur	178	29·626		29·759	29·856	6th	29·453	20th	·403	79·9	98·7		68·6		83·7		30·1	107·2	30th	55·3	3rd	51·9
		Motihari	224	29·575		29·758	29·798	6th	29·396	22nd	·402	78·5	99·0		66·0		82·5		33·0	107·7	29th	53·5	3rd	54·2
		Chapra	181	29·623		29·758	29·850	5th	29·436	20th	·414	81·9	101·8		71·9		86·9		29·9	109·8	26th	58·4	3rd	51·4
18	United Provinces (East).	Benares	267	29·554	+·036	29·775	29·777	4th & 5th	29·345	20th	·432	82·9	102·0	−1·1	70·4	−1·5	86·2	−1·3	31·6	109·8	20th, 27th & 28th	56·1	3rd	53·7
		Allahabad	309	29·525	+·045	29·790	29·760	5th	29·313	20th	·447	82·9	102·0	−1·8	71·1	−1·3	86·6	−1·6	30·9	109·6	20th	56·7	2nd	52·9
23	United Provinces (East Sub-montane).	Gorakhpur	257	29·532?	+·017?	29·747?	29·749	5th	29·347	20th	·402	81·9	101·4	+1·0	72·1	−0·3	86·8	+0·4	29·3	109·2	28th	58·1	7th	51·1
19	South Oudh	Lucknow	368	29·453	+·046	29·781	29·706	5th	29·251	20th	·455	82·2	101·1	−1·3	70·5	−0·4	85·8	−0·9	30·6	108·4	20th & 28th	54·7	3rd	53·7
20	North Oudh	Bahraich	401	29·397	+·027	29·761	29·635	5th	29·212	22nd	·423	80·4	100·2	+0·6	67·3	−2·4?	83·8	−0·9?	32·9	108·5	28th	53·0	3rd	55·5
21	United Provinces (Central).	Cawnpore	416	29·415	+·057	29·787	29·644	5th	29·219	20th	·425	81·7	100·5	−1·7	70·2	−2·1	85·4	−1·9	30·3	107·5	20th & 28th	55·5	7th	52·0
		Mainpuri	516	29·304	+·045	29·783	29·544	4th	29·114	20th	·430	79·4	99·5	−3·0	68·0	−2·5?	83·8	−2·8?	31·5	107·8	20th	52·1	2nd	55·7

I—*continued.*

Stations in India, Burma, etc., in April, 1903—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 1902 to 30th April 1903.	Normal rainfall for period, 1st December to 30th April.	Variation from normal of period, 1st Dec. 1902 to 30th April 1903.	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	1		1	1	5	4	1	S 60° W	3·0	3·5			49	·557	2·1	3	3·00	0	1·31	1·53	−0·22	2·96	4·33	− 1·37	0·75	Bankura .	Central Bengal,	11
24	2							4	N 31° W	1·5				51	·526	1·9	5	2·47	+2·53	2·14	1·59	+0·55	5·13	3·91	+ 1·22	0·76	Ranigan).		
6	2	4			3	10	3	2	S 66° W	4·3	4·3	4·8	−10	68	·716	2·9‖	2	3·48	−1·48	1·08	1·75	−0·67	4·84	4·41	+ 0·43	0·52	Burdwan.		
17	1				2	2	5	3	S 88° W	3·0	3·3			38	·430	2·9	2	2·38	−0·38	1·82	1·02	+0·80	2·74	3·28	− 0·54	1·43	Naya Dumka		
3	2	1	2	1	5	13	1	2	S 36° W	4·8	4·4	5·2	−15	65	·674	2·5	3	2·56	+0·44	1·17	1·24	−0·07	3·28	3·70	− 0·42	0·67	Berhampore.		
17					1	10	2		S 48° W	0·3	0·3			63	·691	1·0	1	2·95	−1·95	0·56	1·81	−1·25	2·70	4·21	− 1·51	0·45	Rampur Boalia.		
	1	2	5	3	5	7	4	3	S 21° W	6·2	5·7			55	·589	1·5	1	1·81	−0·81	0·32	1·35	−1·03	1·40	3·81	− 2·44	0·32	Malda.		
6		1	15	1	7				S 66° E	3·6*	4·3*			72	·712	1·9	0	3·81	−3·81	0	2·07	−2·07	2·04	4·84	− 2·80	0	Bogra.		
	2	6	12	2	2	3	3		N 86° E	4·4	4·7			65	·631	2·2	0	3·21	−3·21	0	2·33	−2·33	0·79	3·92	− 3·13	0	Dinajpur .	North Bengal .	12
2		5	10	7	2	2	2		S 72° E	4·1	4·3			71	·703	3·3	0	4·39	−4·39	0	3·16	−3·16	1·64	5·33	− 3·69	0	Rangpur.		
	3	10	10	4	2		1		N 75° E	1·3	1·6			63	·584	2·6§	1	5·53	−4·53	0·26	3·85	−3·59	2·29	6·07	− 3·78	0·26	Jalpaiguri.		
5		6	17		1		1		N 81° E	2·7	2·8			71	·630	3·4	0	7·41	−7·41	0	5·88	−5·88	2·36	8·47	− 6·11	0	Cooch Behar.		
8		6	9	1		3	1	2	N 72° E	5·7	5·0	3·6	+39	57	·559	1·2	0	1·93	−1·93	0	1·22	−1·22	0·71	2·79	− 2·08	0	Purnea .	North Bihar .	17
6	1	1			6	16			S 34° W	6·0				69	·765	1·3	3	3·58	−0·58	1·30	1·86	−0·56	7·98	5·33	+ 2·65	0·63	Balasore .	Orissa . .	14
			1	1	4	18	5	1	S 45° W	12·0	11·5	13·3	−14	79	·910	3·7	1	1·84	−0·84	0·11	0·73	−0·62	3·95	3·98	− 0·03	0·11	False Point.		
5		2	1	1	6	12	3		S 30° W	4·0		5·1	−22	75	·841	2·3	0	1·97	−1·97	0·03	0·98	−0·95	4·64	3·10	+ 1·54	0·03	Cuttack.		
5		2		1		21	1		S 45° W	14·3	13·5			88	·968	2·8	1	1·17	−0·17	0·26	0·80	−0·54	4·28	3·35	+0·93	0·26	Puri.		
																				0·51	0·44	+0·07					V.—Gangetic Plain and Chota Nagpur.		
1	4	1	1		3	6	7	7	N 82° W	10·9	9·7	8·4	+15	33	·341	3·3	4	1·35	+2·65	1·10	0·39	+0·71	2·85	2·63	+ 0·22	0·44	Hazaribagh	Chota Nagpur .	15
1	3			1	3	2	5	15	N 61° W	6·2	7·3			42	·394	2·0	6	2·16	+3·84	3·71	0·84	+2·87	6·05	3·95	+ 2·10	1·77	Ranchi,		
3	1	1	1			3	15	6	N 79° W	4·4	5·4			36	·390	1·9	4	2·39	+1·61	1·38	0·99	+0·39	2·88	3·64	− 0·76	0·86	Purulia.		
25	1			2	1	1			S 45° W	1·6	1·4			55	·597	0·8	4	2·06	+1·94	3·65	1·36	+2·29	6·26	3·91	+ 2·35	1·90	Chaibassa.		
20	1	1	2	1	1	1	2	1	Calm	5·8	4·7			35	·372	1·3	0	0·70	−0·70	0·06	0·27	−0·21	1·36	2·48	− 1·12	0·02	Daltongany.	South Bihar .	16
6				1	1	8	12	2	S 72° W	5·6	4·4	3·8	+16	51	·627	2·5	1	0·58	+0·42	0·19	0·15	+0·04	0·39	2·09	− 1·70	0·11	Gaya.		
1					8	10	9	2	S 52° W	6·2	5·5			34	·384	1·9	1	0·41	+0·59	0·85	0·10	+0·75	1·31	2·06	− 0·75	0·78	Dehri.		
2	1	1	3		1	5	11	6	N 86° W	6·9	7·8	4·4	+77	43	·518	1·9	0	0·58	−0·58	0	0·27	−0·27	0·48	1·92	− 1·44	0	Patna.		
3	1	3		6	2	3	2	10	N 68° W	5·0	5·0			33	·350	0·8	0	0·55	−0·55	0·01	0·47	−0·46	0·18	2·56	− 2·38	0·01	Arrah.		
2			1	1	1	9	14	2	S 71° W	11·0	10·4			29	·314	1·7	0	0·35	−0·35	0·09	0·15	−0·06	0·27	1·93	− 1·66	0·05	Buxar.		
?	?	?	?	?	?	?	?	?	?	?	?			41	·458	1·0	0	1·45	−1·45	0·05	0·88	−0·83	0·70	2·62	− 1·92	0·04	Bhagalpur .	North Bihar .	17
14	2		4	4		2	3	1	S 45° E	3·2		5·1	−37	58	·573	1·2	0	1·47	−1·47	0	0·70	−0·70	0·32	2·36	− 2·04	0	Darbhanga.		
16			2	2		1	5	4	N 79° W	3·0				50	·513	0·6	0	0·90	−0·90	0	0·47	−0·47	0·19	2·23	− 2·04	0	Muzaffarpur.		
2		4	7	1	1	6	7	2	S 45° W	6·7	6·3			51	·501	1·0	0	1·23	−1·23	0	0·68	−0·68	0·19	2·27	− 2·08	0	Motihari.		
16			1			3	6	4	N 84° W	4·3	4·8			35	·379	1·3	0	0·55	−0·55	0	0·32	−0·32	0·20	2·02	− 1·82	0	Chapra.		
4			1		1	15	6	3	S 59° W	4·3	4·9	5·0	− 2	33	·360	0·9	0	0·40	−0·40	0·09	0·13	−0·04	0·40	1·72	− 1·32	0·07	Benares .	United Provinces (East).	18
5		1		1		3	13	7	N 84° W	6·2	7·1	4·9	+45	29	·327	1·1	0	0·20	−0·20	0·06	0·13	−0·07	0·12	1·86	− 1·74	0·06	Allahabad.		
2	4	2	1		2	5	8	6	N 71° W	4·1		4·4	− 7	34	·386	3·7	0	0·50	−0·50	0	0·45	−0·45	0·28	2·17	− 1·89	0	Gorakhpur .	United Provinces (East Submontane).	23
7	2			2		2	6	11	N 63° W	2·8	3·1	4·1	−30	26	·288	1·0	0	0·40	−0·40	0	0·04	−0·04	0·62	2·15	− 1·53	0	Lucknow .	South Oudh .	19
2	5				2		7	14	N 58° W	7·7	7·2			60	·645	1·4	0	0·80	−0·80	0	0·40	−0·40	0·78	3·24	− 2·46	0	Bahraich .	North Oudh .	20
	7	2			2	5	8	6	N 63° W	5·9				27	·298	0·6	0	0·40	−0·40	0	0·03	−0·03	0·12	1·62	− 1·50	0	Cawnpore .	United Provinces (Central).	21
10	3	1		1	1	6	2	6	N 77° W	3·0	3·0			66†	·713†	1·0	0	0·40	−0·40	0	0·48	−0·48	0·58	2·55	− 1·97	0	Mainpuri.		

* Mean of 21 days. † Mean of 29 days. § Mean of 28 days. ‖ Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 228

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				+·056								92·5	-4·5	64·4	—1·9	78·4	—3·2	28·1					52·9
24	United Provinces (West Submontane).	Bareilly	568	29·238*	+·043*	29·778*	29·470	4th	29·043	20th	·427	76·9	97·1	-2·2	69·5	+0·6	83·2	—0·8	27·6	105·5	28th	53·2	1st & 4th	52·3
		Dehra Dun	2,233	27·597?	+·025?	29·801?	27·789	4th	27·432	20th	·357	70·4	89·1?	-1·5?	61·8	—2·5	75·6?	—2·0?	27·3?	98·0	20th	46·5	4th & 5th	48·5
		Roorkee	899	28·913	+·046	29·793	29·141	4th	28·722	20th	·419	73·8	94·9	-3·3	63·0	—3·5	79·0	—3·4	31·9	103·7	20th & 28th.	45·6	3rd & 5th	58·1
22	United Provinces (West).	Meerut	738	29·074	+·043	29·788	29·299	4th	28·882	20th	·417	76·3	95·5	-3·0	64·9	—3·2	80·2	—3·1	30·6	103·7	20th & 23rd.	49·3	3rd	54·4
26	South-East Punjab.	Delhi	718	29·111	+·053	29·802	29·356	4th	28·920	20th	·436	77·2	94·9	-4·8	72·3?	—1·2?	83·6?	—3·0?	22·6?	103·7	20th	56·6	1st	47·1
28	Central Punjab.	Lahore	702	29·139	+·073	29·827	29·394	4th	28·938	20th	·464	72·7	91·2	-7·0	62·6	—1·7	76·9	—4·4	28·6	98·9	27th	46·0	2nd	52·9
27	South Punjab	Sirsa	662	29·184	+·071	29·822	29·427	4th	29·002	20th	·425	76·1	93·6	-7·5	65·6	—2·9	79·6	—5·2	28·0	101·3	19th, 23rd & 27th.	47·1	1st	54·2
		Patiala	818	29·012		29·8·9	29·232	4th	28·841	20th	·388	75·4	91·7		65·0		78·4		26·7	101·0	23rd	49·0	2nd & 3rd	52·0
29	Punjab (Submontane).	Ludhiana	812	29·004	+·049	29·801	29·235	4th	28·819	20th	·416	72·8	91·7	-5·7	65·5	—1·7	78·6	—3·7	26·2	100·0	27th	48·1	2nd	51·9
		Sialkot	830	29·005	+·066	29·8·5	29·243	4th	28·803	20th	·440	72·1	91·2	-4·0	64·9	—1·4	78·1	—2·7	26·3	98·6	18th	49·2	1st	49·4
		Umballa	892	28·921	+·048	29·795	29·152	4th	28·740	20th	·412	74·4	95·0	-2·7	65·0	—1·2	80·0	—2·0	30·0	104·5	23rd	50·6	2nd & 4th	53·9
		Rawalpindi	1,674	28·190	+·064	29·878	28·404	4th	27·982	20th	·422	67·8	83·0	-5·4	57·8	—2·1	70·4	—3·8	25·2	92·9	18th	42·6	1st	50·3
	VII.—Indus Valley and North-West Rajputana.				+·072								92·9	-6·2	66·0	—4·2	79·5	—5·2	26·9					52·1
32	North-West Frontier Province.	Peshawar	1,110	28·800	+·067	29·928	29·014	4th	28·614	20th	·400	67·0	80·2	-6·7	57·0	—3·8	68·6	—5·3	23·2	91·0	18th	41·9	1st	49·1
		D. I. Khan	590	29·296	+·068	29·849	29·523	4th & 5th	29·075	20th	·448	71·3	88·5	-6·0	61·1	—5·0	74·8	—5·5	27·4	97·2	18th	44·1	1st	53·1
31	West Punjab	Khushab	612	29·245	+·083	29·810	29·489	5th	29·025	20th	·464	74·1	98·8	-6·5	64·5	—5·5	76·7	—5·0	24·3	98·3	18th	49·5	2nd	48·8
		Montgomery	558	29·289	+·078	29·825	29·536	4th	29·082	9th	·454	74·.	91·7	-8·4	63·6	—4·5	77·7	—6·5	28·1	100·0	18th, 19th & 27th.	46·0	1st	54·0
		Mooltan	420	29·438	+·066	29·836	29·671	4th	29·227	20th	·444	74·0	93·4	-5·6	65·8	—2·8?	79·6	—4·2?	27·6	101·4	19th	47·9	1st	53·5
47	Sind	Jacobabad	186	29·663	+·079	29·836	29·928	5th	29·502	20th	·426	77·1	97·8	-5·3	64·9	—4·8	81·4	—5·1	32·9	106·5	18th	48·0	2nd & 4th	58·5
		Hyderabad	96	29·767	+ 068	29·837	30·003	5th	29·649	21st	·354	78·8	98·3	-4·4	68·8	—3·5	83·6	—4·0	29·5	107·2	18th	53·5	3rd	53·7
		Kurrachee	30	29·896	+·070	29·871	30·006	4th	29·731	20th	·335	77·9	89·8	-0·8?	71·1	—2·0	80·5	—1·4?	18·7	98·4	7th	57·2	2nd	41·2
51	West Rajputana	Bikaner	771	29·085	+·072	29·833	29·316	5th	28·896	22nd	·420	78·3	95·4	-5·9	71·5	—4·1	83·5	—5·0	23·9	104·6	19th	54·6	2nd	50·0
		Pachpadra	300	29·512		29·854	29·722	4th	29·346	20th	·376	79·1	1.0·1	-6·2?	66·0	—3·6	83·0	—4·9?	31·1	108·5	18th	47·1	1st	61·4
		Jodhpur	782	29·096		29·866	29·307	5th	28·902	20th	·405	79·5	97·8		71·6		84·7		26·2	105·2	16th & 19th.	55.2	2nd	50·0
	VIII.—East Rajputana, Central India and Gujarat.				+·049								98·1	-3·0	70·0	—2·9	84·0	—3·0	28·1					51·0
50	East Rajputana	Jaipur	1,431	28·449	+·054	29·843	28·655	4th	28·271	20th	·384	81·0	96·8	-4·9	68·5	—2·6	82·7	—3·8	28·3	104·7	16th	51·0	1st	53·7
		Bharatpur	585	29·264		29·819	29·515	4th	29·086	20th	·429	77·0	97·6		69·0		83·3		28·6	105·4	20th & 25th.	54·3	2nd	51·0
		Kotah	819	29·047		29·868	29·257	5th	28·856	20th	·401	83·5	93·3		73·2		86·3		26·1	108·1	19th	58·0	1st & 2nd.	50·1
		Sambhar	1,254	28·624	+·067	29·851	28·826	4th	28·445	20th	·381	77·6	96·4	-4·0	67·4	—3·7	81·9	—3·9	29·0	104·5	16th & 19th.	49·4	2nd	55·1
		Ajmer	1,611	28·275	?	29·8 4	28·477	5th	28·093	20th	·384	76·6	93·8?	-5·5?	70·4	—1·0?	82·1?	—3·3?	23·4?	100·4	16th & 19th.	51·2	2nd	46·2
		Udaipur	1,925	27·989		29·866	28·154	4th	27·879	20th	·275	80·7	95·1?		69·3		82·2?		25·8?	103·0	19th	53·7	1st	49·3
		Deesa	466	29·427	?	29·850	29·573	4th	29·302	20th	·271	82·4	102·2	-2·0	70·2	—1·5?	86·2	—1·8?	32·0	111·1	18th	51·6	2nd	59·5
44	Kathiawar and Cutch.	Bhuj	395	29·518	+·062	29·870	29·671	4th	29·331	20th	·290	79·3	97·7	-3·3	69·4	—2·1	83·5	—2·7	28·3	105·3	18th	56·5	1st	48·8
		Jamnagar	61	29·861		29·371	29·978	4th	29·716	20th	·232	77·6	95·9		66·8		81·3		29·1	104·2	18th	55·3	1st, 3rd & 4th.	48·9
		Rajkot	429	29·483	?	29·870	29·582	1st	29·374	20th	·208	78·1	100·5	-2·3	65·7	—3·7	83·1	—3·0	34·8	106·9	17th & 18th.	50·0	1st	56·9
		Verayal	18	29·899	+·041	29·859	29·993	1st	29·817	25th	·176	78·2	88·9?	+1·2?	68·6?	—3·9?	78·8?	—1·4?	20·3?	100·1	17th	57·3	1st	42·8
		Dwarka	37	29·891		29·874	30·068	4th	29·778	20th	·230	78·2	84·3		72·2		78·3		12·1	96·4	7th	63·1	1st & 4th	33·3
		Bhavnagar Para.	34	29·670†	+·029†	29·871†	29·956	4th	29·798	24th	·158	80·6	102·5‡	+0·8‡	71·1*	—3·9*	86·2§	—1·6	31·4	109·2	19th	55·5	3rd	53·7
49	Central India	Nowgong	757	29·104	+·056	29·824	29·313	4th	28·938	20th	·375	78·9	99·3	-4·1	69·2?	—2·2?	84·3?	—3·2?	30·1?	108·0	20th	54·5	2nd	53·5
		Indore	1,823	28·078	+·046	29·848	28·202	5th	27.967	20th	·235	80·2	98·6?	-2·0?	66·9?	—2·8?	82·8?	—2·4?	31·7?	105·8	19th	50·1	2nd	55·7
		Neemuch	1,630	28·277	+·062	29·866	28·442	5th	28 159	20th	·283	80·2	97·4?	-3·5?	69·2	—2·1?	83·3?	—2·8?	28·2?	106·5	19th	52·8	2nd	53·7

* Mean of 29 days. † Mean of 21 days. ‡ Mean of 27 days. § Mean of 26 days.

I—*continued.*

Stations in India, Burma, etc., in April, 1903—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. 1902 to 30th April 1903.	Normal rainfall for period, 1st Dec. to 30th April 1903.	Variation from normal of period, 1st Dec. to 30th April 1903.	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
																				0·08	0·52	−0·45					VI.—Upper Sub-Himalayas.		
6	2		1	1		3	1	6	N 77° W	1·9	1·8	4·5	− 60	38*	·332*	2·2	0	0·45	− 0·45	0	0·17	−0·17	1·58	3·05	− 1·47	0	Bareilly	United Provinces (West Sub-montane).	24
19	1	2	1		2	1	3	1	N 79° W	1·6		2·6	− 38	37	·278	2·6	0	1·50	− 1·50	0	0·59	−0·59	2·24	6·92	− 4·68	0	Dehra Dun,		
17			2	2		1		8	N 40° W	4·2		3·2	+ 31	38	·317	1·3	0	1·10	− 1·10	0·02	0·39	−0·37	2·01	4·69	− 2·68	0·02	Roorkee,		
16	1					3	6	4	N 80° W	2·2	2·2	2·4	− 8	37	·310	1·8	0	0·90	− 0·90	0	0·19	−0·19	0·77	3·55	− 2·78	0	Meerut,	United Provinces (West).	22
4	4			1			12	9	N 61° W	4·9	4·5	3·9	+ 15	31	·295	1·2	0	0·90	− 0·90	0	0·21	− 0·21	0·85	3·18	− 2·33	0	Delhi	South-East Punjab.	26
4	6	2	4	1	1		5	7	N 20° W	3·4		3·3	+ 3	49	·403	3·8	0	1·00	− 1·00	0·02	0·42	−0·40	1·23	3·67	− 2·44	0·02	Lahore	Central Punjab	28
2	3	7	2	4	1	3	4	4	N 9° E	6·3	5·7	4·0	+ 43	43	·406	1·7	0	0·60	− 0·60	0·04	0·26	−0·22	0·13	2·06	− 1·93	0·04	Sirsa	South Punjab	27
3	4	4	1	2	1	1	4	10	N 33° W	6·0	6·0			45	·407	2·6	1			0·11			2·43			0·11	Patiala,		
7	1	6		2		2	4	8	N 58° W	3·5	3·1	2·1	+ 48	42	·346	2·3	1	1·00	0	0·19	0·71	−0·52	2·72	5·42	− 2·70	0·17	Ludhiana	Punjab (Submontane),	29
4	9	9	1				1	6	N 6° E	3·8		2·3	+ 65	55	·433	2·2	0	1·90	− 1·90	0·18	0·80	−0·62	4·65	6·77	− 2·12	0·09	Sialkot,		
11	1			3				15	N 42° W	2·7				43	·369	2·2	1	0·90	+ 0·10	0·16	0·31	−0·21	2·94	5·53	− 2·59	0·10	Umballa,		
22	2	1				1	3	1	N 53° W	4·0	3·7	2·8	+ 32	49	·337	1·5	1	3·20	− 2·20	0·30	1·70	−1·40	5·08	9·31	− 4·23	0·20	Rawalpindi,		
																				0·28	0·36	− 0·08					VII.—Indus Valley and North-West Rajputana.		
14		1	1	1	3	5	3	2	S 47° W	2·5	2·7	4·2	− 36	62	·415	4·5	5	3·40	+ 1·60	1·01	1·75	−0·71	6·17	6·94	− 0·77	0·33	Peshawar	North-West Frontier Province,	32
20	4	3						3	N	2·2	2·3	2·1	− 4	59	·458	4·2	3	1·90	+ 1·10	0·95	0·70	+0·25	2·66	3·03	− 0·37	0·45	D. I. Khan,		
5	7	8	3	1	1	1	3	1	N 24° E	7·8	6·6			39	·329	3·4	2	1·50	+ 0·50	0·60	0·62	−0·02	3·06	3·80	− 0·74	0·33	Khushab	West Punjab	31
2	5	3	6	2	4	3	2	3	N 65° E	7·5	6·7			35	·300	3·3	0	0·70	− 0·70	0·04	0·13	−0·09	1·12	2·41	− 1·29	0·04	Montgomery,		
7	6	7	1	7		2			N 61° E	1·7	2·1	2·5	− 16	41	·381	2·4	0	0·70	− 0·70	0·09	0·10	−0·01	0·73	1·56	− 0·83	0·06	Mooltan,		
20			5	4				1	S 74° E	2·2	2·3	3·9	− 41	52	·496	1·9	2	0·40	+ 1·60	0·38	0·15	+0·23	0·46	1·00	− 0·54	0·21	Jacobabad	Sind	47
2	6			1		18		3	S 70° W	6·4	6·7	10·2	− 34	43	·434	2·9	0	0·20	− 0·20	0	0·04	−0·04	0·65	0·71	− 0·06	0	Hyderabad,		
3	2	3		1	1	8	9	3	S 86° W	9·0	11·3	14·0	− 19	71	·681	2·2	0	0·20	− 0·20	0	0·25	−0·25	0·92	1·54	− 0·62	0	Kurrachee.		
	3	1	1		1	3	8	13	N 61° W	6·9		4·7	+ 47	32	·328	2·3	0	0·30	− 0·30	0	0·11	−0·11	0·17	1·12	− 0·95	0	Bikaner	West Rajputana	51
	7	3	6		5	4	4	1	N 27° E	8·2	7·1	4·5	+ 58	40	·419	0	0	0·20	− 0·20	0	0·04	−0·04	0·35	0·73	− 0·38	0	Pachpadra,		
6	1	10	2		2	8		1	N 70° E	5·3	5·2			23	·250	2·1	0	0·20	− 0·20	0	0·15	−0·05	0·40	0·55	− 0·15	0	Jodhpur,		
																				0·00	0·06	− 0·06					VIII.—East Rajputana, Central India and Gujarat		
5	8	4	1	2		1	4	5	N 14° W	4·0		5·7	− 30	25	·275	1·9	0	0·40	− 0·40	0	0·07	−0·07	0·18	1·37	− 1·19	0	Jaipur	East Rajputana,	50
21	2	2				1	2	2	N 37° W	3·6	3·3			56	·533	0·9	0			0			0·47			0	Bharatpur		
7	5	3		3		2	4	6	N 35° W	5·1	4·1			19	·223	0·4	0	0·30	− 0·30	0	0·02	−0·02	0·46	0·78	− 0·32	0	Kotah,		
12	4	5	1	2			4	2	N 4° E	6·7		7·0	− 4	37	·368	1·9	0	0·30	− 0·30	0	0·09	−0·09	0·29	1·29	− 1·00	0	Sambhar,		
13		7		1	1	6	1	1	S 45° W	6·3	5·6	5·0	+ 12	40	·376	1·7	0	0·50	− 0·50	0	0·11	−0·11	0·44	1·22	− 0·78	0	Ajmer,		
12	1	2	2			1	8	4	N 61° W	5·0	4·4			32	·338	1·4	0	0·30	− 0·30	0			0·42			0	Udaipur,		
	5	10	3	1	2	3	3	3	N 21° E	9·1*		9·4	− 3	28	·290	1·3	0	0	0	0	0·01	−0·01	0·09	0·34	− 0·25	0	Deesa,		
	4	1	1	1		2	8	13	N 54° W	11·1	9·3	10·9	− 15	62	·617	0·8	0	0	0	0	0·12	−0·12	0·20	0·41	− 0·21	0	Bhuj	Kathiawar and Cutch,	46
	3	3	1		3	9	9	2	S 78° W	15·9	19·2			64	·620	1·0	0			0			0			0	Jamnagar		
2	5	2	2				7	12	N 39° W	9·1	9·0	11·1	− 19	55	·518	1·3	0	0	0	0	0·01	− 0·01	0·11	0·18	− 0·07	0	Rajkot,		
	13	3					7	7	N 26° W	10·7	10·7	7·2	+ 49	60	·573	1·8	0	0	0	0	0	0	1·56	0·10	+ 1·46	0	Veraval,		
	6	3			3	8	10		N 49° W	13·6				75	·738	1·5	0			0			0·07			0	Dwarka,		
	8	2			1	2	2	15	N 35° W	6·39	5·9			41	·434	1·5	0	0	0	0	0·01	−0·01	0·49	0·30	+ 0·19	0	Bhavnagar Farm,		
7	2	3		1	1	3	9	4	N 75° W	2·4	2·4	2·8	− 14	31	·369	2·9	0	0·10	− 0·10	0	0·05	−0·05	0	2·01	− 2·01	0	Nowgong	Central India	49
5	2	9	1		1		2	10	N 7° W	5·1	4·1	4·4	− 7	38	·422	5·4	0	0·20	− 0·20	0	0·13	−0·13	1·18	0·68	+ 0·50	0	Indore,		
1	3	14	2			4	2	4	N 18° E	8·1	7·3	10·3	− 29	48	·501	1·7	0	0·10	− 0·10	0	0·09	−0·09	0·17	0·79	− 0·62	0	Neemuch,		

* Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M. at 228

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	29·871	+·020	29·852	29·950	1st	29·789	20th	·161	82·1	101·4	+1·3	71·8	−1·0?	86·6	+0·2?	29·6	109·6	25th	58·5	3rd	51·1
		Ahmedabad	163	29·741	+·046	29·852	29·859	4th	29·634	20th	·225	83·5	103·2	−2·2	72·9 *	−2·3 *	88·1	−2·3 *	30·3 *	111·3	17th & 18th.	57·7	1st	53·6
22	United Provinces (West).	Agra	555	29·287	+·045	29·807	29·522	4th	29·100	20th	·422	78·9	97·2	−5·4	71·7	−2·0	84·6	−3·7	25·5	105·0	20th	57·9	1st & 3rd	47·1
21	United Provinces (Central).	Jhansi	858	29·017	+·059	29·832	29·226	5th	28·844	20th	·382	82·6	100·4	−3·8	75·5?	−1·2?	88·0?	−2·5?	24·9?	108·3	20th	61·6	2nd & 3rd.	46·7
	IX.—Deccan				+·023								103·1	+0·2	74·1	−0·5	88·6	−0·1	29·0					46·2
38	Bombay (Deccan)	Belgaum	2,539	27·383	+·018	29·832	27·451	11th	27·287	24th	·164	78·2	96·3	+0·3	66·9	−0·6	81·6	−0·2	29·4	102·3	25th	60·4	2nd	41·9
		Sholapur	1,590	28·298	+·013	29·819	28·370	10th	28·211	25th	·159	85·6	104·5	−0·3?	76·2	+0·7?	90·3	+0·2?	28·3	108·7	20th	63·6	2nd	45·1
		Poona	1,840	28·066	+·004	29·855	28·135	11th	27·981	25th	·154	77·3	103·0	+1·4	67·7	−2·0	85·4	−0·3	35·3	108·1	18th	50·5	2nd	57·6
		Bijapur	1,946	27·949	+·015	29·815	28·017	10th	27·849	25th	·168	83·3	101·9	+2·1	74·3	−0·5	88·1	+0·8	27·6	105·4	20th	67·3	2nd	38·1
40	Khandesh	Malegaon	1,430	28·454	+·008	29·825	28·529	11th	28·382	25th	·147	84·9	104·0	+0·8	69·9	−1·9	87·0	−0·6	34·1	109·8	29th	50·7	2nd	59·1
		Ahmednagar	2,152	27·771	?	29·839	27·841	11th	27·693	25th	·148	83·1	100·6	+1·7	69·7	+0·1?	85·2	+0·9?	30·9	105·4	19th	53·5	2nd	51·9
41	Berar	Akola	930	28·932	+·018	29·803	29·038	5th	28·845	25th	·193	86·6	105·9	−0·1?	74·0	−0·8	90·0	−0·5?	31·9	112·1	28th	56·9	2nd	55·2
		Amraoti	1,215	28·651	+·029	29·806	28·764	5th	28·558	25th	·206	86·9	105·4	+0·4	77·0	+0·7	91·2	+0·6	28·4	110·4	6 days	65·5	1st & 2nd	44·9
42	Central Provinces (West).	Khandwa	1,044	28·826	+·026	29·823	28·929	5th	28·726	20th	·203	83·9	105·0	+0·2	73·2	−2·1	89·1	−1·0	31·8	113·2	19th	52·1	2nd	61·1
		Hoshangabad ‡	1,006	28·846	+·019	29·807	28·942	11th	28·754	20th	·188	84·9	104·3	−1·0	74·0	−0·6	89·2	−0·8	30·3	108·9	29th	62·2	8th	46·7
		Nagpur	1,025	28·832	+·030	29·804	28·971	5th	28·730	21st	·241	86·1	106·2	+0·7	76·7	+0·5	91·5	+0·6	29·5	111·7	18th	65·1	2nd	46·6
43	Central Provinces (Central)	Chanda	634	29·232	+·033	29·804	29·347	5th & 6th.	29·127	20th	·220	87·7	107·8	+1·3	75·8	−0·6	91·8	+0·4	32·0	112·2	18th & 20th.	61·5	2nd	50·7
		Seoni	2,033	27·853	+·030	29·805	27·983	5th	27·749	21st	·234	84·0	101·1	0	71·8	0	86·5	0	29·3	106·9	18th, 20th & 26th.	60·0	2nd	46·9
		Jubbulpore	1,327	28·529	+·032	29·811	28·697	5th	28·391	20th	·306	81·5	100·6	−1·4	69·6?	−1·0?	85·1?	−1·2?	31·0?	108·0	24th & 29th.	55·4	2nd	52·6
		Saugor	1,807	28·082	+·051	29·832	28·253	5th	27·952	20th	·301	82·1	97·7	−3·8	72·6	−0·2	85·2	−2·0	25·1	105·4	20th	56·1	3rd	49·9
49	Central India	Sutna	1,040	28·808	+·047	29·809	29·007	5th	28·637	20th	·370	82·5	99·1	−2·6	71·4	−0·2	85·3	−1·4	27·7	107·6	20th	56·7	2nd	50·9
44	Central Provinces (East).	Raipur	970	28·884?	+·032?	29·792?	29·033	5th	28·773	20th	·260	88·4	105·1	+0·8	77·1	+0·2	91·1	+0·5	28·0	111·0	29th	64·4	2nd	46·6
		Sambalpur	486	29·373	+·033	29·804	29·542	6th	29·236	20th	·306	87·1	105·8	+1·5	75·6	0	90·7	+0·8	30·2	112·6	29th & 30th.	68·1	6th	44·5
39	Hyderabad (North).	Aurangabad	1,995	27·981		29·804	28·058	4th	27·889	25th	·169	84·4	101·6		72·9		87·2		28·7	107·1	17th	59·2	2nd & 10th.	47·9
		Indur		28·593			28·665	1st	28·463	20th	·202	88·2	104·6		77·8		91·2		26·8	108·8	20th	70·2	5th	38·6
		Bidar	2,165	27·721?		29·789?	27·809	4th	27·616	24th	·193	85·1	101·2		76·9		89·1		24·3	105·3	20th	69·4	2nd	35·9
53	Hyderabad (South).	Gulbarga	1,503	28·386	+·017	29·818	28·477	6th	28·270	25th	·207	86·1	104·4	+1·2	76·0	−0·1	90·2	+0·6	28·4	107·5	25th	70·3	2nd	37·2
		Raichur	1,326	28·546	+·016	29·809	28·632	6th	28·439	25th	·193	85·3	102·9	+0·8	78·2	−1·0?	90·6	−0·1?	24·7	107·0	23rd, & 26th.	70·1	2nd	36·9
		Hyderabad (Dn.)	1,690	28·197	+·018	29·812	28·291	5th	28·097	24th	·197	85·0	102·9	+0·9	76·6	+1·3?	89·8	+1·1?	26·3	107·4	25th	70·2	5th & 12th.	37·2
		Secunderabad	1,787	28·109	+·006	29·824	28·197	6th	28·018	25th	·179	83·2	103·4	+1·4	75·7	+0·4?	89·6	+0·9?	27·7	108·3	26th	64·6	12th	43·7
		Hanumkonda	871	28·985		29·812	29·119	6th	28·874	25th	·245	81·6	102·6		76·3		90·0		27·3	108·7	26th	68·2	8th	40·5
	X.—West Coast				+·009								88·9	−1·0	77·6	−0·9	83·3	−1·0	11·3					21·3
37	Konkan	Bombay	37	29·874	+·007	29·851	29·964	11th	29·761	24th	·203	80·2	88·3	−0·2	76·1	−1·6	82·2	−0·9	12·2	93·5	24th	68·5	2nd	25·0
		Ratnagiri	110	29·804	?	29·853	29·896	11th	29·679	24th	·217	81·3	88·0	−2·1	76·1	−1·3	82·1	−1·7	11·9	94·8	25th	66·9	2nd	27·9
		Mormugao	60	29·859	+·019	29·854	29·951	11th	29·738	24th	·213	82·8	88·8	−1·3	78·0	−2·0	83·4	−1·7	10·8	94·0	26th	72·4	2nd, 3rd & 4th.	21·6
		Goa	199									81·5	85·7	−3·5	78·5	−0·4	82·1	−2·0	7·2	89·0	29th	71·0	2nd	18·0
		Karwar	44	29·868	+·008	29·844	29·948	6th	29·758	24th	·190	79·0	88·7	−1·3	75·7	−2·2	82·2	−1·8	13·0	91·8	26th	67·5	3rd	24·3
13	Malabar	Cochin	10	29·907	+·006	29·845	29·972	5th	29·822	24th	·150	84·1	93·4	+1·9	79·4	+1·0	86·4	+1·5	14·0	96·3	30th	75·2	7th & 11th	21·1
		Calicut	27	29·885	+·003	29·841	29·963	6th	29·778	24th	·185	83·7	91·2	−0·1						94·4	25th			
		Mangalore	65	29·842	?	29·839	29·913	6th	29·743	24th	·170	83·5	90·3	−0·8	78·6	−0·1	84·4	−0·5	11·7	93·2	28th & 29th.	74·9	4 days	18·3
		Trivandrum	198	29·706	+·011	29·834	29·771	11th	29·620	24th	·151	82·2	88·3	+0·8	78·6	+2·3?	83·5	+1·6?	9·7	90·0	4 days	76·0	6 days	14·0

* Mean of 2 days.

‡ Observation of 24 days.

I—*continued.*

Stations in India, Burma, etc., in April, 1903—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 Dec. 1902 to 30th April 1903.	Normal rainfall for period, 1st Dec. to 30th April.	Variation from normal of period, 1st Dec. to 30th April 1903.	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	13	5	1		3	1	4		N 1° W	5·8	5·5	8·0	−31	50	·555	0·3	0	0	0	0	0	0	0·84	0·14	+0·70	0	Surat	Gujarat	45
	7	7	3	1		2	1	9	N	3·5	5·7			34	·406	1·3	0	0·10	−0·10	0	0	0	0·11	0·30	−0·19	0	Ahmedabad		
4		2		1		14		9	S 78° W	4·6	5·3	4·7	+13	31	·313	1·3	0	0·40	−0·40	0	0·13	−0·13	0·76	1·50	−0·74	0	Agra	United Provinces (West).	2
1	4	2		1		9	4	9	N 72° W	4·8	5·3	4·2	+26	36	·427	0·7	0	0·50	−0·50	0·01	0·12	−0·11	0·16	1·65	−1·49	0·01	Jhansi	United Provinces (Central).	1
																				0·18	0·51	−0·35					IX.—Deccan.		
19	1	1	1	2	1	2	3		S 32° W	9·3§		13·1	−29	48	·454	1·5	2	3·80	−1·80	0·56	1·90	−1·34	8·16	2·52	+5·64	0·32	Belgaum	Bombay Deccan.	38
	3	3		12		2	1	9	N 49° E	9·1†	11·0†	8·2	+34	32	·405	1·4	0	1·10	−1·10	0	0·43	−0·43	5·15	1·22	+3·93	0	Sholapur		
	1	1	1		2	3	9	13	N 70° W	10·5		9·9	+ 6	38	·358	1·6	0	1·40	−1·40	0	0·68	−0·68	2·42	1·01	+1·41	0	Poona		
	4	3	2		7	4	3	7	N 80° W					56	·643	0·4	2	2·20	−0·20	0·39	0·80	−0·41	3·74	1·39	+2·35	0·22	Bijapur		
	6	1					9	14	N 47° W	7·1	8·2	7·7	+6	30	·377	2·0	0	0·30	−0·30	0	0·10	−0·10	1·32	0·54	+0·78	0	Malegaon	Khandesh	40
	6	15		1	1	1		6	N 19° E	8·6	10·5			45	·523	1·5	0	0·60	−0·60	0·05	0·33	−0·28	2·01	1·56	+0·45	0·05	Ahmednagar		
2		2	2	3		1	7	13	N 56° W	6·5	6·4	5·4	+19	21	·276	0·6	0	0·50	−0·50	0·08	0·20	−0·12	1·67	1·88	−0·21	0·08	Akola	Berar	41
	5	5	3		4	6	5	2	N 67° W	7·9	7·0	4·4	+59	42	·557	1·1	0	0·80	−0·80	0·04	0·23	−0·19	0·64	1·68	−1·04	0·04	Amraoti		
1		3	4	1	2		2	17	N 32° W	6·8		5·6	+21	19	·232	0·5	0	0·30	−0·30	0	0·13	−0·13	0·28	0·99	−0·71	0	Khandwa	Central Provinces (West).	42
		11		2		11			S 45° E	3·9	4·0	2·9	+38	29	·351	0	0	0·30	−0·30	0	0·15	−0·15	1·64	1·39	+0·25	0	Hoshangabad		
7	4			2		6	1	10	N 84° W			6·7		26	·334	1·7	0	1·10	−1·10	0·06	0·48	−0·42	1·68	2·25	−0·57	0·06	Nagpur		
23			1	4	2				S 39° E	1·5	1·3	3·8	−66	32	·414	0·4	0	1·80	−1·80	0·12	0·59	−0·47	0·75	2·91	−2·16	0·07	Chanda	Central Provinces (Central).	43
	9	10	2	1	2	3	1	2	N 23° E	3·1		3·8	−18	28	·334	0·7	0	1·30	−1·30	0	0·39	−0·39	1·51	2·91	−1·40	0	Seoni		
	4	4	1	6	7	3	5		S 8° E	3·7	3·3	3·5	− 6	26	·283	0·5	0	0·60	−0·60	0	0·15	−0·15	0·36	2·19	−1·83	0	Jubbulpore		
	3	9	3	3	2	2	6	2	N 27° E	8·0	7·1	3·7	+92	20	·239	1·2	0	0·30	−0·30	0	0·09	−0·09	0·30	2·13	−1·83	0	Saugor		
6		1	3			2	12	6	N 76° W	3·4	3·1	6·8	−54	19	·210	2·1	1	0·20	+0·80	0·14	0·11	+0·03	0·51	2·54	−2·03	0·10	Sutna	Central India.	49
3	2	6	1	3		9	4	2	S 80° W	7·4	6·8	5·9	+15	27	·346	1·8	0	1·40	−1·40	0·07	0·53	−0·46	0·93	1·98	−1·05	0·07	Raipur	Central Provinces (East).	44
	3	5	5	6	3	7	1		S 50° E	4·4	4·3	2·6	+65	49	·635	0·8	0	1·50	−1·50	0·10	0·60	−0·50	2·67	2·70	−0·03	0·07	Sambalpur		
8	7	2	2			5	5	1	N 46° W	11·2	11·1			26	·321	1·1	0	0·60	−0·60	0	0·22	−0·22	2·87	1·20	+1·67	0	Aurangabad	Hyderabad (North).	39
10		1				4		15	N 55° W	5·4	4·6			40	·530	0·6	1	1·40	−0·40	0·10	0·49	−0·39	1·22	1·48	−0·26	0·10	Indur		
	2	4	1		5	10	5	3	S 63° W	7·4	6·2			50	·598	3·2	2	2·60	−0·60	0·55	0·98	−0·43	1·35	2·20	−0·85	0·44	Bidar		
10	3	4	1	3	2	4	2	1	S 45° E	7·9	7·6			43	·532	0·6	1	2·20	−1·20	0·28	1·05	−0·77	1·25	1·93	−0·68	0·22	Gulbarga	Hyderabad (South).	53
3	2	1		7	1	10	3	3	S 39° W	8·4	8·0			45	·541	0·3	0	1·20	−1·20	0	0·66	−0·66	0·20	1·34	−1·14	0	Raichur		
18			1	3			4	3	W	4·1	4·3			41	·481	1·4	1			0·26	0·67	−0·41	1·05	1·63	−0·58	0·18	Hyderabad (Dn.), Secunderabad		
4	3	1	4	4		5	5	4	N 87° W	6·1		5·3	+15	47	·522	1·0	1	1·00	−0·60	1·03	0·67	+0·36	1·71	1·63	+0·08	1·03	Hanumkonda		
1		2		26			1		S 48° E	10·9	9·3			60	·650	3·1	2	1·30	+0·70	0·94			2·37			0·50			
																				0·50	2·00	−1·51					X.—West Coast.		
1	8	4	2	1	6	1	3	4	N 9° W	9·3		11·3	−17	72	·756	2·9	0	0·10	−0·10	0	0·07	−0·07	0·98	0·27	+0·71	0	Bombay	Konkan	37
6	6	5	1	7	4			1	N 82° E	9·1	9·0	11·1	−19	71	·788	1·4	0	0·10	−0·10	0	0·08	−0·08	1·90	0·32	+1·58	0	Ratnagiri		
3	4	3	1	4	3	5	1	3	N 70° W	7·5§				75	·849	2·9	0			0	1·04	−1·04	3·46	1·09	+2·37	0	Mormugao		
1	4	5	9	2	3	3	1	2	N 18° E					76	·817	3·4	0			0	0·32	−0·32	2·72	0·63	+2·09	0	Goa		
12	1	5	10		1	1			N 27° E	4·8				82	·815	1·6	0	0·90	−0·90	0	0·55	−0·55	3·21	0·73	+2·48	0	Karwar		
1		23	6						N 54° E	4·1				77	·901	3·8	3	7·00	−4·00	1·52	5·20	−3·68	7·73	10·42	−2·69	0·74	Cochin	Malabar	33
13	5	2	1				1	8	N 17° W	7·1	9·3			75	·861	3·7	1	5·10	−4·10	0·37	4·38	−4·01	5·05	6·27	−1·22	0·24	Calicut		
22		3	2	2				1	N 73° E	2·3		3·7	−38	72	·830	3·6	0	2·30	−2·30	0	1·65	−1·65	2·27	2·25	+0·02	0	Mangalore		
11	5	2	1					11	N 21° W	5·0				77	·852	4·1	6	7·10	−1·01	2·59	4·74	−2·15	8·24	10·03	−1·79	0·82	Trivandrum		

§ Mean of 26 days. † Mean of 18 days.

Table

Abstract of Observations taken at 8 A.M. at 228

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.				+ ·014								97·2	+0·8	76·0	+0·1	86·5	+0·5	21·2					30·9
	Madras (South)	Pamban	37	29·877		29·840	29·962	6th	29·787	24th	·175	86·2	92·5		81·0		86·8		11·5	94·3	18th & 24th.	78·2	15th & 16th.	16·1
		Tinnevelly	168	29·743	+ ·022	29·842	29·827	6th	29·650	24th	·177	83·7	97·6	−0·4	77·6	−1·0?	87·6	−0·7?	20·0	104·5	2nd	72·9	5th, 6th & 8th.	31·6
		Madura	447	29·462	?	29·813	29·536	10th	29·374	24th	·162	84·8	98·6	−0·7	77·2	+0·8	87·9	+0·1	21·4	102·5	2nd	71·5	15th	31·0
		Periyakulam	945	28·975			29·054	10th	28·781	24th	·173	81·7	98·1		73·4		84·5		24·7	102·1	24th	66·5	15sh	35·6
4	Madras (South-Central).	Salem	940	28·989	+ ·003	29·862	29·071	7th	28·902	24th	·169	84·4	102·0	+1·3	76·4	+0·6	89·2	+1·0	25·6	105·2	24th	67·9	15th	37·3
		Coimbatore	1,348	28·573	+ ·016	29·862	28·655	5th&6th	28·480	24th	·175	80·5	98·6	+1·2	74·1	+0·7	86·4	+1·0	24·5	101·4	3rd&25th	67·8	23rd	33·6
35	Coorg	Mercara	3,781	26·249	+ ·015		26·305	6 th & 13th	26·176	24th	·129	69·8	86·4	+2·5	63·7?	−0·5?	75·1?	+1·0?	22·7?	92·0	17th & 18th.	56·1	10th	35·9
36	Mysore	Chitaldroog	2,405	27·520	+ ·008	29·820	27·600	6th	27·419	24th	·181	81·2	98·4	+2·6	73·6	+1·8?	86·0	+2·2?	24·8	103·2	18th	69·4	2nd	33·8
		Bangalore	3,021	26·952	+ ·010	29·844	27·029	6th	26·878	24th	·151	77·1	95·0	+1·8	68·8	−0·4	81·9	+0·7	26·2	98·3	24&25th	62·4	17th	35·9
		Hassan	3,091	26·889	+ ·016	29·862	26·964	6th	26·812	24th	·152	76·9	93·1	+2·0	65·9	−0·5	79·5	+0·8	27·2	96·4	25th	61·7	2nd	34·7
		Mysore	2,518	27·435	+ ·011	29·859	27·508	6th	27·348	24th	·160	77·4	95·6	+2·6	70·1	−0·2	83·4	+1·2	26·5	99·6	23rd & 25th.	65·0	26th	34·6
5	Madras, East Coast, South.	Negapatam	31	29·883	?	29·842	29·964	7th	29·791	24th	·173	85·6	90·7	−1·8	80·8	+1·8	85·8	0	9·9	97·2	26th	76·0	16th	21·2
		Cuddalore	12	29·909	+ ·029	29·850	29·993	6th	29·804	24th	·189	84·8	92·4	−0·4	77·1	+0·3	84·8	−0·1	15·3	99·7	26th	72·2	16th	27·5
		Trichinopoly	255	29·664	+ ·020	29·850	29·752	6th	29·566	24th	·186	84·5	100·3	−0·8	77·2	−0·3?	88·8	−0·6?	23·1	104·6	2nd&18th	72·9	15th	31·7
		Madras	22	29·889	+ ·012	29·841	29·991	6th	29·783	25th	·208	84·4	93·2	+0·1	76·7	−0·4	85·0	−0·2	16·5	98·5	1st	72·5	16th & 17th.	26·0
		Vellore	707	29·200		29·847	29·285	6th	29·090	24th	·195	82·0	9 9·3		74·4		86·8		24·9	104·9	24th	67·5	15th 17th	37·4
45	Madras, East Coast, Central.	Nellore	71	29·829	?	29·834	29·950	6th	29·701	24th	·249	84·3	100·4	−0·5?	76·8	−0·6	88·6	−0·6?	23·6	107·8	23rd	73·1	4th	34·7
		Masulipatam	15	29·891	?	29·841	30·017	6th	29·777	24th	·240	85·4	95·1	+0·2	77·2	−0·3	86·2	− ·1	17·9	100·2	24th	72·1	4th &	28·1
54	Madras, Central	Cuddapah	433	29·415	+ ·010	29·811	29·552	6th	29·325	24th	·227	89·8	107·3	+2·1	80·9	+0·1?	94·1	+1·1?	26·4	112·3	25th	75·8	15th.	36·5
		Kurnool	945	28·925	+ ·005	29·801	29·021	6th	28·812	24th	·212	87·3	105·3	+1·7	77·4	−0·6	91·4	+0·6	27·9	109·3	23rd, 24th & 25th.	70·9	18th	38·4
		Bellary	1,475	28·414	+ ·015	29·819	28·493	6th	28·309	24th	·184	85·3	104·7	+1·3	77·8	+0·7?	91·3	+1·0?	26·9	108·5	24th	72·2	4th	36·3
52	Madras, East Coast, North.	Cocanada	26	29·878	+ ·015	29·839	30·019	6th	29·755	24th	·264	84·6	97·6	+2·0	78·1	−0·2	87·9	+0·9	19·5	103·6	25th & 28th.	72·0	4th	31·6
		Waltair (Vizag.)	226	29·663	+ ·016	29·830	29·840	6th	29·542	24th	·298	83·3	93·8	−2·9?	77·8	−1·0	83·8	−2·0?	12·0	93·9	22nd	73·4	4th, 5th & 7th.	19·5
		Gopalpur	21	29·940?	+ ·023?	29·800?	30·044	6th	29·704	22nd	·340	82·2	88·5	+0·8	76·6	−0·9	2·63	−0·1	11·9	92·3	15th	73·6	4th	18·7
	XII.—Hill Stations.																							
8	Baluchistan	Sharigh											67·5		38·7		53·1		28·8	74·3	11th & 18th.	23·0	1st	51·3
		Pishin																						
		Quetta	5,502	24·695	+ ·033		24·835	5th	24·529	23rd	·306	53·2	66·3	−7·9	42·7	−3·6	54·5	−5·8	23·6	73·7	11th	28·8	1st	44·9
		Kalat																						
		Chaman	4,311	25·717	+ ·021		25·886	5th	25 575	24th	·311	58·8	70·5	−11·1	49·5	−8·5	60·0	−9·8	21·0	78·3	11th & 17th,	35·1	1st	43·2
30	Punjab and North-West Frontier Province.	Leh	11,503	19·717	− ·013		19·861	6th	19·514	1st	·350	33·6	48·2	−8·9	26·6	−4·3	37·4	−6·6	21·6	59·6	29th	8·9	2nd	50·7
		Srinagar	5,204	24·805	+ ·026		25·088	6th	24·770	20th	·318	48·1	62·0	−6·2	43·6	−1·8	52·8	−4·0	18·4	74·1	18th	34·1	1st, 2nd &5th.	40·0
		Sonemarg (Kashmir).		21 886			22·005	7th	21·683	30th	·322	31·6	46·5		25·7		36·1		20·8	56·3	23rd	15·6	1st	40·7
		Skardu		24 895			23 109	6th	22·722	9th	·387	46·5	58·7		40·9		49·8		17·8	67·4	27th	29·1	2nd	38·3
		Dras		20·824			21·014	6th	20·673	9th	·341	24·5	36·3		16·3		26·3		20·0	47·8	24th	−12·9	3rd	60·7
		Gilgit	4,890	25·178			25·413	6th	24·981	24th	·432	54·7	67·4	−5·3	50·3	−3·7	58·9	−4·5	17·1	79·0	18th	39·1	1st	39·9
		Chitral		24·541			24·560	20th	24·522	6th	·038	49·9	62·3		44·5		53·4		17·8	72·6	18th	32·0	1st	40·6
		Killa Drosh										49·8	62·9		46·1		54·5		16·8	75·3	7th	33·5	1st	41·8
		Para Chinar	6,000	24·489			24·645	4th	24·331	20th	·314	52·1	62·7		43·8		53·3		18·9	72·9	18th	33·6	2nd	39·3
		Cherat		25·709	+ ·039		25·880	6th	25·535	20th	·345	56·7	66·3	−9·2	52·3	−5·6	59·3	−7·4	14·0	77·3	18th	40·0	1st	37·3

I—*continued.*

stations in India, Burma, etc., in April, 1903—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 Dec. 1902 to 30th April 1903.	Normal rainfall for period, 1st Dec. to 30th April.	Variation from normal of period, 1st Dec. 1902 to 30th April 1903.	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
																				0·50	1·42	—0·92					**XI.—South India.**		
2		1	9	8	5	5			S 41° E	6·9	7·3			75	·935	3·2	2	3·30	−1·30	0·27	2·40	−2·13	8·16	15·49	−7·33	0·13	Pamban	Madras (South)	57
	5	5	1		2	1	10	6	N 46° W	4·1	3·9			77	·889	5·9	4	3·70	+0·30	2·41	3·28	−0·87	11·78	10·56	+1·22	0·93	Tinnevelly.		
7	3	7	8	2				3	N 55° E	6·0	6·9	3·6	+92	75	·892	2·3	2	3·30	−1·30	1·07	2·25	−1·18	5·75	5·34	+0·41	0·77	Madura.		
18	4	1	2				4	1	N 22° W	2·2	2·4			65	·703	2·9	6	4·70	+1·30	2·18	2·69	−0·51	12·85	7·58	+5·27	0·77	Periyakulam.		
13		3	6		4	4			S 46° E	4·6	4·1	5·0	−18	72	·858	2·9	2	3·10	−1·10	0·43	1·84	−1·41	3·75	4·37	−0·62	0·26	Salem	Madras (South Central).	34
16		2	11				1		N 83° E	1·3	1·2	3·5	−66	63	·860	3·0	1	3·50	−2·50	0·83	1·69	−0·86	3·91	3·94	−0·03	0·70	Coimbatore.		
20	2	2	4				2		N 45° E	4·7	4·4	3·8	+16	79	·572	7·2	2	5·70	−3·70	0·66	2·67	−2·01	9·82	4·15	+5·07	0·34	Mercara	Coorg	35
5	1		1	3		7	10	3	S 80° W	5·3	4·6			56	·588	0·9	0	2·50	−2·50	0·07	1·97	−1·90	2·90	2·48	+0·42	0·07	Chitaldroog	Mysore	36
			2	6	7	11	3	1	S 16° W	8·4	7·3	3·5	+109	63	·585	1·3	0	2·40	−2·40	0·06	1·26	−1·20	1·06	2·45	−1·39	0·04	Bangalore.		
2	1	2	3	4	2	4	7	5	S 72° W	3·4	3·0			63	·579	2·9	3	4·80	−1·80	0·97	3·10	−2·13	6·51	3·72	+2·79	0·64	Hassan.		
		2	1	3	2	13	9		S 49° W	7·5	8·1			77	·719	5·7	3	4·30	−1·30	1·53	3·00	−1·47	3·61	3·62	−0·01	1·05	Mysore.		
8			6	8	2	6			S 32° E	10·6	9·5	5·2	+83	76	·943	3·1	2	1·20	+0·80	0·38	0·56	−0·18	17·03	15·82	+2·11	0·20	Negapatam	Madras, East Coast, South.	56
15		1	1	4	6	3			S 13° E	3·7	4·6			84	1·010	5·3	0	1·00	−1·00	0	0·83	−0·83	18·09	10·83	+7·26	0	Cuddalore		
26	2	2							N 23° E	3·7		4·0	−8	72	·848	3·5	2	2·10	−0·10	0·65	2·06	−1·41	8·20	6·29	+1·91	0·47	*Trichinopoly.*		
			4	2	21	2		1	S 8° E	6·7		7·9	−15	75	·893	2·6	0	1·10	−1·10	0	0·40	−0·40	15·88	7·38	+8·50	0	Madras.		
24				3	2			1	S 18° E	2·5	2·5			69	·751	2·2	0	1·20	−1·20	0	0·71	−0·71	5·27	4·40	+0·87	0	Vellore.		
2				14	14				S 23° E	6·6				73	·858	2·0	0	0·30	−0·30	0	0·40	−0·40	15·07	2·77	+12·30	0	Nellore	Madras, East Coast, Central.	55
2				8	12	7	1		S 1° W	8·6	8·3	8·8	−6	78	·961	3·2	0	0·50	−0·50	0	0·47	−0·47	3·72	1·66	+2·06	0	Masulipatam.		
		3	6	11	1	4	3	2	S 47° E					49	·678	1·5	0	0·70	−0·70	0·01	0·54	−0·53	2·42	1·95	+0·47	0·01	Cuddapah	Madras, Central	54
4	1			6	4	10	1	4	S 30° W	6·8				47	·604	1·5	0	1·70	−1·70	0·02	0·94	−0·92	0·06	1·56	−1·50	0·02	Kurnool.		
7	1		2	2	3	3	6	6	S 72° W	5·3	5·6	5·2	+8	49	·596	2·0	0	1·90	−1·90	0	0·74	−0·74	0·08	1·10	−1·02	0	Bellary.		
3		1		4	1	15	4	2	S 45° W	6·9	5·8			80	·960	4·3	0	0·70	−0·70	0·01	0·35	−0·34	1·10	2·10	−1·00	0·01	Cocanada	Madras, East Coast, North.	52
		1				29			S 45° W	16·7				71	·807	4·4	0	0·90	−0·90	0·05	0·59	−0·54	2·29	3·04	−0·75	0·05	Waltair (Vizag.)		
2	3		1		5	18	1		S 41° W	18·6	18·2	14·5	+26	82	·885	0·2	3	1·10	+1·90	0·57	0·69	−0·12	1·54	2·69	−1·15	0·35	Gopalpur		
																											XII.—Hill Stations.		
																		0·70			0·30			5·91			Sharigh	Baluchistan	18
																	7	1·90	+5·10	3·24	0·86	+2·38	12·51	8·91	+3·60	0·85	Pishin.		
27				1		1		1	S 45° W	1·9	2·9	4·8	−58	67	·277	3·1	8	2·40	+5·60	2·71	1·07	+1·64	10·69	7·96	+2·73	0·52	Quetta.		
			3		9		1										4	1·10	+2·90	1·80	0·22	+1·58	P	3·75	P	0·92	Kalat.		
	8	3	3	2	9	3		2	N 78° E	5·5	6·1			59	·295	3·8	6	1·60	+4·40	1·92	0·43	+1·51	7·73	5·71	+2·02	0·44	Chaman.		
		5	11	3	5	3	2	1	S 67° E	2·1				43	·090	6·3	1	0·70	+0·30	0·10	0·16	−0·06	4·15	1·23	+2·92	0·10	Leh	Punjab and North-West Frontier Province.	30
3	5		1	4	6	1	4	6	S 78° W	6·0	5·6			87	·297	6·5	11	6·80	+4·20	3·41	2·69	+0·72	13·22	13·03	+0·19	1·14	Srinagar.		
20		4	4				2		N 58° E	3·1	2·8			93	·154	4·4	16			9·32			55·79			1·68	Sonemarg. (Kashmir).		
9		4	2		3	6	6		S 51° W	6·8	6·92			55	·178	6·0	0	2·00	−2·00	0·18	2·65	−2·47	2·87	7·42	−4·55	0·07	Skardo.		
27	1					1	1		N 45° W	1·2	1·0			93	·137	5·5	3	8·80	−5·80	1·25	3·85	−2·60	10·56	15·98	−6·42	0·36	Dras.		
21						4	4	1	S 76° W	4·3	3·8			48	·211	7·5	2	2·30	−0·30	0·40	1·15	−0·75	2·47	2·20	+0·27	0·24	Gilgit.		
22	3	2	1	2					N 53° E					75	·271	3·5	12			5·00			12·43			1·00	Chitral.		
21	1		5	2		1			S 81° E					67	·246	3·3	7			5·41			13·11			1·52	*Killa Drosh.*		
17	3	1		1		1	3	4	N 45° W	5·8	5·3			60	·238	4·6	13	8·50	+4·50	5·01	3·19	+1·82	13·98	11·30	+2·68	0·76	Para Chinar		
	19				3		1	7	N 16° W	11·2	10·4			48	·230	2·0	7			1·21	2·22	−1·01	8·86	12·39	−3·53	0·40	Cherat.		

Table

Abstract of Observations taken at 8 A.M. at 228

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	23·853	+·020		23·989	4th	23·708	20th	·281	54·5	60·8	−8·0	44·9	−7·4	52·9	−7·7	15·9	70·2	18th	30·5	1st	39·7
		Kailang	10,087	21·901			21·117	6th	20·801	1st	·316	32·4	43·8	−9·2	26·9	−4·3	35·4	−6·8	16·9	53·5	28th	13·5	2nd	40·0
		Poo											57·5		38·4		48·0		19·1	68·1	27th	29·1	1st	39·0
		Simla	7,224	23·119	+·010		23·249	14th	22·981	1st	·268	55·5	63·1	−2·1	49·4	−2·8	56·3	−2·5	13·7	72·3	28th	35·2	1st	37·1
25	United Provinces.	Chakrata	7,022	23·287	−·003		23·407	14th	23·169	1st	·238	55·5	67·1	−3·2	50·1	−2·0	58·6	−2·6	17·0	75·5	23rd	39·4	10th	36·1
		Mussooree	6,705	23·568	+·012		23·683	14th	23·447	1st	·236	57·4	68·3	−4·1	51·4	−2·6	59·9	−3·4	16·9	78·3	20th	40·0	1st, 2nd & 4th.	38·3
		Ranikhet	6,069	24·109	+·020		24·211	14th & 15th.	23·974	20th	·237	61·8	74·1	−0·7	55·1	−2·0	64·6	−1·4	19·0	81·0	5 days	43·0	10th	38·0
		Muktesar	7,690	22·852			22·959	14th	22·740	1st	·219	57·5	69·4		49·7		59·6		19·7	79·7	28th	39·4	1st	40·3
13	Bengal	Yatung	10,480?										56·9		34·2		45·5		22·7	62·1	22nd, 24th & 29th.	27·9	6th, 7th & 8th.	34·2
		Darjeeling	7,376	23·016	+·012		23·133	4th & 10th.	22·902	21st	·231	56·8	65·4	+3·2	49·6	+0·7	57·5	+2·0	15·8	70·2	28th	40·3	11th	29·9
2	Assam Hill Tracts	Shillong	4,920	25·120			25·264	5th	24·977	20th	·287	68·2	78·5		59·6		69·1		18·9	84·2	17th	53·0	14th	31·2
		CherraPoonjee	4,309	25·690			25·815	5th	25·570	22nd	·245	65·9	73·0		60·5		66·8		13·5	80·8	17th	55·5	9th	25·3
	Central India	Mount Abu	3,945	26·073	+·021		26·181	5th	25·956	20th	·225	73·2	81·8	−3·9	66·4	−2·7	74·1	−3·3	15·4	89·2	16th, 18th & 19th.	51·5	1st	37·7
		Pachmarhi	3,528	26·473	+·028		26·603	5th	26·364	20th	·239	79·5	92·7	+0·2	69·3	−0·3	80·0	−0·1	23·4	98·7	30th	57·7	2nd	41·0
	South India	Wellington	6,200	24·279	+·012		24·388	6th & 18th.	24·233	24th	·155	66·2	77·7	+1·8	54·6	−1·3	66·2	+0·3	23·1	81·2	24th	50·2	17th	31·0
		Kodai Kanal	7,688	22·866			22·909	18th	22·820	25th	·089	60·6	69·4		53·4		59·7		16·0	74·3	23rd	50·5	8th	23·8
		Ootacamund		23·095			23·149	18th	23·054	25th	·095	63·7	72·7		51·7		62·2		21·0	74·5	6 days	48·3	9th & 10th	26·2
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·908	+·037	29·816	29·975	6th	29·812	23rd	·163	82·4	92·3	+1·3	78·6	+1·0	85·5	+1·2	13·7	95·5	2nd & 22nd.	76·5	24th	19·0
		Colombo	40	29·879	?	29·845	29·936	10th	29·794	24th	·142	82·3	90·7	+1·8	76·5	+0·5	83·6	+1·2	14·2	93·0	22nd	73·0	7th, 11th	20·0
	Persia	Meshed	3,104									53·7			44·4	−3·7						31·5	1st	
		Teheran		25·932§			26·245	1st	25·645	22nd	·600	59·0	70·7	−0·7	49·2	−0·7	59·9	−0·7	21·5	78·4	9th	37·2	1st	41·2
		Ispahan ‖		24·314§			24·550	5th & 6th.	24·100	22nd	·450	55·6	70·6	−2·4	39·8	−5·8	55·2	−4·1	30·8	77·3	30th	30·1	1st & 2nd	47·2
		Bushire ‖	14	29·918	+·027	29·891	30·161	1st	29·590	22nd	·571	72·4	77·5	−4·1	66·0	−0·7	71·8	−2·4	11·5	88·1	10th	53·8	1st	34·3
		Bahrein	30	29·905			30·199	1st	29·632	22nd	·567	73·6	80·2		67·4		73·9		12·8	89·7	30th	57·8	3 days.	31·9
		Jask		29·913	+·031		30·106	4th	29·769	12th	·337	76·3	83·2	−4·0	70·9	−2·4	77·1	−3·2	12·3	91·8	22nd	62·8	2nd	29·0
		Muscat	20	29·907	+·038	29·875	30·198	3rd	29·707	12th	·491	78·9	80·5	−5·4	76·0	−4·5	78·3	−5·0	4·5	86·5	20th	68·9	1st	17·6
	Arabia	Baghdad	220	29·800	−·048	30·000	30·075	1st	29·560	9th	·515	68·1	80·7	+5·1	61·1	+4·3	73·9	+4·7	25·6	94·3	29th	51·0	2nd	43·3
		Bussrah		29·957			30·208	4th	29·652	30th	·556		84·7		65·2		74·9		19·5	96·7	30th	51·0	1st	45·7
		Aden	94	29·861	+·020	29·887	29·976	1st	29·734	13th	·242	81·0	86·6	−2·5	77·5	+0·2	82·1	−1·2	9·1	94·3	21st	73·9	9th	20·4
		Perim	201	29·710	+·022	29·845	29·809	1st & 4th.	29·613	22nd	·196	81·9	87·8	−0·9	77·8	−1·0	82·9	−1·0	10·0	90·7	28th	75·6	6th & 7th.	15·1
	Afghanistan	Kabul			**							47·4	63·0	−8·4	38·9	−6·3	51·0	−7·4	24·1	74·2	22nd	25·4	1st	48·8
	Central Asia	Kashgar	4,255	25·603			25·910	3rd & 27th.	25·280	9th	·630	56·9	67·4	−4·1	43·5	−5·5	55·5	−4·8	23·9	80·1	21st	29·1	1st	51·0
	Arabian Sea Islands.	Amini Debi	13																					
		Minicoy	7	29·921		29·856	29·987	18th	29·850	24th	·137	84·5	86·9	−2·8						90·1	25th			
	Africa	Zanzibar	73	29·910	−·026	29·910	29·965	1st	29·842	12th	·123	79·7	85·1	+0·4	78·1	+0·5	81·7	+0·5	7·0	88·9	5th	75·6	23rd	13·3
		Do. Dunga		29·852			29·919	29th	29·776	12th	·143	79·8	86·4		73·7		80·0		12·7	92·6	25th	70·8	12th	21·8
	Straits Settlements	Penang ¶	20	29·926		29·871	29·984	11th & 12th.	29·862	23rd	·122	83·2	91·2		74·1		82·7		17·1	91·0	19th	72·0	27th & 29th.	22·0
		Singapore¶	10	29·903		29·834	29·979	5th	29·845	25th	·134	84·1	88·6		74·9		81·7		13·8	91·5	5th	70·0	14th	21·5

Note.—When a query is inserted against any reading or in the returns of any

Aneroid uncorrected. ‖ Observation of 29 days. ¶ 9 hours observation. ** Aneroid corrected.

I—*concluded.*

Stations in India, Burma, etc., in April, 1903—concluded.

Wind Direction. Number of winds from									Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.									Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calm.	N.	NE.	E.	SE.	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.		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. 1902 to 30th April, 1903.	Normal rainfall for period, 1st Dec. to 30th April.	Variation from normal of period, 1st Dec. 1902 to 30th April, 1903.				
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	1	1	9	6				S 37° E	6·2	6·7	8·7	−23	44	·190	4·9	5	5·90	−0·90	1·53	3·25	−1·82	11·28	16·05	−1·77	0·39	Murree	Punjab and North-West Frontier Province—*concld.*	30
			1	15	4	4	4	2	S 11° E	1·1				71	·135	5·6	5			1·27			15·87‡	12·48‡	+3·39	0·27	Kailang,		
18				9	2				S 37° E							4·4	6			0·96	1·72	−0·76	11·94	14·01	−2·07	0·24	Poo,		
6	11			2	11				S 45° E			2·9		38	·174	4·7	3	3·10	−0·10	0·87	1·70	−0·83	7·74	10·71	−2·97	0·39	Simla,		
4	18	2		1				5	N 4° W	10·5		6·1	+72	40	·178	3·0	2	3·90	−1·90	0·44	1·44	−1·00	8·69	12·83	−4·14	0·15	Chakrata,	United Provinces.	25
	2	7	6			1	10	4	N 16° W					33	·187	2·8	0	2·00	−2·00	0·07	0·84	−0·77	5·82	11·42	−5·60	0·03	Mussooree,		
4		4	7	3		1	2	9	N 25° E	3·3	3·8	3·0	+27	37	·205	2·7	2	2·80	−0·80	0·43	1·16	−0·73	4·77	8·77	−4·00	0·32	Ranikhet,		
6	4		4	5	1		2	8	N 1° W	7·3	6·7			33	·160	3·2	1			0·60			6·52			0·56	Muktesar,		
																	10	12·67	−2·67	4·22	4·69	−0·47	9·92	8·71	+1·21	0·77	Yatung,	Bengal	13
5	1	8	4	3		3	5	1	N 53° E	10·7	9·8	?		59+	·271†	3·0*	2	8·29	−6·29	1·35	4·34	−2·99	2·43	7·84	−5·41	0·89	Darjeeling,		
1					5	21	1	2	S 43° W	11·4	12·9			52	·357	1·5	3	8·70	−5·70	1·48	4·29	−2·81	5·25	7·71	−2·46	0·81	Shillong,	Assam Hill Tracts	8
3		2	2			13	9	1	S 65° W	9·7	11·2			77	·500	5·3	15	17·00	−2·00	25·96	32·92	−6·96	39·19	49·87	−10·68	5·38	Cherra Poonjee		
	5	10	2	3		2	4	4	N 14° E	8·4	8·5	7·7	+10	2½	·205	1·5	0	0·30	−0·30	0	0·04	−0·04	0·37	1·00	−0·63	0	Mount Abu,	Central India.	
2		6	2	10	1	1	1	7	N 87° E	7·4	7·6	5·3	+43	19	·198	1·2	0	0·80	−0·80	0	0·25	−0·25	2·63	2·17	+0·46	0	Pachmarhi,		
17	2	3	5	2	1				N 80° E	2·3		2·9	−21	65	·415	2·6	3	6·20	−3·20	2·66	3·40	−0·74	19·67	12·07	+7·60	2·33	Wellington	South India.	
	2	6	11	9	1				S 87° E	13·2				54	·279	3·1	5	7·00	−2·00	4·07	5·29	−1·22	16·45	17·10	−0·65	1·47	Kodai Kanal,		
9		7	10	4					N 84° E	5·1	4·8			45	·263	2·6	2	7·10	−5·10	1·36	3·46	−2·10	13·46	6·84	+6·62	0·80	Ootacamund,		
																												XIII.—Extra India.		
19						11			S 45° W					86	·959	2·2	4			0·60	1·81	−1·21	25·28	26·52	−1·24	0·14	Trincomalee	Ceylon,	
		4	15	6	2	1	1		S 79° E	5·2		5·6	−7	84	·939	3·3	11			7·60	12·03	−4·43	24·87	28·76	−3·89	1·77	Colombo,		
														78	·336	4·4	4			1·36	1·78	−0·42	9·79	6·35	+3·44	0·95	Meshed	Persia.	
10	1	7	4	3	1	2		2	N 69° E	3·2	4·2			53	·266	5·2*	4			1·20	1·18	+0·02	9·29	7·46	+1·83	0·63	Teheran,		
16			1			5	7		S 68° W	2·7‡	3·5‡			59	·266	2·9	1			0·23	0·38	−0·15	3·23	2·34	+0·89	0·19	Ispahan,		
8	8	5	2			3	1	3	N 10° E	6·2	7·4	9·1	−19	64	·512	3·4	1			0·71	0·53	+0·18	4·72	10·24	−5·52	0·65	Bushire,		
1	2	1	4	2	3	3	9	4	S 83° W					77	·635		2			0·35			2·17			0·20	Bahrein,		
7	3	2	6	3			2	7	N 20° E	10·9	9·0			63	·576	1·4	1			0·23	0·03	+0·20	2·11	3·80	−1·30	0·16	Jask,		
1				8				21	N 45° W	4·0	4·1			75	·735	1·1	2			0·44	0·03	+0·41	1·36	3·10	−2·34	0·21	Muscat,		
21	2	2			2				N 45° E	1·1	1·4			55	·382	2·5	2			0·45	0·96	−0·51	3·15	7·75	−4·60	0·24	Baghdad	Arabia.	
																	1			0·65			3·71			0·65	Busrah,		
									N 65° E	21·2	17·2	14·3	+16	74	·786	3·5	0			0	0·38	−0·38	1·44	2·23	−2·21	0	Aden,		
		11	7	1					S 49° E	22·9	13·8			73	·852	1·6	0			0	0·02	−0·02	1·47	0·97	+0·50	0	Perim,		
			3	27																										
	1	3	1	12	5	4		4	S 31° E					67	·226	5·1	12			6·11	2·24	+3·87	10·56	9·65	+0·91	1·60	Kabul	Afghanistan,	
22		2				1			N 45° E	3·3‡	3·0‡			45	·169	0·3	0			0	0·12	−0·12	0·17	0·90	−0·73	0	Kuldja,	Central Asia.	
																					2·58			2·09			Aden Local,	Arabian Sea Islands.	
	5	5	3	1		1	3	12	N 17° W	4·3	4·6			75	·835	2·9	2			1·26	3·67	−2·51	9·33	11·75	−2·42	0·94	Mauritius,		
				1	13	15	1		S 25° W	7·6	7·2			80	·904	7·7	12			11·85	10·39	+1·46	32·42	24·41	+8·01	3·77	Zanzibar	Africa.	
19						11			S 45° W	4·1	4·0			95	·910	6·7	13			12·05			19·52			2·03	Do. Dunga,		
5	1	9	7	4	2			2	N 75° E	2·0						0·3	7			5·43			26·72			1·75	Penang	Straits Settlements.	
1	4	7	6	4	3	2	1	2	N 73° E							4·8	8			9·22			56·12			2·66	Singapore		

‡ Not used, the data for that station are not utilized in calculating the provincial variations.

* Mean of 23 days. † Mean of 27 days. ‡ Rainfall from 1st January, 1903. § Wind observation of 25 days.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63 Stations in India, Burma, etc., in April, 1903.

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	29·888	29·776	·112	29·825	+·026	29·816	93·4	79·7†	13·7	96·1	75·7	20·4	89·0	91·2	85·2	+1·4	77·1	81·6	82·1	80·3
	Rangoon	57	·855	·710	·145	·787	+·007	·780	98·2	77·1	21·1	103·0	72·9	30·1	89·5	93·6	85·4	+0·7	74·2	78·0	79·9	77·4
	Diamond Island	41	·889	·774	·115	·824	+·002	·739	87·9	80·2	7·7	89·9	78·2	11·7	85·7	85·8	82·8	+0·9	75·7	78·4	78·5	77·5
	Cocos Island	119	·818	·712	·106	·758	P	·808	93·0	80·1	12·9	95·4	78·0	17·4	88·4	89·3	84·8	+2·5	75·6			
	Akyab	20	·894	·769	·125	·829	−·001	·790	93·4	77·4	16·0	98·7	70·7	28·0	88·6	89·7	84·7	+1·9		79·8	80·2	
Bengal and Orissa.	Chittagong	87	·807	·690	·117	·743	−·002	·777	90·3	74·3	16·0	95·8	68·0	27·8	86·2	87·6	81·8	+1·3	72·6	77·4	78·2	76·1
	Calcutta (Alipore)	21	·839	·706	·133	·771	+·023	·737	98·6	75·1	23·5	107·6	68·0	39·6	89·1	95·9	86·2	+1·2	71·1	77·5	76·5	75·0
	Saugor Island	25	·838	·719	·119	·774	+·021	·742	91·6	79·5	12·1	94·9	70·0	24·9	86·5	88·6	84·0	+0·5	76·3	80·1	81·4	79·3
	False Point	21	·852	·738	·114	·793	+·015	·755	89·5	77·4	12·1	91·5	69·6	21·9	87·1	86·7	82·0	+0·1	75·6	79·9	80·1	78·5
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·853	27·735	·118	27·796	+·026	·700	96·9	73·1	23·8	105·1	61·4	43·7	88·6	93·3	84·5	+0·3	58·8	64·0	65·7	62·8
	Darbhanga	166	29·654	29·511	·143	29·581	+·012	·696	98·5	69·5	29·0	106·5	58·9	47·6	88·2	97·5	83·6	−0·5	61·2	72·7	75·3	69·7
	Allahabad	309	·541	·409	·132	·470	+·051	·725	102·0	71·0	31·0	109·6	56·5	53·1	93·2	99·7	86·4	−2·9	57·7	66·8	69·7	64·7
	Dehra Dun	2,233	27·618	27·532	·086	27·563	+·026	·723	89·7	61·8	27·9	98·1	49·2	48·9	80·1	86·2	75·6	−1·5	51·2†	59·0	59·3†	56·5
Upper Sub-Himalayas.	Roorkee	899	28·930	28·854	·096	28·873	+·042	·726	95·5	63·0	32·5	103·9	45·6	58·3	86·5	92·7	79·2	−2·2	53·3	63·0	64·2	60·2
	Meerut	738	29·096	·991	·105	29·037	+·046	·726	96·1	64·9	31·2	103·9	49·3	54·6	88·3	93·4	80·3	−2·2	58·2	64·7†	65·7†	62·9
	Lahore	702	·157	29·066	·091	·106	+·068	·773	91·9	62·7	29·2	98·8	46·0	52·8	83·6	89·4	77·0	−2·6	55·7	65·3	66·4	62·5
	Ludhiana	812	·026	28·938	·088	28·976	+·058	·750	92·3	65·5	26·8	100·0	48·3	51·7	83·6	90·6	79·0	−1·9	56·9	62·8	65·1	61·6
N.-W. Frontier Prov., Indus Valley and N.-W. Rajputana.	Peshawar	1,110	28·823	·734	·089	·774	+·086	·882	80·8	57·0	23·8	91·0	42·1	48·9	74·3	77·8	68·5	−4·6	52·1	61·9	62·9	59·0
	Jacobabad	186	29·695	29·576	·119	29·630	+·081	·773	98·1	69·9	33·2	106·2	48·2	58·0	88·5	95·3	81·2	−4·8	57·2	71·4	74·4	67·7
	Kurrachee	30	·902	·805	·097	·852	+·060	·832	90·2	71·0	19·2	98·6	57·4	41·2	85·5	85·4	78·6	−0·9	66·1	74·5	76·5	72·3
E. Rajputana, Central India and Gujarat.	Jaipur	1,431	28·466	28·355	·111	28·405	+·059	·768	97·5	68·6	28·9	101·5	51·1	53·4	89·1	95·4	83·1	−2·0	53·9	63·4	64·8	60·7
	Udaipur	1,925	27·994	27·872	·122	27·933		·769	95·6	69·3	26·3	103·1	53·8	49·3	87·8	93·8	82·0		57·9	65·0	67·7	63·5
	Deesa	466	29·431	29·310	·124	29·367	+·044	·775	102·8	70·3	32·5	110·9	51·5	59·4	92·6	101·0	86·9	−1·1	55·6	65·4	65·8	62·3
	Jamnagar	61	·871	·752	·119	·811		·818	96·4	66·7	29·7	104·2	55·1	49·1	86·4	91·6	80·3		61·6	69·6	69·7	67·0
Deccan.	Belgaum	2,539	27·384	27·267	·117	27·328	+·020	·717	96·4	67·0	29·4	102·2	60·3	41·9	87·6	91·8	80·0	+0·8	62·0	65·2	70·0	65·7
	Sholapur	1,590	28·297	28·145	·152	28·220	+·017	·698	104·7	76·1†	28·6	108·7	63·6	45·1	91·1	102·4	89·5†	+0·6	60·9	68·3	70·4	66·5
	Akola	930	·935	·785	·150	·855	+·022	·705	106·0	73·7	32·3	111·9	57·0	54·9	96·9	104·2	90·2	−0·3	56·7	67·5	69·8	64·6
	Buldana	2,132	27·765	27·639	·126	27·697	+·018	·700	100·1	73·9	25·2	107·3	62·4	44·9	90·6	98·3	87·8	−0·5	55·8	62·4	65·0	61·1
	Khandwa	1,044	28·829	28·681	·148	28·750	+·022	·716	105·6	73·2	32·4	113·4	52·0	61·4	95·1	103·9	90·0	+0·1	55·3	65·4	68·3	63·0
	Nagpur	1,025	·845	·693	·152	·764	+·043	·710	106·2	76·7	29·5	111·5	65·1	46·4	95·4	103·9	91·7	+1·2	59·5	68·2	71·0	66·2
	Do. (Sanitary Commr.'s Office).	1,013	·851	·706	·145	·774		·709	107·0	76·8	30·2	112·6	67·0	45·6	96·7	101·9	91·4		59·3	68·6	71·9	66·6
	Hyderabad (Deccan).	1,690	·202	·076	·126	·136	+·030	·711	103·1	76·5	26·6	107·4	76·1	27·3	94·4	100·3	89·1	+1·0	65·4	69·7	71·2	68·8
West Coast.	Bombay	37	29·880	29·766	·114	29·821	+·011	·798	88·5	76·1	12·4	93·3	68·6	24·7	83·5	84·9	81·3	−1·3	71·3	75·2	76·2	74·2
	Kerwar	44	·874	·777	·097	·823	+·013	·798	88·9	75·7	13·2	91·9	67·5	24·4	83·9	87·3	81·8	−1·2	73·5	78·3	79·6	77·1

* Corrected. † Mean of 25 days. ‡ Mean of 26 days. Mean of 28 days.

II.

63 Stations in India, Burma, etc., in April, 1903.

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
																									%	%						
·899†	·982	·982	·954	+·025	†88	72	67	76	— 1	2·8	3·3	3·1	−1·2			14	4	22	2	3	8	7	S. 72° E.	N. 89° E.	25	41	115*	116	0·04	0·04	Port Blair .	Burma Coast and Bay Islands.
·811	·808	·838	·819	+·035	86	58	54	66	0	1·6	1·5	1·6	−1·8	1	1	1	10	18	7	7	10	5	S. 14° E.	S. 25° W.	33	58	†47*	136	0	0	Rangoon .	
·820	·878	·878	·859	+·008	80	71	71	74	— 2	2·0	1·3	1·7	−1·7		3			1			18	38	N. 57° W.	N. 60° W.	89	73	277*	187	0	0	Diamond Island,	
·831					80					1·3	0·5	0·9	−2·2		18	1		1		1	12	27	N 40° W	N 39° W	78	39	72	?	0	0	Cocos Island	
	·905	·910				67	65			3·9	2·7	3·3	+0·1			2	5	9		26	9	9	S. 51° W.	S. 65° W.	45	37	68*	96	1·03	1·03	Akyab .	
·786	·828	·843	·819	+·003	92	66	64	74	0	3·7	2·0	2·9	−1·2	1	3	7	1	6	10	19	4	9	S. 45° W.	S. 9° W	32	44	176	165	1·26	1·26	Chittagong .	Bengal and Orissa.
·714	·793	·657	·721	−·070	82	58	41	60	— 8	1·9	0·7	1·3	−1·4		3	2	2	4	15	23	5	6	S. 37° W.	S. 7° W.	53	71	135	169	1·71	1·30	Calcutta (Alipore),	
·870	·945	·979	·931	−·004	86	74	73	78	— 1	3·9	2·5	3·2	−1·5		2	1		3	26	23	3	2	S. 24° W.	S. 11° W.	73	78	416	419	1·25	1·10	Sangor Island,	
·871	·926	·941	·913	+·008	92	72	74	79	— 4	1·7	1·2	1·5	−1·9				2	3	27	28			S. 18° W.	S. 31° W.	85	79	279*	341	0·11	0·11	False Point	
·325	·296	·291	·304	+·001	41	24	21	29	+ 1	3·0	3·6	3·3	+0·5	2	14	3	1	1	5	3	11	20	N. 46° W.	N. 74° W.	53	46	232*	216	1·10	0·44	Hazaribagh	Gangetic Plain and Chota Nagpur.
·436	·606	·587	·543	−·029	60	45	33	46	— 6	0·9	0·3	0·6	−0·4	10			6	7	1	6	19	11	S. 83° W.	S. 46° E.	33	15	79	142	0	0	Darbhanga	
·307	·313	·339	·320	−·050	41	20	19	27	— 2	1·0	1·8	1·4	0	2	8	2	2		1	3	21	21	N. 58° W.	N. 54° W	68	35	170*	117	0·06	0·06	Allahabad .	
·257†	·245	·179†	·227	−·095	46†	23	14†	28	— 9	5·5‡	4·3‡	4·9	+2·1	12	1	1	3		7	9	21	6	S. 75° W.	N. 82° W.	48	28	39	54	0	0	Dehra Dun .	Upper Sub-Himalayas.
·290	·270	·226	·262	−·064	51	22	15	29	— 5	1·5	2·6	2·1	+0·1	9			1	8		5	5	32	N. 61° W.	N. 72° W.	47	20	92	78	0·02	0·02	Roorkee .	
·407	·307†	·272†	·329	−·057	66	23†	17†	35	— 2	1·4	3·2	2·3	+0·3	5			2	3	2	8	21	13	N. 84° W.	N. 60° W.	60	45	52*	60	0	0	Meerut .	
·352	·361	·247	·364	−·020	63	33	25	40	+ 3	3·9	4·1	4·0	+1·6	4	11	5	2	5	2	2	14	15	N. 43° W.	N. 23° W.	42	27	82	77	0·02	0·02	Lahore .	
·363	·304	·285	·321	−·091	57	26	20	34	— 9	1·8	3·3	2·6	−0·4	3		10	1	2		2	27	15	N. 63° W.	N. 51° W.	55	28	73*	54	0·19	0·17	Ludhiana .	
·340	·408	·398	·382	−·028	71	49	44	55	+ 3	4·1	6·3	5·2	+0·8	16	11	8	4	1	1	3	11	5	N. 21° W.	N. 8° E.	30	25	59*	104	1·04	0·33	Peshawar .	N.W. Frontier Province, Indus Valley and N.-W. Rajputana.
·388	·563	·582	·511	?	60	41	35	45	?	1·4	3·0	2·2	−0·3	30	1		10	1	8		7	3	S. 16° E.	S. 65° E.	9	13	¶49*	100	0·38	0·21	Jacobabad .	
·595	·714	·796	·702	−·030	76	59	66	67	— 3	1·6	1·4	1·5	−0·2		1	1	2	2	4	27	21	2	S. 60° W.	S. 69° W.	72	81	261*	329	0	0	Kurrachee .	
·244	·272	·238	·251	−·075	33	19	14	22	— 6	1·6	3·1	2·4	+0·1	1	5	6	1	3	2	12	21	9	N. 84° W.	N. 52° W.	48	52	93	124	0	0	Jaipur .	E. Rajputana, C. India and Gujarat.
·349	·341	·358	·349		48	26	23	32		1·3	1·5	1·4		5	1	5	9	4	2	4	23	7	N. 84° W.		27		124*		0	0	Udaipur .	
·265	·275	·172	·237	−·122	33	18	8	20	— 8	0·9	1·1	1·0	−0·7		6	4	6	3	1	12	16	12	N. 75° W.	S. 88° W.	38	57	216†	228	0	0	Deesa .	
·502	·511	·445	·486		73	40	30	48		0·7	1·0	0·9			10	6	1			9	13	9	N. 55° W.		41		463*		0	0	Jamnagar**	
·503	·352	·466	·440	−·080	75	27	32	45	— 6	1·1	3·6	2·4	−0·4	8	3	6	3	5	4	12	13	2	S. 59° W.	N. 77° W.	25	35	212‡	320	0·56	0·32	Belgaum .	Deccan.
·251†	·376	·347	·358	−·041	38†	23	17	26	— 4	1·1	5·0	3·1	−0·3		8	8		17	6	6	5	10	S. 41° E.	N. 5° E.	3	13	¶264*	213	0	0	Sholapur .	
·243	·285	·270	·266	−·035	28	16	12	19	— 4	0·8	2·0	1·4	−0·6	6	2	7	3	6		5	6	25	N. 42° W.	N. 48° W.	38	58	150*	139	0·08	0·08	Akola .	
·216	·220	·207	·214	−·087	24	15	11	17	— 7	0·9	1·8	1·4	−0·9		12	4	4	1	2	7	12	18	N. 48° W.	N. 33° W.	49	58	182*	212	0·01	0·01	Buldana .	
·224	·264	·250	·246	−·093	26	15	11	17	— 9	0·7	2·5	1·6	−0·3	2	3	10	7	2	1	1	8	26	N. 25° W.	N. 49° W.	47	62	161	148	0	0	Khandwa .	
·307	·355	·350	·337	−·048	33	22	16	24	— 4	1·3	3·8	2·6	−0·4	12		1	4	4	5	17	4	13	S. 61° W.	N. 65° W.	33	22	?	161	0·06	0·06	Nagpur .	
·293	·267	·373	·341		31	20	17	23		1·0	3·2	2·1		6		12		20		11		11	S. 51° E.		15		45*		0	0	Do. (Sanitary Commr.'s Office).	
·490	·424	·401	·438	−·098	54	27	21	34	—10	1·2	2·0	1·6	−0·7	23	3	1	6	13	1	5	4	4	S. 38° E.	N. 58° W.	15	2	103*	113	0·26	0·18	Hyderabad (Deccan).	
·720	·773	·794	·759	−·057	78	67	65	70	— 4	1·6	0·7	1·2	−1·0		3	1	2	1	3	9	13	28	N. 70° W.	N. 57° W.	63	55	224	264	0	0	Bombay .	West Coast.
·906	·897	·916	·873	+·042	90	77	70	79	+ 6	1·1	2·0	1·6	−0·9	4	1					5	33	17	N. 79° W.	N. 84° W.	81	76	117	98	0	0	Karwar .	

‡ Mean of 20 days. ¶ Mean of 18 days. ** Wind variable 12.

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	28·972	28·826	·146	28·916			98·1	73·4	24·7	102·1	65·5	35·6	88·4	94·9	84·4		69·6	75·2	74·3	72·8
	Salem	940	·587	·830	·157	·918	+·001	29·770	101·9	76·4	25·5	105·2	68·1	37·1	90·6	98·5	87·1	+1·0	72·7	79·1	80·8	77·5
	Chitaldroog	2,405	27·523	27·388	·135	27·455	+·016	·710	98·7	73·5	25·2	103·0	69·2	33·8	88·4	96·6	85·6	+2·4	63·3	69·8	70·2	67·8
	Bangalore	3,021	26·957	26·830	·127	26·898	+·018	·731	95·2	68·9	26·3	98·8	62·5	36·1	85·4	92·4	81·3	+1·2	61·8	68·7	66·8	65·8
	Hassan	3,091	·894	·771	·123	·837	+·018	·745	93·1	65·9	27·2	96·4	61·7	34·7	83·9	90·0	78·8	+1·2	62·8	66·7	66·2	65·2
	Mysore	2,518	27·436	27·291	·145	27·364	+·011	·735	96·6	70·1	26·5	99·9	64·8	35·1	84·8	93·5	82·6	+1·8	66·9	72·3	69·9	69·7
	Madras	22	29·896	29·777	·125	29·843	+·024	·795	93·0	76·7	16·3	98·0	72·6	25·4	89·6	88·0	83·8	−0·9		78·6	78·9	77·9
	Bellary	1,475	28·423	28·276	·147	28·349	+·014	·720	104·8	78·0	26·8	108·5	72·4	36·1	92·7	101·3	90·2	+1·0	62·9	73·7	76·8	71·1
	Waltair	226	29·671	29·560	·111	29·616		·781	89·9	77·7	12·2	94·1	74·2	19·9	86·5	85·6	82·8		74·0	77·4	77·9	76·4
Hill Station, Baluchistan.	Quetta	5,502	24·679	24·609	·070	24·636	+·044		67·1	43·1	24·0	73·6	28·9	44·7	60·0	64·0	54·3	−5·2	41·7	50·1	52·0	47·9
Hill Stations, Northern India.	Leh	11,503	19·731	19·650	·081	19·696	+·009		48·8	26·4	22·4	59·4	8·9	50·5	40·6	45·7	38·1	−4·9	23·1	29·5	32·2	28·3
	Srinagar	5,204	24·950	24·865	·085	24·900	+·046		62·8	43·6	19·2	74·1	33·9	40·2	53·3	59·9	52·5	−4·8	41·3	50·4	56·1	49·3
	Simla (Ridge)	7,224	23·145	23·099	·046	23·113	+·025		63·7	49·2	14·5	72·3	35·2	37·1	58·5	61·4	55·9	−3·9	40·9	46·5	47·8	45·1
	Chakrata	7,022	·314	·265	·049	·282	+·011		67·4	50·1	17·3	75·5	39·4	36·1	60·9	63·0	57·7	−2·0	40·5	47·3	47·0	44·9
	Ranikhet	6,069	24·131	24·058	·073	24·084	+·021		74·5	55·1	19·4	81·0	43·0	38·0	67·9	70·0	63·7	−1·2	45·4	50·7	50·3	48·8
	Muktesar	7,600	22·890	22·832	·058	22·861			69·9	49·7	20·2	79·7	39·4	40·3	62·6	64·1	58·3		39·5	47·3	47·5	44·8
	Katmandu	4,388	25·658	25·569	·089	25·612	?		86·3	50·5	35·8	93·2	39·9	53·3	75·2	82·2	67·4	+0·9	47·4	57·9	58·7	54·7
	Darjeeling	7,376	23·023	22·969	·054	22·994	+·023		65·6	49·6	16·0	71·1	40·3	30·8	60·8	62·7	56·9	+3·0	43·9	51·9†	54·0†	49·9
Hill Stations, Central India.	Mount Abu	3,945	26·092	26·011	·081	26·046	+·018		82·3	66·4	15·9	89·4	51·5	37·9	76·8	80·2	73·8	−2·7	50·2	55·6	56·7	54·2
	Pachmarhi	3,528	·489	·390	·099	·434	+·037		93·1	69·0	24·1	98·7	57·8	40·9	85·1	90·2	81·8	+0·1	52·8	58·9	61·4	57·7
	Chikalda	3,642	·355	·251	·104	·298	+·014		92·8	71·9	20·9	98·4	58·6	39·8	83·7	90·8	83·3	+0·1	54·5	60·4	62·8	59·2
Hill Stations, S. India.	Kodaikanal	7,688	22·881	22·814	·067	22·843			69·3	53·4	15·9	74·3	50·5	23·8	65·6	63·5	59·7		46·1	54·4	56·6	52·4
	Ootacamund		23·109	23·042	·067	23·076			72·7	51·7	21·0	74·7	48·1	26·6	69·6	67·5	60·9		47·0	54·0	56·1	52·4
Extra India.	Aden	94	29·873	29·747	·126	29·801	+·017	·827	87·0	77·5	9·5	94·1	73·7	20·4	82·8	85·4	82·0	−0·8	70·5	75·2	73·1	72·9
	Perim	201	·719	·597	·122	·649	+·019	·782	87·9	77·8	10·1	90·7	75·6	15·1	85·2	85·1	82·2	−0·9	74·6	77·5	77·3	76·5
	Minicoy	7	·937	·876	·061	·900		·832	87·1			91·7			86·5	86·1				78·9	78·6	
	Zanzibar	73	·928	·815	·113	·872	−·013	·871	84·9	78·1	6·8	88·9	75·6	13·3	81·4	84·0	81·3	+0·3	74·3	78·0	78·2	76·8
	Port Victoria (Seychelles)	15	·942	·850	·092	·896	−·010	·835	84·7	74·7	10·0	87·7	72·8	14·9	83·1	84·0	79·5	−1·2	74·2	77·5	77·8	76·5
	Mauritius (Pamplemousses)	181				·812	−·015	·940				84·6	62·8	21·8			75·5	0				72·2

† Mean of 27 days.

II—*concluded.*

63 Stations in India, Burma, etc., in April, 1903—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
																									%	%						
.682	.698	.566	.652		82	52	35	55		2·8	4·8	3·8		4	4	6	21	2	4	3	12	4	N. 71° E.		17		57*		2·18	0·77	Periyakulam	South India.
.757	.852	.829	.813	+·082	83	59	45	62	+ 3	3·2	5·3	4·3	+0·6	15	4	7	15	3	10	3	3		S. 73° E.	S	30	30	99*	110	0·43	0·26	Salem	
.462	.501	.411	.458	—·022	56	38	24	39	− 6	1·2	2·8	2·0	−1·5	5		6	15	11		4	10	9	E	N. 32° W.	12	16	111*	178	0·07	0·07	Chitaldroog	
.474	.514	.362	.450	—·086	67	42	24	44	− 9	1·1	3·4	2·3	−1·0		1	6	20	13	3	8	5	4	S. 64° E.	S. 33° W.	37	40	176*	101	0·06	0·04	Bangalore	
.539	.458	.372	.456	—·103	84	40	28	51	−10	3·1	5·8	4·5	−0·7		3	15	21	8	1	3	5	4	N. 74° E.	N. 21° E.	47	12	71*	95	0·97	0·64	Hassan	
.623	.639	.440	.567	—·001	85	54	28	56	− 2	6·4	7·7	7·1	+2·6		3	7	14	19	4	5	3	5	S. 67° E.	S. 79° E.	40	2	193*	189	1·53	1·05	Mysore	
	.629	.865	.878	+·008		60	65	76	+ 2	2·8	2·0	2·4	−0·6				9	26	19	6			S. 29° E.	S. 37° E.	80	83	158	185	0	0	Madras	
.389	.604	.625	.539	+·017	41	39	31	37	− 2	2·5	4·4	3·5	+0·1	4	3	1	8	15	9	7	5	8	S. 13° E.	S. 63° W.	27	8	135*	127	0	0	Bellary	
.795	.820	.853	.823		83	65	69	72		3·3	4·1	3·7				1	1	8	13	37			S. 23° W.		80		168		0·05	0·05	Waltair	
.258	.265	.269	.264	+·006	90	51	46	62	+12	3·7	4·4	4·1	+0·9	9	10	3		7	4	6	9	12	N. 63° W.	N. 81° W.	27	34	47*	92	2·71	0·52	Quetta	Hill Station, Baluchistan.
.106	.080	.081	.089	—·021	66	29	23	39	− 5	4·7	6·8	5·8	−0·4		4	15	11	5	3	11	10	1	N. 82° E.	S. 62° W.	12	25	49	70	0·10	0·10	Leh	Hill Stations, Northern India.
.212	.344	.418	.335	+·007	83	82	79	81	+10	6·2	6·3	6·3	+2·0	5	8	5	1	3	1	5	9	23	N. 46° W.	N. 5° W.	52	12	132*	96	3·41	1·14	Srinagar	
.177	.199	.196	.191	—·037	49	40	36	42	− 2	5·3	5·8	5·6	+1·5	12	28	1	1	5	10	3			N. 13° E.	S. 84° W.	22	12		138	0·87	0·39	Simla (Ridge)	
.160	.190	.161	.170	—·050	43	35	27	35	− 8	3·9	5·3	4·6	+1·1	3	4	2	1	7	37	1		5	S. 5° E.	S. 64° W.	57	24	251	156	0·44	0·15	Chakrata	
.209	.196	.164	.190	−·075	48	29	23	33	−11	2·8	3·4	3·1	−0·1	2	3	4	6	2	1	14	9	19	N. 72° W.	S. 85° W.	38	43	92*	89	0·43	0·32	Ranikhet	
.144	.175	.163	.161		39	31	27	32		3·7	4·1	3·9		8	5	5	7	15	5	2	3	10	S. 82° E.		17		159*		0·60	0·56	Muktesar	
.300	.288	.228	.272	—·101	80	33	21	45	−15	1·6	2·7	2·2	−2·1		3	1	12	1	1		41	1	N. 85° W.	N. 86° W.	47	44	69	36	0·29	0·29	Katmandu	
.234	.308†	.339†	.294	−·032	64	58†	59†	60	−16	3·9	5·5	4·7	−1·4	5	1	1	8	5	1	14	19	6	S. 68° W.	S. 71 W.	38	44	232*	206	1·35	0·89	Darjeeling	
.186	.205	.197	.196	—·058	27	21	18	22	− 6	1·3	1·6	1·5	−0·4		7	8	3	1	3	18	10	10	N. 81° W.	S. 87° W.	34	56	205*	193	0	0	Mount Abu	Hill Stations, Central India.
.219	.206	.215	.213	—·035	31	17	15	21	− 5	0·9	3·0	2·0	−0·2	2	6	12	1	11	1	2	5	20	N. 10° W.	N. 62° W.	32	43	177*	138	0	0	Pachmarhi	
.231	.259	.250	.247	—·031	29	22	17	23	− 3	0·2	3·6	1·9	−0·7	36	5	3		2		3		11	N. 29° W.	N. 47° W.	22	40	179*	194	0	0	Chikalda	
.243	.313	.393	.322		59	51	68	63		3·6	6·1	4·9			3	13	11	20	4	1			S. 79° E.		57		217		4·07	1·47	Kodaikanal**	Hill Stations, S. India.
.276	.260	.333	.290		72	36	50	53		3·2	6·2	4·7		4		10	29	15	2				S. 83° E.		78		117*		1·36	0·80	Ootacamund	
.657	.774	.656	.696	—·056	69	69	55	64	− 4	3·2	1·3	2·3	0	2		15	16	3					N. 73° E.	N. 86° E.	72	62	¶ 416*	363	0	0	Aden	Extra India.
.821	.850	.835	.835	+·038	89	70	69	76	+ 6	0·6	0·3	0·5	−1·2				2	58					S. 46° E.	S. 62° E.	99	55	172*	417	0	0	Perim	
	.885	.877				70	70			3·6	4·5	4·1			13	9	5	2			7	24	N. 18° W.		62		111*		1·16	0·94	Minicoy	
.800	.916	.888	.868	+·021	83	86	77	82	+ 1	7·1	7·3	7·2	+1·5				1	9	32	17	1		S. 81° W.	S. 5° E.	85	81	173*	174	11·85	3·77	Zanzibar	
.845	.880	.877	.867	+·046	98	77	74	83	+ 6	5·9	6·7	6·3	+1·2	9	8	3	5	3	1	2		29	N. 26° W.	S. 69° E.	48	10	111	P	17·12	2·61	Port Victoria (Seychelles).	
			.728	+·024				83	+ 3			5·9	+0·3										S. 69° E.	S. 71° E.			245	251	6·51	1·21	Mauritius (Pamplemouses)	

¶ Mean of 28½ days. ** Wind variable 8. * Corrected.

C. I. C. P. O.—No. 366 Meteor.—28-8-1903—385.—G.C.R.

Reg. No. 242, W... — May 03 — ...

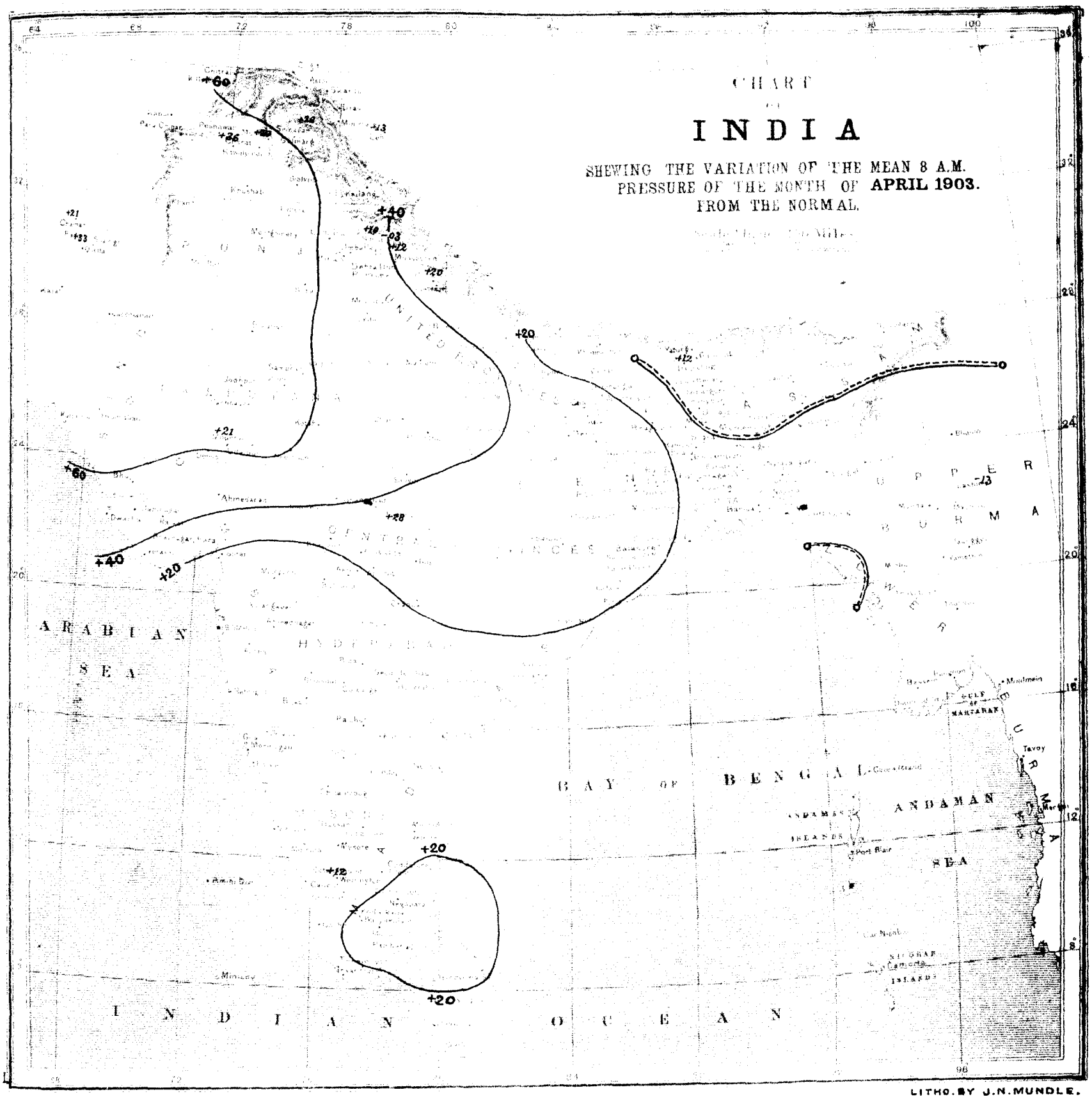
LITHO. BY J. N. MUNDLE. Zinco, S. I. O., Calcutta.

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.

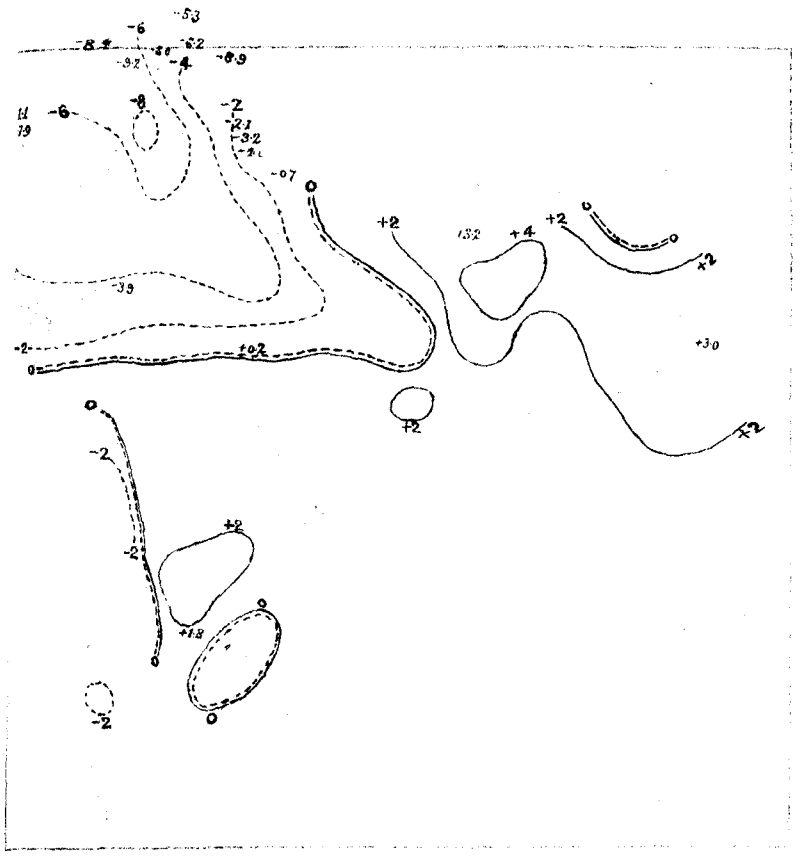
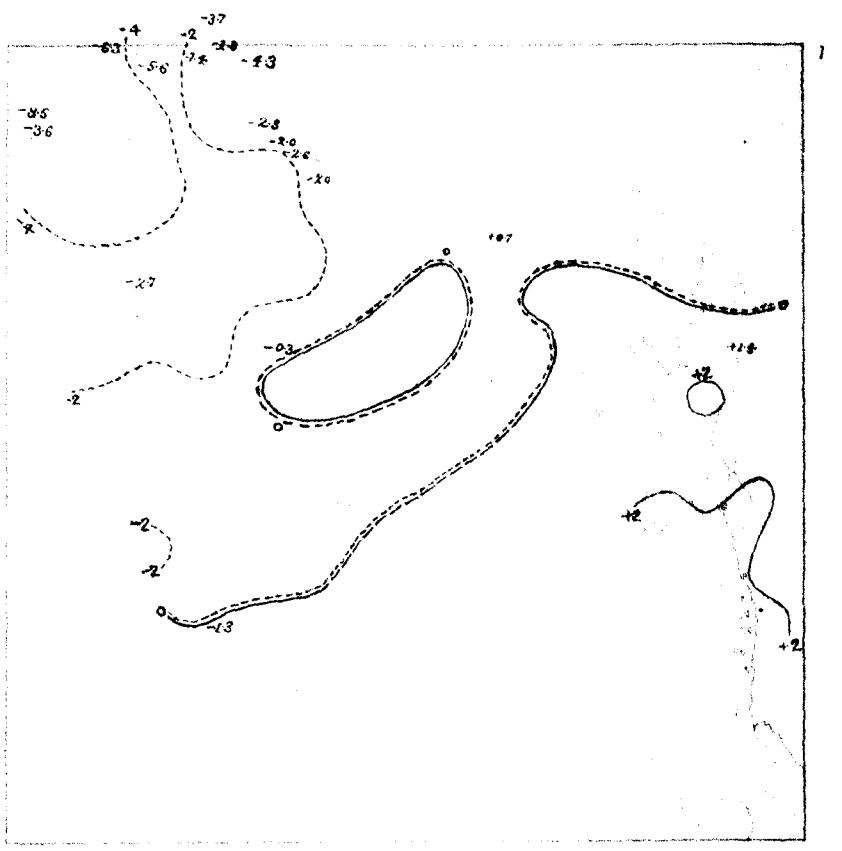


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

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

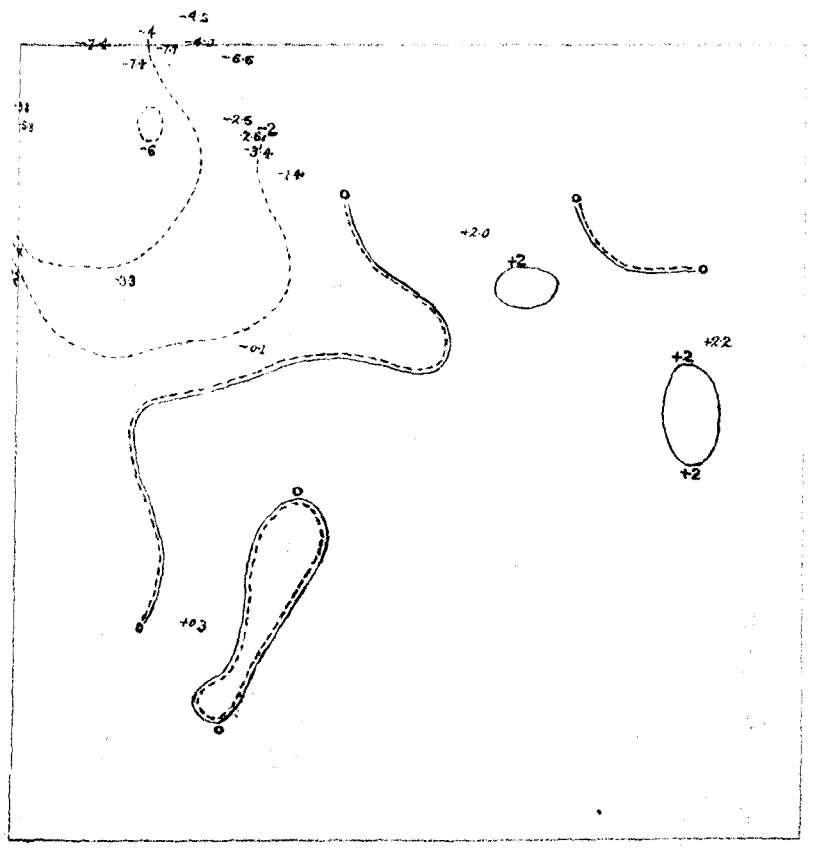
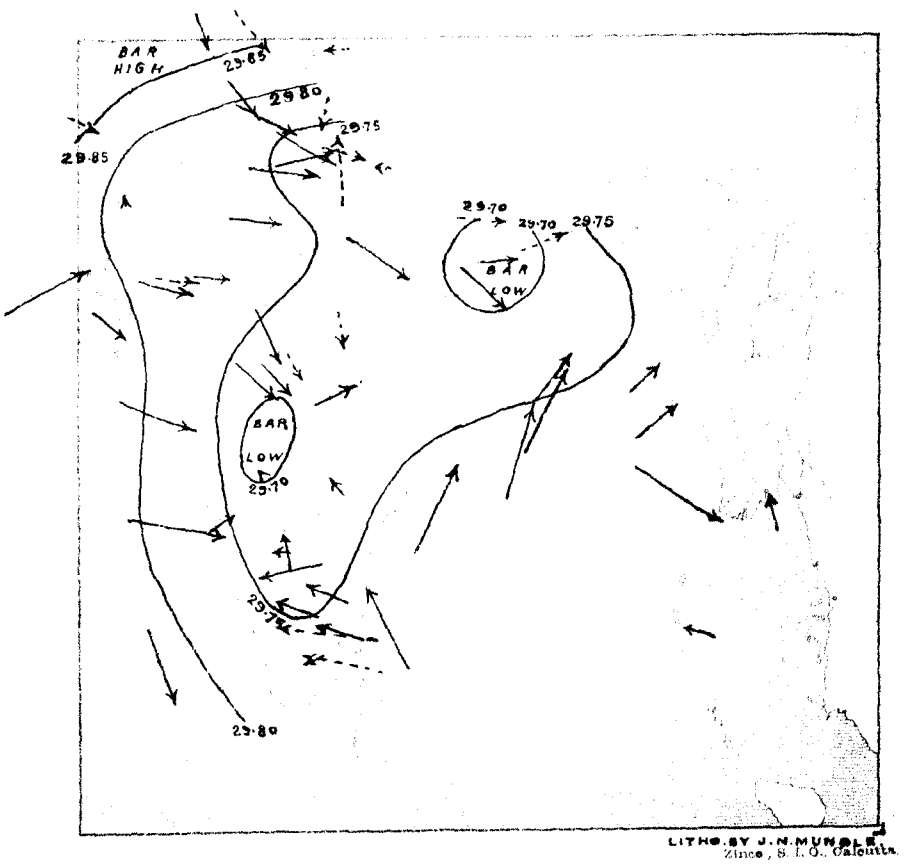


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF APRIL 1903.

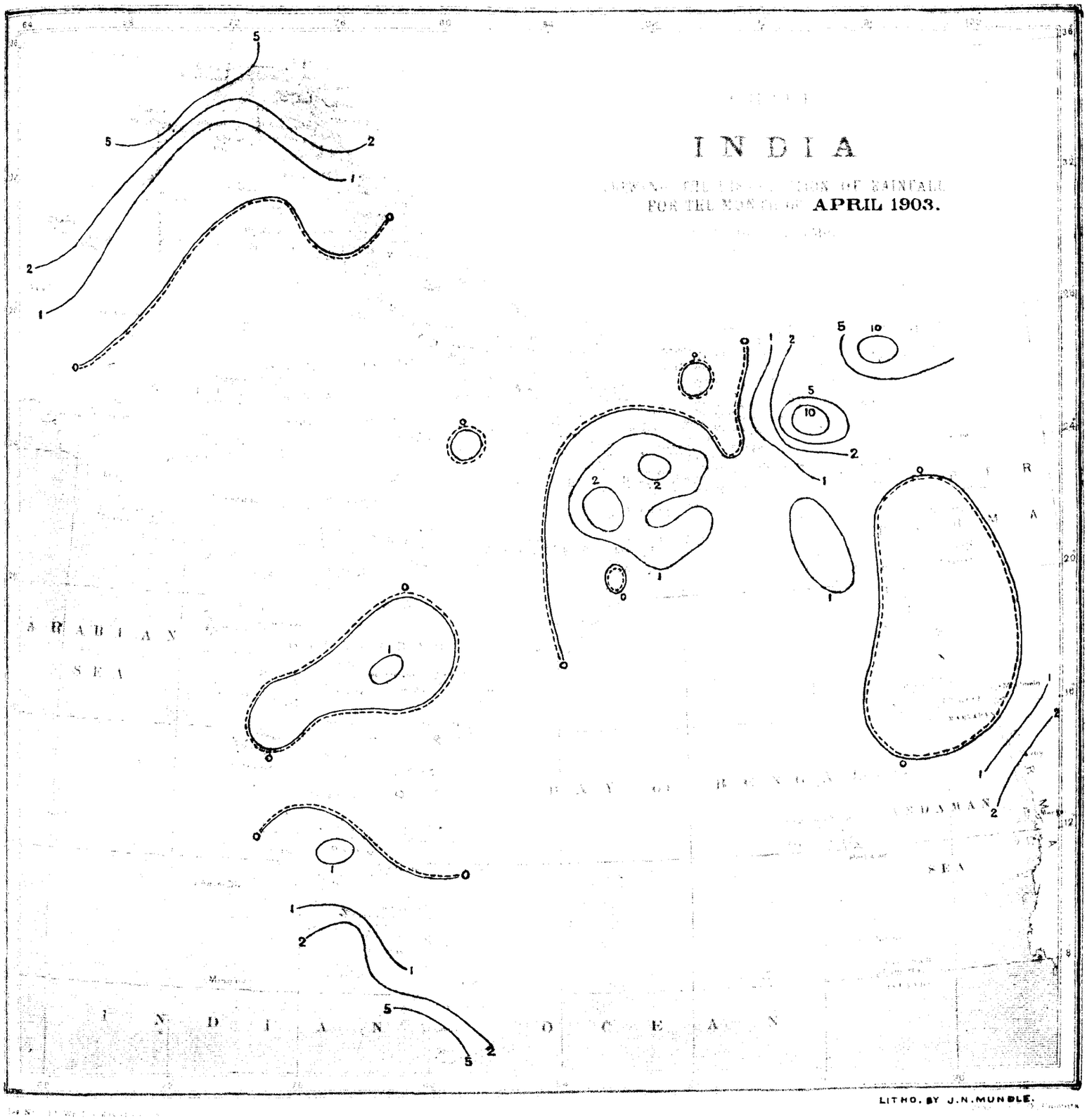


Explanation.

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

The Chart is prepared in the same manner as the Monthly Charts which previously to 1899 appeared in the Annual Reports, the only alteration noticeable being that pressures are reduced to sea-level generally. 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
Since, S. I. O. Calcutta.



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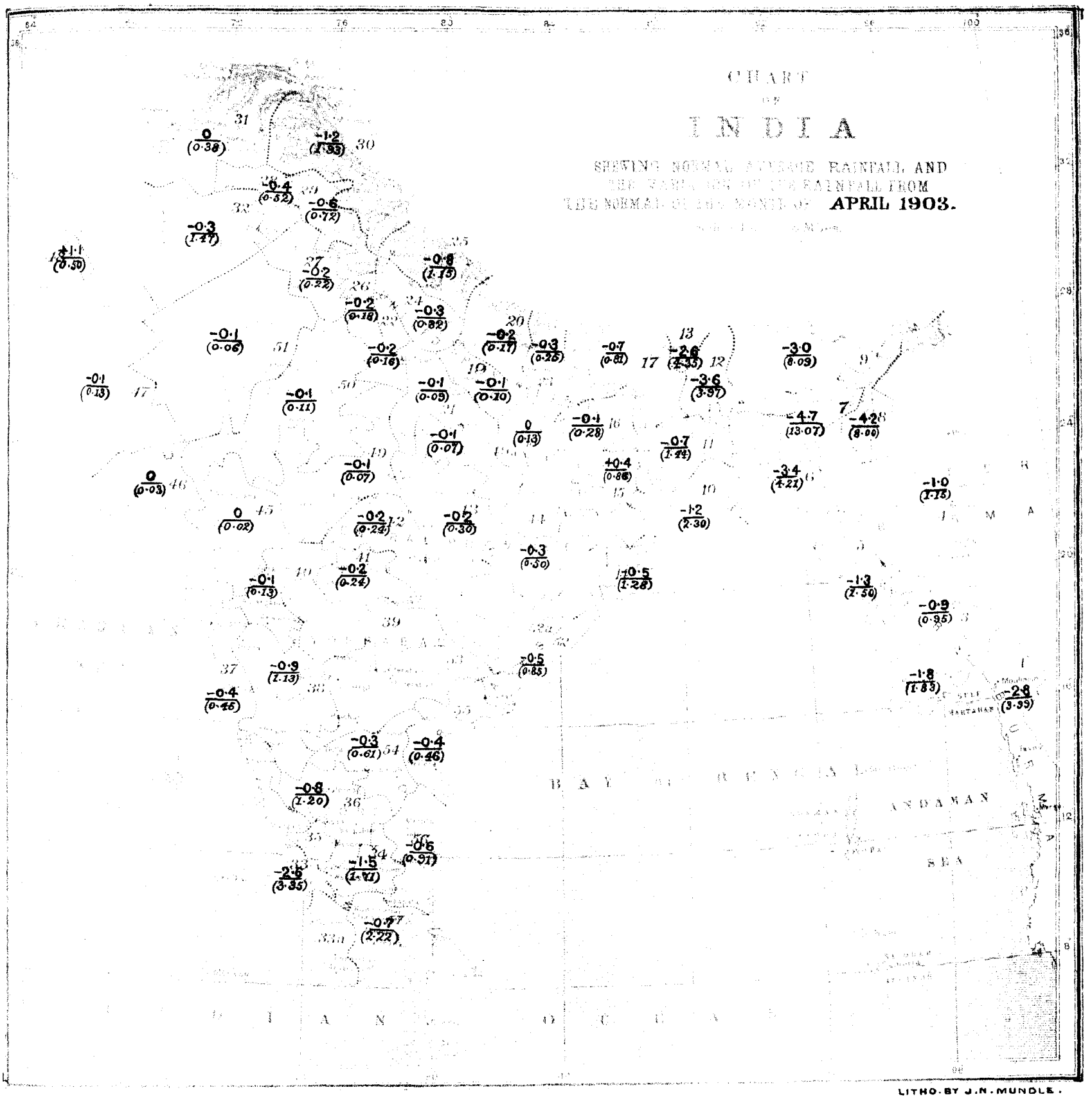
Explanation.

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 area faces the area of no rainfall.



LITHO. BY J.N. MUNDLE.

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29.	Punjab, Submontane
30.	Do. Hills
31.	North Punjab
32.	West do.

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33a.	Baluchistan
34.	Madras, South-West
35.	Coorg
36.	Mysore
37.	Konkan
38.	Bombay Deccan
39.	Hyderabad, North
40.	Khandesh
41.	Berar
42.	Central Provinces, West
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46.	Kathiawar
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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, MAY, 1903.

INTRODUCTION.

THIS review of the weather in India during the month of May 1903 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 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 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, 1903.

The weather during the month of May 1903 was somewhat more disturbed than usual, but the intensity of the disturbances was slight, and there was no storm of the extent or intensity of those which affected the weather in May last year. One of the principal features of the meteorology of the month under review was the very large variations of pressure and temperature which were recorded. On several occasions the temperature over considerable areas was from 20° to 30° below the normal, and about the 20th there occurred an extraordinarily large excess of pressure. On the 20th the general pressure anomaly of the whole country was +0·152″, while at Mooltan the excess was as much as ·374″ and at Jacobabad ·381″. Frequent showers of snow occurred during the month in the western Himalayas, and added to the already considerable accumulation of snow of the previous two months.

Temperature was below the normal at the commencement of the month over the whole Indian area, except north-east India and Burma and the west, south and centre of the Peninsula. In the former area the excess was very large, and in parts of Bengal and Assam the mean temperature was more than 10° above the normal. The following gives data for the stations in this region :—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 1st May 1903.
	°
Bogra	+11·6
Purnea	+11·5
Dhubri	+11·2
Mymensingh	+11·0

The above conditions continued during the 1st, 2nd and 3rd, during which period there was no rain of importance over the Indian area. On the 4th scattered showers occurred in the North-West Frontier Province and moderate rain and snow in Kashmir, accompanied with a fall of temperature over the extreme north-west of India. The fall in the north-west was not maintained, and from the 5th to the 9th the mean temperature was generally

high, except in Assam (where numerous thundershowers had occurred), the Indus valley and the Madras coast. The variations of the mean temperature from the normal during this period were not, however, very large or important, notwithstanding that the weather, except in Assam, was generally fine and settled. Showers occurred over the south and east of the Peninsula on the 10th, and during that and the following day temperature was low over the central parts of the country and portions of the Peninsula, while it was very high over the extreme north-west of India. This high temperature in the north-west preceded the appearance of a storm, and on the 12th and 13th showers fell over Baluchistan and the extreme north-west of India. The result was a very rapid fall of temperature over this area, the change between the 11th and 12th averaging —8°·0 over the north-west dry area and —11°·0 in Baluchistan. The cold wave extended rapidly over the country and reduced temperature to below the normal in nearly all parts of India. At the same time rain fell over Burma and parts of the Peninsula and reduced temperature in these areas also. Further showers occurred in the north-west on the 16th, 17th and 18th keeping temperature low, so that practically from the 12th to the 22nd the mean temperature, cexept over Bengal, where it was in considerable excess, was steadily low over the greater part of the Indian area. The following gives comparative temperature data for all divisions for the 18th illustrating the general conditions existing at this time :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 18th May.	Mean minimum temperature, 18th May.	Mean daily temperature, 18th May.
	°	°	°
Burma	+ 0·7	+1·0	+ 0·9
Assam	— 0·1	—3·4	— 1·8
Bengal	+ 4·7	+2·5	+ 3·6
Orissa	+ 1·3	+2·0	+ 1·7
Bihar	+ 8·7	+4·4	+ 6·6
Chota Nagpur	+ 2·2	—2·0	+ 0·1
United Provinces of Agra and Oudh.	— 1·8	—4·3	— 3·1
Punjab	—16·1	—9·0	—12·6
North-West Frontier Province.	—23·2	—8·2	—15·7
Sind	— 6·6	—1·2	— 3·9
Rajputana	— 9·6	—8·0	— 8·8
Gujarat	— 2·9	+0·1	— 1·4
Central India	— 4·2	—1·8	— 3·0
Central Provinces	— 2·4	—3·2	— 2·8
Berar	— 3·5	—0·7	— 2·1
West Coast	— 0·9	—0·1	— 0·5
Bombay Deccan	— 2·8	—2·3	— 2·6
Mysore	— 1·5	—1·8	— 1·7
Madras Coast	— 3·2	—4·8	— 4·0
Madras Deccan	— 2·7	—1·3	— 2·0
South India	— 4·3	—1·7	— 3·0

In the meantime on the 18th disturbed weather appeared off the Malabar coast, and between that date and the 24th a feeble cyclonic storm passed along the west coast travelling to the north of the Arabian Sea. This storm occasioned moderately heavy rain over the Peninsula and the central parts of the country, the largest amounts in 24 hours having been as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Trichinopoly	Uppiliyapuram	18th May	4·20
Travancore State	Karunagapally	,, ,,	4·08
Malabar	Cochin	19th ,,	4·33
Travancore State	Parur	,, ,,	4·15
Chitaldroog	Chitaldroog	,, ,,	3·28
Tanjore	Vedaranniyam	20th ,,	5·29
Chingleput	Conjeeveram	,, ,,	4·15
Feudatory States	Deogarh	,, ,,	4·00
Hassan	Hassan Hospital	21st ,,	5·94
	Alur	,, ,,	5·69
	Hassan	,, ,,	5·58
Nellore	Rapur	,, ,,	5·50
Malabar	Chowghat	,, ,,	4·62
	Ponnani	,, ,,	4·20
Nellore	Gudur	,, ,,	4·03
Kolhapur, etc.	Sangli	22nd ,,	2·04
Basim	Mangrul	23rd ,,	2·65
	Sirpur	,, ,,	2·37
Ratnagiri	Vengurla	24th ,,	6·70
Raipur	Drug	,, ,,	2·10
Betul	Chicholi	,, ,,	2·05
Thana	Thana	25th ,,	13·33
	Mahim	,, ,,	9·75
	Bhiwndi	,, ,,	9·20
Kolaba	Matheran	,, ,,	9·00
Satara	Malcolmpeth	,, ,,	8·56
Thana	Dahanu	,, ,,	6·50
Poona	Lanoli	,, ,,	6·26
Narsinghpur	Mohpani	,, ,,	2·39
Saugor	Saugor	,, ,,	2·29

This rainfall reduced temperature to below the normal over the areas affected, and from the 23rd to the 29th the mean temperature was high over north-western India and Burma and low over the Peninsula and the central parts

of India. The following gives comparative data of temperature for all divisions for the 26th in illustration :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 26th May.	Mean minimum temperature, 26th May.	Mean daily temperature, 26th May.
	°	°	°
Burma	+ 3·7	+ 0·9	+ 2·3
Assam	— 5·5	— 2·1	— 3·8
Bengal	— 2·0	— 2·3	— 2·2
Orissa	+ 3·5	— 1·8	+ 0·9
Bihar	— 5·4	— 1·5	— 3·5
Chota Nagpur	— 6·8	— 2·3	— 4·6
United Provinces of Agra and Oudh.	— 0·7	— 2·4	— 1·6
Punjab	+ 0·6	+ 0·5	+ 0·6
North-West Frontier Province.	— 0·6	— 3·2	— 1·9
Sind	+ 3·7	+ 1·4	+ 2·6
Rajputana	+ 2·5	+ 1·9	+ 2·2
Gujarat	+ 3·2	0	+ 1·6
Central India	— 6·0	— 2·6	— 4·3
Central Provinces	— 9·1	— 7·7	— 8·4
Berar	—10·4	—11·6	—11·0
West Coast	— 2·3	+ 0·1	— 1·1
Bombay Deccan	—15·2	— 4·1	— 9·7
Mysore	— 0·8	— 0·9	— 0·9
Madras Coast	— 2·8	+ 0·3	— 1·3
Madras Deccan	— 1·5	— 1·9	— 1·7
South India	— 0·1	+ 1·3	+ 0·6

The depression of the day temperature over the more central districts on the 26th and 27th was very large and amounted to over 20° at the stations for which comparative data are given below :—

DATE.	STATION.	MAXIMUM TEMPERATURE.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
26th May	Malegaon	77·3	103·3	—26·0
	Ahmednagar	77·3	98·4	—21·1
	Poona	77·1	97·4	—20·3
27th "	Jubbulpore	76·9	106·1	—29·2
	Seoni	77·8	104·1	—26·3
	Nagpur	84·1	109·3	—25·2
	Sutna	81·3	106·2	—24·9
	Saugor	82·4	105·4	—23·0
	Amraoti	85·1	107·2	—22·1

Towards the close of the month rain was again confined mainly to Burma, Assam and Bengal, and the general temperature conditions were fairly normal, except over these areas.

Pressure.—The mean pressure of the whole Indian area was 0·038″ above the normal, and pressure exceeded the average at all stations, except Colombo and a few places along the west coast. The greatest excess was 0·095″ at Peshawar. Relatively to the general condition pressure was in defect over Gujarat, the west, centre and south of the Peninsula, Ceylon, part of north Bengal and of Assam and Burma, and was in excess over the remainder of the country. The largest opposite anomalies were +0·057″ at Peshawar and —0·047″ at Mangalore. The vertical pressure anomalies were generally 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, 1903.	Pressure anomaly, May, 1903.
	″	″
Burma Coast and Bay Islands	+·025	—·013
Burma Inland	+·030	—·008
Assam	+·038	0
Bengal and Orissa	+·048	+·010
Gangetic Plain and Chota Nagpur	+·050	+·012
Upper Sub-Himalayas	+·059	+·021
Indus Valley and North-West Rajputana	+·070	+·032
East Rajputana, Central India and Gujarat	+·029	—·009
Deccan	+·038	0
West Coast	0	—·038
South India	+·023	—·015

Temperature.—The weather during May was marked by very large variations of temperature.

The mean maximum or day temperature of the month exceeded the normal over Burma, Bengal and the north Gangetic plain on the one hand, and over north Bombay and the north Konkan coast on the other. The mean excess was greater in the former than in the latter area, amounting to 6°·8 at Purnea, to 7°·2 at Berhampore, to 5°·5 at Dinajpur and to 3°·0 at Bhuj and 2°·0 at Kurrachee. Over the whole of the remainder of the country the maximum temperature, on the mean of the month, was low, more particularly within a broad band extending south-south-eastward from the Punjab to the Madras coast. At Peshawar the deficiency amounted to 7°·0, at Montgomery to 6°·3, at Nagpur to 4°·5, at Nellore to 6°·1, and at Negapatam to 5°·9.

The variations of the mean minimum temperature exhibited a generally similar distribution, but the amounts were smaller. In north-eastern India and Burma and in western India the mean minimum temperature exceeded the

normal, while over the whole intervening region it was in defect. The following table gives a rough approximation to the distribution :—

VARIATIONS OF MEAN MINIMUM TEMPERATURE.

STATIONS.	Positive variations.	STATIONS.	Negative variations.
	°		°
Narayanganj	+2·1	Khushab	—3·6
Gaya	+2·6	Montgomery	—3·4
Hazaribagh	+2·1	Jubbulpore	—2·8
Deesa	+2·1	Raipur	—2·9
Kurrachee	+2·4	Seoni	—3·1
		Cuddapah	—2·8

The mean temperature of the month was above the normal over Burma and Bengal and over north Bombay, and was low over the whole intervening region. The excess was greatest (+4°·0) over central Bengal, while the deficiency was large (between 3° and 4°) over the North-West Frontier Province, the west Punjab and the east of the Peninsula.

The mean temperature exceeded the normal at Darjeeling, Ranikhet and Mount Abu, but was lower than usual at all the remaining hill stations.

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, 1903.	Mean minimum temperature, May, 1903.	Mean daily temperature, May, 1903.
	°	°	°
Burma Coast and Bay Islands	+1·6	+1·2	+1·4
Burma Inland	+2·8	+0·9	+1·9
Assam	+1·5	—0·3	+0·6
Bengal and Orissa	+3·5	+1·1	+2·3
Gangetic Plain and Chota Nagpur	+1·5	—0·3	+0·6
Upper Sub-Himalayas	—1·7	—1·1	—1·4
Indus Valley and North-West Rajputana.	—2·5	—1·0	—1·7
East Rajputana, Central India and Gujarat.	+0·1	+0·2	+0·2
Deccan	—2·4	—1·0	—1·7
West Coast	—0·1	—0·2	—0·2
South India	—2·6	—0·9	—1·8

Winds.—The winds were weaker than usual over practically the whole country, and this weakness extended over the Arabian Sea, where the mean force for May was 2·9, while the normal force is 3·4. Over the Bay of Bengal, on the other hand, the winds were slightly stronger than the average, the mean force having been 3·2, while the normal is 3·0. The variations in the direction of the wind from the average were generally small. Over northern India, however, from upper India as far east as lower Bengal there was somewhat more westing than usual, and this increased westing was also traceable at some of the central and Peninsular stations. In southern India the wind direction was approximately normal. In the south-east trades region the only variation of importance was the increased westing in the wind's direction at Zanzibar, where, on the mean of the month, the wind blew from S7°W instead of from the normal direction of S5°E.

Humidity.—The air was damper than usual on the hills and plains of the extreme north-west of India, the excess in the relative humidity having been greatest at Srinagar and Peshawar. The mean humidity also exceeded the normal over the Peninsula, except locally at the two stations of Hassan and Bangalore, where both the absolute and relative humidities were less than usual. The excess over the Peninsula was greatest at Bellary (1+11). Over practically the whole of the remainder of the country the air was drier than usual in May, and over Gujarat, the United Provinces and lower Bengal the deficiency amounted to 10 or more. At the stations in the eastern and central Himalayas the air was even drier than on the neighbouring plains, but at Pachmarhi and Chikalda the humidity, as at the neighbouring plains stations, was in excess of the average. At Zanzibar, where, as mentioned above, the wind blew from a direction from the west of south, the air was slightly drier than usual, while at the Seychelles, where the wind's direction was normal, the mean relative humidity was above the average.

The following table gives actual and variation data of the mean aqueous vapour pressure and mean relative humidity of nine meteorological provinces for May 1903 :—

METEOROLOGICAL PROVINCE.	MEAN ABSOLUTE HUMIDITY.		MEAN RELATIVE HUMIDITY.	
	Average actual, May 1903.	Variation of actual from normal, May, 1903.	Average actual, May, 1903.	Variation of actual from normal, May, 1903.
	"	"	%	
Burma Coast and Bay Islands.	·909	+·010	78	0
Bengal and Orissa	·917	—·011	75	—5
Gangetic Plain and Chota Nagpur.	·502	—·084	38	—8
Upper Sub-Himalayas	·373	—·080	32	—6
Indus Valley and North-West Rajputana.	·714	+·058	62	+6
East Rajputana, Central India and Gujarat.	·417	—·085	30	—7
Deccan	·513	+·031	42	+5
West Coast	·916	+·051	79	+5
South India	·705	+·049	65	+4

Cloud.—The skies, on the mean of the month, were slightly clearer than usual over north Bombay and along the west coast, while they were slightly to considerably clearer than usual over Bengal and part of Burma. The deficiency in the cloud amount was greatest at Saugor Island (—1·2), Chittagong (—1·7) and Diamond Island (—1·0). Over the whole of the remainder of the country increased cloudiness was recorded, more particularly over

the interior of the country, where the excess was large at Hazaribagh (+2·3), Khandwa (+2·0), Pachmarhi and Akola (each +1·9), Jaipur (+1·8) and Hyderabad (+1·7). At the eastern hill stations the sky was generally clearer of cloud than usual during the month, but at the more western and central stations the reverse was the case.

The following gives actual and variation data of the mean cloud amount in nine meteorological provinces for May 1903 :—

METEOROLOGICAL PROVINCE.	MEAN CLOUD AMOUNT.	
	Average actual, May, 1903.	Variation of actual from normal, May, 1903.
Burma Coast and Bay Islands	6·1	−0·3
Bengal and Orissa	4·2	−0·9
Gangetic Plain and Chota Nagpur	3·5	+1·1
Upper Sub-Himalayas	2·5	+0·4
Indus Valley and North-West Rajputana	2·5	+0·5
East Rajputana, Central India and Gujarat	2·4	+0·6
Deccan	4·2	+1·1
West Coast	3·0	−0·6
South India	5·5	+0·8

Rainfall.—Rain fell in almost all parts of the Indian region during May. The rainfall of the month was heavier than usual on the hills and plains of the extreme north-west of India and over the Peninsula, and was lighter than usual elsewhere. The areas of heaviest rainfall were lower Burma, east Bengal and Assam and west Ceylon and Malabar. The following gives comparative data for certain selected stations in these areas :—

PROVINCE OR DIVISION.	Station.	RAINFALL.			
		Average actual, May, 1903.	Average normal, May.	Variation of actual from normal, May, 1903.	Percentage variation from normal.
		Inches.	Inches.	Inches.	
BURMA	Moulmein	15·83	19·40	− 3·57	−18
	Diamond Island	13·65	19·43	+ 3·22	+31
BENGAL	Mymensingh	11·91	12·96	− 1·05	− 8
ASSAM	Dhubri	12·93	15·43	− 2·50	−16
	Cherrapoonjee	21·33	49·93	−28·60	−57
WEST CEYLON	Colombo	20·60	11·12	+ 9·48	+85
MALABAR	Cochin	15·73	12·39	+ 3·34	+27

The regions of lightest rainfall included parts of the north-west dry area, of the United Provinces and of the central parts of the Peninsula (as illustrated by the following stations), where little or no rain was received during the month :—

STATION.	RAINFALL.			
	Average actual, May, 1903.	Average normal, May.	Variation of actual from normal, May, 1903.	Percentage variation from normal.
	Inch.	Inches.	Inches.	
Montgomery	0·08	0·27	−0·19	−70
Bikaner	0·03	0·88	−0·85	−97
Pachpadra	0	0·66	−0·66	−100
Hyderabad (S)	0·08	0·18	−0·10	−56
Kurrachee	0	0	0	0
Surat	0·08	0·13	−0·05	−38
Bhuj	0	0·09	−0·09	−100
Dwarka	0			
Indur	0·38	0·39	−0·01	− 3
Bidar	0·09	1·00	−0·91	−91
Jamnagar	0			
Agra	0·08	0·56	−0·48	−86
Roorkee	0·05	0·82	−0·77	−94
Allahabad	0·04	0·29	−0·25	−86
Lucknow	0·03	1·01	−0·98	−97
Cawnpore	0	0·31	−0·31	−100
Gopalpur	0·04	2·10	−2·06	−98

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

METEOROLOGICAL PROVINCE.	RAINFALL.			
	Mean actual for May, 1903.	Mean normal for May.	Variation of actual from normal, May, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	10·07	14·66	−4·59	− 31
Burma Inland	4·70	5·41	−0·71	− 13
Assam	8·62	13·30	−4·68	− 35
Bengal and Orissa	4·51	7·33	−2·82	− 38
Gangetic Plain and Chota Nagpur	1·19	1·63	−0·44	− 27
Upper Sub-Himalayas	0·98	0·91	+0·14*	+ 15
Indus Valley and North-West Rajputana.	0·48	0·42	+0·06	+ 14
East Rajputana, Central India and Gujarat.	0·35	0·38	−0·03*	− 8
Deccan	2·05	0·89	+1·14*	+128
West Coast	7·91	5·14	+2·77	+ 54
South India	3·76	2·25	+1·51	+ 67

* 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.

So far the discussion has been concerned almost wholly with the meteorological changes within India and the Indian seas. In the following paragraphs a brief account is given of the larger meteorological changes which have affected the surrounding regions so far as they appear to be connected with the Indian weather.

General remarks for the Indian monsoon area.—The barometric changes over western Siberia during May 1903 were very large and very irregular. The principal cases of barometric falls occurred on the 6th and 7th, the 9th and 10th, the 13th to the 15th, the 23rd to the 26th and the 29th and 30th. These changes were frequently very large; thus at Omsk between the 6th and 7th pressure decreased 0·820″ and between the 7th and 8th increased 0·704″, and on other occasions the changes were nearly as large, but it is practically impossible to trace any connexion between these changes and the movements of pressure at Kashgar, Gilgit or Chitral. At Gilgit and Kashgar there was no rain throughout the month, and at Chitral the two rainy periods recorded occurred between the 10th and 13th and the 16th and the 18th, so that the disturbed periods at this station did not correspond with the periods of decreasing pressure over western Siberia.

Comparing the Tiflis pressure observations with those of Ispahan, Baghdad and Bushire, a faint correspondence is traceable. At Tiflis marked falls of the barometer occurred on the 14th and 15th, between the 22nd and 24th, on the 26th and on the 31st, and similar changes were recorded at Ispahan, Baghdad and Bushire, but there is no evidence of the passage of an area of low pressure from one region to the other, and the only reasonable hypothesis is that at times general changes affect the whole area including Caucasia, Mesopotamia and western Persia. In Egypt pressure was above the normal on the mean of the month. It was absolutely highest on the 1st of May and low on the 4th and 23rd. European reports show that pressure was steady and about normal over south-east Europe from the 1st to the 5th. It then rose and was steady and moderately high till the 16th. On the 17th, 18th, and 19th pressure was very unsteady and the weather disturbed. On the 20th a sudden rise took place which preceded the appearance of a depression over the Levant. The reports of the 22nd and 23rd showed that the barometer was falling and from that date onward to the close of the month pressure remained very high over central and northern Europe, while it was steadily low over the Mediterranean region.

It would appear from the above that no direct connexion can be traced between the condition and changes of pressure over south-east Europe, Egypt, and Asiatic Turkey, etc., and the variations in the pressure and weather over India, and it is on the whole probable, as stated in the barometric depressions section, that most of the depressions which affected Afghanistan, Baluchistan and north-west India during the month under review, were more or less locally formed, and that they did not advance through Afghanistan and Baluchistan frm countries to the westward.

The pressure changes over the south-east trades region during the month were generally slight or small, and were not, so far as can be judged, propagated northward into the Indian region.

The following table shows the daily variations of pressure from the normal for various selected stations within the monsoon area and the mean variation derived from the whole number of stations :—

Month—May 1903.

Date.	Pressure variation from normal of								
	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	″	″	″	″	″	″	″	″	
1	+·036	+·112	?	+·036	—·029	—·065	+·048	+·091	+·033
2	+·129	+·096	?	+·049	—·050	—·030	+·025	+·081	+·043
3	+·102	+·007	?	+·046	—·040	—·043	+·041	+·079	+·027
4	+·124	—·013	+·037	+·047	—·045	—·050	+·060	+·076	+·030
5	+·039	—·018	+·007	+·043	—·074	—·028	+·018	+·026	+·002
6	+·040	—·010	+·008	+·055	—·065	—·012	+·015	+·044	+·009
7	+·010	—·004	+·026	+·082	—·048	—·027	+·015	+·028	+·010
8	+·002	—·004	+·001	+·076	—·022	—·030	—·009	—·013	0
9	—·035	—·101	—·051	+·052	—·033	+·023	—·033	—·022	—·025
10	+·025	—·092	—·083	+·038	—·022	—·034	—·018	+·003	—·023
11	—·014	—·005	—·053	+·002	—·024	—·031	—·012	+·038	—·012
12	+·011	—·074	+·009	+·032	—·002	—·049	+·020	+·047	—·001
13	+·059	+·039	+·067	+·040	+·007	—·026	—·012	—·016	+·020
14	0	+·033	+·029	+·065	—·006	—·027	—·005	—·003	+·011
15	—·042	—·068	—·012	—·004	—·039	—·007	—·003	+·002	—·022
16	+·060	—·053	+·061	+·031	—·017	+·012	+·028	+·029	+·018
17	+·050	+·040	+·080	+·039	+·003	+·018	+·011	—·017	+·028
18	+·006	+·069	+·058	—·027	+·013	—·018	+·021	+·003	+·016
19	—·008	+·056	+·098	—·060	—·027	—·079	+·003	+·015	+·001
20	+·129	+·163	+·113	+·002	—·016	—·023	+·057	+·050	+·059
21	+·215	+·176	+·223	+·034	—·005	—·007	+·006	+·093	+·092
22	+·144	+·092	+·059	+·067	—·018	—·041	—·088	+·070	+·036
23	+·007	—·051	—·093	+·009	—·032	—·031	—·164	+·035	—·040
24	—·004	—·139	0	+·049	—·026	+·008	—·155	+·076	—·024
25	—·001	—·097	—·032	+·043	—·010	+·006	—·132	+·039	—·023
26	—·092	—·136	—·080	+·094	—·068	—·044	—·061	—·001	—·049
27	—·083	—·037	—·098?	—·021	—·082	—·062	+·012	+·008	—·038
28	—·006	—·012	+·038	—·010	—·034	+·041	+·055	+·036	+·014
29	+·077	—·009	+·029	—·003	—·019	—·009	+·033	—·003	+·012
30	+·131	—·009	—·034	+·062	—·038	—·046	+·024	—·009	+·010
31	+·077	—·094	—·075	+·063	—·047	—·009	+·037	+·009	—·005

The preceding data show that there was a marked difference in the pressure conditions, relatively to the normal, in different parts of the monsoon area. In the south, as represented by Zanzibar and the Seychelles, the pressure was lower than usual almost throughout the month, while at Aden, Bushire, Bombay and Madras it was almost equally steadily higher.

The concluding column, giving the mean result of all stations, shows that a series of short and irregular oscillations of pressure occurred over the monsoon area. Pressure decreased from the 1st to the 9th, then rose to a maximum on the 21st, fell again from the 22nd to the 26th and rose finally from the 28th to the 30th.

The wind observations at the Seychelles show that the wind was north-westerly at the commencement of the month, changed to north-east on the 5th and was north-easterly or variable till the 11th, when the direction settled steadily into south-east. These changes in the wind direction at the Seychelles had no apparent connexion with the changes over the Arabian Sea, where south-south-westerly and south-westerly winds had appeared on the 10th and continued till the 18th. The south-east trades strengthened suddenly to about ten miles per hour on the 22nd, when a cyclone lay off the west coast of India and blew with a velocity of between 200 and 400 miles per diem till the close of the month.

Magnetic and Solar disturbances.

The following reports have been received dealing with magnetic and solar disturbances:—

Kodaikanal.—The Director of the observatory telegraphed as follows at intervals during the month:—

Solar disturbances.

May 4th.—Scattered extensive spot group at western limb accompanied with brilliant faculæ and very large prominence.

May 26th.—After 18 days comparative quiet, new outbreak of solar disturbance, one large spot and several small spots having appeared with large prominences on both limbs.

Magnetic disturbances.

May 7th and 9th.—Large disturbance in magnetic force from 20 hours on 7th to 3 hours on 8th; from 6 hours to 10 hours on 8th; and from 23 hours on 8th to 1 hour on 9th.

May 25th.—Small disturbance in magnetic force from 6 hours to 15 hours.

The following gives a daily record of the solar and magnetic disturbances observed at this observatory:—

SOLAR PHYSICS OBSERVATORY, KODAIKANAL.

Spot, Faculæ and Magnetic disturbances, May, 1903.

Day of month.	Spots. Large.	Spots. Small.	Faculæ (groups).	Magnetic disturbances.
1	5	16	1	...
2	3	9	1	...
3	1	11	2	...
4	...	4	1	Small.
5	...	4	1	Moderate.
6	...	...	Several	Small. Moderate.
7	...	1	3	Small.
8	...	2	1	Small.
9	...	...	...	Small.
10	...	...	...	Small.
11	...	...	2	Small.
12	...	1	1	...
13	...	1	2	...
14	1	...	2	Small.
15	...	3	1	Small.
16	Sun not visible			...
17	Sun not visible			Moderate.
18	...	2	...	...
19	Sun not visible			...
20	...	3	...	...
21	1	2	1	...
22	1	2	...	Small.
23	1	1	...	Small.
24	...	5	1	Small.
25	...	1	Several	Small.
26	...	6	...	Small.
27	...	4	1	...
28	...	2	1	Small.
29	...	1	1	...
30	...	1	1	Small.
31	...	1	1	Small.

Colaba, Bombay.—The magnetic traces for the month do not show any unusually large disturbances. There were 12 calm days, 16 days of small and 3 days of moderate disturbances, the last being recorded on the 5th, 6th, and 17th.

Movements suspected to be due to seismic disturbances occurred on the 17th, commencing at about 3 hours. The strain lasted for about 4 hours.

Small-period movements.—Sixteen serrated movements (the oscillations continuing for some time) and 20 abrupt movements (appearing as if suddenly damped in their propagation) have been recorded during the month.

The selected quiet days of the month were the 3rd, 12th, 18th, 20th, and 27th.

The means of the observed absolute values of the several elements for the months of January to May 1903 were as follows :—

Elements.	January, 1903.	February, 1903.	March, 1903.
Declination	0° 18′ 17″ E	0° 8′ 1″ E	0° 17′ 58″ E
Horizontal Force	c. g. s. units. 0·37430	c. g. s. units. 0·37436	c. g. s. units. 0·37442
Dip	21° 40′·7	21° 40′·3	21° 41′·3

Elements.	April, 1903.	May, 1903.
Declination	0° 16′ 29″ E	0° 15′ 8″ E
Horizontal Force	c. g. s. units. 0·37431	c. g. s. units. 0·37425
Dip	21° 40′·7	21° 41′·0

There were two well-marked earthquakes recorded at Colaba during the month—one on the 13th, and the other on the 17th, the latter being the larger of the two, and its amplitude was 2·3 m.m.

The Director of the Royal Alfred Observatory, Mauritius, has forwarded the following record of the solar and magnetic disturbances observed at that observatory.

Groups of sunspots were observed on the 1st, 2nd, 3rd, 4th, 14th, 15th, 17th, 18th, 19th, 20th, 21st, 23rd, 24th, 29th and 30th, and individual spots on the 25th and 26th. The sky was cloudy on the 8th, 9th, 12th and 22nd, so that practically on all clear days sunspots were recorded. Faculæ were observed on all clear days.

Magnetic disturbances in the horizontal force were recorded between 2 hours and 8 hours on the 17th, from 6 hours on the 23rd to 6 hours on the 24th, and from 22 hours on the 29th to 2 hours on the 30th.

Atmospheric Pressure.

The mean atmospheric pressure of the Indian land area for the month of May, 1903, was 0·038″ above the normal. Excessive pressure has hence been a more or less persistent feature of the meteorology of India for sometime past, as is shown by the following statement :—

Month.	Mean general anomaly.	Month.	Mean general anomaly.
	″		″
October 1902	+0·077	January, 1903	+0·016
November ,,	+0·041	February ,,	+0·068
December ,,	—0·022	March ,,	—0·012
		April ,,	+0·028
		May ,,	+0·038

The mean pressure of the month of May was below the normal only at Colombo and a few stations along the west coast, and exceeded the normal in all other parts of the Indian land area both on the hills and plains. The excess was greatest in the extreme north-west, and the largest opposite variations were —0·009″ at Mangalore, —·008″ at Trivandrum and +0·095″ at Peshawar. The distribution of the mean pressure of the month is shown in Plate I. Pressure was lowest within a large area overlying the north-west dry area and the Gangetic plain, while it was relatively high over the North-West Frontier Province and the upper Assam valley and was highest in Tenasserim. Pressure ranged from 29·850″ at Mergui to 29·668″ at Mainpuri, giving a total range of pressure of 0·182″, which was somewhat less than the normal.

The excess of pressure, which was general over the Indian land area, extended irregularly westward over Persia, Arabia and Asiatic Turkey, as is shown by the following statement :—

Station.	Mean pressure variation, May, 1903.
	″
Jask	+·008
Muscat	—·005
Bushire	+·040
Baghdad	+·032
Aden	+·033
Perim	+·040

The preceding data show that in the neighbourhood of the entrance to the Persian gulf the mean monthly pressure was about normal, but that at all the remaining stations there was more or less excess. This excess

apparently extended as far west as Egypt, as over that country the mean variation of pressure was +0·074″, but was not felt over the south of the Arabian Sea or the Indian Ocean where, as shown below, pressure was in moderate defect at Zanzibar and the Seychelles :—

Station.	Mean pressure variation, May, 1903.
	″
Seychelles	—·030
Zanzibar	—·029
Mauritius	+·003

Compared with the general condition, *viz.*, +0·038″, pressure was locally in defect or the barometric anomalies were negative over part of north Bengal and of Assam, over Burma, the south, centre and west of the Peninsula and Gujarat. The anomalies exceeded 0·020″ over Tenasserim, Ceylon, the south and west of the Peninsula and Kathiawar and were more than 0·035″ at the stations for which comparative data are given below :—

Station.	Variation from normal of mean 8 A. M. pressure of May, 1903.	Pressure anomaly, May, 1903.
	″	″
Mangalore	—·009	—·047
Trivandrum	—·008	—·046
Colombo	—·006	—·044
Calicut	—·001	—·039
Veraval	—·001	—·039
Poona	+·001	—·037
Salem	+·001	—·037
Mormugao	+·002	—·036
Tinnevelly	+·002	—·036

Over the remainder of the country pressure was locally in excess. The anomalies were more than 0·020″ over the north-east of the Peninsula and over part of north-west India and were actually greatest over the Indus valley and the west Punjab where, as shown below, they exceeded 0·045″ :—

Station.	Variation from normal of mean 8 A. M. pressure of May, 1903.	Pressure anomaly May, 1903.
	″	″
Peshawar	+·095	+·057
Montgomery	+·092	+·054
Jacobabad	+·086	+·048
Dera Ismail Khan	+·085	+·047
Mooltan	+·084	+·045

The mean pressure of the month was above the normal at all the hill stations. The excess was, however, generally less than at the neighbouring plains stations so that the vertical pressure anomalies were—more especially in the extreme north-west—generally negative. The following gives data to illustrate this feature :—

Hill Station.	Variation from normal pressure, May, 1903.	Plain Station.	Variation from normal pressure, May, 1903.	Vertical pressure anomaly (Hill-Plain).
	″		″	
Quetta	+·071	Jacobabad	+·086	—·015
Leh	+·024	Lahore	+·079	—·055
Murree	+·048	Peshawar	+·095	—·047
Simla	+·053	Ludhiana	+·063	—·010
Chakrata	+·038	Roorkee	+·054	—·016
Ranikhet	+·047	Bareilly	+·043	+·004
Darjeeling	+·037	Dhubri	+·033	+·004
Mount Abu	+·028	Deesa	+·010	+·018
Pachmarhi	+·036	Khandwa	+·029	+·007
Wellington	+·004	Coimbatore	+·009	—·005

As negative vertical pressure anomalies are ordinarily associated with unsettled and positive anomalies with settled weather, the conditions shown in the above table indicate unsettled weather over north-west India and more settled weather than usual in the north-east.

The chief abnormal features of the pressure distribution of the month may be summed up as follows :—

(1) Pressure was in moderate general excess over the Indian land area.

(2) Pressure was in excess of the normal in all parts of India except at Colombo and a few stations along the west coast.

(3) Relatively to the general condition, pressure was low over Gujarat the west, centre and south of the Peninsula, Ceylon, part of north Bengal and of Assam and Burma, the local deficiency having been greatest along the west coast.

(4) Relatively to the general condition, pressure was in excess over north-western, northern and central India, the excess having been greatest in the Indus valley.

(5) The vertical pressure anomalies were negative over north-west India and slightly positive in the north-east.

Barometric depressions and cyclonic storms of the month.

The weather was more disturbed than usual during the month of May 1903 over north-west India and the countries to the westward. The depressions which occasioned this unsettled weather were of the normal type and were apparently in most cases formed over the north-west dry area or over the Baluchistan plateau, as there is no distinct evidence of their advance from the Persian area. No rain fell during the month at Baghdad, Bushire, Jask or Muscat so that in western Persia and Asiatic Turkey the weather appears to have been quiet and settled. Meshed, Ispahan and the Baluchistan stations received rain but less frequently than the stations on the north-west frontier of India, so that the evidence is in favour of the storms of the month having been developed within the area including eastern Persia, Afghanistan, Baluchistan and north-west India.

On the 7th the barometer was falling over nearly the whole country and on the following morning a feeble depression was shown over the south Punjab. The depression was never of any importance and had disappeared by the following day. On the 9th the barometer was falling briskly over the western desert and on the following morning a shallow depression was shown over upper Sind and the south Punjab, while steepish gradients prevailed over the north Punjab and adjacent districts. The storm advanced very slowly during the 11th and had concentrated slightly by the morning of the 12th, when a few scattered showers were reported at some places. The depression had disappeared by the 13th but had left the weather feebly disturbed over the montane and submontane regions of north-west India whence moderately heavy showers were reported during the next two or three days. The reports of the 16th showed that pressure had decreased briskly in Sind and Rajputana. A small depression was shown in lower Sind and the weather was cloudy and slightly showery in north-west India. The storm advanced rapidly in a north-north-east direction during the day and was entering the Punjab Himalayas at 8 A.M. on the 17th. Rain had fallen over the north-west dry area and the north-west Himalayas. A very rapid fall of pressure occurred in the north-west on the 22nd and a depression was shown over Mooltan. This depression advanced slowly eastward across the north-west dry area, but beyond occasioning duststorms its effect on the weather was slight. It had reached Sirsa by the morning of the 24th and by the 25th had disappeared. After the 25th the usual hot weather depression was shown over the north-west dry area but the weather was quiet and undisturbed with the ordinary variable winds but frequent duststorms.

Bay of Bengal.—On the 7th the wind drew into south-east over the south-west of the Bay with squally unsettled weather and on the 8th a small, unimportant storm was shown over the Madras coast districts. On the 9th the barometer was falling briskly at Trincomalee and the south-westerly and westerly winds were increasing in force around the south of Ceylon where rain was falling. The reports of the 10th showed that the barometer was still falling over Ceylon and a shallow depression was shown over that island and the extreme south of the Peninsula, while south-easterly winds and rain were reported by ships in the south-west of the Bay. On the 11th the depression had moved slightly out into the Bay and pressure was increasing slowly over Ceylon and Madras. South-easterly winds were reported over the south-west of the Bay and squally south-west winds around the south of Ceylon. During the 12th and 13th the storm continued to lie over the south-west of the Bay, where the winds exhibited a light and irregularly cyclonic circulation with rain and squally weather. It drifted out into the centre of the Bay on the 14th giving heavy rain to Diamond Island on the 14th and to Akyab on the 15th. No ships were reported near the centre during the time the storm was crossing the Bay, but the storm was apparently shallow and ill-defined throughout its existence.

Ordinary weather conditions prevailed over the Bay from the 15th to the close of the month.

Arabian Sea:—Cyclonic storm of the 19th to the 24th May.—On the 19th pressure gave way briskly to slightly over the west of the Peninsula and rain—heavy in places—was falling over the whole of southern India. 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	
Trivandrum	29·754	+·001	—·072	NW	6	8	0·42	Thunder.
Cochin .	·763	—·034	—·047	W	8	10	4·33	Squally.
Calicut .	·739	—·054	—·069	NNW	14	10	...	Sea rising
Mangalore	·751	—·034	—·062	Calm	4	9	...	Sea slight.
Karwar .	·764	—·046	—·030	NW	8	0	...	Sea rough.
Mormugao .	·778	—·030	—·027	N	20	2	...	Sea slight.
Ratnagiri .	·789	—·021	—·002	N	17	0	...	
Bombay .	·799	—·021	+·003	ENE	12	5	...	
Surat .	·786	—·022	+·021	Calm	6	0	...	

Over the Arabian Sea there were at this time no signs of cyclonic actions. The following are the ships' observations for the east of the Arabian Sea :—

NAME OF VESSEL OR STATION.	8 A.M. POSITION. Lat. N.	Long. E	Barometer as corrected by Bombay office.	WIND. Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *Yeoman* .	6 07	78 08	...	SW	4	Moderate sea and cloudy; 4 P.M. light showers.
S.S. *Somali* .	8 14	73 08	29·766	NW by W	4	Passing rain.
S.S. *Ockenfels* .	8 17	71 59	·770	WNW	4 to 5	
S.S. *Kasara* .	8 26	76 49*	·700	WSW	6	High sea and heavy rain squall.
S.S. *Hugin* .	13 18	74 29	·755	NNW	6	Rain showers; 4 P.M. heavy rain.
S.S. *Ula* . .	14 28	73 32	·760	NNW	5	Moderate sea and fine; midnight lightning and light rain.
S.S. *Sangola* .	16 50	73 05	·794	NW	2	Cloudy, 8 P.M. squally with heavy rain and lightning.
S.S. *Knight Bachelor.*	18 26	70 34	...	N	4	Fine.
S.S. *Vasconia* .	18 27	70 01	...	W	3	Fine.
S.S. *Nizam* .	Bombay.		·794	...	...	Midnight squally with lightning to south.
Minicoy . .	...	...	·777	NW	7†	Cloudy.

* Noon position.
† Velocity.

May 20th.—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.
	″	″	″				Inches	
Trivandrum .	29·796	+·042	—·030	Calm	3	10	0·54	Thunder.
Cochin .	·785	+·022	—·023	Calm	2	10	2·50	Sea slight.
Calicut .	·763	+·024	—·044	Calm	9	10	0·42	
Mangalore .	·761	+·010	—·051	Calm	3	7	0·19	Sea slight.
Karwar .	·781	+·017	—·011	N	9	8	0·80	Thunderstorm.
Mormugao .	·815	+·037	+·011	N	12	8	0·30	Do.
Ratnagiri .	·830	+·041	+·042	NE	16	1	0·03	Sea smooth.
Bombay .	·850	+·051	+·057	SSE	12	3	...	Thunder.
Surat .	·842	+·056	+·080	S	7	0	...	

Pressure was increasing over the whole country, but the rise was less in the south-west than elsewhere and the depression over south-western India was slightly better defined. Rain continued all over the south. The northerly winds had given way on the Malabar coast and calms were reported from Trivandrum, Cochin, Calicut and Mangalore.

The following are the few ships' observations which were recorded at this time over the east of the sea :—

NAME OF VESSEL OR STATION.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Bombay office.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *Ockenfels* .	7 21	75 44	29·780	W	4 to 5	
S.S. *Clan Mackenzie.*	9 18	65 53	·818	NE	2	Fine.
S.S. *Kasara* .	11 35	75 19	·730	NNW	2	Cloudy. 4 A.M. light rain.
S.S. *Sangola* .	13 12	74 20	·782	NE	2	Slight sea and overcast.
S.S. *Sofala* .	14 13	74 03*	·731	N	4	Smooth sea and overcast. 8 P.M. passing rain squall.
S.S. *Hugin* .	15 29	73 43	·785	NNW	6	Rain showers.
S.S. *Nizam* .	16 45	73 07	·816	S	3	Moderate sea; 4 P.M. squally.
S.S. *Ula* .	17 29	72 52	·869	NNE	2	Slight sea and fine.
Minicoy .	...	...	·818	NW	7†	Fine.

* Noon position.
† Velocity.

The above data do not show changes of any importance.

May 21st.—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.
	″	″	″				Inches	
Trivandrum	29·837	+·041	+·014	Calm	4	4	0·35	
Cochin .	·810	+·025	+·003	SE	6	2	0·78	Sea smooth.
Calicut .	·804	+·041	—·001	SSE	7	10	1·28	
Mangalore .	·753	—·008	—·057	Calm	1	10	1·06	Thunderstorm.
Karwar .	·756?	—·025?	—·033?	Calm	4	9	0·03	Thunder.
Mormugao .	·754	—·061	—·048	SE	13	10	0·97	Sea smooth.
Ratnagiri .	·776	—·054	—·009	N	10	5	0·15	Showery.
Bombay .	·796	—·054	+·006	N	12	10	0·74	Severe gale.
Surat .	·812	—·030	+·053	W	8	4	...	

South-easterly winds had appeared in the extreme south while calms prevailed along the mid-west coast and northerly winds at Bombay and Ratnagiri. Rain had extended along the west coast as far north as Bombay but the amounts were not heavy.

The following are the ships' observations recorded over the east of the Arabian Sea :—

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. *Clan Mackenzie.*	8 43	70 01	29·828	N	1	Fine.
S.S. *Scindia* (b) .	9 59	66 12	·920	N	2	Confused swell and fine.
S.S. *Sangola* .	Cannanore.*		·784	S by W	2	Continuous heavy rain.
S.S. *Nizam* .	13 40	74 19	·628	SSE	6	Dark squally with occasional rain.
S.S. *Kasara* .	15 32	73 29	·700	N	2	Cloudy, 8 P.M. light rain.
S.S. *Sofala.* .	16 40	73 09	·721	N	2	Fine, 8 P.M. passing rain squalls.
S.S. *Clan Ross* .	18 00	69 14	·803	Var.	2	Smooth sea and fine.
S.S. *Hugin* . .	Bombay.*		·765	NNW	5	Moderate sea.
S S. *Dwarka* .	Bombay.*		·805	SE	2	Fine.
Minicoy . .	...	...	·835	W	9†	Cloudy.

* Noon position.
† Velocity.

The preceding data give the first indications of the development of the storm supplied by the marine observations. Light northerly winds were reported from the centre of the sea, a westerly wind from Minicoy and southerly winds from the sea area close to the west coast. At Bombay at 5-15 P.M. there occurred a sudden and severe squall which lasted 15 minutes and during which the wind blew at the rate of 85 miles per hour. No explanation of this outburst of squally weather is afforded by the ships' observations.

May 22nd.—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	
Trivandrum .	29·812	—·025	—·010	NW	3	3		Thunder.
Cochin . .	·831	+·021	+·026	E	2	9	0·40	Sea smooth.
Calicut . .	·817	+·013	+·013	SSE	8	9	0·03	Do.
Mangalore .	·770	+·017	—·038	SSW	3	10	1·21	Sea rising.
Karwar . .	·708	—·048	—·078	SW	6	10	1·11	Thunder.
Mormugao .	·697	—·057	—·102	SW	16	9	1·00	
Ratnagiri .	·647	—·129	—·136	ENE	12	10	0·16	Sea slight.
Bombay .	·698	—·098	—·088	NNW	10	10	0·08	
Surat . .	·706	—·106	—·050	SE	4	3		

Pressure was recovering slightly in Malabar, but was decreasing along other parts of the west coast and at Bombay, Ratnagiri and Surat, the change amounted to about 0·10″. The storm was now better defined with its centre near Ratnagiri and cyclonic winds and moderate rain prevailed along the west coast.

The following gives the observations recorded over the east of the Arabian Sea :—

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. *Scindia* (b) .	8 50	70 22	29·880	SW	5	Moderate sea; 4 A.M. fine.
S.S. *Hochheimer* .	11 04	61 03	·969	WNW	3	
S.S. *Nizam* .	Calicut.		·799	...	...	4 A.M. cloudy.
S.S. *Claverburn* .	11 41	59 42	·802	E	2	Fine.
S.S. *Mosaffari* .	16 07	61 12	·805	NNW	4	Moderate sea and fine.
S.S. *Johannisberger.*	16 45	64 03	·697	N	2 to 3	South-west swell; 4 A.M. cloudy.
S.S. *Peninsular* .	17 24	68 05	·664	N	2	Cloudy; 8-48 P.M. thick with rain.
S.S. *Fulham* .	17 57	69 04	...	NE	4	Fine.
S.S. *Nerbudda* .	20 54	70 01	·650	SSE	2	Fine. Midnight, lightning.
Minicoy . .	...	...	·835	NW	11*	Cloudy.

* Velocity.

The winds were light over the sea but exhibited a fairly well-marked cyclonic circulation.

May 23rd.—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	
Trivandrum .	29·792	—·020	—·029	NW	4	2	0·01	Thunder.
Cochin .	·807	—·024	+·003	NE	2	0	0·02	
Calicut . .	·791	—·026	—·011	ESE	6	0	...	
Mangalore .	·754	—·016	—·052	ESE	3	8	1·42	Sea slight.
Karwar .	·718	+·010	—·065	WSW	6	10	3·75	Thunder.
Mormugao .	·714	+·017	—·083	S	16	10	2·04	Raining.
Ratnagiri .	·654	+·007	—·125	SSE	21	9	1·43	Sea slight.
Bombay .	·619	—·079	—·164	ESE	7	10	1·39	Thunder.
Surat .	·641	—·065	—·112	E	7	8	...	
Veraval .	·634	—·070	—·125	SE	11	7	...	Sea slight.
Dwarka .	·628	—·042		SSE	11	1	...	Do.
Bhuj . .	·601	—·026	—·076	S	12	0	...	Hot wind.
Kurrachee .	·572	—·062	—·050	Calm	7	0	...	Dusthaze.

Pressure was steady over the southern half of the west coast, but was falling briskly over north Bombay. The winds were cyclonic in direction around the north-east of

the Arabian Sea and were strong at Mormugao and Ratnagiri. The storm was moving north-westward towards and along the Kathiawar coast.

The following gives the observations recorded over the north and east of the Arabian Sea :—

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. *Hochheimer*	10 00	64 42	29·889	W	5	
S.S. *Marwarri* .	10 11	61 23	·756	WNW	2	Passing clouds.
S.S. *Golconda* .	10 27	58 22	·860	W	2	Slight swell and fine.
S.S. *Claverburn*	10 53	63 09	·742	W	4	Moderate sea and fine.
S.S. *Wennington Hall.*	15 07	58 54	...	N	5	Clear.
S.S. *Imaum* .	16 02	60 15	...	W	4	Fine.
S.S. *Mozaffari* .	16 56	64 49	·665	WNW	4	Moderate sea and fine ; midnight occasional rain.
S.S. *Johannisberger.*	17 40	68 09	·594	NW	3	Sea rising ; midnight thunder and lightning.
S.S. *Goalpara* .	24 46	66 28*	·593	W	2	Midnight fine.
Minicoy . .	...	...	·809	WSW	13†	Fine.

* Noon position.
† Velocity.

The observations were very few but apparently showed that the storm lay over the north-east angle of the sea.

May 24th.—The following gives 8 A.M. data for the north Bombay 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.	
Kurrachee .	29·614	+·042	—·043	S	7	0	...	Hot wind.
Bhuj .	·644	+·043	—·035	SW	17	0	...	
Dwarka .	·650	+·022	...	SSW	13	1	...	Sea smooth.
Veraval .	·658	+·024	—·098	SW	9	9	...	Sea rough.
Surat .	·662	+·021	—·088	E	6	9	0·05	
Bombay .	·624	+·005	—·155	SE	26	10	0·81	Sea rough.
Ratnagiri .	·710	+·056	—·065	SSE	22	8	0·48	Sea very rough.
Mormugao .	·770	+·056	—·025	S	18	10	1·80	Thunderstorm.
Karwar .	·762	+·044	—·018	WSW	5	6	1·74	Do.
Mangalore	·791	+·037	—·013	Calm	3	7	0·31	Sea slight.

Pressure was steady on the north Konkan and Kathiawar coasts, but the storm was still present off the north Konkan coast where the winds were strong. At Bombay between 5 and 6 A.M. the wind's velocity was at the rate of 40 miles per hour from south-east. Moderate rain continued to fall over the west of the Peninsula.

The following are the observations recorded over the north-east of the Arabian Sea :—

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. *Alboin* .	12 55	74 43	29·805	Var.	2	Fine ; midnight passing showers.
S.S. *Kenley* .	13 46	74 07	...	SW	5	Moderate sea and showers of rain ; 4 A.M. heavy rain squalls.
S.S. *Coromandel* .	15 07	73 42	·853	W	1 to 2	Overcast ; 8 P.M. heavy rain squalls.
S.S. *Wennington Hall.*	16 01	62 26	...	W	5	Fine ; 4 P.M. cloudy.
S.S. *Imaum* .	16 52	64 39	...	WSW	4	Moderate sea and fine.
S.S. *India* .	17 44	69 53*	·520	N W by W	5 to 6	Passing squalls ; 1 A.M. whole gale with very heavy squalls of hurricane force and torrentsof rain.
S.S. *Mozaffari* .	18 04	68 30	·665	WNW	4	Moderate following sea and fine.
S.S. *Johannisberger.*	18 36	71 13	·413	NW	12	High cross sea and heavy rain with thunder and lightning.
S.S. *Husaro* .	22 15	68 52*	·645	S	4	Smooth sea and fine ; 8 P.M. lightning to south-south-east.
Minicoy . .	...	...	·836	SSW	10	Cloudy.

* Noon position.
† Velocity.

The storm still lay over the north-east of the sea and had apparently concentrated considerably. On board the *Johannisberger* in Lat. 18° 36′N and Long. 71° 13′E the barometer had fallen 0·18″ and a north west hurricane was blowing with heavy rain, thunder and lightning so that the centre of the disturbance was probably near

this position. The following gives the log of this vessel for the 23rd and 24th:—

Hour.	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.
		° ′	° ′	″			
23rd 4 A.M.	S.S. *Johannisberger.*	...	...	29·523	NW	2 to 3	Sea rising and very heavy dew.
8 A.M.	,,	17 40	68 09	·594	NW	3	Misty; sea rising.
Noon	,,	17 49	68 50	·571	NW	3	Ditto.
4 P.M.	,,	...	...	·508	NW	4	South-west swell and looking squally.
8 ,,	,,	...	...	·504	NW	4	Ditto.
10 ,,	,,	...	...	...	W	4	
11 ,,	,,	...	...	...	...	6 to 9	Very hard wind and heavy rain.
Midnight	S.S. *Johannisberger.*	...	...	29·366	W	10	Very high cross sea and thunder and lightning.
24th 4 A.M.	,,	...	...	·315	N W by W	10 to 11	High cross sea; heavy rain, with thunder and lightning.
8 ,,	,,	18 36	71 13	·413	NW	12	Ditto.
Noon	,,	18 45	71 41	·398	WSW	9 to 10	Ditto.
4 P.M.	,,	...	...	·362	S W by W	8 to 11	Heavy rain and thunder and lightning
8 ,,	,,	...	...	·492	SW	8 to 9	Overcast.
Midnight	,,	...	...	·472	SW	8	Do.

By the morning of the 25th the storm had apparently filled up and the winds were blowing from their normal directions over the Arabian Sea and from that date onward the weather was quiet and fine over this area.

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) *Chitral.*—The following report of the snowfall in this district from the 15th February to 31st May has been received.

On the 15th February all the higher hills were already covered with snow and between that date and the 31st of May nine falls of snow occurred of which three were heavy and general.

February 24th.—A heavy fall of snow occurred on the north and east higher hills.

March 3rd.—Snow commenced at 9 A.M. and continued until 4 P.M. At Chitral the depth was 3½ inches but on the higher hills was much greater.

,, *12th.*—Snow commenced at 2 A.M. and continued till 5 P.M. At Chitral the depth was 5½ inches and on the hills about 3 feet.

,, *21st.*—A slight fall of snow occurred.

,, *30th.*—Snow fell on the higher peaks around the observatory.

April 12th.—A heavy fall occurred on the northern mountains.

,, *25th.*—Another heavy fall of snow occurred on the higher peaks.

May 12th.—A moderate fall of snow was received on the higher hills.

,, *18th.*—A slight fall of snow occurred on the mountains to the south of the observatory.

The accumulation of snow on the higher mountains was very great and the inhabitants of Chitral stated that the fall of snow had been greater than in the previous year.

(2) *Hazara.*—There was a good deal of rain and on the 16th snow fell as low as 9,000 feet.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Kashmir.*—The following table shows the approximate depth of snow lying around the observatories in Kashmir, week by week:—

Observatory.	May 5th.	May 12th.	May 19th.
Sonemarg	2 feet.	8 inches	None.
Dras	1 foot.	...	...

The above shows that snow practically disappeared about the middle of the month.

(2) *Simla.*—The following is the record of snowfall on the Bushahr hills in the Simla district:—

Date.	Lowest elevation.	Depth of snow.
13th	11,000 feet.	1 inch.
14th	,,	1 ,,
18th	,,	1 ,,
19th	,,	½ ,,

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

Rupin Pass	(16,000 feet)	8 feet.
Bruen ,,	(16,000 ,,)	8 ,,
Harang ,,	(12,000 ,,)	*Nil*
Shatul ,,	(10,000 ,,)	7 feet.
Buldar ,,	(16,000 ,,)	8 ,,
Runang ,,	(14,000 ,,)	2 ,,

The snowfall of the month was about the average.

(3) *Kangra.*—Snow fell on the high peaks and passes on the 26th April and the 4th, 14th to 19th, and 30th May. The falls were light and confined to the higher passes descending to an elevation of about 10,000 feet. The table below shows the depth of the snowfall during the month under review:—

TAHSIL KULU.			TAHSIL PLACH.		
Pass.	Snow in May.	Accumulation.	Pass.	Snow in May.	Accumulation.
Rotang	2 feet	9 feet	Srikhand	2 feet	4 feet.
Hamta	1 foot	4 ,,	Chul	1 foot	
Chandarkhani	1 ,,	2½ ,,	Hingan	1 ,,	
Barsai	2 feet	2 ,,	Dundku	1 ,,	1 foot.
Bujadhar	6 ins.	1½ ,,	Tikkar	1 ,,	
Bhubu	None	...	Tohnu	None	
Sairi	2 feet	3 feet	Raghopur	1 foot	1 ,,
			Jalori	1 ,,	
			Bhimri	1 ,,	
			Sakiran	6 ins.	
			Gargarasan	1 ,,	2 feet.
			Sopakun	1 ,,	
			Bishleo	1 ,,	
			Placha	1 ,,	1 foot.
			Tirath	1 ,,	3 feet.

The amount of snow at the end of the month was said to be equal to that of May 1902.

III.—UNITED PROVINCES HIMALAYAS.

(1) *Almora.*—Snow fell as follows:—

Malla Johar.

25th to 27th May	3 feet.
30th ,,	1 foot
TOTAL	4 feet.

Malla Danpur.

23rd and 24th May	6 inches.

Byans, Chandas and Darma.

12th May	6 inches.
18th ,,	6 ,,
TOTAL	1 foot.

The snowfall was less than in the previous year.

Summary of Special Storm Reports.

As is usual in May the local storms were numerous and occasionally severe. The following statement gives the chief local storms of which reports were received during the month.

They were most frequent between 7th and 9th, 12th and 14th, 17th and 18th, 22nd and 26th and on the 28th and 29th.

May 1st.—A severe gale of wind was experienced at Raipur at 3-49 A.M.

,, *3rd.*—A thunderstorm with strong wind, lightning and rain occurred at Nagpur at 10 P.M.

,, *4th.*—A severe duststorm came up from north-west over Cocanada at 5-20 P.M. The storm lasted twenty minutes and was accompanied with thunder and light rain.

A heavy storm passed over Hoshangabad travelling from south-west to north-east at 11-30 P.M.

,, *5th.*—A violent duststorm from north passed over Mymensingh in the evening. The storm lasted five minutes and destroyed many lives and much property.

,, *6th.*— At 0-15 A.M. a heavy duststorm was experienced at Hoshangabad travelling from north-east to south-west. The storm abated in thirty minutes.

At 10-30 A.M. another duststorm passed over Hoshangabad from the same direction. The storm abated in twenty minutes.

,, *7th.*—A severe duststorm was experienced at Mymensingh at 8-30 P.M. The storm came up from north, lasted twenty minutes and damaged property and houses.

A heavy duststorm passed over Hoshangabad from south-west to north-east. The storm abated in 15 minutes.

At 4-30 P.M. another very heavy duststorm visited Hoshangabad from the same direction. It abated in twenty minutes.

A severe duststorm giving a few drops of rain prevailed at Raipur between 5-35 and 6-20 P.M.

May 8th.—A slight storm occurred at Allahabad between 6 A.M. and 10 A.M.

A heavy duststorm was experienced at Hoshangabad passing from north to south. It lasted twenty minutes.

A severe duststorm coming up from east, passed over Saugor (Central Provinces) and lasted about half an hour.

,, *9th.*—At 7-30 P.M. a very heavy duststorm passing from south-west to north-east, was experienced at Hoshangabad. There was much thunder and lightning and the storm lasted about three quarters of an hour. A few drops of rain fell.

At 5-28 P.M. (Railway time) a duststorm appearing in the east was felt at Jodhpur. The storm lasted till 6-35 P.M. and thunder was heard in the east.

A violent duststorm passed over Kurnool between 3-30 and 4-20 P.M. The storm came up from east and showers occurred near the station.

A thunderstorm giving showers of rain occurred at Khandwa at 4-40 P.M.

A thunderstorm passed over Cuddapah.

May 10th.—A hailstorm prevailed at Chikalda from 1-15 to 2-5 P.M. with thunder, lightning and rain.

At 6-10 P.M. a heavy duststorm passed over Hoshangabad from north-east to south-west. The storm lasted 15 minutes.

„ *12th.*—A thunderstorm occurred at Cuddapah at about 5 P.M.

A heavy duststorm passed over Hoshangabad from north-east to south-west. It abated in twenty minutes.

At 6-40 P.M. a very heavy duststorm again occurred at Hoshangabad. It travelled from south-west to north-east and lasted half an hour with much thunder and lightning.

At Khandwa a duststorm prevailed from 5-40 to 5-55 P.M. with a few drops of rain.

At Lahore a thunderstorm occurred between 1-35 P.M. and 6 P.M. with light rain and much thunder and lightning.

At Pachmarhi there occurred a thunderstorm with hail at 3 P.M., the storm lasting 10 minutes.

„ *13th.*—A thunderstorm occurred at Belgaum during the afternoon with thunder and lightning.

At 6-15 P.M. a very heavy duststorm passed over Hoshangabad from north-east. Thunder, lightning and a few drops of rain occurred and the storm lasted twenty five minutes.

At 6-30 P.M. a thunderstorm with lightning and some rain was reported from Nagpur.

A duststorm with rain occurred at Pachmarhi in the evening. The storm lasted twelve minutes.

A thunderstorm commenced at Simla at 4-18 P.M. and lasted for half an hour. Another storm commenced at 6-50 P.M. and lasted for an hour. During the storms rain and hail fell.

At Srinagar there was a hailstorm between 3-45 and 4 P.M. The largest hail stones weighed one ounce and the crops were slightly damaged.

Dust and thunderstorms occurred at Cuddapah on the evening of the 13th and morning of the 14th.

„ *14th.*—A heavy duststorm passed over Hoshangabad at 11 A.M. from north-east to south-west. It abated in twenty minutes.

Another very heavy storm passed over Hoshangabad at 6-20 P.M. lasting for half an hour.

May 14th.—A dust and thunderstorm followed by rain passed over Jaipur between 2-55 and 3-15 P.M.

At Sambhar a dust and thunderstorm with some rain occurred between 3 P.M. and 4-30 P.M.

At Skardu a hailstorm occurred at 2 P.M.

„ *16th.*—A duststorm commenced at Jodhpur from north-west at 4-33 P.M. (Railway time) and lasted for twenty minutes.

„ *17th.*—A duststorm of considerable intensity occurred at Allahabad at 7 P.M. and lasted till 8 P.M. A few drops of rain fell as the storm ceased.

At Jaipur there was a thunder and duststorm at 2 P.M. followed by light rain.

A thunder and duststorm occurred at Lahore between 2 P.M. and 6 P.M. There was much thunder and lightning and moderate rain.

A severe thunderstorm was experienced at Simla. It commenced from south-east at 2-30 P.M. and continued till 4-30 with heavy rain and some hail.

„ *18th.*—At 4 P.M. a hailstorm with gale of wind came on suddenly at Dras, Kashmir. The storm lasted half an hour.

A dust and thunderstorm followed by a few drops of rain occurred at Lahore between 5-40 and 7-15 P.M.

A thunderstorm with strong wind, thunder, lightning and rain occurred at Nagpur at 4 A.M.

A storm was experienced at Srinagar between 5 and 8 P.M. with rain and strong winds.

„ *19th.*—A slight storm occurred at Negapatam giving moderate rain.

A thunderstorm with lightning and rain passed over Nagpur at 4-45 P.M.

„ *20th.*—A storm with strong winds and a few drops of rain was experienced at Akola between 2-47 and 4-22 P.M.

„ *21st.*—A duststorm with strong winds passed over Khandwa at 11 P.M.

„ *22nd.*—At 5-30 P.M. a storm passed over Hoshangabad travelling from south-west. The storm lasted half an hour and a few drops of rain fell.

At Khandwa there was a duststorm between 3-15 P.M. and 4-10 P.M. with thunder, lightning and showers of rain.

A thunderstorm with rain was experienced at Nagpur at 4-45 P.M.

A duststorm followed by a few drops of rain occurred at Raipur at 4-15 P.M. (Railway time).

May 23rd.—A thunder and duststorm with lightning, rain and strong winds occurred at Khandwa at 3 P.M.

A duststorm lasting ten minutes passed over Raipur at 5-53 P.M. (Railway time).

A duststorm prevailed between 4 P.M. and 6 P.M. at Srinagar.

,, *24th.*—A very heavy duststorm passed over Hoshangabad from south-west to north-east at 3-30 P.M. It abated in forty five minutes, but heavy rain and strong winds continued till 10 P.M. doing some damage.

A thunderstorm with hail, rain and strong winds was experienced at Nagpur at 5-50 P.M.

A thunderstorm occurred at Simla. It commenced from west-north-west at 8-30 A.M. and continued for one hour. It gave very little rain. A second storm commenced at 3-15 P.M. which also lasted one hour.

A local storm passed over Akola at 1-54 P.M. giving strong winds and rain.

,, *25th.*—A severe thunder and duststorm passed over Dehra Dun between 3-25 and 3-50 P.M. giving drizzling rain, thunder and lightning.

A dust and thunderstorm was experienced at Lahore between 6 P.M. and 10 P.M. Light rain fell.

A thunderstorm commenced at Simla at 1-15 A.M. and gave light rain. Another storm commenced at 2 P.M. and a third at 4 P.M. The total rainfall was only light.

,, *26th.*—A dust and thunderstorm followed by light rain prevailed at Jaipur between 4 and 4-15 P.M.

A duststorm occurred at Jodhpur at 4-6 P.M. (Railway time) lasting about fifteen minutes. Light rain fell at intervals and the thunder was loud and continuous. Another storm occurred at 4-50 P.M. lasting ten minutes.

A duststorm occurred between 10 P.M. and 11 P.M. at Lahore.

A thunderstorm commenced at Simla from north-north-east at 1 P.M. and continued for forty five minutes. Very light showers fell.

,, *27th.*—A severe nor'wester with rain came over Jodhpur at 8-5 P.M. (Railway time) and lasted for forty minutes. Lightning and thunder occurred.

At Simla a thunderstorm commenced at 1-10 P.M. and continued till 6 P.M. with heavy rain and hail and frequent lightning.

,, *28th.*—A duststorm passed over Ajmer between 5-5 and 5-35 P.M. At 6-10 P.M. a very heavy duststorm was experienced at Hoshangabad, the storm lasting half an hour.

May 28th.—At Jaipur a duststorm occurred at 6-10 P.M.

At Nagpur there was a dust and thunderstorm at 4-15 P.M.

,, *29th.*—At Gorakhpur between 0-25 and 0-45 P.M. a slight duststorm was experienced.

At 2-20 P.M. and 3-40 P.M. very heavy duststorms passed over Hoshangabad, lasting for half an hour. Light rain fell.

A dust and thunderstorm occurred at Khandwa between 4 and 4-45 P.M. with much thunder and lightning.

At Nagpur a duststorm with thunder, lightning and rain was experienced at 9-30 P.M.

A duststorm with severe gale and some rain was felt at Skardu between 2 and 6 P.M.

,, *31st.*—A storm passed over Agra between 7 and 8 P.M.

A duststorm was experienced at Allahabad between 8-30 and 11 P.M. Light rain fell.

A duststorm followed by a light shower of rain occurred at Saugor (Central Provinces) between 3-20 and 3-40 P.M.

From newspaper accounts the following notices of storms have been obtained:—

May 15th.—A severe storm with hail, thunder and lightning occurred at Darjeeling and lasted for one hour.

,, *18th.*—A duststorm accompanied with more or less heavy rain passed over a great part of Sind. At Jacobabad there was a heavy downpour at 3-30 P.M. and at Hyderabad smart showers at 6-30 P.M.

,, *28th.*—At about 2 P.M. Ghazipur was visited by a severe duststorm lasting three quarters of an hour. Rain and hail followed and the wind was very violent.

On the evening of the 20th the wind suddenly rose at Bombay and between 5-15 P.M. and 5-30 P.M. blew with a velocity at the rate of 85 miles per hour. The sudden squall did considerable damage, as is shown by the following extracts:—

Bombay, 21st May.

During the storm on the evening of the 20th about thirty native craft were sunk in the harbour. The Harbour Master had a very busy time attending to vessels which dragged their anchors, one vessel actually fouled another. In all five vessels had to be removed, and two ships were led out of the way of sunken boats. There was also a demand for help from the Prong Lighthouse, the custodians of which were in danger for sometime. The ferry steamer *Fairy Queen* was unable to land her passengers, the sea being too rough. The vessel anchored off the Dock Channel, and the passengers were landed after the abatement of the storm. Several craft were sunk opposite the docks. One boat belonging to Messrs. Curumsey Damjee, laden with about 400 packages for trans-shipment to Kurrachee, and another laden with matches belonging to Messrs. Glade and Company, also for transhipment to Kurrachee were sunk alongside the steamer *Katoria*. Another boat with about 700 planks was also sunk opposite the dock. Two lives were lost, and the damages are estimated at several lakhs.

Bombay, May 21st.

Reports now coming in indicate that a large amount of damage was done by yesterday's storm. It took everyone completely by surprise. Over thirty prows were sunk in the harbour, and at least two lives were lost. No fewer than nine prows laden with valuable consignments sunk in the docks, and the authorities were busy all night and to-day saving the cargo. Immense quantities of grain were stacked in the open and all this was damaged to a certain extent. People living in tents were flooded out, and several tents were blown right down.

Hail-storms.—The following accounts have been received from local officers:—

May 4th.—A hailstorm passed over the Roha Tahsil, Nowgong (Assam), at midnight. The storm lasted about five minutes and the stones were from 1 inch to 3 inches in diameter.

A moderately severe hailstorm passed over the Kod Taluka of the Dharwar district. The storm commenced about 6 P.M. and lasted 4 minutes. The hail stones were from $\frac{1}{2}''$ to $\frac{3}{4}''$ in diameter.

A moderate storm was experienced at Tadas road, Dharwar, at about 4 P.M. The stones were $\frac{1}{4}''$ in diameter.

A moderate storm passed over Bangalore Road, Poona, at 4 P.M. It lasted 10 minutes and the stones were $\frac{1}{2}''$ in diameter.

,, *5th.*—A severe hailstorm occurred in the Nasirabad Taluka (Sind) and lasted 10 minutes. The hail-stones were from $\frac{1}{2}''$ to 2″ in diameter.

,, *6th.*—A hailstorm passed over the Asundi village, Dharwar. It commenced at 6-30 P.M., lasted two minutes and the stones were $\frac{1}{2}''$ in diameter.

A moderate storm passed over the Dharwar railway station at 4 P.M. lasting ten minutes. The stones were only $\frac{1}{4}''$ in diameter.

A hailstorm passed over Nipani (Belgaum district) travelling from north-east to south-west. The storm extended over an area of 90 square miles and the stones were from 1″ to 4″ in diameter.

A storm passed over the Hangal Taluka of the Dharwar district. It commenced at 6 P.M. and lasted about fifteen minutes. It moved from north-west to south-east and the stones were about $\frac{1}{8}''$ to $\frac{1}{4}''$ in diameter.

A storm commenced at Dharwar at 5 P.M. and lasted fifteen minutes.

May 7th.—At midnight a hailstorm passed over the Roha Tahsil, Nowgong district. The storm lasted six minutes and the stones were about 1″ in diameter.

,, *8th.*—A storm passed over Dharwar at 4-30 P.M. and lasted for half an hour. The stones were $\frac{1}{4}''$ to $\frac{1}{2}''$ in diameter.

A hailstorm passed over Cherrapoonjee lasting seven minutes. The stones were the size of a pea.

A moderate storm passed over Haliyal road, Dharwar, at 5 P.M. It lasted ten minutes and the stones were $\frac{1}{2}''$ in diameter.

A severe storm coming up from north passed over the Goa road (Dharwar) at 4-45 P.M. The storm lasted fifteen minutes and the stones were $\frac{1}{2}''$ in diameter.

,, *9th.*—A moderate storm passed over the railway station road, Dharwar, from north at 5 P.M. The stones were from $\frac{1}{2}''$ to $\frac{3}{4}''$ in diameter.

,, *10th.*—A hailstorm occurred in the Johi Taluka, Sind, at about 6 P.M. It lasted for five minutes, travelled from north-west to south-east and the stones were about $\frac{1}{2}''$ in diameter.

,, *13th.*— A hailstorm occurred at Kurwai, a small state in the Bhopal Agency, and lasted about half an hour. Some of the stones were as large as mangoes and a man and a woman were found dead after the storm.

,, *16th.*—A hailstorm passed over the Talukas, Lub Darya and Nasirabad (Sind). It commenced about 4P.M. and lasted about half an hour, travelling from north-west to south-east. The stones were about $\frac{1}{2}''$ in diameter.

,, *28th.*—Hailstorms occurred in the Nimawar and Nimar districts of Indore.

From Nowgong, Assam, it is reported that the hail-stones this year have been exceptionally large and the people assert that there have not been such stones during the past few years. The garden fruit, vegetables, etc., were totally destroyed in the Roha tahsil.

EARTHQUAKE REPORT.

May 29th.—A very distinct shock of earthquake was felt at Bharatpur at 0-54 P.M.

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

Arabian Sea.—North-west and north-east winds prevailed over the greater part of the Arabian Sea during the first week, but in the north of the sea and in the Persian gulf the winds were variable and southerly due to disturbances over the land area to the northward. Between the 8th and the 10th the winds shifted to north-west and west and on the 11th south-west winds appeared near Socotra. South-westerly and westerly winds prevailed over the centre of the Arabian Sea till the 18th, north-westerly winds continuing along the west coast. On the 19th the winds suddenly returned to the north-eastward and eastward and these winds continued in the west of the sea

till the 23rd. On the 21st a cyclonic circulation appeared off the Malabar coast and as the storm drifted up the west coast (21st to 25th) the winds were drawn into a cyclonic circulation all over the Arabian Sea. After the 25th south-westerly winds prevailed more or less generally over the whole sea.

The daily air movement ranged between an average of 2·0 on the 5th and 3·6 on the 26th and was more or less below its normal intensity on all days except the 24th and 26th. It averaged 2·9 in strength on the mean of the month, the normal being 3·4.

Bay of Bengal.—Strong southerly and south-south-westerly winds prevailed over the north and west of the Bay and variable westerly winds in the east from the 1st to the 10th. On the 11th cyclonic conditions appeared in the south-west of the Bay and winds were cyclonic or irregular up to the 15th. On the 16th ordinary southerly and south-south-westerly winds reappeared but on the 18th the winds again became irregular in the south-west of the Bay where rainy squally weather was experienced for two or three days. From the 21st to the close of the month south-south-westerly to westerly winds blew steadily throughout the Bay.

The daily air movement ranged between 2·3 on the 3rd and 10th and 4·7 on the 30th and exceeded the normal intensity except between the 1st and the 6th, the 10th, and 14th and on the 22nd. It averaged 3·2 in intensity on the mean of the month, the normal being 3·0.

Equatorial Belt.—North-westerly winds prevailed over the equatorial belt (except in the extreme south where the wind's direction was south-easterly) from the 1st to the 6th. On the 7th the wind drew into east and south-east generally and from that date south-east trades continued fairly steadily till the close of the month.

Temperature of the air.

The chief features of the variations of the temperature of the month from the normal were generally similar in character to those of the preceding month of April, but were generally smaller in amount. They consequently indicated the continued presence of abnormal conditions due to excessive snow accumulation in the mountain area to the north-west of India. Temperature was hence in general excess over Burma and north-east India and over north Bombay, while it was in defect elsewhere.

The mean maximum or day temperature exceeded the normal over Burma and north-east India—more particularly over parts of Bengal. The following gives data for those stations where the positive variations were 4°·5 or more in amount:—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, May, 1903.	Normal, May.	Variation of actual from normal, May, 1903.
	°	°	°
Berhampore	103·7	96·5	+7·2
Purnea	101·6	94·8	+6·8
Dinajpur	97·2	91·7	+5·5
Darbhanga	100·5	95·6	+4·9
Jalpaiguri	93·0	88·3	+4·7
Burdwan	102·9	98·4	+4·5

The mean maximum temperature was also in excess over north Bombay, but in this area the variations were smaller and amounted to 2° or more only at the two following stations:—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, May, 1903.	Normal, May.	Variation of actual from normal, May, 1903.
	°	°	°
Bhuj	104·3	101·3	+3·0
Kurrachee	94·9	92·9	+2·0

In Malabar and west Ceylon the mean maximum temperature was about normal.

Over the whole of the remainder of India the mean maximum temperature was in defect. The deficiency was considerable in the extreme north-west, where the influence of the snow accumulation was mainly felt and was more than 4° at the stations for which comparative data are given below:—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, May, 1903.	Normal, May.	Variation of actual from normal, May, 1903.
	°	°	°
Peshawar	91·6	98·6	−7·0
Montgomery	102·0	108·3	−6·3
Khushab	99·6	104·9	−5·3
Dera Ismail Khan	98·9	104·2	−5·3
Rawalpindi	94·0	98·1	−4·1
Lahore	101·6	105·7	−4·1

The deficiency was also considerable over the Madras coast and some central districts and exceeded 4° at the following places:—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, May, 1903.	Normal, May.	Variation of actual from normal, May, 1903.
	°	°	°
Nellore	99·9	106·0	−6·1
Negapatam	91·4	97·3	−5·9
Cuddalore	94·1	98·8	−4·7
Nagpur	104·7	109·3	−4·6
Cocanada	96·4	100·7	−4·3
Madras	94·4	98·5	−4·1

The highest day temperatures of the month were generally recorded during the first or last week of the month and the following gives the highest readings registered in the different divisions during the month:—

PROVINCE OR DIVISION.	Station.	Highest maximum temperature recorded in May, 1903.	Date on which recorded.	Highest maximum temperature recorded in May previous to 1903.	Year in which recorded.
		°	May	°	
BURMA	Monywa	112·7	1st	...	...
ASSAM	Dhubri	99·3	1st	100·7	1899
BENGAL	Berhampore	113·8	6th	113·2	1889
ORISSA	Cuttack	111·0	12th	118·0	1872
BIHAR	Motihari	112·0	24th	108·8	1889
CHOTA NAGPUR.	Purulia	112·7	7th	110·7	1900
UNITED PROVINCES.	Lucknow	114·4	19th	119·0	1869
PUNJAB	Mooltan	114·5	30th	120·5	1895
N.-W. F. PROVINCE.	D. I. Khan	110·7	31st	119·5	1892
SIND	Jacobabad	120·0	31st	123·0	1888, 1895, 1898, and 1901.
RAJPUTANA	Pachpadra	115·0	23rd	123·1	1886
GUJARAT	Ahmedabad	114·8	21st	115·4	1902
CENTRAL INDIA.	Nowgong	112·0	31st	116·5	1881 and 1883.
CENTRAL PROVINCES.	Khandwa	113·2	7th & 9th.	117·2	1901
BERAR	Akola	113·1	7th	116·4	1901
WEST COAST.	Calicut	94·4	4th	94·4	1891 and 1902.
BOMBAY DECCAN.	Malegaon	110·3	6th	110·8	1883, 1895, 1897, 1901 and 1902.
MYSORE	Chitaldroog	99·2	1st & 8th.	103·0	1897
MADRAS COAST	Nellore	106·3	30th	115·7	1892
„ DECCAN	Cuddapah	109·8	1st	114·3	1900
SOUTH INDIA.	Tinnevelly	104·5	8th	106·6	1898 and 1900.

The preceding data show that over the greater part of the country the highest readings registered have been exceeded in previous years, but that in the case of Bengal, Bihar and Chota Nagpur the temperatures recorded in May 1903 are the highest on record. The absolutely highest temperatures were as usual registered in Sind but were several degrees lower than the temperatures frequently recorded in that area in May.

The mean maximum temperature of the month was below the normal at all the hill stations with the exception of Ranikhet (+2°·5), Darjeeling (+2°·3) and Mount Abu (+0°·5). The deficiency was greatest at Cherat, where it amounted to 10°·2.

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 excess over Burma and Bengal on the one hand, and over north Bombay, the greater part of Rajputana, Khandesh, Mysore and the greater part of the Deccan on the other. The variations were generally small in amount and exceeded 2°·0 only at the following places:—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, May, 1903.	Normal, May.	Variation of actual from normal, May, 1903.
	°	°	°
Gaya	82·1	79·5	+2·6
Hazaribagh	77·6	75·5	+2·1
Narayanganj	77·9	75·8	+2·1
Kurrachee	81·1	78·7	+2·4
Deesa	79·6	77·5	+2·1

Over the whole of the remainder of the country the mean night temperature was lower than usual. The deficiency exceeded 2°·0 over the North-West Frontier Province and the west Punjab, over the Gangetic plain, at the foot of the Kumaun Himalayas and over the Central Provinces and part of Madras. The deficiency amounted to 3°·0 or more at the stations for which comparative data are given below:—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, May, 1903.	Normal, May.	Variation of actual from normal, May, 1903.
	°	°	°
Khushab	73·7	77·3	−3·6
Montgomery	75·0	78·4	−3·4
Mainpuri	76·8	79·8	−3·0
Seoni	74·0	77·1	−3·1

The mean night temperature on the hills was generally below the normal, but the deficiency at most stations was not very large, nor were the lowest readings recorded very remarkable.

The mean temperature of the month was above the normal over Burma, north-east India and north Bombay and below the normal in all other parts of the country. The following gives the principal variations:—

Station.	Positive variations, May, 1903.	Station.	Negative variations, May, 1903.
	°		°
Moulmein	+2·2	Peshawar	−4·9
Yamethin	+2·7	Khushab	−4·5
Mandalay	+2·0	Montgomery	−4·9
Berhampore	+4·2	Dera Ismail Khan	−4·0
Purnea	+4·1	Nagpur	−3·7
Darbhanga	+3·1	Nellore	−4·3
Burdwan	+2·9	Negapatam	−3·3
Calcutta	+2·9		

On the hills the mean temperature of the month was below the normal except at Ranikhet, Darjeeling and Mount Abu.

The following gives comparative data of mean temperature for the extra Indian stations:—

Station.	Mean daily temperature. Actual, May, 1903.	Normal, May.	Variation of actual from normal, May, 1903.
	°	°	°
Trincomalee	85·1	85·9	−0·8
Colombo	82·6	83·3	−0·7
Kabul	62·4	68·0	−5·6
Kashgar	67·7	69·5	−1·8
Ispahan	66·1	69·1	−3·0
Teheran	71·8	71·3	+0·5
Bushire	82·8	82·2	+0·3
Jask	84·6	85·8	−1·2
Muscat	87·1	88·9	−1·8
Baghdad	83·8	79·8	+4·0
Aden	86·7	87·2	−0·5
Perim	86·5	87·2	−0·7
Zanzibar	79·7	79·1	+0·6
Seychelles	79·7	80·9	−1·2
Mauritius	67·5	68·0	−0·5

The preceding data show that the mean daily temperature was lower than usual at the frontier stations as well as over Afghanistan, eastern Persia and Arabia, but that at Bushire and Baghdad the heat was greater than usual. This excess appears, however, to have been comparatively local, as in Egypt lower temperatures than usual reappeared. In the trades region the mean temperature was below the normal at the Seychelles and Mauritius while it was above at Zanzibar.

The following summarises the chief variations of the temperature conditions of the month from the normal:—

(1) Diminished temperature, both by day and night, over a large part of north-west and central India and of the east of the Peninsula.

(2) Increased temperature, both by day and night, over north Bombay.

(3) Normal temperatures, both by day and night, over the west of the Peninsula.

(4) Increased temperature, both by day and night, over Burma and north-east India. The excess was larger in the day than in the night temperature and was very large over central Bengal.

(5) Lower temperatures than usual, both by day and night, at most of the hill stations.

The following table gives the mean temperature conditions of the month for the 57 meteorological divisions into which India is divided:—

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	92·0	76·5	84·3	15·6	25·7	+3·1	+1·0	+2·1
	Lower Burma (Deltaic)	91·9	78·8	85·4	13·0	23·8	+1·2	+1·1	+0·1
	Central do.	98·6	77·4	88·1	21·2	35·1	+0·8	+0·7	+0·1
	Upper do.	100·2	77·9	89·1	22·3	37·2	+3·4	+1·0	+2·4
	Arakan	91·4	79·6	85·5	11·8	20·6	+0·8	+1·4	−0·6

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.
		°	°	°	°	°	°	°	°
Bengal and Assam.	Eastern Bengal	93·8	76·5	85·1	17·3	31·7	+3·0	+1·4	+1·6
	Assam (Surma)	91·4	73·0	82·2	18·4	30·3	+2·7	+0·5	+2·2
	Do. Hills	75·4	61·2	68·3	14·2	25·8	...	...	...
	Do. (Brahmaputra)	86·9	71·2	79·1	15·7	28·8	+1·0	−0·7	+1·7
	Deltaic Bengal	99·1	79·6	89·4	19·6	31·5	+2·9	+1·1	+1·8
	Central do.	101·8	78·1	90·0	23·8	40·1	+5·3	+1·2	+4·1
	North do.	93·7	73·0	83·4	20·8	37·1	+4·7	+0·1	+4·6
	Bengal Hills	62·6	46·0	54·3	16·6	30·7	+2·3	−0·4	+2·7
	Orissa	96·0	80·5	88·3	15·5	25·9	+1·4	+0·7	+0·7
	Chota Nagpur	102·2	78·3	90·3	23·9	38·9	−0·1	+0·5	−0·6
	South Bihar	105·6	79·9	92·8	25·7	36·9	+3·1	+1·8	+1·3
	North do.	102·1	76·6	89·3	25·5	38·8	+5·9	+1·3	+4·6
United Provinces of Agra and Oudh.	United Provinces (East)	107·2	78·7	93·0	28·5	40·5	+1·0	−0·5	+1·5
	Oudh (South)	108·3	77·6	93·0	30·7	42·1	...	...	...
	Do. (North)	104·6	75·3	90·0	29·3	42·7	+1·6	−2·6	+4·2
	United Provinces (Central)	106·9	79·5	93·2	27·4	39·3	−0·5	−1·8	+1·3
	Do. do. (West)	104·0	77·0	90·5	27·1	42·1	−1·1	−1·8	+0·7
	Do. do. (East Submontane).	104·9	76·9	90·9	28·0	39·7	+3·9	−0·4	+4·3
	Do. do. (West Submontane)	101·4	72·2	86·8	29·2	42·8	+0·7	−1·8	+2·5
	Do. do. (Hills)	76·9	58·2	67·5	18·7	39·7	+0·2	+0·4	−0·2
Punjab	Punjab (South-East)	102·7	80·3	91·5	22·4	39·1	...	...	...
	Do. (South)	103·1	75·4	89·2	27·7	45·3	−3·1	−0·8	−2·3
	Do. (Central)	101·6	72·7	87·2	28·9	48·5	−4·1	+0·1	−4·2
	Do. (Submontane)	100·4	72·7	86·6	27·7	47·2	−2·7	−0·6	−2·1
	Do. (Hills)	69·4	48·3	58·9	21·2	40·8	−5·2	−3·0	−2·2
	Do. (West)	101·7	75·2	88·5	26·5	47·3	−4·9	−2·5	−2·4
N.-W. F. Province	North-West Frontier Province	95·3	69·8	82·6	25·5	45·8	−6·2	−2·7	−3·5
Bombay and Malabar Coast Districts (Madras).	Malabar	89·2	77·7	83·5	11·5	19·2	+0·1	+0·1	0
	Madras (South Central)	95·9	75·0	85·4	20·9	32·7	−1·3	+0·3	−1·6
	Coorg	80·3	63·4	71·9	16·9	27·9	0	−1·5	+1·5
	Mysore	90·5	69·6	80·1	21·0	32·7	−1·4	+0·3	−1·7
	Konkan	89·0	80·0	84·5	9·0	17·0	−0·3	−0·5	+0·2
	Bombay Deccan	98·1	72·9	85·6	25·2	37·9	−1·2	+0·1	−1·3
	Hyderabad (North)	101·2	77·5	89·4	23·7	36·0	...	...	...
	Khandesh	100·8	73·9	87·4	27·0	41·6	−0·9	+0·4	−1·3
Central Provinces and Berar.	Berar	105·0	78·7	91·9	26·3	42·7	−2·8	−1·9	−0·9
	Central Provinces (West)	105·2	79·6	92·4	25·6	40·3	−2·6	−1·5	−1·1
	Do. do. (Central)	102·5	76·9	89·7	25·7	41·0	−3·5	−2·2	−1·3
	Do. do. (East)	104·7	80·2	92·5	24·5	37·8	−2·5	−1·6	−0·9
Bombay (North)	Gujarat	104·2	79·8	92·0	24·4	36·9	+1·5	+1·0	+0·5
	Kathiawar and Cutch	98·7	77·6	88·2	21·1	36·8	+1·6	+0·2	+1·4
	Sind	104·5	79·0	91·7	25·5	45·1	+0·7	+0·5	+0·2
	Baluchistan Hills	81·3	48·8	65·1	32·5	49·5	−6·2	−4·9	−1·3
Rajputana and Central India.	Central India (East)	103·4	78·5	91·0	25·0	37·5	−1·5	+0·4	−1·9
	Rajputana (East), Central India (West)	105·4	79·2	92·3	26·1	41·4	−0·7	+0·3	−1·0
	Do. (West)	107·3	80·9	94·2	26·4	42·6	+0·1	+0·9	−0·8
Madras	East Coast (North)	92·7	80·4	86·5	12·3	21·9	−1·7	−1·2	−0·5
	Hyderabad (South)	101·1	78·4	89·8	22·7	38·7	−2·6	−1·0	−1·6
	Madras (Central)	102·5	79·5	91·1	23·0	35·2	−2·0	−1·1	−0·9
	East Coast (Central)	98·1	80·1	89·1	18·0	29·4	−5·0	−1·8	−3·2
	Do. (South)	95·4	78·4	86·8	17·0	29·6	−4·4	−1·3	−3·1
	Madras (South)	96·6	77·8	86·7	18·9	28·7	−1·6	−1·2	−0·4

The preceding data show that the mean maximum temperature of the month averaged over 105° in south Bihar, the centre and east of the United Provinces, south Oudh, the west of the Central Provinces and part of Rajputana and Central India, while the mean minimum temperature averaged over 80°·0 in Orissa, the south-east Punjab, the east of the Central Provinces, west Rajputana, and part of the east coast. The hottest areas were parts of the United Provinces outlined by the isotherm of 93° and part of west Rajputana outlined by the isotherm of 94°.

The following is a brief statement of the more important temperature changes of the month.

At the commencement of the month the temperature variations from the normal were large and important. Over north-east India and Burma the mean temperature was much higher than usual and this condition continued to prevail generally until the 9th when, under the influence of more general showers, the mean temperature of the greater part of this area fell to below the normal. The following gives comparative data from the 1st to the 9th for the divisions in Burma and north-east India: —

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of								
	1st May.	2nd May.	3rd May.	4th May.	5th May.	6th May.	7th May.	8th May.	9th May.
	°	°	°	°	°	°	°	°	°
Burma . .	+3·8	+3·5	+3·7	+3·5	+3·2	+1·8	+3·0	+3·7	+3·2
Assam . .	+5·9	+4·9	+4·6	+5·0	+2·5	—0·1	—1·0	—2·5	—3·4
Bengal . .	+6·4	+4·4	+6·0	+5·6	+5·9	+4·9	+3·9	+1·8	—1·1
Orissa . .	+1·1	+0·6	+2·4	+1·2	+2·0	+1·6	+0·9	+0·5	+0·4
Bihar . .	+8·2	+3·4	+4·7	+6·0	+5·9	+5·9	+5·4	+5·2	+1·7
Chota Nagpur .	+5·3	—0·5	+2·3	+2·5	+4·0	+5·3	+6·2	+4·3	+2·6

During this period of intense heat in the north-east the excess of temperature was steadily more marked in the day than in the night temperature, the former of which was more than 12° above the normal at the following places on the following dates :—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
1st May . .	Dhubri . . .	104·3	86·2	+18·1
	Bogra . . .	109·8	94·4	+15·4
	Dinajpur . . .	108·2	93·0	+15·2
	Mymensingh . .	103·7	89·4	+14·3
	Purnea . . .	109·3	95·3	+14·0
2nd May . .	Dhubri . . .	103·3 ?	86·2 ?	+17·1 ?
	Dinajpur . . .	107·2	92·8	+14·4
3rd „ . .	Bogra . . .	107·8	94·1	+13·7
	Purnea . . .	108·3	95·3	+13·0
	Mymensingh . .	102·2	89·5	+12·7
	Dhubri . . .	98·8	86·2	+12·6
	Jalpaiguri . . .	100·9	88·7	+12·2
	Berhampore . .	110·3	97·2	+13·1
	Dhubri . . .	99·2	86·1	+13·1
4th „ . .	Bogra . . .	106·8	93·8	+13·0
	Purnea . . .	108·3	95·3	+13·0
	Dinajpur . . .	105·3	92·6	+12·7
5th „ . . .	Berhampore . .	111·3	96·7	+14·6
6th „ . .	Bogra . . .	106·3	93·3	+13·0
	Berhampore . .	108·8	96·4	+12·4
	Purnea . . .	107·3	95·1	+12·2
8th „ . .	Toungoo . . .	114·8 ?	98·0 ?	+16·8 ?
	Berhampore . .	108·3	96·0	+12·3

Over north-west India temperature was in large to moderate defect of the normal on the 1st of the month, but a rise occurred on the 2nd and 3rd and the deficiency diminished rapidly. On the 3rd and 4th, however, showers occurred over Kashmir and the north of the Indus valley and on the latter day a rapid fall of temperature occurred over Baluchistan, the North-West Frontier Province and the adjoining districts. Similar but slighter decreases in temperature occurred over these districts on the 6th and 7th though no rain was received except in further Kashmir on the 6th so that temperature was unsteady in the extreme north-west. The following gives comparative data from the 1st to the 8th for Baluchistan and the Punjab:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of							
	1st May.	2nd May.	3rd May.	4th May.	5th May.	6th May.	7th May	8th May.
	°	°	°	°	°	°	°	°
Punjab . .	—5·3	—2·0	+1·1	+1·8	—0·6	+0·2	—1·1	—1·4
Baluchistan . .	—7·6	—6·9	+1·2	—5·1	—1·8	—0·4	—3·7	—2·9

In other parts of north-west India the temperature was not affected by the falls noticed above, and after the first

two or three days the mean temperature remained steadily above the normal till the 8th. This is shown below:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF							
	1st May.	2nd May.	3rd May.	4th May.	5th May.	6th May.	7th May.	8th May.
	°	°	°	°	°	°	°	°
United Provinces of Agra and Oudh.	−2·1	−1·6	+0·2	+1·5	+2·4	+1·4	+1·7	+1·8
Sind	−2·3	+0·5	+1·6	+0·8	+1·1	+0·5	+0·2	+1·2
Rajputana . . .	−2·1	−1·9	−1·4	+1·8	+1·5	+4·0	+0·9	+1·1
Gujarat . . .	−0·5	−0·1	+1·6	+1·0	+0·4	+0·4	+1·8	+2·3

Over the Peninsula temperature was very unsteady during this period. Scattered showers were reported from some central stations on the 1st and accompanying these showers there were very deficient temperatures over the central districts. These low temperatures gradually disappeared, but about this time temperature fell along the Madras coast and lower temperatures than usual were recorded over this area until the close of the period under review. The following gives comparative data from the 1st to the 8th for the Peninsular divisions:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF							
	1st May.	2nd May.	3rd May.	4th May.	5th May.	6th May.	7th May.	8th May.
	°	°	°	°	°	°	°	°
Central India . .	−1·3	−2·1	−1·2	+1·3	+2·4	+2·7	+3·1	+2·6
Central Provinces .	−0·4	−3·4	−0·5	+0·4	+1·1	+3·1	+3·1	+0·5
Berar . . .	−4·6	−3·5	−0·4	+1·7	+2·4	+2·4	+3·6	+3·9
West Coast . .	+0·6	+0·7	+1·2	+1·1	−0·2	+0·6	+1·1	+1·0
Bombay Deccan . .	+1·1	+1·5	+2·8	+1·8	+1·6	+3·7	+3·0	+3·3
Mysore . . .	+2·7	+1·4	+1·4	+2·8	+1·3	+3·0	+3·0	+2·6
Madras Coast . .	−1·5	−1·8	−2·1	−1·9	−1·4	−1·3	−1·9	−3·2
Madras Deccan . .	+2·2	−0·7	+0·4	+2·3	+0·2	+1·7	+0·5	+1·4
South India . .	+2·2	+0·3	−0·5	−0·7	+1·5	+1·8	+3·0	+0·3

On the 9th there was very little to record except the low temperatures in the Assam valley and part of Bengal where rain had been received. The following gives data for Assam:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 9th May.	Mean minimum temperature, 9th May.	Mean daily temperature, 9th May.
	°	°	°
Assam	−3·4	−3·3	−3·4

On the 10th showers were received over parts of the Deccan and of the east of the Peninsula resulting in a considerable deficiency of temperature over that area for the next few days. The following gives comparative data for this region from the 9th to the 13th:—

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.
	°	°	°	°	°
Madras Coast	−2·1	−2·3	−3·2	−3·4	−3·5
Madras Deccan	+1·4	−0·8	−2·9	−0·8	−0·6
South India . . .	+1·0	+0·9	−0·2	−0·5	−3·4

In the mean time very important changes were in progress in the north-west. On the 9th pressure was giving way over the western desert and on the following day a depression had entered north-west India from the westward. During the advance of this depression temperature rose and was very high on the 11th over the greater part of north-west India. As the storm passed eastward, however, cool northerly winds set in over the Punjab, etc., and showers occurred over Baluchistan and north-west India accompanied with a remarkable fall of temperature which reduced the heat to largely below the normal. The following gives comparative data for Baluchistan and the different divisions of north-west India from the 9th to the 16th:—

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
	°	°	°	°	°	°	°	°
Baluchistan . .	−2·5	+2·2	− 1·5	−12·5	−11·2	− 9·3	− 4·0	−10·9
United Provinces of Agra and Oudh.	+0·3	+1·4	+ 2·1	+ 5·1	− 1·4	− 4·8	− 3·3	− 2·5
Punjab . . .	0	+2·0	+ 4·4	+ 1·6	− 8·7	−11·1	− 8·2	− 4·7
North-West Frontier Province.	+0·1	+4·9	+ 2·3	− 9·2	−14·8	−11·9	− 7·7	− 6·2
Sind	+1·3	+1·7	+ 1·9	− 3·9	− 2·7	− 2·8	− 0·3	− 1·0
Rajputana . . .	+2·4	+2·4	+ 2·3	+ 0·6	− 3·5	− 3·0	− 5·3	− 2·3
Gujarat . . .	+0·7	+1·0	+ 0·2	− 0·2	+ 0·8	+ 0·4	− 0·5	+ 0·2
Central India . .	+2·0	+0·3	+ 1·6	+ 2·9	+ 1·5	− 2·8	− 2·1	− 0·7

During this period both the day and night temperatures were extraordinarily low, but the deficiency was throughout greater in the case of the former than in the case of the latter and maximum temperatures more than 15° below the

normal were recorded at the following places on the following dates:—

DATE.	STATION.	MAXIMUM TEMPERATURE. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
12th May	Cherat	67·3	89·0	−21·7
	Peshawar	80·1	97·1	−17·0
13th „	Cherat	59·3	89·2	−29·9
	Peshawar	77·1	97·2	−20·1
	Dera Ismail Khan	84·3	103·4	−19·1
	Khushab	87·3	104·0	−16·7
	Chaman	77·3	93·9	−16·6
	Montgomery	91·5	107·6	−16·1
	Murree	60·2	76·2	−16·0
	Srinagar	61·5	76·9	−15·4
14th „	Cherat	67·3	89·5	−22·2
	Rawalpindi	76·9	97·0	−20·1
	Khushab	84·2	104·2	−20·0
	Lahore	86·4	104·9	−18·5
	Montgomery	90·0	107·8	−17·8
	Murree	60·2	76·4	−16·2
	Sirsa	90·8	106·8	−16·0
	Dera Ismail Khan	88·3	103·5	−15·2
	Mooltan	91·3	106·4	−15·1
15th „	Montgomery	92·0	108·0	−16·0
16th „	Chaman	76·8	94·6	−17·8

Over the Peninsula and Burma showers occurred between the 14th and 16th and the mean temperature was generally lower than usual. This is shown below:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF 14th May.	15th May.	16th May.
	°	°	°
Burma	−2·4	−2·2	−2·1
Central Provinces	−4·0	−3·3	−0·3
Berar	−1·9	−2·9	+1·4
West Coast	−0·1	−0·8	−0·3
Bombay Deccan	+1·3	−0·4	+1·2
Mysore	+1·8	−1·7	−0·2
Madras Coast	−3·8	−2·0	−2·2
„ Deccan	−2·7	−3·1	−2·5
South India	−1·4	−3·1	−1·3

Large temperature changes again took place over north-west India between the 17th and the 22nd. On the morning of the 16th a slight barometric depression was shown over lower Sind. This depression during the next 24 hours advanced quickly north-eastward and had reached the submontane Punjab by the morning of the 17th. The storm was followed by rain on the hills and plains of the Punjab, etc., and further low temperatures were recorded over north-west India. On the 18th high temperatures commenced to appear on the Sind coast and spreading northward and north-eastward had covered the whole of Sind and Rajputana by the 22nd. The following gives comparative temperature data for the different divisions of north-west India from the 17th to the 22nd and indicates the progress of these changes:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF 17th May.	18th May.	19th May.	20th May.	21st May.	22nd May.
	°	°	°	°	°	°
Baluchistan	−14·6	−9·7	−11·7	−1·1	−0·9	−3·7
United Provinces of Agra and Oudh.	+0·6	−3·1	−3·2	−1·7	−0·9	−0·1
Punjab	−8·2	−12·6	−11·4	−8·2	−5·3	−2·3
North-West Frontier Province.	−12·3	−15·7	−14·5	−10·4	−6·0	−1·9
Sind	−5·8	−3·9	−1·6	+1·1	+3·8	+5·5
Rajputana	−3·9	−8·8	−5·9	−1·5	−1·2	−0·2
Gujarat	−0·3	−1·4	−1·4	+3·1	+6·4	+4·3
Central India	+1·3	−3·0	−3·4	−2·2	−0·5	+0·5

During this cold period the maximum or day temperature was more than 20° below the normal at the following places on the following dates:—

DATE.	STATION.	MAXIMUM TEMPERATURE. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
17th May	Montgomery	81·5	108·4	−26·9
	Cherat	66·3	90·1	−23·8
	Mooltan	83·3	106·7	−23·4
	Chaman	71·3	94·7	−23·4
18th „	Cherat	59·3	90·3	−31·0
	Khushab	75·2	105·2	−30·0
	Montgomery	82·5	108·6	−26·1
	Rawalpindi	72·9	97·6	−24·7
	Peshawar	74·1	98·3	−24·2
	Dera Ismail Khan	81·8	104·0	−22·2
19th „	Cherat	66·3	90·5	−24·2

While this cold weather prevailed over north-west India excessive temperatures were recorded over Bengal, Burma and to a certain extent in Assam where, as is shown by the following comparative data, the heat was almost daily above the normal from the 17th to the 22nd :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	17th May.	18th May.	19th May.	20th May.	21st May.	22nd May.
	°	°	°	°	°	°
Burma . . .	—0·7	+0·9	+0·7	+3·6	+5·0	+4·0
Assam . . .	—1·7	—1·8	+0·3	+2·8	+4·9	+2·0
Bengal . . .	+3·2	+3·6	+3·1	+3·7	+5·8	+6·5

The hottest days were the 21st and 22nd and the day or maximum temperatures more than 12° above the normal were recorded at the following places on the following dates :—

DATE.	STATION.	MAXIMUM TEMPERATURE.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
8th May .	Berhampore . .	109·8	96·7	+13·1
21st „ .	Purnea . . .	110·3	95·2	+15·1
	Dinajpur . . .	106·2	91·7	+14·5
22nd „ .	Dinajpur . . .	107·8	91·6	+16·2
	Berhampore . .	112·3	96·9	+15·4
	Purnea . . .	109·3	95·2	+14·1
23rd „ .	Purnea . . .	107·3	9·51	+12·2

On the 18th rain fell over Ceylon and extending thence along the Madras coast occasioned a large and sudden reduction of temperature over the east of the Peninsula, the day temperature falling at several stations to from 15° to 20° below the normal. The following gives data for the Peninsular divisions from the 17th to the 22nd :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	17th May.	18th May.	19th May.	20th May.	21st May.	22nd May.
	°	°	°	°	°	°
Central Provinces .	0	—2·8	—2·3	—3·3	—1·7	—2·1
Berar	+0·3	—2·1	—3·0	—0·8	—4·0	—5·3
West Coast . .	—0·3	—0·5	—0·5	—3·4	—2·5	—2·4
Bombay Deccan . .	—0·9	—2·6	+0·2	+2·4	—2·3	—5·0
Mysore . . .	—1·3	—1·7	—2·7	—5·5	—7·8	—6·9
Madras Coast . .	—1·3	—4·0	—5·9	—8·1	—8·1	—6·5
Madras Deccan . .	—2·9	—2·0	—2·6	—8·7	—12·2	—10·2
South India .	—0·8	—3·0	—6·9	—9·2	—7·1	—5·2

The preceding data show that the period from the 17th to the 22nd was one of the most marked temperature disturbances of the month and probably of the year.

On the 20th a low pressure area appeared off the Malabar coast whence it advanced slowly northward along the west coast and then north-westward across the north of the Arabian Sea. It occasioned a considerable amount of rainfall first over the Peninsula and subsequently over the central parts of the country while at the same time there occurred an outburst of stormy, rainy weather over north-east India. As a consequence the mean temperature was low over nearly the whole country, the only exceptions having been Burma on the one hand and the western desert on the other. The following gives comparative temperature data for all divisions from the 23rd to the 28th and indicates the northerly advance of the area of most deficient temperature with the extension of rainfall :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	23rd May.	24th May.	25th May.	26th May.	27th May.	28th May
	°	°	°	°	°	°
Burma . . .	+3·1	+1·4	+3·1	+2·3	+2·9	+3·2
Assam . . .	+2·0	+2·2	—0·5	—3·8	—0·8	+1·1
Bengal . . .	+5·9	+6·1	+2·6	—2·2	—1·7	—2·2
Orissa . . .	+4·0	+4·5	+3·6	+0·9	—1·7	—5·2
Bihar	+6·6	+7·0	+1·4	—3·5	—2·6	—5·3
Chota Nagpur . .	+2·7	+5·4	—1·2	—4·6	—3·3	—10·6
United Provinces of Agra and Oudh.	+2·4	+5·0	+1·0	—1·6	—6·1	—5·3
Punjab . . .	+2·9	+3·5	+1·9	+0·6	—1·2	—2·3
North-West Frontier Province.	—0·4	—1·3	—2·1	—1·9	—2·2	—2·3
Sind	+5·3	+4·3	+2·7	+2·6	+2·5	+1·0
Rajputana . . .	+3·6	+4·8	+1·3	+2·2	+2·2	+1·2
Gujarat . . .	+5·3	+2·3	—0·8	+1·6	+0·9	+0·1
Central India . .	+2·1	—0·2	—4·2	—4·3	—9·5	—5·2
Central Provinces .	—3·5	—4·9	—7·9	—8·4	—12·8	—7·3
Berar	—9·6	—9·1	—7·2	—11·0	—14·0	—6·3
West Coast . .	—3·8	—3·1	—2·3	—1·1	—0·4	+0·1
Bombay Deccan . .	—7·3	—7·3	—6·4	—9·7	—4·5	—1·0
Mysore . . .	—4·8	—1·9	—0·9	—0·9	+0·1	+1·1
Madras Coast . .	—4·0	—2·5	—2·2	—1·3	—1·1	—1·7
„ Deccan . .	—5·5	—3·7	—3·2	—1·7	—0·5	0
South India . .	—3·7	—1·8	—0·7	+0·6	+0·4	+0·4

Day temperatures were extraordinarily low during this period of disturbance, more particularly over the central parts of the country, where on the the following dates

maximum temperatures more than 20° below the normal were recorded:—

DATE.	Station.	MAXIMUM TEMPERATURE. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
26TH MAY	Malegaon	77·3	103·3	—26·0
26TH MAY	Ahmednagar	77·3	98·4	—21·1
26TH MAY	Poona	77·1	97·4	—20·3
27TH ,,	Jubbulpore	76·9	106·1	—29·2
27TH ,,	Seoni	77·8	104·1	—26·3
27TH ,,	Nagpur	84·1	109·3	—25·2
27TH ,,	Sutna	81·3	106·2	—24·9
27TH ,,	Saugor	82·4	105·4	—23·0
27TH ,,	Amraoti	85·1	107·2	—22·1
28TH ,,	Hazaribagh	78·7	99·3	—20·6

During the last three days of the month the changes were somewhat irregular, but on the whole tended to establish an approximately normal distribution of temperature, except in Burma, and on the last day of the month the mean temperature was slightly excessive in nearly all parts of India. The following gives comparative temperature data for all divisions for the 24 hours preceding 8 A.M. of the 31st:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF Mean maximum temperature, 31st May.	Mean minimum temperature, 31st May.	Mean daily temperature, 31st May.
	°	°	°
Burma	—2·8	—0·4	—1·6
Assam	+1·6	—1·9	—0·2
Bengal	+1·8	—1·2	+0·3
Orissa	+2·7	+2·9	+2·8
Bihar	+1·9	+0·2	+1·1
Chota Nagpur	+3·3	+1·5	+2·4
United Provinces of Agra and Oudh	+3·0	+4·4	+3·7
Punjab	+3·3	+2·4	+2·9
North-West Frontier Province	+1·2	—1·1	+0·1
Sind	+4·0	+0·4	+2·2
Rajputana	+3·4	+3·7	+3·6
Gujarat	+0·1	+0·9	+0·5
Central India	+2·3	+1·5	+1·9
Central Provinces	+0·5	+0·6	+0·6
Berar	+0·7	—1·8	—0·6
West Coast	0	+1·3	+0·7
Bombay Deccan	+2·6	—4·2	—0·8
Mysore	+1·5	+0·9	+1·2
Madras Coast	+1·0	+0·4	+0·7
Madras Deccan	+2·8	+2·3	+2·6
South India	+1·0	+0·2	+0·6

Winds.

May is the last month of the hot weather over a large part of India and is hence a period of transition, more particularly over southern India, and the south of the Bay and of the Arabian Sea. The winds are consequently more or less unsteady, during the month, but westerly winds continue to obtain over the Gangetic plain, easterly winds in Assam, and strong southerly winds across the Bay coasts. In western and central India and the Deccan the winds range between north-west and west.

In May 1903 the winds were practically normal over the Bay Islands and the Burma coast, but at Rangoon both the velocity and steadiness were much lower than usual. The following gives data for this station:—

STATION.	MEAN STEADINESS. Actual percentage, May 1903.	Normal percentage, May.	Variation of actual from normal, May 1903.	MEAN WIND VELOCITY IN MILES PER DIEM. Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
Rangoon	26	58	—32	40	113	—73

The wind was unusually westerly in lower and east Bengal and was generally stronger and steadier than usual. The following gives data:—

STATION.	MEAN STEADINESS. Actual percentage, May 1903.	Normal percentage, May.	Variation of actual from normal, May 1903.	MEAN WIND DIRECTION. Actual, May 1903.	Normal, May.	Westerly deflection.	MEAN WIND VELOCITY IN MILES PER DIEM. Actual, May, 1903.	Normal, May.	Variation of actual from normal, May 1903.
				°	°				
Chittagong	50	42	+ 8	S 28 W	S 1 E	+29	152	150	+ 2
Calcutta	76	65	+11	S 22 W	S 7 E	+29	171	172	— 1
Saugorlsland	85	73	+12	S 11 W	S 8 W	+ 3	479	394	+85

At False Point the wind's direction was slightly more southerly than usual and the velocity was low. This is shown below :—

Hill Station.	Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual, May 1903.	Normal, May.	Southerly Deflection.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
	°	°				
False Point .	S 11 W	S 23 W	+12	288	338	−50

The observatories in the Gangetic plain showed irregular winds. At Hazaribagh and Allahabad there was an unusual and very steady west-north-west wind while at Darbhanga there was a light unsteady east-south-east wind. Similar conditions prevailed over the upper Sub-Himalayas where the wind, though much steadier than the average, varied irregularly in direction. In the Indus valley the wind was very light but the steadiness was about the average. At Kurrachee the mean wind direction was about normal, but at Jacobabad the wind, on the mean of the month, was north-east instead of south-east and at Peshawar was north-north-west instead of north by east. In Rajputana, as in the Indus valley, the wind was much lighter than usual, but both steadiness and direction were about normal.

The following gives comparative data of the mean air movement and steadiness over northern India, Burma and the Bay Islands during the month :—

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, May 1903.	Normal percentage, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
Bay Islands . .	45	50	− 5	188	171	+17
Burma . . .	40	45	− 5	112	126	−14
Bengal . . .	70	60	+10	267	239	+28
Bihar . . .	39	60	−21	71	152	−81
Chota Nagpur. .	55	15	+40	187	222	−35
Orissa . . .	85	73	+12	288	338	−50
United Provinces of Agra and Oudh.	39	21	+18	85	89	− 4
North-West Frontier Province.	29	29	0	63	116	−53
Punjab . . .	46	14	+32	72	69	+ 3
Rajputana . . .	56	59	− 3	174	241	−67
Sind . . .	48	48	0	184	260	−76

Over the Deccan the wind directions were on the whole fairly normal though at Nagpur and Hyderabad the wind was somewhat more southerly and at Belgaum more northerly than usual. The following gives data for these three stations :—

Station.	Mean wind direction.	
	Actual, May 1903.	Normal, May.
	°	°
Nagpur	S 46 W	N 46 W
Hyderabad (Deccan)	S 81 W	N 57 W
Belgaum	N 75 W	S 88 W

The average steadiness was everywhere below the normal and in most places the velocity was lower than usual. Along the west coast the winds were lighter and less steady than usual, but the mean wind direction differed but little from the average. In southern India very similar conditions prevailed. The mean wind directions were approximately normal while both the velocity and steadiness were generally below the average.

The following gives comparative data of the mean air movement and steadiness in the different divisions of the Peninsula :—

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, May 1903.	Normal percentage, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
Central Provinces . .	32	57	−25	177	235	−58
Berar	43	72	−29	204	255	−51
Bombay Deccan . .	35	58	−23	338	340	− 2
Madras Deccan . .	24	53	−29	140	187	−47
West Coast . . .	66	76	−10	172	188	−16
Mysore . . .	32	70	−38	157	189	−32
Madras Coast . .	52	65	−13	155	219	−64
South India . . .	42	55	−13	71	98	−27

At Aden the general wind conditions were approximately normal while at Perim the wind was lighter and less easterly 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, May 1903.	Normal percentage, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Easterly deflection.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
				°	°				
Aden . .	32	40	— 8	S 61 E	S 60 E	+ 1	262	266	— 4
Perim . .	45	32	+13	S 44 E	S 82 E	—38	235	337	—102

Over the sea area the wind force varied irregularly from the normal. Over the Arabian Sea the mean wind force of the month was 2·9 while the normal is 3·4 so that the force was lighter than usual, while over the Bay area the mean wind force was 3·2 and the normal 3·0 so that the force exceeded the average.

The following gives comparative data for the winds in the equatorial belt:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, May 1903.	Normal percentage, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
				°	°			
Zanzibar . . .	84	85	— 1	S 7 W	S 5 E	206	194	+12
Seychelles . .	53	58	— 5	S 44 E	S 44 E	148	173	—25
Mauritius . . .	...	...	...	S 62 E	S 64 E	221	245	—24

The preceding data show that at the Seychelles the direction and steadiness of the wind were about normal, but that the velocity was lower than usual, while at Zanzibar the mean direction was more westerly than the normal, but the steadiness and velocity were about the average. At Mauritius the mean wind direction was about the average, but the velocity was lower than usual.

With the exceptions of Quetta and Darjeeling the wind directions at all the northern hill stations varied more or less from the normal. At Srinagar, Ranikhet and Katmandu there was more northing than usual in the direction while at Simla the wind blew from east-south-east instead of north by west. The percentage of steadiness was very low in some places while the mean velocity varied irregularly from the normal. At the central hill stations, on the other hand, the mean wind conditions of the month were approximately normal.

Humidity and Cloud.

The air was, as was the case in the preceding month of April, damper than usual on the hills and plains of the extreme north-west of India, the following giving comparative data of the mean absolute and relative humidities for the stations contained within this area:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
	"	"	"	%	%	
Peshawar . .	·463	·423	+·040	49	39	+10
Lahore . .	·441	·441	0	38	33	+ 5
Kurrachee . .	·965	·889	+·076	74	73	+ 1

The preceding data show that except at Lahore the mean absolute humidity was everywhere above the normal and that the relative humidity was everywhere above—more especially at Peshawar.

A second area of excessive relative humidity covered nearly the whole of the Peninsula. At Bombay and Buldana the mean absolute humidity was less than the average and the excess in the mean relative humidity was small, but at all the stations for which comparative data are given below, the mean absolute humidity was in excess, the mean temperature below the normal and the mean relative humidity more than 5 above the normal:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
	"	"	"	%	%	
Bellary . .	·728	·577	+·151	55	44	+11
Akola . .	·507	·408	+·099	37	28	+ 9
Nagpur . .	·500	·448	+·052	37	29	+ 8
Karwar . .	·956	·853	+·103	81	73	+ 8
Hyderabad (D) .	·611	·561	+·050	48	41	+ 7

It is remarkable that in the centre of this area of increased dampness there were shown two stations at which the mean absolute humidity was lower than usual, the mean temperature above the normal and the mean relative humidity in slight to moderate defect. The following gives data :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
	"	"	"	%	%	
Hassan . .	·571	·610	—·039	65	70	— 5
Bangalore . .	·568	·594	—·026	59	62	— 3

At Diamond Island the mean relative humidity exceeded the normal notwithstanding that the mean absolute humidity was less than usual and the mean temperature above the average. The following gives data for this station :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May, 1903.
	"	"	"	%	%	
Diamond Island .	·890	·891	—·001	77	74	+ 3

Over the whole of the remainder of India the mean absolute and relative humidities were in defect. The deficiency was more than 5 over Gujarat, the east Punjab, the United Provinces and the greater part of Bengal, as is shown by the following comparative data :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
	"	"	"	%	%	
Calcutta . .	·826	·883	—·057	64	74	—10
Darbhanga . .	·710	·765	—·055	54	62	— 8
Hazaribagh . .	·389	·467	—·078	33	40	— 7
Allahabad . .	·406	·526	—·120	27	37	—10
Meerut . . .	·361	·494	—·133	30	40	—10
Roorkee . .	·319	·428	—·109	26	35	— 9
Dehra Dun . .	·330	·407	—·077	32	39	— 7
Ludhiana . .	·416	·495	—·079	34	41	— 7
Deesa . . .	·430	·566	—·136	30	40	—10

The preceding data show that considerable changes had occurred since the previous month in the distribution of the humidity variations. The area of increased dampness in the extreme north-west, which was shown in April, was maintained in May, but the area of diminished dampness over the Peninsula had almost disappeared and been replaced by an area of excessive humidity.

The mean humidity of the month was less than 35 per cent at the following places :—

Station.	Relative Humidity.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
	%	%	
Hazaribagh	33	40	— 7
Dehra Dun	32	39	— 7
Meerut	30	40	—10
Allahabad	27	37	—10
Roorkee	26	35	— 9
Ludhiana	34	41	— 7
Deesa	30	40	—10
Jaipur	29	32	— 3
Khandwa	32	33	— 1
Mount Abu	31	37	— 6

The above stations hence outline the area of greatest dryness and during the month under review the following low humidities were recorded on the following dates :—

Station.	Date.	Hour.	Lowest humidity recorded during May 1903.
			%
Bareilly	2nd May	8 A.M.	0
Roorkee	,, ,,	4 P.M.	5
Hazaribagh	,, ,,	,,	6
,, ...	3rd ,,	,,	6
Roorkee	1st ,,	,,	7
Meerut	3rd ,,	,,	7
Hazaribagh	4th ,,	10 A.M. and 4 P.M.	7
Akola	5th ,,	4 P.M.	7
Meerut	20th ,,	,,	7
Hazaribagh	21st ,,	10 A.M.	7
Allahabad	,, ,,	4 P.M.	7
Roorkee	,, ,,	,,	7

STATION.	Date.	Hour.	Lowest humidity recorded during May 1903.
			%
Allahabad	22nd May	4 P.M.	7
Meerut	,, ,,	,,	7
Kotah	,, ,,	,,	7
Deesa	1st ,,	,,	8
,,	2nd ,,	10 A.M. and 4 P.M.	8
,,	3rd ,,	4 P.M.	8
Buldana	,, ,,	,,	8
Allahabad	4th ,,	,,	8
Khandwa	,, ,,	,,	8
Deesa	6th ,,	,,	8
Buldana	,, ,,	,,	8
Jaipur	8th ,,	,,	8
Roorkee	,, ,,	,,	8
Deesa	14th ,,	,,	8
,,	19th ,,	,,	8
,,	20th ,,	,,	8
Allahabad	,, ,,	,,	8
Jamnagar	,, ,,	,,	8

At all the Himalayan hill stations, except Srinagar and Leh as well as at Quetta both the mean absolute and relative humidities were below the normal, the deficiency at Ranikhet and Katmandu, owing in part to the high temperatures prevailing, having been considerable. This is shown below :—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
	"	"	"	%	%	
Quetta	·302	·276	+·026	50	41	+ 9
Leh	·136	·128	+·008	43	39	+ 4
Srinagar	·453	·431	+·022	81	71	+ 10
Simla	·236	·279	—·043	44	46	— 2
Chakrata	·223	·276	—·053	39	48	— 9
Ranikhet	·260	·334	—·074	37	50	—13
Katmandu	·414	·496	—·082	56	68	—12
Darjeeling	·404	·408	—·004	79	87	— 8

At the central hill stations except Mount Abu the mean absolute humidity was in slight excess, the mean temperature below the normal and the mean relative humidity higher than usual. This is shown below :—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
	"	"	"	%	%	
Mount Abu	·324	·354	—·030	31	37	—6
Pachmarhi	·376	·349	+·027	36	32	+4
Chikalda	·397	·373	+·024	39	35	+4

The following table gives data of mean temperature and of mean absolute and relative humidities for all divisions of India for the month of May 1903 :—

PROVINCE OR DIVISION.	Mean temperature variation from normal, May 1903.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
		Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
	°	"	"	"	%	%	
Bay Islands	+1·4	·957	·937	+·020	81	83	— 2
Burma	+1·0	·886	·881	+·005	77	76	+ 1
Bengal	+2·0	·903	·913	—·010	73	78	— 5
Bihar	+3·3	·710	·765	—·055	54	62	— 8
Chota Nagpur.	+2·3	·389	·467	—·078	33	40	— 7
Orissa	+0·2	·958	·970	—·012	79	82	— 3
United Provinces.	+0·1	·354	·464	—·110	29	38	— 9
Punjab	+0·2	·429	·469	—·040	36	37	— 1
North-West Frontier Province.	—3·9	·463	·423	+·040	49	39	+10
Sind	+0·6	·893	·817	+·076	63	62	+ 1
Rajputana	+1·5	·417	·502	—·085	30	37	— 7
Central Provinces.	—1·5	·474	·457	+·017	35	31	+ 4
Berar	—1·7	·454	·416	+·038	36	31	+ 5
West Coast	—0·7	·916	·865	+·051	79	74	+ 5
Bombay Deccan.	—0·9	·561	·533	+·028	54	49	+ 5
Madras Deccan.	—1·3	·670	·569	+·101	52	43	+ 9
Madras Coast.	—2·2	·929	·877	+·052	77	68	+ 9
Mysore	+0·6	·604	·594	+·010	64	63	+ 1
South India	—0·1	·859	·762	+·097	70	63	+ 7

The following gives data for Aden and Perim and for the stations in the south-east trades region :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
	"	"	"	%	%	
Aden	·854	·846	+·008	68	68	0
Perim	·902	·875	+·027	72	69	+3
Zanzibar	·808	·795	+·013	81	82	−1
Seychelles	·859	·812	+·047	83	76	+7
Mauritius	·596	·615	−·019	76	79	−3

At Aden and Perim the variations of the mean relative humidity were unimportant. At the Seychelles the dampness was somewhat greater than usual, while at Mauritius and Zanzibar there was some defect in humidity.

The variations of the amount of cloud from the average differed considerably from those of humidity. The sky was clearer than usual over north Bombay and the west coast where humidity was generally in excess. The following gives comparative data for the stations in this area :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
Kurrachee	1·2	2·1	−0·9
Deesa	0·8	1·5	−0·7
Bombay	3·5	3·8	−0·3
Karwar	2·4	3·2	−0·8

Cloud was also less than usual over north Bihar, Bengal proper, Orissa and the greater part of Burma, the diminished cloudiness having been considerable, and 1·0 or more in amount over the head of the Bay and at Diamond Island. The following gives data :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
Chittagong	3·7	5·4	−1·7
Saugor Island	4·6	5·8	−1·2
Diamond Island	5·3	6·3	−1·0

Cloud was also locally less than usual at Roorkee. This is shown below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
Roorkee	1·5	1·6	−0·1

Over the whole of the remainder of the plains of India an excess of cloud was reported. This excess was greatest and more than 1·0 in amount over the interior districts of India and locally at Peshawar. The following gives comparative data for the stations in this area :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
Hazaribagh	5·9	3·6	+2·3
Khandwa	4·1	2·1	+2·0
Akola	4·3	2·4	+1·9
Jaipur	4·0	2·2	+1·8
Hyderabad (Deccan)	4·6	2·9	+1·7
Mysore	7·0	5·4	+1·6
Allahabad	2·9	1·6	+1·3
Bellary	6·0	4·9	+1·1
Peshawar	4·3	2·9	+1·4

At the hill stations the variations in the mean cloud amount from the normal were irregular. From Darjeeling westward as far as Ranikhet, as well as at Leh the sky was

clearer than usual, as is shown by the following comparative data :—

Hill Station.	Mean cloud amount. Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
Darjeeling	6·0	7·4	—1·4
Katmandu	4·1	5·4	—1·3
Ranikhet	2·9	3·4	—0·5
Leh	6·1	6·3	—0·2

At all the remaining hill stations the sky was more cloudy than usual and at Simla, Srinagar, Quetta, Pachmarhi and Chikalda, the excess was considerable. This is shown below :—

Hill Station.	Mean cloud amount. Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
Simla	5·0	3·8	+1·2
Srinagar	5·3	3·5	+1·8
Quetta	2·3	1·2	+1·1
Pachmarhi	4·7	2·8	+1·9
Chikalda	4·1	2·9	+1·2

The mean cloud amount of the month was less than 2·0 at the stations for which comparative data are given below and these stations hence outlined the regions of most quiet and settled weather :—

Station.	Mean cloud amount. Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
Darbhanga	1·7	2·0	—0·3
Roorkee	1·5	1·6	—0·1
Kurrachee	1·2	2·1	—0·9
Jamnagar	1·3	...	...
Deesa	0·8	1·5	—0·7
Mount Abu	1·9	1·4	+0·5

At Aden and Perim the cloud amount, on the mean of the month, was approximately normal, but in the south-east trades region except at Mauritius the sky was more cloudy than usual, as is shown by the following data :—

Station.	Mean cloud amount. Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.
Aden	2·0	1·6	+0·4
Perim	1·2	1·6	—0·4
Zanzibar	6·6	5·8	+0·8
Seychelles	6·4	5·1	+1·3
Mauritius	4·5	5·1	—0·6

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.

The weather was, on the whole, more disturbed than usual during the month of May, but the thunderstorms and nor'westers in Assam and Bengal, though apparently as numerous as usual, gave less rain than the average. The actual distribution of rain, as shown by the meteorological observatories, is given in Plate IV. This plate shows that actually or practically no rain was received over part of the western desert, but that in all other districts more or less effective rain was recorded, though in portions of the United Provinces and of the Nizam's dominions the fall was very light. The heaviest total amounts of rain reported were 20·60″ at Colombo, 15·73″ at Cochin, 15·83″ at Moulmein, 12·93″ at Dhubri, 8·89″ at Karwar and 4·06″ at Sialkot. From these stations the amount of rain decreased in all directions and was lightest, as mentioned above, over the western desert, the Surat district, the interior of the Peninsula, the north Ganjam coast and parts of the United Provinces.

The chief periods of rainfall were as follows :—

1. The 5th to the 10th when daily thundershowers occurred in the north-east.
2. The 13th and 14th when showers occurred on the hills and plains of north-west India.
3. The 16th, 17th and 18th when further showers fell in the north-west.
4. The 20th to 25th when heavy showers occurred over the Peninsula and
5. The 27th to 31st when showers were received over Burma and north-east India.

The following table gives comparative rainfall data for the 57 rainfall divisions of India :—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, May 1903.	Average normal, May.	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.
				Inches.	Inches.	Inches.
Burma	Tenasserim	13·1	18·7	14·10	23·02	—8·92
	Lower Burma (Deltaic)	10·9	14·7	8·05	12·05	—4·00
	Central do.	8·3	9·4	5·77	6·68	—0·91
	Upper do.	6·8	8·2	3·99	5·91	—1·92
	Arakan	7·2	12·0	8·16	12·49	—4·33
Bengal and Assam	Eastern Bengal	7·5	10·9	5·63	10·33	—4·70
	Assam (Surma)	12·6	16·1	9·04	17·64	—8·60
	Do. (Hills)	12·4	15·2	8·00	15·05	—7·05
	Do. (Brahmaputra)	13·9	14·5	8·38	12·03	—3·65
	Deltaic Bengal	5·1	8·0	3·51	6·16	—2·65
	Central do.	4·7	6·3	3·24	4·63	—1·39
	North do.	9·6	11·7	7·00	11·32	—3·72
	Bengal Hills	12·9	13·6	7·37	8·45	—1·08
	Orissa	3·8	5·1	2·54	3·66	—1·12
	Chota Nagpur	3·4	3·7	2·29	2·17	+0·12
	Bihar (South)	0·9	2·1	0·39	1·41	—1·02
	Do. (North)	1·9	4·1	1·18	3·02	—1·84
United Provinces of Agra and Oudh.	United Provinces (East)	0·3	0·9	0·10	0·48	—0·38
	Oudh (South)	0·1	1·1	0·09	0·52	—0·43
	Do. (North)	2·0	1·7	1·16	0·95	+0·21
	United Provinces (Central)	0·5	0·9	0·17	0·36	—0·19
	Do. do. (West)	0·9	1·2	0·27	0·46	—0·19
	Do. do. (Submontane, East)	1·7	1·9	0·86	1·17	—0·31
	Do. do. (Do. West)	1·4	1·8	0·57	0·83	—0·26
	Do. do. (Hills)	3·6	4·5	1·47	2·12	—0·65
Punjab	Punjab (South-East)	0·9	1·4	0·27	0·54	—0·27
	Do. (South)	1·0	1·1	0·26	0·47	—0·21
	Do. (Central)	2·5	1·6	1·02	0·68	+0·34
	Do. (Submontane)	2·2	1·8	1·02	0·83	+0·19
	Do. (Hills)	4·3	4·1	2·27	2·16	+0·11
	Do. (West)	1·7	1·0	0·68	0·44	+0·24
North-West Frontier Province.	North-West Frontier Province	4·3	2·0	1·86	0·85	+1·01
Bombay and Malabar Coast Districts (Madras).	Malabar	11·5	7·9	9·44	7·08	+2·36
	Travancore	10·2	...	7·71	...	...
	Madras (South-Central)	8·7	5·6	6·57	3·74	+2·83
	Coorg	10·5	...	7·26	...	...
	Mysore	7·0	5·7	4·77	3·65	+1·12
	Konkan	5·1	1·8	7·67	1·48	+6·19
	Bombay Deccan	4·7	3·1	3·04	1·71	+1·33
	Khandesh	3·4	1·1	3·02	0·63	+2·39
Central Provinces and Berar.	Berar	3·8	0·9	1·83	0·42	+1·41
	Central Provinces (West)	3·8	0·9	1·97	0·42	+1·55
	Do. do. (Central)	4·1	1·0	1·73	0·48	+1·25
	Do. do. (East)	3·5	1·7	1·56	0·79	+0·77
Bombay (North)	Gujarat	0·9	0·4	0·45	0·22	+0·23
	Kathiawar and Cutch	0·5	0·4	0·22	0·24	—0·02
	Sind	0·4	0·3	0·07	0·10	—0·03
	Baluchistan Hills	2·1	0·6	0·73	0·20	+0·53
Rajputana and Central India.	Central India (East)	1·2	0·7	0·43	0·28	+0·15
	Rajputana (East), Central India (West)	1·3	1·1	0·45	0·44	+0·01
	Rajputana West	0·5	0·7	0·20	0·31	—0·11
Madras	East Coast (North)	4·3	3·4	2·71	2·18	+0·53
	Madras (Central)	4·1	2·9	2·25	1·66	+0·59
	East Coast (Central)	3·6	1·7	4·65	1·28	+3·37
	East Coast (South)	6·1	2·8	4·93	2·17	+2·76
	Madras (South)	4·4	2·7	2·68	1·71	+0·97

The preceding data show that in twenty eight out of the fifty seven divisions the rainfall was lighter than usual. These twenty eight divisions included all the Burma divisions, the Assam divisions, the Bengal divisions except Chota Nagpur, the United Provinces divisions except north Oudh, the south-east and south Punjab, Kathiawar and Cutch, Sind and west Rajputana. The deficiency exceeded 50 per cent. in the divisions for which data are given below :—

DIVISION.	RAINFALL. Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
South Bihar	0·39	1·41	—1·02	—72
North Bihar	1·18	3·02	—1·84	—61
United Provinces, East	0·10	0·48	—0·38	—79
South Oudh	0·09	0·52	—0·43	—83
United Provinces, Central	0·17	0·36	—0·19	—53

Over the whole of the remainder of India the month's rainfall was in excess. The excess was large over the Peninsula and the extreme north-west of India and was more than 100 per cent. in the divisions for which data are given below :—

DIVISION.	RAINFALL. Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North-West Frontier Province	1·86	0·85	+1·01	+119
Konkan	7·67	1·48	+6·19	+418
Khandesh	3·02	0·63	+2·39	+379
Berar	1·83	0·42	+1·41	+336
Central Provinces, West	1·97	0·42	+1·55	+369
Do. do. Central	1·73	0·48	+1·25	+260
Gujarat	0·45	0·22	+0·23	+105
Baluchistan Hills	0·73	0·20	+0·53	+265
East Coast, Central	4·65	1·28	+3·37	+263
East Coast, South	4·93	2·17	+2·76	+127

The total rainfall of the month was light and averaged less than 0·25″ in the following divisions :—

DIVISION.	RAINFALL. Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
United Provinces, East	0·10	0·48	—0·38	—79
South Oudh	0·09	0·52	—0·43	—83
United Provinces, Central	0·17	0·36	—0·19	—53
Kathiawar and Cutch	0·22	0·24	—0·02	— 8
Sind	0·07	0·10	—0·03	—30
West Rajputana	0·20	0·31	—0·11	—35

From the fifth figure column of the table on page 201 it would appear that the general rainfall of the whole Indian region (excluding the hill districts) was 0·39″ below the normal on the average of all divisions.

Rain fell over Burma and Tenasserim mainly between the 10th and the 17th, the 23rd and 26th, and the 28th to 31st. A shallow cyclonic storm which drifted across the centre of the Bay gave heavy rain to Arakan on the 14th, 15th and 16th, when the following falls were recorded :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
AKYAB	Maungdaw	14th May	3·23
KYAUKPYU	Myebon	,, ,,	2·65
KYAUKPYU	Kyaukpyu	15th ,,	6·75
AKYAB	Akyab	,, ,,	4·82
KYAUKPYU	Ramree	,, ,,	2·64
KYAUKPYU	Do.	16th ,,	2·90
KYAUKPYU	Kyaukpyu	,, ,,	2·52

With this exception the province received comparatively little heavy rain and the total rainfall of the month was universally in defect of the average. The following gives data for the five divisions of the province :—

DIVISION.	RAINFALL. Average actual, May 1903.	Average normal, May.	Variation of actual from normal May 1903.	Percentage variation from normal.	NUMBER OF RAINY DAYS. Average actual, May 1903.	Average normal, May.
	Inches.	Inches.	Inches.			
Tenasserim	14·10	23·02	—8·92	—39	13·1	18·7
Lower Burma Deltaic	8·05	12·05	—4·00	—33	10·9	14·7
Central Burma	5·77	6·68	—0·91	—14	8·3	9·4
Upper Burma	3·99	5·91	—1·92	—32	6·8	8·2
Arakan	8·16	12·49	—4·33	—35	7·2	12·0

There were three periods of fairly general rain during the month over Assam, *viz.*, from the 5th to the 11th, the 15th to the 20th, and the 24th to the 31st. As mentioned above the falls, though fairly frequent, were only moderate in amount and exceeded 3″ in 24 hours at the following places on the plains on the following dates:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Lakhimpur	Mergherita	15th May	3·45
Kamrup	Kamalpur	18th ,,	3·50
Lakhimpur	North Lakhimpur	21st ,,	3·21
Sylhet	Duliabcherra	25th ,,	4·10
	Adamtila	,, ,,	3·90
	Samanbagh	,, ,,	3·54
	Sephinjuri Bil	,, ,,	3·44
Goalpara	Dhubri	27th ,,	3·89
Sylhet	Sonamganj	,, ,,	3·03
Sibsagar	Amguri	28th ,,	3·29

The total rainfall of the month was consequently more or less below the normal in all districts. The following gives comparative data for the eight plains districts—

District.	Rainfall. Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	6·46	15·32	−8·86	−58
Sylhet	11·04	19·75	−8·71	−44
Goalpara	9·76	17·81	−7·45	−43
Kamrup	9·01	11·38	−2·37	−21
Darrang	7·66	11·97	−4·31	−36
Nowgong	5·47	8·15	−2·68	−33
Sibsagar	8·11	9·90	−1·79	−18
Lakhimpur	10·12	14·38	−4·26	−23

The month's rainfall was unusually light on the Assam hills, as is shown by the following comparative data for Cherrapoonjee and Jowai:—

Hill Station.	Rainfall. Actual, May 1903.	Normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cherrapoonjee	21·47	51·30	−29·83	−58
Jowai	7·31	26·18	−18·87	−72

Bengal received generally lighter rain than usual. In south-west Bengal there was a showery period between the 8th and the 15th and general rain between the 26th and 28th. During the second period moderately heavy amounts were occasionally recorded, as is shown by the following falls exceeding 2·5″ in 24 hours at the following places:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Khulna	Morelganj	26th May	2·89
Burdwan	Burdwan	,, ,,	2·74
Hooghly	Arambagh	27th ,,	4·91
Bankura	Raipur	,, ,,	3·55

The general rainfall was, however, below the normal, as is shown by the following data for the districts in this division:—

District.	Rainfall. Average actual, May 1903.	Average normal, May	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burdwan	3·65	5·08	−1·43	−28
Birbhum	3·42	4·40	−0·98	−22
Bankura	3·46	4·36	−0·90	−21
Midnapore	2·87	5·45	−2·58	−47
Hooghly	5·09	5·57	−0·48	− 9
Howrah	2·28	5·27	−2·99	−57
24-Parganas	3·01	5·49	−2·48	−45
Calcutta	1·53	5·60	−4·07	−73
Nadia	3·57	6.72	−3·15	−47
Murshidabad	4·11	5·13	−1·02	−20
Jessore	4·65	7·13	−2·48	−35
Khulna	2·59	6·45	−3·86	−60

In north Bengal the rainfall was more continuous than in the preceding division. Fine weather was experienced between the 1st and the 4th, and again between the 20th and 23rd, but at other times the weather was more or less showery. The total fall of the month was only about two-thirds of the normal, as is shown by the following comparative data for the contained districts:—

District.	Rainfall.			
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rajshahi	4·26	6·04	−1·78	−29
Dinajpur	3·15	6·21	−3·06	−49
Jalpaiguri	8·23	14·22	−5·99	−42
Darjeeling	7·36	9·05	−1·69	−19
Cooch Behar	11·40	14·75	−3·35	−23
Rangpur	7·54	10·21	−2·67	−26
Bogra	5·2	7·91	−2·67	−34
Pabna	4·04	7·60	−3·56	−47

East Bengal received fairly general rain between the 7th and 9th and again between the 25th and 31st, but the daily amounts were not heavy and the total rainfall of the month was little more than half the normal. The following gives data for the contained districts:—

District.	Rainfall.			
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dacca	4·60	9·61	−5·01	−52
Mymensingh	9·91	11·30	−1·39	−12
Faridpur	6·27	8·30	−2·03	−25
Backergunge	2·73	8·58	−5·85	−68
Tippera	7·24	10·21	−2·97	−29
Noakhali	3·89	10·55	−6·66	−63
Chittagong	4·82	11·17	−6·35	−57

Bihar received showers on the 14th and again between the 26th and 30th. Both in north and south Bihar the total fall for the month was very considerably in defect of the normal. The following gives data for these two divisions:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.	Average actual, May 1903.	Average normal, May.
	Inches.	Inches.	Inches.			
North Bihar	1·18	3·02	−1·84	−61	1·9	4·1
South Bihar	0·39	1·41	−1·02	−7	0·9	2·1

In Orissa light or moderate scattered showers were received throughout the month and the total amount was about two-thirds of the average. This is shown below:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.	Average actual, May 1903.	Average normal, May.
	Inches.	Inches.	Inches.			
Orissa	2·54	3·66	−1·12	−31	3·8	5·1

Chota Nagpur received occasional scattered showers between the 9th and the 20th, and again on the 27th and 28th. These showers were occasionally heavy, Chas in Manbhum reporting 5·66″ in 24 hours on the 19th and Chakradharpur in Singhbhum 4·00″ on the 27th. In consequence the total rainfall of the month in this division was about normal, as is shown by the following comparative data:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.	Average actual, May 1903.	Average normal, May.
	Inches.	Inches.	Inch.			
Chota Nagpur	2·29	2·17	+0·12	+6	3·4	3·7

Showers were received over Oudh and the United Provinces on the 13th and 14th, the 18th and between the 25th and the 29th. The daily amounts were generally light only exceeding 1·50″ 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.
Garhwal	Pauri	13th May	2·89
Dehra Dun	Mussooree	,, ,,	1·63
Jhansi	Talbahat	25th ,,	2·50
Bahraich	Bahraich	27th ,,	1·94
Gonda	Atraula	,, ,,	1·60
Bareilly	Choreli	28th ,,	2·60

Except in north Oudh even the small normal fall of the month was not received and in the east of the United Provinces and south Oudh the fall was particularly in defect.

The following statement shows the distribution of the rainfall of the month in the United Provinces:—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.	Average actual, May 1903.	Average normal, May.
	Inches.	Inches.	Inch.			
United Provinces, East.	0·10	0·48	−0·38	−79	0·3	0·9
South Oudh . .	0·09	0·52	−0·43	−83	0·1	1·1
North Oudh . .	1·16	0·95	+0·21	+22	2·0	1·7
United Provinces, Central.	0·17	0·36	−0·19	−53	0·5	0·9
United Provinces, West.	0·27	0·46	−0·19	−41	0·9	1·2
United Provinces, East Submontane.	0·86	1·17	−0·31	−26	1·7	1·9
United Provinces, West Submontane	0·57	0·83	−0·26	−31	1·4	1·8
United Provinces Hills.	1·47	2·12	−0·65	−31	3·6	4·5

In the Punjab there were three periods of fairly general rain *viz.*, the 13th, 18th and 27th. The fall was heaviest and most general over the greater part of the submontane, hill and west divisions where indeed the whole period from the 13th to the 18th was more or less showery. In these divisions also the daily amounts were heavy and exceeded 1·00″ 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.
RAWALPINDI .	Attock . . .	12th May .	1·02
	Murree . . .	14th „ .	1·19
MIANWALI . .	Bhakkar . . .	17th „ .	3·15
RAWALPINDI . .	Rawalpindi . .	„ „ .	1·34
GURDASPUR . .	Dalhousie . . .	18th „ .	2·08
SIMLA . . .	Simla . . .	„ „ .	1·72
SIALKOT . . .	Sialkot . . .	„ „ .	1·72
LAHORE . . .	Meean Meer . .	„ „ .	1·60
SIALKOT . . .	Daska . . .	„ „ .	1·47
KANGRA . .	Nagar . . .	„ „ .	1·39
	Palampur . . .	„ „ .	1·37
	Dharmsala . .	„ „ .	1·27
HOSHIARPUR . .	Dasuya . . .	„ „ .	1·63
SIALKOT . . .	Sialkot . . .	19th „ .	2·00
SIMLA . . .	Simla . . .	28th „ .	1·71

The following statement shows the distribution of the rainfall of the month over the province:—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.	Average actual, May 1903.	Average normal, May.
	Inches.	Inches.	Inch.			
South East Punjab	0·27	0·54	−0·27	−50	0·9	1·4
South Punjab .	0·26	0·47	−0·21	−45	1·0	1·1
Central Punjab .	1·02	0·68	+0·34	+50	2·5	1·6
Punjab Submontane	1·02	0·83	+0·19	+23	2·2	1·8
Punjab Hills .	2·27	2·16	+0·11	+ 5	4·3	4·1
West Punjab .	0·68	0·44	+0·24	+55	1·7	1·0

The data indicate that the rainfall of the month was irregularly distributed. In the south-eastern and south divisions the fall was only about half the normal, in the hill and submontane divisions about normal and in the central and west divisions in considerable excess.

The North-West Frontier Province received light scattered showers on the 3rd and 4th, fairly general showers on the 12th, 13th and 14th and very general showers on the 16th, 17th, 18th and 19th after which the weather was fine with only a few drops of rain. Heavy falls of rain occurred during both the second and third rainy periods and the following falls exceeding 1·00″ in 24 hours were recorded on the following dates:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
HAZARA . . .	Haripur . . .	13th May .	1·71
	Abbottabad . .	14th „ .	1·14
KOHAT . . .	Fort Lockhart . .	16th „ .	1·32
KHYBER AGENCY .	Landi Kotal . .	17th „ .	2·09
PESHAWAR . .	Nowshera . .	„ „ .	1·14
MALAKAND AGENCY	Malakand . .	„ „ .	1·02
HAZARA . . .	Oghi . . .	18th „ .	2·24
	Dunga Gali . .	„ „ .	1·52
	Mansahra . . .	„ „ .	1·49
	Abbottabad . .	19th „ .	1·08

The total fall for the month for the whole province was twice as heavy as usual, as is shown below:—

PROVINCE.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.	Average actual, May 1903.	Average normal, May.
	Inches.	Inch.	Inches.			
North-West Frontier Province.	1·86	0·85	+1·01	+119	4·3	2·0

Baluchistan obtained showers under the same conditions as the North-West Frontier Province only one day earlier, *viz.*, on the 1st, 2nd and 3rd, the 11th and 12th, and the 15th, 16th and 17th. The heaviest and most general rainfall occurred during the second period when the following falls exceeding 1″ in 24 hours were registered:—

DISTRICT.	Station.	Rainfall during 24 hours preceding 8 A.M. of 11th May, 1903.
		Inches.
ZHOB	Loralai Staff Office	1·23
	Loralai Hospital	1·07

The total rainfall of the province was three times as heavy as usual. This is shown below:—

PROVINCE.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May.	Percentage variation from normal.	Average actual, May 1903.	Average normal, May.
	Inch.	Inch.	Inch.			
Baluchistan	0·73	0·20	+0·53	+265	2·1	0·6

In Kashmir rain fell under similar conditions. There was a light scattered fall between the 1st and the 3rd and general moderate falls on the 12th and 13th, and between the 16th and 18th. The total rainfall of the month ranged from a few cents at Skardu to 6 inches at Karnah and was probably normal or below the normal over a considerable portion of the state.

Rajputana received showers between the 12th and 18th, and the 25th and 27th. The totals for the month were generally small and in several states were less than the average. The following gives data for the larger states:—

STATE.	RAINFALL.			
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Jodhpur	0·23	0·31	—0·08	—25
Jaipur	0·54	0·49	+0·05	+10
Alwar	0·42	0·51	—0·09	—18
Bharatpur	0·30	0·40	—0·10	—25
Dholpur	0·40	0·22	+0·18	+82
Karauli	0·72	0·43	+0·29	+67
Kotah	0·32	0·37	—0·05	—14
Ajmer Merwara	0·34	0·37	—0·03	—
Udaipur	0·50	0·54	—0·04	— 7

In Central India a few showers were received on the 13th and 14th, but practically the only rainy period during the month over this region was between the 24th and 28th. The rainfall during this showery period was heavier than usual, as is shown by the following comparative data for some of the larger states:—

STATE.	RAINFALL.			
	Average actual, May, 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Bhopal Agency	0·50	0·42	+0·08	+19
Gwalior	0·39	0·18	+0·21	+117
Rewah	0·40	0·52	—0·12	—23
Bundelkhand	0·35	0·36	—0·01	— 3

The Central Provinces received occasional and scattered showers between the 1st and the 23rd. On the 24th the rainfall increased both in amount and extent, due to the cyclonic storm in the east of the Arabian Sea and rain, between the 24th and 28th, was general and moderately heavy over these provinces. The following falls exceeding 1·50″ in 24 hours were recorded:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
CHANDA	Chanda	10th May	1·75
FEUDATORY STATES	Deogarh	20th ,,	4·00
RAIPUR	Drug	24th ,,	2·10
BETUL	Chicholi	,, ,,	2·05
NARSINGHPUR	Mohpani	25th ,,	2·39
SAUGOR	Saugor	,, ,,	2·29
HOSHANGABAD	Sohagpur	,, ,,	1·96
NIMAR	Burhanpur	26th ,,	1·73

The total rainfall was heavier than usual throughout, as is shown by the following comparative data for the different divisions :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.	Average actual, May 1903.	Average normal, May.
	Inches.	Inch.	Inches.			
Central Provinces West	1·97	0·42	+1·55	+369	3·8	0·9
,, ,, Central	1·73	0·48	+1·25	+260	4·1	1·0
,, ,, East	1·56	0·79	+0·77	+97	3·5	1·7

The rainfall over Berar was similar to that over the Central Provinces. Little or no rain fell until the 22nd, when under the influence of the storm in the Arabian Sea general rain set in and continued until the 27th or 28th. During this rainy period the following amounts exceeding 1·00″ in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Akola	Akote	21st May	1·08
Basim	Mangrul	23rd ,,	2·65
	Sirpur	,, ,,	2·37
Akola	Pathur	,, ,,	1·72
Amraoti	Amraoti	,, ,,	1·12
Basim	Basim	,, ,,	1·09
Buldana	Chikhli	,, ,,	1·04
Ellichpur	Ellichpur city	24th ,,	1·26
	Chikalda	,, ,,	1·20
	Dharni	26th ,,	2·18
Buldana	Malkapur	,, ,,	1·93
	Nandura	,, ,,	1·49
	Pimpalgaon Raja	,, ,,	1·20
Akola	Jalgaon	,, ,,	1·18

The total rainfall of the month for the whole division averaged 1·83″ or 1·41″ in excess of the average.

In Mysore showery periods were experienced between the 5th and the 10th, and the 15th and the 17th. On the 19th, 20th and 21st there occurred a heavy general fall of rain after which the weather was fine to showery till the end of the month. The principal falls exceeding 2″ occurred between the 19th and 21st:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Chitaldroog	Chitaldroog	19th May	3·28
Mysore	Chamrajnagar	,, ,,	2·16
Hassan	Hassan Hospital	21st ,,	5·94
	Alur	,, ,,	5·69
	Hassan	,, ,,	5·58
Mysore	Hansur	,, ,,	4·69
Kadur	Chikmagalur	,, ,,	4·07
Hassan	Belur	,, ,,	4·00
Kadur	Mudgeri	,, ,,	3·45
Hassan	Arkalgud	,, ,,	3·30
Mysore	Gundlupet	,, ,,	3·15
Hassan	Arsikere	,, ,,	3·04
	Manjarabad	,, ,,	2·90
	Holerarsipur	,, ,,	2·86
Kadur	Yedapalli	,, ,,	2·60
Hassan	Channaravapatna	,, ,,	2·50
Chitaldroog	Holalkere	,, ,,	2·37
Mysore	Chamrajnagar	,, ,,	2·33

The total rainfall of the month for the whole division exceeded the normal by about 30 per cent., as is shown below :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.	Average actual, May 1903.	Average normal, May.
	Inches.	Inches.	Inches.			
Mysore	4·7	3·65	+1·12	+31	7·0	5·7

Coorg received moderate showers throughout the month.

In all parts of the Bombay Presidency, except in the divisions of Sind and Kathiawar, the rainfall of the month of May exceeded the normal.

In the Konkan division the weather was fine and rainless, except in north Kanara, for the first three weeks of the month, but on the 20th or 21st, under the influence of the storm in the Arabian Sea, rain commenced generally and continued more or less heavily until the 27th when

the weather cleared. The principal falls exceeding 5″ in 24 hours were as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ratnagiri	Vengurla	24th May	6·70
Thana	Thana	25th ,,	13·33
Thana	Mahim	,, ,,	9·75
Thana	Bhiwndi	,, ,,	9·20
Kolaba	Matheran	,, ,,	9·00
Thana	Dahanu	,, ,,	6·50
Thana	Kurla	,, ,,	5·95
Thana	Bassein	,, ,,	5·80
Thana	Vada	,, ,,	5·33

The total fall of the month largely exceeded the normal, as is shown by the following comparative data for the included districts :—

District.	Rainfall. Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North Kanara	7·25	3·12	+4·13	+ 132
Savantvadi	10·64	2·27	+8·37	+ 369
Ratnagiri	7·09	1·67	+5·42	+ 325
Kolaba	7·84	0·66	+7·18	+1088
Thana	7·71	0·39	+7·32	+1877

In the Karnatak division light showers were reported between the 5th and the 9th and the 14th and 16th and a moderately general burst of rain occurred between the 20th and 27th. The rainfall was much lighter in this than in the Konkan division, and the only falls exceeding 2″ in 24 hours were as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Belgaum	Chandgad	14th May	2·20
Dharwar	Haveri	15th ,,	3·90
Dharwar	Hangal	,, ,,	2·60
Kolhapur, etc.	Sangli	22nd ,,	2·04

The total rainfall of the month was, except in Bijapur, however, heavier than usual, as is shown by the following data for the different districts :—

District.	Rainfall. Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dharwar	3·35	2·49	+0·86	+35
Bijapur	1·14	1·51	−0·37	−25
Belgaum	3·32	2·33	+0·99	+42
Kolhapur, etc.	2·42	2·32	+0·10	+ 4

The rainfall in the south Deccan was similar in distribution to that in the Konkan. There was practically no rain from the 1st to the 19th while between the 20th and 26th, there occurred a general burst of rain which was heavy in some places. The following gives the falls exceeding 5″ in 24 hours :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Satara	Malcolmpeth	25th May	8·56
Poona	Lanoli	,, ,,	6·26

The following gives comparative data for the three districts in this division :—

District.	Rainfall. Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Satara	3·73	1·43	+2·30	+161
Sholapur	2·79	1·08	+1·71	+158
Poona	3·36	1·07	+2·29	+214

In the north Deccan precisely similar condition prevailed except that the rainfall in the period between the 20th and 26th was lighter and the heaviest falls reported were 4·63″ at Trimbak on the 25th, 4·11″ at Malegaon on the 26th and 4·22″ at Chandor on the same date. The following gives data for the three districts in this division :—

DISTRICT.	RAINFALL. Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Ahmednagar	1·52	0·91	+0·61	+ 67
Nasik	4·71	0·81	+3·90	+481
Khandesh	2·78	0·36	+2·42	+672

Gujarat received showers from the disturbance in the Arabian Sea between the 21st and the 26th, and the small normal fall of the month was exceeded. This is shown below:—

DISTRICT.	RAINFALL. Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Surat	0·73	0·10	+0·63	+630
Broach	0·29	0·08	+0·21	+263
Kaira	0·20	0·23	−0·03	− 13
Panch Mahals	0·63	0·39	+0·24	+ 62
Ahmedabad	0·15	0·41	−0·26	− 63

Kathiawar and Sind were but little affected by the storm and obtained a few scattered showers during the month, the total of which was less than the small normal amount. The following gives data:—

DIVISION.	RAINFALL. Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.	NUMBER OF RAINY DAYS. Average actual, May 1903.	Average normal, May.
	Inch.	Inch.	Inch.			
Kathiawar and Cutch.	0·22	0·24	−0·02	− 8	0·5	0·4
Sind	0·07	0·10	−0·03	−30	0·4	0·3

The principal rainfall over Madras occurred between the 19th and the 22nd when practically all parts of the Presidency, except portions of the north coast, received general and heavy rain. At all other times the weather was more or less showery and falls exceeding 4″ in 24 hours were recorded at the following places on the following dates:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
TRICHINOPOLY	Uppiliyapuram	18th May	4·20
TRAVANCORE STATE	Karunagapally	,, ,,	4·08
MALABAR	Cochin	19th ,,	4·33
TRAVANCORE STATE	Parur	,, ,,	4·15
TANJORE	Vedaranniyam	20th ,,	5·29
CHINGLEPUT	Conjeeveram	,, ,,	4·15
NELLORE	Rapur	21st ,,	5·50
MALABAR	Chowghat	,, ,,	4·62
	Ponnani	,, ,,	4·20
NELLORE	Gudur	,, ,,	4·03
VIZAGAPATAM	Srungavarapukota	27th ,,	4·35

The total rainfall of the month was heavier than usual in all divisions, the actual excess ranging from 3·37″ in the central division of the east coast to 0·53″ in the north division. The following gives a comparative statement of the rainfall of the month in the 22 collectorates of the Presidency:—

COLLECTORATE.	RAINFALL. Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	2·28	2·52	−0·24	− 10
Vizagapatam	1·74	2·63	−0·89	− 34
Godavari	3·27	1·74	+1·53	+ 88
Kistna	2·73	1·43	+1·30	+ 91
Nellore	4·65	1·28	+3·37	+263
Chingleput	5·56	1·36	+4·20	+309
Madras	5·32	2·00	+3·32	+166
North Arcot	5·14	2·50	+2·64	+106
South Arcot	5·01	2·13	+2·88	+135
Tanjore	4·49	2·04	+2·45	+120
Trichinopoly	7·42	3·05	+4·37	+143
Madura	3·05	2·20	+0·85	+ 39
Tinnevelly	2·13	1·38	+0·75	+ 54
Malabar	9·63	7·77	+1·86	+ 24
South Canara	9·21	5·84	+3·37	+ 58
Salem	7·45	3·97	+3·48	+ 88
Coimbatore	5·12	3·32	+1·80	+ 54
Nilgiris	8·91	5·16	+3·75	+ 73
Cuddapah	3·11	1·72	+1·39	+ 75
Anantapur	2·04	1·92	+0·12	+ 6
Bellary	2·36	1·84	+0·52	+ 28
Kurnool	1·30	1·19	+0·11	+ 9

At the extra-Indian stations the variations of the actual rainfall from the normal amount were very irregular. The following gives data :—

STATION.	RAINFALL.			
	Average actual, May 1903.	Average normal, May.	Variation of actual from normal, May 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee	5·75	2·46	+3·29	+134
Colombo	20·60	11·12	+9·48	+85
Minicoy	5·67	6·40	−0·73	−11
Kabul	3·11	0·54	+2·57	+476
Kashgar	0	0·88	−0·88	−100
Meshed	2·47	0·74	+1·73	+234
Teheran	0·80	0·33	+0·47	+142
Ispahan	0·31	0·11	+0·20	+182
Bushire	0	0	0	0
Jask	0	0	0	0
Muscat	0	0	0	0
Baghdad	0	0·24	−0·24	−100
Aden	0	0·19	−0·19	−100
Perim	0·27	0·37	+0·10	+27
Zanzibar	8·56	10·62	−2·06	−19
Seychelles	16·85	4·51	+12·34	+274
Mauritius	1·00	3·04	−2·04	−67

The above table shows that no rain was received during the month at Kashgar, Baghdad, Bushire, Jask, Muscat and Aden. On the other hand Meshed and Kabul, like the stations in Baluchistan, had very much heavier rain than usual, and at Perim, Ispahan and Teheran the rain during the month was slightly to considerably heavier than usual. At Minicoy the month's rainfall was approximately normal although Malabar and Ceylon both exhibited a considerable excess.

In the south-east trades region the variations of rainfall were irregular. At Zanzibar and Mauritius the fall was less than usual while at the Seychelles it was very much heavier.

Crop Reports.

Madras:—The rainfall during the month was good and general. Irrigation supplies were generally sufficient and the standing crops at the close of the period were fair, but pasture was scanty in parts.

Bombay:—The rainfall was general and in places heavy. The standing crops at the close of the month were generally in good condition but had been damaged by insects in parts of Kurrachee, by locusts in parts of Satara and by a violent storm in parts of Thana. Picking of cotton had been completed and preparation of land for autumn crops was in progress. The water supply was failing in parts of Ahmednagar, Bijapur and Belgaum.

Bengal:—During a large portion of the month the rainfall was, for the most part, light and insufficient. In the last week the rainfall was general and heavy in some places and prospects, which previously had been indifferent, somewhat improved. Ploughing and sowing continued though several districts were still in need of more rain and fodder and water were inadequate in a few places.

United Provinces:—Rain occurred in most districts and was on some occasions accompanied with hail in Dehra Dun and Garhwal where some damage was done to the crops. The harvest was completed during the month except in the hills and the preparation of the fields for autumn crops was in progress. Opium weighments were almost completed during the month.

Punjab:—Rain fell in most districts during the month and the crops in Hissar were benefited by it. The condition of the standing crops was good throughout the province at the end of the month. The harvest of the spring crops was almost completed, the outturn having been generally good on irrigated and average on unirrigated lands. Locusts appeared in some places.

North-West Frontier Province:—The weather was favourable during the month and prospects at the close of the month generally hopeful. The outturn of all spring crops except oilseeds was much above the average. Ploughing and sowing for the autumn crops were in progress.

Burma:—More or less rain fell generally during the month and ploughing commenced in several districts. The condition of the standing crops at the end of the month was good.

Central Provinces:—The weather was cloudy and hot with occasional scattered showers. Preparation of land for autumn crops was generally in progress but scarcity of water was reported from the Nagpur and Chhattisgarh divisions.

Assam:—Rain fell during the month in all districts but more was required in Kamrup, the Naga and Khasia and Jaintia hills; ploughing and sowing, planting of sugarcane, and the plucking and manufacture of tea progressed during the month. The prospects of jute were good. Prospects of tea were good in Darrang and Lakhimpur, indifferent in Kamrup and Nowgong and fair elsewhere. Tea blight was reported in places.

Mysore :—The general prospects were good.

Coorg :—Ploughing continued and water and fodder were sufficient.

Berar :—Preparation of land for the monsoon crops progressed during the month.

Hyderabad :—The spring harvest was completed during the month and lands were generally prepared for monsoon sowings.

Rajputana :—Harvesting of spring crops was completed and the preparation of the land for autumn crops progressed during the month.

Central India :—Light showers fell in places. Agricultural stock and pasturage were good everywhere.

Kashmir :—The condition of the standing crops was fair at the end of the month and land was being prepared for the autumn crops.

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 228 Stations in India, Burma, etc., in May, 1903.

Table

Abstract of Observations taken at 8 A.M. at 228

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.				+·025								92·3	+1·6	77·9	+1·2	85·2	+1·4	14·4					24·8
1	Tenasserim and Bay Islands.	Car Nicobar.	25																					
		Port Blair	61	29·820	+·028	29·812	29·899	20th	29·751	26th	·148	82·9	90·0	+1·0	79·6*	+1·3	84·9*	+1·2	10·4	94·4	1st & 4th.	76·2	27th	18·2
		Mergui	96	29·823	?	29·850	29·894	20th	29·745	26th	·149	83·1	92·3	+3·2	76·4	+2·6?	84·4	+2·9?	15·9	98·6	2 days	73·4	12th	25·2
		Tavoy	26	29·881	+·015	29·838	29·916	6th	29·791	27th	·155	81·2	91·6	+3·2	75·8	+0·6	83·7	+1·9	15·8	97·2	11th	72·0	2 days	25·2
		Moulmein	94	29·776	+·013	29·808	29·854	11th	29·679	26th	·175	81·4	92·2	+2·9	77·2	+1·4	84·7	+2·2	15·0	97·9	2 days	71·3	22nd	26·6
2	Lower Burma	Rangoon	57	29·813	+·025	29·808	29·888	11th	29·717	26th	·171	82·6	93·7	+1·8	77·9	+0·6	85·8	+1·2	15·8	101·1	2 days	73·4	24th	27·7
		Bassein	27	29·846	?	29·808	29·921	1st	29·745	2 days	·176	83·6	93·5	+2·0	78·8	+1·8	86·3	+1·9	14·7	100·2	11th	74·6	2 days	25·6
		Diamond Island, Akyab	41	29·826	+·028	29·801	29·907	20th	29·726	26th	·181	83·5	88·4	−0·2	79·8	+1·0	84·1	+0·4	8·6	91·4	11th	73·2	30th	18·2
5	Arakan		20	29·827	+·034	29·790	29·924	1st	29·698	29th	·226	84·5	91·4	+0·8	79·6	+1·4	85·5	+1·1	11·8	96·9	9th	76·3	15th	20·6
3	Central Burma.	Toungoo	183	29·671	+·029	29·795	29·752	6th	29·566	29th	·186	85·3	98·0	+2·3	76·4	?	87·2	?	21·6	105·8	2 days	70·1	10th	35·7
	II.—Burma, Inland.				+·030								100·1	+2·8	78·0	+0·9	89·0	+1·9	22·1					36·8
3	Central Burma.	Thayetmyo	130	29·707	+·031	29·778	29·783	2 days	29·595	29th	·188	84·2	99·2	+0·8	78·4	+0·7	88·8	+0·8	20·8	108·5	2 days	74·0	13th	34·5
4	Upper Burma	Minbu	165	29·663	?	29·770	29·753	11th	29·545	29th	·208	84·6	100·3	+2·8	80·3	+2·6?	90·3	+2·7?	20·0	109·1	2 days	74·1	16th	35·0
		Yamethin	657	29·178	+·033	29·781	29·262	11th	29·045	29th	·217	83·6	99·1	+3·8	77·7	+1·5	88·4	+2·7	21·4	109·4	2nd	70·2	10th	39·2
		Mandalay	250	29·563	?	29·760	29·664	12th	29·463	29th	·201	86·4	102·1	+3·1	79·9	+0·9	91·0	+2·0	22·2	111·1	1st	73·1	22nd	38·0
		Monywa		29·538		29·757	29·641	11th	29·432	29th	·209	86·4	102·5		78·4		90·5		24·1	112·7	1st	72·8	2 days	39·9
		Bhamo	381	29·434	+·026	29·771	29·564	11th	29·310	29th	·254	80·1	97·1	+3·4	73·3	+0·6	85·2	+2·0	23·8	103·5	5 days	69·6	8th	33·9
4(a)	Burma Hill Stations.	Maymyo		26·390			26·471	29th	26·334	2nd & 23rd.	·137	73·2	84·1		65·1		74·6		19·0	93·0	2nd	59·8	6th	33·2
		Lashio		27·083	+·030		27·197	6th	26·962	30th	·235	74·6	89·8	+1·5	68·1	+1·3	79·0	+1·4	21·7	101·0	1st	61·0	10th	40·0
	III.—Assam.				+·038								87·7	+1·5	71·5	−0·3	79·6	+0·6	16·2					29·1
7	Surma	Silchar	104	29·739	+·041	29·796	29·842	11th	29·588	29th	·254	79·2	91·4	+2·7	73·0	+0·5	82·2	+1·6	18·4	95·6	24th	65·3	3 days	30·3
9	Brahmaputra	Sibsagar	333	29·510	+·039	29·805	29·639	12th	29·338	30th	·301	74·3	83·7	−2·2	70·7	−1·0	77·2	−1·6	13·0	91·2	2 days	65·0	12th	26·2
		Dhubri	115	29·689	+·033	29·760	29·797	12th	29·561	30th	·236	77·8	90·0	+4·1	72·9	−0·3	81·5	+1·9	17·1	99·3	1st	66·7	9th	32·6
		Gauhati	195	29·632		29·781	29·773	11th	29·477	30th	·296	77·3	89·2		71·4		80·3		17·8	95·5	3 days	66·0	5th	29·5
		Tezpur	252	29·569		29·783	29·699	11th	29·399	30th	·300	75·5	87·2		71·6		79·4		15·6	94·6	24th	66·9	12th	27·7
		Dibrugarh	353	29·496		29·811	29·636	11th	29·323	30th	·313	74·5	84·4		69·3		76·9		15·1	92·2	3 days	64·0	3rd	28·2
	IV.—Bengal and Orissa.				+·048								97·4	+3·5	77·5	+1·1	87·4	+2·3	19·9					34·1
6	East Bengal	Chittagong	87	29·739	+·036	29·774	29·825	11th	29·597	29th	·228	83·3	90·7	+2·1	76·6	+1·2	83·7	+1·7	14·1	94·5	24th	69·1	9th	25·4
		Noakhali	43	29·770		29·760	29·894	11th	29·631	29th	·263	83·7	90·9		77·7		84·4		13·2	94·7	21st & 24th.	69·9	12th	24·8
		Comilla	36	29·783		29·766	29·863	20th	29·644	29th	·239	82·8	94·6		75·8		85·2		13·8	99·8	5th	67·8	9th	32·0
		Sirajganj	49	29·748		29·747	29·850	12th	29·584	30th	·264	81·2	96·7		74·8*		85·7*		21·9	107·3	1st	65·8	10th	41·5
		Narayanganj	26	29·781*	+·050*	29·755*	29·902	11th	29·635	29th	·267	82·4	94·8	+3·5	77·9	+2·1	86·4	+2·8	16·9	99·1	2 days	70·2	9th	28·9
		Barisal	13	29·785	+·041	29·743	29·896	11th	29·652	30th	·244	85·3	94·2	+2·3	78·3	+0·8	86·2	+1·6	15·9	98·8	21st	72·6	2 days	26·2
		Mymensingh	59	29·743	+·034	29·754	29·870	11th	29·595	30th	·275	81·3	92·7	+4·1	75·1	+1·3	83·9	+2·7	17·6	103·7	1st	66·6	8th	37·1
		Faridpur	46	29·735		29·748	29·899	11th	29·614	30th	·285	82·7	95·5		75·8*		85·6*		19·7	103·8	3rd	66·4	9th	37·4
10	Deltaic Bengal	Jessore	33	29·748?	?	29·728?	29·859	2 days	29·593	30th	·266	83·8	97·6	+2·8	77·5	+0·7	87·6	+1·8	20·1	106·5	2 days	73·2	9th	33·3
		Calcutta	21	29·762	+·054	29·728	29·885	20th	29·608	30th	·277	84·7	98·8	+4·3	78·8	+1·4	88·8	+2·9	20·0	106·4	2 days	73·0	9th	33·4
		Saugor Island	25	29·760	+·051	29·729	29·874	20th	29·618	30th	·256	85·8	93·3	+1·5	82·2	+1·2	87·8	+1·4	11·1	96·4	2nd	75·1	26th	21·3
		Krishnagar	47	29·732		29·727	29·859	20th	29·576	30th	·283	84·3	101·8		78·8		90·3		23·0	107·8	1st & 3rd,	73·5	15th	34·3
		Midnapore	149	29·619		29·714	29·744	20th	29·473	30th	·271	87·3	104·2		80·6		92·5		23·6	110·9	24th & 25th.	75·7	27th	35·2

* Mean of 30 days.

I.

Stations in India, Burma, etc., in May, 1903.

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 May 1903.	Normal rainfall for period, 1st to 1st May 1903.	Variation from normal of period, 1st to 31st May 1903.	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
																				10·07	14·66	- 4·59					I.—Burma Coast and Bay Islands.		
																											Car Nicobar.	Tenasserim and Bay Islands.	1
2				6	4	7	3	4	S 50° W	7·0	7·8	7·3	+ 7	86	·971	6·4	13			9·26	17·09	−7·83	9·26	17·09	−7·83	2·80	Port Blair.		
18	3	2		2	1	2	1	2	N 27° W	2·5	2·2	2·1	+ 5	81	·909	4·6	11	18·00	−7·00	9·98	19·26	−9·28	9·98	19·26	−9·28	1·60	Mergui,		
29					1			1	S 67° W	1·8				85	·900	3·2	13	17·70	−4·70	8·79	26·05	- 17·26	8·79	26·05	−17·26	1·72	Tavoy.		
21				4	4	2			S 10° E	3·0	3·3	3·1	+ 6	80	·859	6·0	14	17·40	−3·40	15·83	19·40	−3·57	15·83	19·40	−3·57	3·84	Moulmein		
7	1	3	3	1	2	7	6	1	S 56° W	5·7	4·8	3·9	+23	82	·917	7·6	9	14·00	−5·00	4·11	11·22	−7·11	4·11	11·22	−7·11	0·94	Rangoon .	Lower Burma .	2
6	3	16	1	2	2	1			N 52° E	6·5		5·0	+30	81	·931	2·6	8	12·10	−4·10	7·76	10·30	−2·54	7·76	10·30	−2·54	3·28	Bassein.		
2	1		2	1	2	4	7	12	N 75° W	9·5	9·5	4·5	+11	78	·900	5·4	11	11·08	−0·18	13·65	10·43	+3·22	13·65	10·43	+3·22	3·56	Diamond Island.		
		10	3	9	1	3		5	N 84° E	3·2	3·1	7·0	−56	83	·984	5·8	10	11·50	−1·50	9·83	11·88	−2·05	9·83	11·88	−2·05	4·82	Akyab. .	Arakan.	5
8			1	11	9	2			S 22° E	3·8	3·8	3·5	+ 9	79	·971	5·6	10	10·10	−0·10	11·38	6·28	+5·10	11·38	6·28	+5·10	1·68	Toungoo .	Central Burma.	3
																				4·70	5·41	−0·71					II.—Burma Inland.		
	1		2	3	20	4	1		S 1° E	3·5		7·3	−52	75	·885	4·5	7	6·90	+0·10	5·62	4·13	+1·49	5·62	4·13	+1·49	2·25	Thayetmyo .	Central Burma.	3
			2	26	2		1		S 44° E	6·8	8·1			72	·845	4·3	6	6·40	−0·40	2·98	6·01	−3·03	2·98	6·01	−3·03	0·98	Minbu .	Upper Burma .	4
9				10	12				S 20° E	2·6	2·7			73	·838	4·9	10	8·10	+1·90	4·89	6·76	−1·87	4·89	6·76	−1·87	1·20	Yamethin.		
		2		7	16	6			S 5° E	7·9	8·0			67	·832	1·6	10	6·60	+3·40	5·59	5·55	+0·04	5·59	5·55	+0·04	1·28	Mandalay.		
11	2		1	11	6				S 37° E	3·3	3·4			63	·781	2·7	6	7·20	−1·20	1·79	3·54	−1·75	1·79	3·54	−1·75	0·58	Monywa.		
13	1	9	1			2		5	N 14° E	2·7	3·2			72	·732	3·9	6	10·40	−4·40	7·20	6·43	+0·84	7·30	6·46	+0·84	2·28	Bhamo.		
28		2				1			N 45° E	2·9				78	·630	6·4	13	12·80	+0·20	9·62	10·39	−0·77	9·62	10·39	−0·77	2·55	Maymyo .	Burma Hill Stations.	4(a)
	2	7	4	3	5	6	2	2	S 48° E	3·6				77	·650	7·0	11			6·45	6·13	+0·32	6·45	6·13	+0·32	2·35	Lashio.		
																				8·62	13·30	−4·68					III.—Assam.		
19	1		5	4				2	S 86° E	2·1	3·6	3·4	+ 6	83	·837	6·3	11	16·50	−5·50	7·29	17·24	−9·95	7·29	17·24	−9·95	1·82	Silchar .	Surma.	7
9	3	17		1				1	N 39° E	2·7	2·5	2·9	−14	93	·795	8·3	15	15·90	−0·90	9·99	12·62	−2·63	9·99	12·62	−2·63	1·66	Sibsagar .	Brahmaputra .	3
	2	12	10	3	1	2	1		N 72° E	6·3	7·4	7·0	+ 6	82	·785	5·6	15	15·70	−0·70	12·93	15·43	−2·50	12·93	15·43	−2·50	3·89	Dhubri.		
12	8	4	1	2	2	1		1	N 28° E	2·1	2·4			84	·799	5·6	17	14·20	+2·80	8·34	9·76	−1·42	8·34	9·76	−1·42	1·86	Gauhati.		
4	1	13	8	4	1				N 72° E	·9	5·2			85	·754	5·6	15	14·10	+0·90	4·78	10·12	−5·34	4·78	10·12	−5·34	0·75	Tezpur.		
	4	13	5	4		2		3	N 51° E	1·2	1·1			88	·743	5·9	17	15·20	+1·80	8·36	14·60	−6·24	8·36	14·60	−6·24	1·29	Dibrugarh.		
																				4·51	7·33	−2·82					IV.—Bengal and Orissa.		
	1	3	7	14	5	1			S 54° E	6·7	6·6	6·4	+ 3	79	·905	4·1	10	10·55	−0·55	4·04	10·31	−6·27	4·04	10·31	−6·27	1·42	Chittagong .	East Bengal.	6
	1	2	5	6	6	7	3	1	S 10° E	4·8	5·2			79	·917	5·1	5	10·45	−5·45	2·58	10·06	−7·48	2·58	10·06	−7·48	1·24	Noakhali.		
3			4	6	15	3			S 16° E	6·1	5·1			80	·898	4·6	9	11·89	−2·89	9·33	11·01	−1·68	9·33	11·01	−1·68	2·45	Comilla.		
5		2	3	14	4	3			S 39° E	4·0	4·2			82	·880	4·9	7	10·16	−3·16	2·47	7·95	−5·48	2·47	7·95	−5·48	0·74	Sirajganj.		
		3	4	8	7	7	2		S 17° E	7·8	6·6	6·2	+ 6	83	·929	3·9	7	11·53	−4·53	3·22	9·44	−6·22	3·22	9·44	−6·22	0·69	Narayanganj.		
		4	1	5	12	8	1		S 3° E	5·2				78	·948	4·5	6	9·84	−3·84	3·79	9·19	−5·40	3·79	9·19	−5·40	2·55	Barisal.		
7			8	13	3				S 55° E	4·2	3·6			80	·860	4·5	11	13·48	−2·48	11·91	12·96	−1·05	11·91	12·96	−1·05	4·20	Mymensingh.		
2			2	6	16	4	1		S 5° E	6·4	5·4			82	·922	3·8	9	10·72	−1·72	7·36	8·30	−0·94	7·36	8·30	−0·94	3·11	Faridpur.		
13			1	8	6	2		1	S 23° E	2·8	2·8	4·9	−43	83	·960	4·1	12	9·74	+2·26	7·47	7·94	−0·47	7·47	7·94	−0·47	1·49	Jessore .	Deltaic Bengal.	10
1			2	1	10	15	2		S 25° W	6·9		7·1	− 3	76	·927	4·2	3	7·46	−4·46	1·53	5·68	−4·15	1·53	5·68	−4·15	0·84	Calcutta.		
			3	11	15	1	1		S 23° W	19·9		15·3	+30	81	1·000	6·3	3	6·71	−3·71	2·82	5·09	−2·27	2·82	5·09	−2·27	2·09	Saugor Island		
1	1	1	1	4	12	5	5	1	S 17° W	4·6	5·1			77	·902	3·6	5	7·74	−2·74	3·66	6·55	−2·89	3·66	6·55	−2·89	1·46	Krishnagar.		
1	3				26			1	S 3° W	6·2	5·5			65	·841	1·9	4	7·05	−3·05	2·66	5·69	−3·03	2·66	5·69	−3·03	1·49	Midnapore.		

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
11	Central Bengal.	Bankura	238	29·439		29·684	29·569	1st	29·283	30th	·286	86·6	104·9		80·3		92·6		24·6	112·1	6th, 7th & 24th	72·4	27th	39·7
		Raniganj	334	29·421?		29·701?	29·549	20th	29·249	30th	·300	84·5	103·7		78·9		91·3		24·8	112·3	6th & 8th	68·9	12th	43·4
		Burdwan	99	29·668	+·047	29·714	29·800	1st	29·518	30th	·282	84·5	102·9	+4·5	79·1	+1·3	91·0	+2·9	23·8	111·5	24th	72·8	9th	38·7
		Naya Dumka.	489	29·265?		29·706?	29·378	12th & 20th	29·086	30th	·292	86·2	102·5		79·1		90·8		23·4	110·4	6th	73·4	27th	37·0
		Berhampore	67	29·700	P	29·715	29·817	11th	29·540	30th	·277	83·9	103·7	+7·2	77·8	+1·2	90·8	+4·2	25·9	113·8	6th	70·3	31st	43·5
		Rampur Boalia	70	29·702		29·721	29·820	11th	29·541	30th	·279	83·9	98·7		76·8		88·2		22·9	109·0	6th	69·1	9th	39·9
		Malda	72	29·672?		29·695?	29·793	12th	29·494	30th	·299	84·2	100·4		76·8		88·7		23·6	110·0	22nd	72·0	9th	38·0
		Bogra	61	29·717	+·054	29·730	29·829	11th	29·548	30th	·281	82·1	96·8	+4·3	75·7	+1·2	86·3	+2·8	21·1	109·8	1st	69·2	11th	40·6
12	North Bengal	Dinajpur	123	29·659	+·044	29·737	29·775	12th	29·534	30th	·241	80·3	97·2	+5·5	73·8	?	85·5	?	23·4	108·2	1st	68·0	9th	40·2
		Rangpur	123	29·678		29·756	29·797	11th	29·566	30th	·231	80·6	94·2		72·5		83·4		21·7	106·2	1st	66·8	9th & 11th	39·4
		Jalpaiguri	284	29·508	+·023	29·751	29·618	12th	29·362	30th	·256	79·8	93·0	+4·7	72·4	+0·1	82·7	+2·4	20·6	101·9	3rd	66·1	2 days	35·8
		Cooch Behar	156	29·650		29·763	29·761	12th	29·544	29th	·217	77·9	90·5		73·1		81·8		17·4	99·4	3rd	66·6	2nd	32·8
17	North Bihar	Purnea	125	29·645	+·038	29·724	29·770	12th	29·475	30th	·295	84·1	101·6	+6·8	75·6	+1·4	88·6	+4·1	26·0	110·3	21st	70·1	2 days	40·2
14	Orissa	Balasore	50	29·736	+·061	29·728	29·866	20th	29·532	31st	·284	86·6	99·8	+2·2	79·6	+0·9	89·7	+1·6	20·2	107·0	23rd	75·7	8th	31·3
		False Point	21	29·779	+·063	29·742	29·892	20th	29·639	30th	·253	85·8	90·4	−0·6	80·2	+0·5	85·3	−0·1	10·2	93·0	15th	74·1	14th	18·9
		Cuttack	80	29·717	+·071	29·739	29·822	20th	29·584	30th	·238	86·1	104·1	+2·5	80·8	+0·7	92·5	+1·6	23·3	111·0	12th	75·2	28th	35·8
		Puri	24	29·779		29·742	29·907	20th	29·641	30th	·266	84·5	89·7		81·5		85·6		8·2	92·2	21st	74·6	28th	17·6
	V.—Gangetic Plain and Chota Nagpur.				+·050								104·5	+1·5	78·1	−0·3	91·3	+0·6	26·4					39·0
15	Chota Nagpur	Hazaribagh	2,007	27·768	+·050	29·689	27·897	1st	27·596	30th	·301	85·7	100·7	+1·5	77·6	+2·1	89·2	+1·8	23·1	107·1	6th	69·3	14th	37·8
		Ranchi	2,128	27·667?	+·060?	29·712?	27·794	1st	27·513	30th	·281	83·1	98·9*	−0·7*	75·9	−0·1	87·5*	−0·4	23·0	105·2	6th	69·4	28th	35·8
		Purulia		28·940		29·690	29·068	1st	28·777	30th	·291	88·1	105·1		80·1		92·6		25·0	112·7	7th	72·4	14th	40·3
		Chaibassa	760	28·996	+·056	29·698	29·116	1st	28·853	30th	·263	85·7	104·1	−1·0	79·6	−0·4	91·9	−0·7	24·5	111·8	7th	70·0	13th	41·8
16	South Bihar	Daltonganj	730?	29·020?		29·700?	29·160	1st	28·834	30th	·326	84·5	106·3		78·5		92·4		27·8	111·6	31st	74·0	27th	37·6
		Gaya	375	29·363	+·050	29·685	29·491	1st	29·183	30th	·308	91·0	106·7	+1·8	82·1	+2·6	94·4	+2·2	24·6	111·8	2 days	74·8	28th	37·0
		Dehri	351	29·380		29·680	29·521	1st	29·177	30th	·344	89·8	106·5		81·4		94·0		25·1	111·9	6th & 7th	76·0	29th	35·9
		Patna	183	29·558	+·043	29·692	29·665	20th	29·377	30th	·288	87·3	104·5	+4·3	78·7	+1·0	91·6	+2·7	25·8	111·1	22nd	73·2	14th	37·9
		Arrah	190	29·555		29·695	29·669	20th	29·378	30th	·291	87·7	104·5		78·9		91·8		25·6	109·9	23rd	73·6	14th	35·3
		Buxar	239	29·485		29·686	29·622	20th	29·340	30th	·282	88·6	104·9		79·7		92·3		25·2	110·0	8th, 23rd & 24th.	72·6	27th	37·4
17	North Bihar	Bhagalpur	160	29·590		29·701	29·695	11th	29·409	30th	·286	86·5	103·9		78·1		91·0		25·8	111·3	22nd	73·6	4th, & 27th	37·7
		Darbhanga	166	29·588	+·039	29·707	29·692	12th	29·417	30th	·275	83·8	100·5	+4·9	77·5	+1·2	89·0	+3·1	23·0	106·3	3 days	72·5	3rd	33·8
		Muzaffarpur	178	29·569		29·700	29·666	12th	29·387	30th	·279	84·5	101·2		76·0		88·6		25·2	107·2	22nd, 23rd & 24th	71·2	14th	36·0
		Motihari	224	29·526		29·707	29·628	12th	29·372	30th	·256	82·9	101·1		74·9		88·0		26·2	112·0	24th	67·9	3rd	44·1
		Chapra	181	29·554		29·688	29·664	20th	29·376	30th	·288	85·2	104·2		77·4		90·8		26·8	110·5	5th, 6th & 23rd	69·6	22nd	40·9
18	United Provinces, East.	Benares	267	29·459	+·047	29·677	29·604	20th	29·286	30th	·318	90·4	106·9	+1·4	78·6	−0·3	92·8	+0·6	28·3	111·8	5th	73·2	3rd	38·6
		Allahabad	309	29·423	+·056	29·681	29·581	20th	29·238	30th	·343	90·7	107·5	+0·5	80·6	+1·1	94·1	+0·8	26·9	114·2	31st	73·6	2nd	40·6
23	United Provinces (East Submontane.)	Gorakhpur	257	29·475	+·042	29·688	29·577	20th	29·332	30th	·245	85·1	104·9	+3·9	76·9	−0·4	90·9	+1·8	28·0	110·7	23rd	71·0	14th	39·7
19	South Oudh	Lucknow	368	29·360	+·055	29·682	29·519	20th	29·172	30th	·347	89·1	108·3	?	77·6	−0·2	93·0	?	30·7	114·4	19th	72·3	9th	42·1
20	North Oudh	Bahraich	404	29·316	+·045	29·675	29·453	20th	29·166	30th	·287	85·5	104·6	+1·6	75·3	−2·6	90·0	−0·5	29·3	110·7	23rd	68·0	27th	42·7
21	United Provinces (Central.)	Cawnpore	316	29·310	+·065	29·674	29·481	20th	29·111	30th	·370	89·5	106·9	+0·7	77·8	−2·8	92·4	−1·1	29·1	112·0	24th	72·0	2nd & 4th	40·0
		Mainpuri	516	29·200	+·057	29·668	29·369	20th	29·010	30th	·359	88·3	107·2	−0·3	76·8	−3·0	92·0	−1·7	30·4	113·7	5th	71·5	19th	42·2

* Mean of 30 days.

I—*continued.*

in India, Burma, etc., in May, 1903—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 1903.	Normal rainfall for period, 1st to 31st May.	Variation from normal of period, 1st to 31st May 1903.	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	4	4	1	1	1	S 8° E	4·1	4·8			63	·785	2·9	4	6·19	− 2·19	2·11	3·89	− 1·78	2·11	3·89	− 1·78	0·95	Bankura .	Central Bengal	11
24			2	2	3				S 37° E	1·1				66	·774	2·7	4	5·18	− 1·18	2·83	3·77	− 0·94	2·83	3·77	− 0·94	1·25	Raniganj.		
3		1	1	3	4	13	6		S 36° W	5·3	5·2	5·5	− 5	74	·879	3·5	3	7·32	− 4·32	3·94	6·35	− 2·41	3·94	6·35	− 2·41	2·74	Burdwan.		
9		2	4	7	6	2		1	S 39° E	3·8	4·2			58	·716	3·5	3	5·21	− 2·21	2·84	3·60	− 0·76	2·84	3·60	− 0·76	2·28	Naya Dumka.		
4		1	3	4	12	7			S 6° E	4·6	4·2	5·5	−24	74	·856	3·7*	8	7·74	+ 0·26	2·34	5·41	− 3·07	2·34	5·41	− 3·07	0·57	Berhampore.		
7			1	4	14	4	1		S	1·7	1·8			73	·849	2·6	7	7·74	− 0·74	4·28	5·54	− 1·26	4·28	5·54	− 1·26	1·40	Rampur Boalia.		
	2	3	4	11	7	2	1	1	S 45° E	8·0	7·3			72	·834	2·7	5	5·58	− 0·58	3·21	3·85	− 0·64	3·21	3·85	− 0·64	1·90	Malda.		
4		2	20	3	1	1			S 85° E	P	P			78	·853	2·5	9	9·77	− 0·77	7·57	8·04	− 0·47	7·57	8·04	− 0·47	2·16	Bogra.		
	2	7	15	3	2	2			N 87° E	5·9	5·6			76	·782	5·7	8	8·23	− 0·23	4·24	8·45	− 4·21	4·24	8·45	− 4·21	1·25	Dinajpur .	North Bengal.	12
2		7	12	6	3	1			S 82° E	4·5	4·8			79	·824	5·3	11	11·19	− 0·19	8·81	10·31	− 1·50	8·81	10·31	− 1·50	2·75	Rangpur.		
	1	8	11	9	2				S 85° E	1·6	2·0			75	·760	3·5	11	12·42	− 1·42	7·56	12·04	− 4·48	7·56	12·04	− 4·48	1·62	Jalpaiguri.		
8		2	16	3	1		1		S 84° E	2·4	2·5			85	·811	5·5	15	14·76	+ 0·24	10·99	15·26	− 4·27	10·99	15·26	− 4·27	2·35	Cooch Behar.		
1		5	14	6		3		2	S 83° E	6·1	5·4	3·4	+59	62	·712	1·7	3	5·34	− 2·34	2·83	4·77	− 1·94	2·83	4·77	− 1·94	2·55	Purnea .	North Bihar.	17
1	1				9	18	2		S 36° W	8·8				68	·864	2·5	2	7·74	− 5·74	1·21	5·97	− 4·76	1·21	5·97	− 4·76	0·65	Balasore .	Orissa.	14
				1	9	17	2	2	S 37° W	12·6	12·1	12·6	− 4	78	·969	5·7	2	4·32	− 2·32	1·66	5·23	− 3·57	1·66	5·23	− 3·57	1·51	False Point.		
5	1				7	14	4		S 41° W	4·4		5·1	−14	72	·906	4·1	2	5·23	− 3·23	4·45	4·24	+ 0·21	4·45	4·24	+ 0·21	3·09	Cuttack.		
5					2	24			S 42° W	14·3	13·5			88	1·048	3·9	2	3·39	− 1·39	1·72	2·89	− 1·17	1·72	2·89	− 1·17	1·06	Puri.		
																				1·19	1·63	−0·44					V.—Gangetic Plain and Chota Nagpur.		
	2				2	12	11	4	S 75° W	8·9	7·9	8·8	−10	36	·436	4·9	4	3·93	+ 0·07	2·71	2·33	+ 0·38	2·71	2·33	+ 0·38	1·70	Hazaribagh.	Chota Nagpur.	15
1					7	12	4	7	S 57° W	6·5	7·7			47	·530	3·5	6	4·68	+ 1·32	3·23	2·08	+ 1·15	3·23	2·08	+ 1·15	1·11	Ranchi.		
4		1	1	3	5	3	10	4	S61° W	4·2	5·1			49	·630	2·7	4	5·26	− 1·26	1·79	2·92	− 1·13	1·79	2·92	− 1·13	0·98	Purulia.		
14	2			1	2	7	5		S 56° W	1·9	1·6			60	·728	3·1	7	5·65	+ 1·35	3·20	3·34	− 0·14	3·20	3·34	− 0·14	1·34	Chaibassa.		
28			1	1		1			S 45° E	5·7	4·6			44	·507	1·6	1	2·07	− 1·07	0·91	1·04	− 0·13	0·91	1·04	− 0·13	0·70	Daltonganj .	South Bihar.	16
6	1	5	2	3	3	7	3	1	S 11° W	5·6	4·5	3·9	+15	55	·792	3·3	1	1·94	− 0·94	0·49	0·98	− 0·49	0·49	0·98	− 0·49	0·41	Gaya.		
10			3	2	6	8	2		S 13° W	4·2	3·8			37	·510	3·9	1	1·47	− 0·47	0·32	0·82	− 0·50	0·32	0·82	− 0·50	0·12	Debri.		
		7	16	2	1	2	2	1	N 84° E	6·6	7·5	4·8	+56	60	·754	2·3	1	2·97	− 1·97	0·17	1·93	− 1·76	0·17	1·93	− 1·76	0·17	Patna.		
10		10	3	4		1	1	2	N 63° E	4·5	4·5			53	·676	1·0	1	2·45	− 1·45	0·46	1·47	− 1·01	0·46	1·47	− 1·01	0·46	Arrah.		
	2	3	10	2	1	8	4	1	S 45° E	7·5	7·0			39	·515	2·7	1	1·97	− 0·97	0·47	0·82	− 0·35	0·47	0·82	− 0·35	0·47	Buxar.		
														57	·703	1·4	1	4·16	− 3·16	1·61	2·79	− 1·18	1·61	2·79	− 1·18	1·48	Bhagalpur .	North Bihar.	17
7		1	12	10			1		S 72° E	3·0		5·9	−49	67	·773	2·1	1	3·93	− 2·93	0·27	3·07	− 2·80	0·27	3·07	− 2·80	0·22	Darbhanga.		
5	1		11	11		2	1		S 63° E	4·9				64	·759	0·5	2	3·65	− 1·65	2·49	2·40	+ 0·09	2·49	2·40	+ 0·09	1·96	Muzaffarpur.		
5		2	19	1		3	1		S 87° E	6·6	6·4			64	·725	1·7	2	4·25	− 2·25	0·68	2·65	− 1·97	0·68	2·65	− 1·97	0·50	Motihari.		
7		1	15	3		2	1	2	S 86° E	4·1	3·6			58	·695	2·1	2	2·13	− 0·13	2·25	1·35	+ 0·90	2·25	1·35	+ 0·90	1·20	Chapra.		
6	3	1	1	2	1	10	3	4	S 73° W	3·5	4·0	5·2	−23	38	·536	3·1	1	1·00	0	0·17	0·64	− 0·47	0·17	0·64	− 0·47	0·17	Benares .	United Provinces East.	18
5	1	5	3	1	2	4	8	2	N 87° W	5·7	6·5	6·2	+ 5	34	·490	3·1	0	0·50	− 0·50	0·04	0·29	− 0·25	0·04	0·29	− 0·25	0·02	Allahabad.		
2	5	11	2		2	2	1	6	N 12° E	3·4		3·9	−13	54	·637	4·2	2	2·40	− 0·40	0·72	1·34	− 0·62	0·72	1·34	− 0·62	0·53	Gorakhpur .	United Provinces (East Submontane)	23
10	2	3	5	2	2	1	4	2	N 59° E	2·4	2·6	4·3	−40	36	·476	1·2	0	1·50	− 1·50	0·03	1·01	− 0·98	0·03	1·01	− 0·98	0·03	Lucknow .	South Oudh.	19
2	2	1	10	6	1	1	1	7	N 76° E	7·1	6·7			96	1·190	1·3	5	2·50	+ 2·50	3·17	1·95	+ 1·22	3·17	1·95	+ 1·22	1·94	Bahraich .	North Oudh.	20
2	3	2	4	2	3	3	8	4	N 83° W	5·2				37	·497	1·7	0	1·00	− 1·00	0	0·31	− 0·31	0	0·31	− 0·30	0	Cawnpore .	United Provinces (Central).	21
21		2	1	2		1	3	1	W	5·6	5·7			33	·430	1·7	1	1·10	− 0·10	1·02	0·43	+ 0·59	1·02	0·43	+ 0·59	1·02	Mainpuri.		

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				+ ·059								101·6	−1·7	73·7	−1·1	87·7	−1·4	27·9					45·0
24	United Provinces, (West Submontane).	Bareilly	568	29·146	+ ·043	29·673	29·293	20th	28·985	30th	·308	85·1	104·0	+0·8	75·2	−1·2	89·6	−0·2	28·8	111·0	24th & 25th,	70·6	5 days	40·4
		Dehra Dun	2,233	27·532	+ ·039	29·696	27·686	20th	27·396	30th	·290	78·7	96·3	+1·8	69·2	−1·3?	83·0	+0·3?	27·6	104·5	24th	62·5	14th	42·0
		Roorkee	899	28·825	+ ·054	29·683	28·979	20th	28·665	30th	·314	85·3	103·3	+0·5	72·2	−2·4	87·8	−1·0	31·1	110·2	24th	64·3	1st	45·9
22	United Provinces, West.	Meerut	738	28·977	+ ·048	29·674	29·143	20th	28·826	30th	·317	85·5	103·5	+0·5	73·6	−2·3	88·6	−0·9	29·9	111·8	24th	66·3	18th	45·5
26	South-East Punjab.	Delhi	718	28·999	+ ·048	29·673	29·193	20th	28·808	30th	·385	86·7	102·7	−2·0	80·3	?	91·5	?	22·4	111·2	24th	72·1	13th	39·1
28	Central Punjab.	Lahore	702	29·019	+ ·079	29·678	29·259	20th	28·814	30th	·445	83·9	101·6	−4·1	72·7	+0·1	87·2	−2·0	28·9	112·4	31st	63·9	1st	48·5
27	South Punjab	Sirsa	662	29·055	+ ·067	29·674	29·291	20th	28·845	26th	·449	88·6	104·1	−3·1	76·6	−0·8	90·4	−2·0	27·5	113·8	31st	67·6	13th	46·2
		Patiala	818	28·912		29·689	29·087	20th	28·782	31st	·305	86·2	102·0		74·1		88·0		27·9	110·6	31st	66·3	1st	44·3
29	Punjab (Submontane).	Ludhiana	812	28·905	+ ·063	29·682	29·123	20th	28·714	30th	·409	83·5	102·1	−2·3	75·1	−0·3	88·6	−1·3	27·0	111·4	31st	67·1	1st	44·3
		Sialkot	830	28·690	+ ·071	29·686	29·118	20th	28·696	30th	·422	84·6	101·7	−1·4	74·8	0	88·3	−0·7	26·9	112·9	31st	64·1	20th	48·8
		Umballa	892	28·827	?	29·678	29·007	20th	28·659	30th	·348	84·9	104·0	−1·2	73·8	−3·1?	88·9	−2·2?	30·2	111·9	24th	66·2	1st	45·7
		Rawalpindi	1,674	28·089	+ ·078	29·733	28·317	20th	27·905	30th	·412	79·4	94·0	−4·1	67·1	−1·5	80·6	−2·8	26·9	105·5	31st	55·6	19th	49·9
	VII.—Indus Valley and North-West Rajputana.				+ ·070								102·8	−2·5	76·8	−1·0	89·9	−1·7	26·0					45·2
32	N.-W. Frontier Province.	Peshawar	1,110	28·686	+ ·095	29·783	28·913	20th	28·486	30th	·427	79·1	91·6	−7·0	67·3	−2·7	79·5	−4·9	24·3	104·5	30th & 31st.	59·0	13th	45·5
		D. I. Khan	590	29·169	+ ·085	29·709	29·122	20th	28·959	30th	·463	82·9	98·9	−5·3	72·3	−2·6	85·6	−4·0	26·6	110·7	31st	64·6	13th	46·1
31	West Punjab	Khushab	612	29·128	+ ·090	29·704	29·376	20th	28·928	26th	·448	86·8	99·6	−5·3	73·7	−3·6	86·7	−4·5	25·9	110·4	31st	63·4	19th	47·0
		Montgomery	558	29·156	+ ·092	29·675	29·113	20th	28·951	30th	·462	89·2	102·0	−6·3	75·0	−3·4	88·5	−4·9	27·0	114·0	30th & 31st.	66·0	13th & 18th.	48·0
		Mooltan	420	29·306	+ ·084	29·691	29·583	20th	29·070	30th	·513	85·2	103·6	−3·0	77·0	−0·6	90·3	−1·8	26·6	114·5	30th	67·5	13th	47·0
47	Sind	Jacobabad	186	29·544	+ ·086	29·690	29·823	20th	29·364	30th	·459	89·7	109·9	−1·7	77·1	−1·1	93·5	−1·4	32·8	120·0	31st	66·1	1st	53·9
		Hyderabad	96	29·633	+ ·040	29·681	29·846	20th	29·445	26th	·401	88·1	108·6	+1·7	78·7	+0·3	93·7	+1·0	29·9	114·7	23rd, 24th & 25th.	71·5	1st	43·2
		Kurrachee	30	29·739	+ ·031	29·720	29·912	20th	29·575	26th	·337	85·7	94·9	+2·0	81·1	+2·4	88·0	+2·2	13·8	114·4	23rd	76·2	5th, 14th & 17th.	38·2
51	West Rajputana	Bikaner	771	28·954	+ ·063	29·681	29·207	20th	28·756	26th	·451	89·8	105·8	−1·3	83·1	+0·5	94·5	−0·4	22·7	113·9	24th	73·5	17th & 18th.	40·1
		Pachpadra	380	29·383	+ ·057	29·714	29·545	20th	29·214	26th	·331	89·5	109·2	+1·4	78·8	+1·3	94·1	+1·4	30·4	115·0	23rd	69·0	2nd	46·0
		Jodhpur	782	28·968		29·719	29·169	20th	28·801	26th	·368	88·6	107·0		80·9		94·0		26·1	111·7	23rd, 24th & 27th.	70·3	17th	41·4
	VIII.—East Rajputana, Central India and Gujarat.				+ ·029								162·9	+0·1	78·9	+0·2	90·9	+0·2	24·1					38·6
50	East Rajputana	Jaipur	1,431	28·346	?	29·714	28·540	20th	28·190	30th	·350	88·5	105·5	−1·1	78·0	−0·2	91·8	−0·7	27·5	112·2	31st	67·6	18th	44·6
		Bharatpur	585	29·158		29·700	29·347	20th	28·967	30th	·380	86·0	105·7		78·1		91·9		27·6	112·5	31st	69·2	18th	43·3
		Kotah	819	28·925		29·728	29·123	20th	28·793	26th	·330	92·0	107·0		82·6		94·8		24·4	112·1	23rd	70·1	27th	42·0
		Sambhar	1,254	28·512	+ ·064	29·711	28·709	20th	28·347	26th	·362	87·9	105·2	+0·1	78·4	−1·8	91·8	−0·9	26·8	111·5	31st	66·5	18th	45·0
		Ajmer	1,611	28·168	?	29·718	28·376	20th	28·005	26th	·371	87·3	102·7	−1·1	80·4	+1·1	91·6	0	22·3	108·9	24th	72·1	3rd	36·8
		Udaipur	1,925	27·884		29·727	28·048	20th	27·746	26th	·302	88·1	102·2		77·3		89·8		24·9	107·1	23rd	70·8	3rd	36·3
		Deesa	466	29·313	+ ·010	29·728	29·436	20th	29·167	26th	·269	88·2	108·9	?	79·6	+2·1	94·3	?	29·3	113·6	21st	71·5	2nd	42·1
46	Kathiawar and Cutch.	Bhuj	395	29·391	+ ·051	29·736	29·521	1st	29·239	25th	·282	86·2	104·3	+3·0	77·2	+0·5	90·8	+1·8	27·1	111·8	23rd	72·9	2nd & 6th.	38·9
		Jamnagar	61	29·737		29·744	29·849	1st	29·606	25th	·243	85·2	100·6		76·2		88·4		24·4	111·8	21st	69·7	3rd	42·1
		Rajkot	429	29·375	+ ·016	29·751	29·485	1st	29·239	26th	·246	87·1	105·9	+0·5	75·2	+0·1	90·6	+0·3	30·7	110·4	21st	69·3	1st & 9th,	41·1
		Veraval	18	29·808	— ·001	29·768	29·915	1st	29·666	25th	·249	82·3	87·3*	+0·3*	78·5	+0·1	82·9*	+0·2	8·8	102·2	21st	72·8	3rd	29·4
		Dwarka	37	29·773		29·756	29·892	1st	29·614	26th	·278	83·2	86·5		79·8		84·2		8·7	108·4	22nd	76·2	1st & 2nd.	32·2
		Bhavnagar Para.	55	29·760	— ·025	29·759	29·880	1st	29·623	25th & 26th.	·257	87·5	105·5	+2·6	78·7†	−0·1	92·2†	+1·3	26·8	111·7	7th	74·5	1st & 5th.	37·2
49	Central India	Nowgong	757	28·996	+ ·061	29·698	29·174	20th	28·831	30th	·343	88·6	104·8	−2·6	79·3	−0·5	92·1	−1·6	25·5	112·0	31st	71·0	2nd	41·0
		Indore	1,823	27·997	+ ·045	29·743	28·127	20th	27·887	26th	·240	85·7	101·6	−1·2	75·7	−0·2	88·7	−0·7	25·9	106·8	4th & 7th,	71·1	3rd, 10th & 26th.	35·7

* Mean of 30 days.

† Mean of 24 days.

I—*continued.*

in India, Burma, etc., in May, 1903—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, Sa.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 1903.	Normal rainfall for period, 1st to 31st May.	Variation from normal of period, 1st to 31st May 1903.	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
																				0·98	0·91	−0·14					VI.—Upper Sub-Himalayas.		
4	2	2	7	2		5	5	4	N 63° W	4·4	4·2	5·2	− 19	39	·476	1·6	0	2·27	−0·27	0·10	0·76	− 0·66	0·10	0·76	− 0·66	0·05	Bareilly	United Provinces (West Submontane).	24
13	2	1	1	1		3	5	5	N 69° W	2·0		2·5	− 20	38	·369	2·9	2	3·40	−1·40	0·39	1·69	− 1·30	0·39	1·69	− 1·30	0·20	Dehra Dun.		
11		1	2	11			1	5	S 56° E	4·7		3·7	+ 27	33	·397	0·9	0	2·10	−2·10	0·05	0·82	− 0·77	0·05	0·82	− 0·77	0·05	Roorkee.		
15		1	4	2		2	3	4	N 55° W	1·6	1·6	2·6	− 38	35	·421	1·5	1	1·50	−0·50	1·03	0·60	+ 0·43	1·03	0·60	+ 0·43	0·98	Meerut .	United Provinces, West.	22
8	1	2	1	2	1	1	8	7	N 68° W	3·7	3·4	4·5	− 24	34	·421	1·5	1	2·20	−1·20	0·25	0·72	− 0·47	0·25	0·72	− 0·47	0·25	Delhi .	South-East Punjab.	26
11	9	3	3	2	1			2	N 27° E	3·0		3·3	− 9	43	·494	2·6	2	1·50	+0·50	0·82	0·82	0	0·82	0·82	0	0·59	Lahore .	Central Punjab.	28
										6·8	6·2	4·8	+ 29	45	·594	1·9	1	1·60	−0·60	0·32	0·71	− 0·39	0·32	0·71	− 0·39	0·25	Sirsa .	South Punjab.	27
														40	·493	2·5	1			0·24			0·24			0·15	Patiala.		
2	10	2	4	6	1	1	1	4	N 32° E	6·3	6·3			40	·452	2·5	1	1·60	−0·60	0·70	0·61	+ 0·09	0·70	0·61	+ 0·09	0·51	Ludhiana .	Punjab (Submontane).	29
8	3	6		4		2	6	2	N 23° W	3·4	3·0	2·2	+ 36	40	·493	1·6	3	2·30	+0·70	4·06	1·03	+ 3·03	4·06	1·03	+ 3·03	2·00	Sialkot.		
4	12	8	2					5	N 11° E	2·9		2·5	+ 16	43	·448	2·1	2	1·70	+0·30	0·95	0·73	+ 0·22	0·95	0·73	+ 0·22	0·72	Umballa.		
14		1	3	6				7	N 66° E	3·6				38	·405	4·1	3	3·00	0	2·80	1·47	+ 1·33	2·80	1·47	+ 1·33	1·34	Rawalpindi.		
19	1	2	1		1	2	2	3	N 56° W	3·6	3·3	2·8	+ 18	42															
																				0·48	0·42	+ 0·06					VII.—Indus Valley and North-West Rajputana.		
17	3				2	1	6	2	N 77° W	2·3	2·5	4·8	− 48	56	·534	3·5	6	1·60	+4·40	2·10	0·75	+ 1·35	2·10	0·75	+ 1·35	0·82	Peshawar .	N.-W. Frontier Province.	32
13	5	9		1				3	N 21° E	2·2	2·3	2·3	0	55	·603	2·7	2	1·00	+1·00	0·62	0·34	+ 0·28	0·62	0·34	+ 0·28	0·45	D. I. Khan		
5	5	10	5	1	2		1	2	N 11° E	7·3	6·2			32	·398	2·0	3	1·20	+1·80	0·55	0·78	− 0·23	0·55	0·78	− 0·23	0·26	Khushab .	West Punjab .	31
1	5	9	5	7	1		1	2	N 63° E	7·6	6·5			28	·365	2·0	0	1·00	−1·00	0·08	0·27	− 0·19	0·08	0·27	− 0·19	0·08	Montgomery.		
12	5	1	1	3		2	2	5	N 29° W	1·5	1·6	2·9	− 45	47	·512	2·6	1	0·80	+0·20	0·53	0·30	+ 0·23	0·53	0·30	+ 0·23	0·40	Mooltan.		
21		2	7	1					N 86° W	3·0	3·1	4·7	− 34	56	·785	1·4	1	0·30	+0·70	0·35	0·16	+ 0·19	0·35	0·16	+ 0·19	0·35	Jacobabad	Sind . . .	47
1	4			1	4	19		2	S 47° W	8·0	8·3	12·7	− 33	47	·597	1·0	0	0·30	−0·30	0·08	0·18	− 0·10	0·08	0·18	− 0·10	0·08	Hyderabad.		
3	1	1		1	2	11	12		S 66° W	10·0	12·5	17·5	− 29	76	·922	1·9	0	0	0	0	0	0	0	0	0	0	Kurrachee.		
	1	4	5	2	3	6	7	3	S 56° W	7·5		6·5	+ 15	39	·565	2·1	0	1·50	−1·50	0·03	0·88	− 0·85	0·03	0·88	− 0·85	0·03	Bikaner .	West Rajputana	51
	2	2		2	12	11	2		S 21° W	10·5	9·1	8·3	+ 3	46	·639	0	0	1·10	−1·10	0	0·66	− 0·66	0	0·66	− 0·66	0	Pachpadra.		
2	2	5	4	1	3	9	4	1	S 37° W	6·5	5·9			34	·461	1·5	1	1·20	−0·20	0·88	0·27	+ 0·61	0·88	0·27	+ 0·61	0·73	Jodhpur.		
																				0·35	0·38	−0·03					VIII.—East Rajputana, Central India and Gujarat.		
9	2	4	1		3	2	6	4	N 63° W	3·5		6·9	− 49	30	·448	2·6	1	1·50	−0·50	0·49	0·49	0	0·49	0·49	0	0·35	Jaipur .	East Rajputana.	50
15	1	1			1	5	1	6	N 83° W	4·6	4·2			58	·716	0·5	0			0·13			0·13			0·09	Bharatpur.		
3	6	2	3	1		12	2	2	S 8° W	6·6	5·3			26	·384	1·2	2	1·20	+0·80	1·16	1·11	+ 0·05	1·16	1·11	+ 0·05	0·67	Kotah.		
11	4	1	3	1	2	1	6	2	N 53° W	7·7		9·9	− 22	38	·489	2·8	4	1·60	+2·40	1·04	0·76	+ 0·28	1·04	0·76	+ 0·28	0·60	Sambhar.		
6		3	1	4	1	7	7	2	S 55° W	7·8	6·9	7·1	− 3	42	·539	2·2	1	1·50	−0·50	0·26	0·61	− 0·35	0·26	0·61	− 0·35	0·21	Ajmer.		
21			1	1		3	4	1	S 67° W	5·6	4·9			41	·541	1·5	3	1·70	+1·30	1·11			1·11			0·66	Udaipur.		
	1	2	1	3	10	8	5	1	S 26° W	10·9		13·4	− 19	46	·607	0·7	1	0·55	+0·45	0·10	0·25	− 0·15	0·10	0·25	− 0·15	0·10	Deesa.		
		1			1	10	9	10	S 89° W	15·4	12·9	15·4	− 16	66	·816	0·2	0	0·30	−0·30	0	0·09	− 0·09	0	0·09	− 0·09	0	Bhuj .	Kathiawar and Cutch.	46
		1			3	15	11	1	S 61° W	19·7	23·8			69	·831	1·7	0			0			0			0	Jamnagar.		
	1	1			3	5	14	7	N 90° W	11·2	11·1	14·6	− 24	66	·765	1·0	1	0·60	+0·40	0·31	0·22	+ 0·09	0·31	0·22	+ 0·09	0·18	Rajkot.		
	5	1		2		7	10	6	N 78° W	14·8	14·8	9·5	+ 56	79	·875	3·3	1	0·10	+0·90	0·81	0·02	+ 0·79	0·81	0·02	+ 0·79	0·81	Veraval.		
	1			1	2	10	15	2	S 72° W	13·5				83	·946	1·3	0			0			0			0	Dwarka.		
	2	2	1	2		15	4	5	S 70° W	8·5	8·0			57	·746	2·1	0	0·40	−0·40	0	0·10	− 0·10	0	0·10	− 0·10	0	Bhavnagar Para.		
3	3	2	2		1	4	15	1	N 85° W	3·0	3·0	3·4	− 12	31	·447	4·8	0	0·90	−0·90	0·18	0·33	− 0·15	0·18	0·33	− 0·15	0·09	Nowgong .	Central India	49
8	3	1	2	2	2	2	5	12	N 56° W	5·5	4·5	6·1	− 26	55	·668	4·2	2	1·20	+0·80	0·49	0·59	− 0·10	0·49	0·59	− 0·10	0·29	Indore.		

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
19	Central India	Neemuch	1,630	28·171	+·045	29·732	28·327	20th	28·047	26th	·280	87·3	103·5	−0·5	78·7	+1·6	91·1	+0·6	24·8	108·1	4th & 23rd.	73·2	2nd	34·9
15	Gujarat	Surat	39	29·790	+·003	29·771	29·892	1st	29·655	25th	·237	86·3	99·8	+1·6	78·6	+0·5	89·2	+1·1	21·2	108·1	7th	74·0	5th	34·1
		Ahmedabad	163	29·635	P	29·744	29·754	1st	29·498	26th	·256	88·9	108·5	+1·4	80·9	+1·4	94·7	+1·4	27·6	114·8	21st	75·1	1st	39·7
22	United Provinces, West.	Agra	555	29·173	P	29·681	29·373	20th	28·990	30th	·383	88·5	104·5	−2·7P	80·3	−1·2	92·4	-2·0P	24·2	111·5	31st	71·9	18th	39·6
21	United Provinces, Central.	Jhansi	858	28·912	+·067	29·712	29·096	20th	28·747	30th	·349	90·2	106·5	−1·8	83·9	+0·3	95·2	-0·8	22·6	112·9	31st	77·1	25th	35·8
	IX.—Deccan.				+·038								102·0	−2·4	77·2	−1·0	89·6	−1·7	24·8					39·2
38	Bombay (Deccan)	Belgaum	2,539	27·338	+·016	29·796	27·412	1st & 4th	27·252	22nd	·160	75·6	91·5	−1·5	68·4	+0·2	80·0	−0·7	23·1	99·8	6th	65·8	11th, 12th & 18th.	34·0
		Sholapur	1,590	28·254	+·023	29·777	28·349	1st	28·176	26th	·173	83·4	102·0	−2·8	76·6	+0·1	89·3	−1·4	25·4	107·7	1st, 8th & 9th.	70·5	18th & 26th.	37·2
		Poona	1,840	28·013	+·001	29·789	28·095	1st	27·875	25th	·220	79·7	99·3	+0·1	72·2	+0·3	85·8	+0·2	27·1	107·6	6th	65·9	31st	41·7
		Bijapur	1,948	27·905	+·009	29·773	28·004	1st	27·839	25th	·165	81·8	99·7	−0·6	74·4	−0·3	87·1	−0·5	25·3	105·4	6th & 9th.	66·8	24th	38·6
40	Khandesh	Malegaon	1,430	28·387	+·007	29·751	28·494	1st	28·235	25th	·259	86·4	103·0	−1·0	75·4	+0·3	89·2	−0·4	27·6	110·3	6th	69·0	26th	41·3
		Ahmednagar	2,152	27·710	+·017	29·773	27·807	2nd	27·558	25th	·249	82·8	98·6	−0·8	72·3	+0·5	85·5	−0·2	26·3	105·9	7th	64·0	26th	41·9
41	Berar	Akola	930	28·868	+·034	29·734	28·991	1st	28·719	26th	·272	87·9	105·6	−2·1	78·6	−2·5	92·1	−2·3	27·0	113·1	7th	69·8	26th	43·3
		Amraoti	1,215	28·589	+·051	29·740	28·722	1st	28·421	26th	·301	87·4	104·3	−3·4	78·8	−1·2	91·6	−2·3	25·5	112·5	7th	70·5	26th	42·0
42	Central Provinces (West).	Khandwa	1,044	28·750	+·029	29·737	28·876	1st	28·647	26th	·229	87·8	106·1	−0·4	80·5	−0·4	93·3	−0·4	25·6	113·2	7th & 9th.	69·6	26th	43·6
		Hoshangabad	1,006	28·787	+·041	29·735	28·929	1st	28·669	26th	·260	89·0	104·8	−2·8	79·0	−1·3	91·9	−2·1	25·8	109·9	6th	72·2	26th	37·7
		Nagpur	1,025	28·768	+·065	29·735	28·919	1st	28·632	26th	·287	87·7	104·7	−4·6	79·2	−2·7	92·0	−3·7	25·5	112·7	6th	73·1	10th & 27th.	39·6
43	Central Provinces (Central).	Chanda	634	29·171	+·070	29·739	29·342	1st	29·046	26th	·296	89·2	105·9	−3·6	79·6	−2·3	92·8	−3·0	26·3	111·7	6th	68·0	10th	43·7
		Seoni	2,033	27·784	+·053	29·728	27·932	1st	27·659	26th	·273	84·6	100·0	−3·9	74·0	−3·1	87·0	−3·5	26·0	107·4	7th	66·0	27th	41·4
		Jubbulpore	1,327	28·452	+·057	29·720	28·607	1st	28·329	30th	·278	85·6	102·5	−3·1	76·1	−2·8	89·3	−3·0	26·4	108·5	7th	68·6	27th	39·9
		Saugor	1,807	27·996	+·061	29·727	28·162	20th	27·874	30th	·288	86·2	101·7	−3·4	77·8	−0·7	89·8	−2·1	23·9	106·9	6th	68·1	25th	38·8
29	Central India	Sutna	1,040	28·708	+·058	29·691	28·878	20th	28·536	30th	·312	89·5	103·8	−1·7	80·1	+0·8	92·0	−0·5	23·7	110·6	31st	72·1	27th	38·5
44	Central Provinces (East).	Raipur	970	28·815	+·068	29·721	29·002	1st	28·681	30th	·321	88·5	104·5	−2·9	79·1	−2·9	91·8	−2·9	25·4	110·0	6th	70·9	10th	39·1
		Sambalpur	486	29·302	+·070	29·732	29·447	1st	29·156	30th	·291	89·1	104·9	−2·6	81·3	−0·3	93·1	−1·2	23·6	111·6	1st	75·1	2nd	36·5
39	Hyderabad (North).	Aurangabad	1,965	27·927		29·718	28·003	3rd	27·813	25th	·190	84·1	100·1		74·7		87·4		25·4	106·1	8th & 9th.	69·2	1st	36·9
		Indur	...	28·591			28·744	13th	27·479	20th & 21st.	·265	87·6	103·6		80·4		92·0		23·2	109·8	7th	72·2	15th	37·6
		Bidar	2,165	27·681		29·751	27·792	1st	27·602	26th	·190	83·9	100·0		77·5		88·8		22·5	105·3	7th	71·8	14th	33·5
53	Hyderabad (South).	Gulbarga	1,503	28·335	+·015	29·770	28·426	1st	28·270	26th	·156	84·3	102·2	−2·5	77·4	−1·0	89·9	−1·8	24·8	107·8	6th	72·1	23rd	35·7
		Raichur	1,326	28·509	+·022	29·772	28·597	1st	28·453	26th	·144	84·4	100·3	−3·1	78·8	−0·7	89·6	−1·9	21·5	105·0	4 days	70·1	20th	34·9
		Hyderabad (Deccan).	1,696	28·146	+·036	29·758	28·279	1st	28·061	26th	·218	84·9	100·4	−3·4	78·9	P	89·7	P	21·5	105·9	6th	67·7	14th	33·2
		Secunderabad	1,787	28·062	+·028	29·775	28·184	1st	27·977	26th	·207	82·9	101·5	−2·3	77·3	−1·3	89·4	−1·8	24·2	106·7	1st	64·6	14th	42·1
		Hanumkonda	871	28·948		29·757	29·067	1st	28·863	30th	·204	85·2	101·0		79·4		90·2		21·6	107·7	30th	67·3	10th	40·4
	X.—West Coast.				0								89·1	−0·1	79·0	−0·2	84·1	−0·2	10·1					18·2
37	Konkan	Bombay	37	29·816	−·006	29·793	29·906	4th	29·642	23rd	·264	83·2	89·6	+1·1	79·3	-1·4	84·5	−0·2	10·3	93·5	23rd	75·5	25th	18·0
		Ratnagiri	110	29·753	+·010	29·801	29·829	4th	29·599	22nd	·230	84·0	89·7	−1·4	79·9	+0·3	84·8	−0·6	9·8	91·8	3rd & 4th.	75·9	23rd	15·9
		Mormugao	60	29·813	+·002	29·807	29·891	4th	29·702	22nd	·189	84·2	89·7	−0·3	80·6	−0·5	85·2	−0·4	9·1	94·0	3rd	74·9	24th	19·1
		Goa	199									83·4	86·8	P	80·9	+0·4	83·9	P	5·9	89·5	8th	75·0	20th	14·5
		Karwar	44	29·825	+·004	29·801	29·914	4th	29·732	22nd	·182	82·9	89·2	−0·6	79·3	−0·4	84·3	−0·5	9·9	91·8	4 days	72·5	20th	19·3
33	Malabar	Cochin	10	29·879	+·005	29·817	29·942	4th	29·825	19th	·117	82·2	90·5	+0·9	77·0	-0·6	83·8	+0·2	13·5	94·3	2nd & 7th.	73·2	20th	21·1
		Calicut	27	29·853	−·001	29·809	29·917	4th	29·783	19th	·134	82·4	90·1	−0·3	77·8	-0·1	84·0	−0·2	12·3	94·4	4th	74·2	5th & 9th.	20·2
		Mangalore	65	29·807	−·009	29·804	29·890	4th	29·754	19th	·136	83·0	89·7	−0·6	78·4	−0·4	84·1	−0·5	11·3	94·2	4th	73·4	5th & 16th.	20·8
		Trivandrum	198	29·679	−·008	29·808	29·737	3rd & 4th.	29·624	18th & 19th.	·113	81·4	86·6	+0·3	77·6	+1·3	82·1	+0·8	9·0	88·5	2nd & 15th.	74·0	15th	14·5

I—*continued.*

in India, Burma, etc., in May, 1903—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.	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.	Total rainfall from 1st to 31st May 1903.	Normal rainfall for period, 1st to 31st May.	Variation from normal of period, 1st to 31st May 1903.				
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	3	5	2		2	8	7	3	N 84° W	9·6	8·6	12·4	− 31	42	·522	3·0	1	1·00	0	0·11	0·45	− 0·34	0·11	0·45	− 0·34	0·10	Neemuch	Central India	49
3	2	3	3	1	5	8	5	1	S 41° W	7·9	7·4	12·7	− 42	63	·758	2·8	0	0·30	− 0·30	0·08	0·13	− 0·05	0·08	0·13	− 0·05	0·05	Surat	Gujarat	45
	2	1			2	11	3	11	N 87° W	3·5	5·7			56	·751	1·6	1	0·50	+ 0·50	0·28	0·01	+ 0·27	0·28	0·01	+ 0·27	0·15	Ahmedabad.		
7		2		3		12		7	S 68° W	4·1	4·7	5·9	− 20	36	·479	1·5	0	1·50	− 1·50	0·08	0·56	− 0·48	0·08	0·56	− 0·48	0·05	Agra	United Provinces (West).	22
3	1	4	1	2	1	11	4	4	S 69° W	5·9	6·5	4·8	+ 35	46	·649	1·4	2	0·70	+ 1·30	0·30	0·41	− 0·11	0·30	0·41	− 0·11	0·15	Jhansi	United Provinces (Central).	21
																				2·05	0·89	+ 1·14					IX.—Deccan.		
8	1		2	1	2	7	8	2	S 65° W	11·6	11·4	18·1	− 37	71	·641	3·8	8	4·70	+ 3·30	3·89	2·49	+ 1·40	3·89	2·49	+ 1·40	1·36	Belgaum	Bombay (Deccan).	38
		3	1	2	3	6	1	15	N 70° W	11·7	14·2	10·0	+ 42	52	·567	3·6	5	2·00	+ 3·00	2·85	1·00	+ 1·85	2·85	1·00	+ 1·85	1·17	Sholapur.		
	1		2	6			8	14	N 60° W	13·4		14·2	− 6	55	·541	2·8	5	2·10	+ 2·90	2·25	1·33	+ 0·92	2·25	1·33	+ 0·92	1·05	Poona.		
1	1	3	1	2	2	5	10	6	N 88° W	10·3	10·1			63	·678	2·2	3	3·30	− 0·30	0·73	1·79	− 1·06	0·73	1·79	− 1·06	0·33	Bijapur.		
	3	2	1	1	3	4	9	8	N 78° W	9·0	10·4	10·4	0	43	·520	3·3	4	1·20	+ 2·80	6·81	0·73	+ 6·08	6·81	0·73	+ 6·08	4·11	Malegaon	Khandesh	40
2	5	4		6	1		1	12	N 12° W	8·6	10·5			60	·658	2·4	6	1·80	+ 4·20	1·91	0·88	+ 1·03	1·91	0·88	+ 1·03	0·55	Ahmednagar.		
6		2		1	1	3	6	12	N 67° W	7·2	7·1	8·6	− 17	45	·565	3·4	3	0·80	+ 2·20	1·68	0·43	+ 1·25	1·68	0·43	+ 1·25	0·78	Akola	Berar	41
	1	2	2	3	6	5	8	4	S 53° W	8·0	7·1	6·0	+ 18	51	·647	2·6	6	1·50	+ 4·50	2·16	0·63	+ 1·53	2·16	0·63	+ 1·53	1·12	Amraoti.		
4	3		1	1	4	1	6	11	N 67° W	7·5		9·1	− 18	40	·501	3·6	3	0·80	+ 2·20	1·93	0·35	+ 1·58	1·93	0·35	+ 1·58	1·02	Khandwa	Central Provinces (West).	42
		7		2		20		2	S 45° W	4·2	4·3	3·8	+ 13	37	·496	2·2	3	1·00	+ 2·00	2·00	0·55	+ 1·45	2·00	0·55	+ 1·45	1·08	Hoshangabad.		
10	3			3	4	7		4	S 47° W			9·5		44	·551	3·4	4	1·40	+ 2·60	2·09	0·72	+ 1·37	2·09	0·72	+ 1·37	0·79	Nagpur.		
19				5	3	1	1	2	S 4° E	2·9	2·6	4·9	− 47	44	·597	2·8	2	1·70	+ 0·30	2·16	0·74	+ 1·42	2·16	0·74	+ 1·42	1·75	Chanda	Central Provinces (Central).	43
	6	5	1		4	7	4	4	N 65° W	4·5		4·6	− 2	44	·496	3·0	7	1·90	+ 5·10	2·29	0·68	+ 1·61	2·29	0·68	+ 1·61	1·12	Seoni.		
2	2	3	2	6	7	2	5	2	S 4° E	4·1	3·6	4·5	− 20	44	·521	2·5	5	1·30	+ 3·70	2·30	0·55	+ 1·75	2·30	0·55	+ 1·75	1·20	Jubbulpore.		
	3	6	2	1	7	5	7		S 42° W	7·7	6·9	4·4	+ 57	33	·398	2·7	3	1·00	+ 2·00	2·72	0·50	+ 2·22	2·72	0·50	+ 2·22	2·29	Saugor.		
2	2	1	2		1	6	11	6	N 85° W	4·0	3·6	8·1	− 56	28	·369	4·5	1	1·10	− 0·10	0·34	0·38	− 0·04	0·34	0·38	− 0·04	0·14	Sutna	Central India	49
1	2	2	2	4	4	11	4	1	S 31° W	8·2	7·5	7·4	+ 1	43	·567	4·2	2	2·30	− 0·30	0·62	0·94	− 0·32	0·62	0·94	− 0·32	0·27	Raipur	Central Provinces (East).	44
	2	2	5	4	3	11	4		S 14° W	4·5	4·4	3·0	+ 47	50	·671	3·6	4	3·00	+ 1·00	0·90	1·62	− 0·72	0·90	1·62	− 0·72	0·26	Sambalpur.		
5	1		2	4		2	9	8	N 76° W	12·2	12·1			44	·479	1·5	5	1·60	+ 3·40	2·53	0·74	+ 1·79	2·53	0·74	+ 1·79	0·97	Aurangabad.	Hyderabad (North).	39
6		5		3		3		14	N 34° W	6·4	5·4			52	·674	2·6	1	1·20	− 0·20	0·38	0·39	− 0·01	0·38	0·39	− 0·01	0·35	Indur.		
	3	2	2	2	3	11	5	3	S 59° W	8·5	7·1			58	·667	4·6	0	2·50	− 2·50	0·09	1·00	− 0·91	0·09	1·00	− 0·91	0·05	Bidar.		
5	4	2	1	1	2	3	7	6	N 63° W	10·7	10·3			59	·684	3·9	3	2·50	+ 0·50	1·74	1·16	+ 0·58	1·74	1·16	+ 0·58	1·17	Gulbarga	Hyderabad (South).	53
3	1	1	3	1		14	3	5	S 65° W	9·1	8·6			56	·646	1·5	3	1·80	+ 1·20	2·07	0·72	+ 1·35	2·07	0·72	+ 1·35	1·13	Raichur.		
15		2	3	1		1	6	3	N 56° W	4·9	4·8			56	·652	5·1	4			2·00	0·99	+ 1·01	2·00	0·99	+ 1·01	0·98	Hyderabad (Deccan).		
	2	3	4	5	1	8	6	2	S 37° W	7·5		7·4	+ 1	57	·628	2·8	3	2·19	+ 0·90	2·43	0·99	+ 1·44	2·43	0·99	+ 1·44	1·38	Secunderabad.		
3	1			20	2	1	3	1	S 33° E	10·1	8·6			62	·727	4·9	4	1·00	+ 3·00	2·44			2·44			1·04	Hanumkonda.		
																				7·91	5·14	+2·77					X.—West Coast.		
	2	2	2	3	3	6	6	7	S 84° W	9·9		9·9	0	78	·898	5·5	5	0·70	+ 4·30	7·79	0·71	+ 7·08	7·79	0·71	+ 7·08	3·08	Bombay	Konkan	37
4	8	6	3	4	3	1		2	N 49° E	11·3	11·2	11·2	0	74	·858	3·8	6	1·50	+ 4·50	2·90	1·45	+ 1·45	2·90	1·45	+ 1·45	1·43	Ratnagiri.		
1	13	2	2	3	2	1	3	4	N 5° W	10·5				78	·921	5·1	6			7·02	2·57	+ 4·45	7·02	2·57	+ 4·45	2·04	Mormugao.		
	9	8		1	2	3	2	6	N 8° W					78	·892	5·9	7			8·79	2·33	+ 6·46	8·79	2·33	+ 6·46	2·13	Goa.		
16	3	3	3		1	3	1	1	N 2 E	4·3				81	·916	4·9	6	3·60	+ 2·40	8·89	3·28	+ 5·61	8·89	3·28	+ 5·61	3·75	Karwar.		
2		19	6	2			1	1	N 57° E	5·8				81	·896	5·7	15	12·90	+ 2·10	15·73	12·39	+ 3·34	15·73	12·39	+ 3·34	4·33	Cochin	Malabar	33
7	6	3	4	3	1			7	N 19° E	8·1	10·2			78	·866	6·2	8	9·00	− 1·00	6·31	7·78	− 1·47	6·31	7·78	− 1·47	2·30	Calicut.		
24	1		1	1	1	1		2	W	2·1		4·6	− 54	78	·876	6·6	10	6·90	+ 3·10	8·20	6·66	+ 1·54	8·20	6·66	+ 1·54	1·42	Mangalore.		
7	11	4	1					8	N 5° W	5·5				79	·856	6·3	10	10·20	− 0·20	5·53	9·05	− 3·52	5·53	9·05	− 3·52	1·37	Trivandrum.		

Table

Abstract of Observations taken at 8 A.M. at 228 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
					+·023								95·6	−2·6	77·0	−0·9	86·2	−1·8	18·6					30·0
	XI.—South India.																							
57	Madras (South)	Pamban	37	29·816		29·780	29·899	9th	29·758	26th	·141	86·0	92·0		81·8		86·9		10·2	94·8	17th	74·7	19th	20·1
		Tinnevelly	168	29·684	+·002	29·781	29·777	3rd	29·629	26th	·148	86·1	98·9	−1·5	78·9	−1·8	88·9	−1·7	20·0	104·5	8th	73·9	19th & 20th.	30·6
		Madura	447	29·401	+·017	29·781	29·494	3rd	29·342	26th	·152	84·5	98·5	−1·6	77·0	−0·5	87·8	−1·1	21·5	102·5	7th, 10th & 11th.	70·5	19th	32·0
		Periyakulam	945	28·915			29·002	4th	28·863	26th	·139	81·6	97·1		73·4		83·2		23·7	101·6	6th	69·4	8th	32·2
	Madras (South Central).	Salem	940	28·930	+·001	29·804	29·015	3rd	28·877	19th	·138	82·9	97·7	−1·5	76·3	+0·4	87·0	−0·6	21·4	103·7	5th, & 10th,	69·5	15th	34·2
		Coimbatore	1,348	28·515	+·009	29·804	28·590	4th	28·457	19th	·133	79·8	94·0	−1·0	73·8	+0·4	83·9	−0·3	20·2	99·9	6th	68·8	13th	31·1
35	Coorg	Mercara	3,781	26·210	+·011		26·284	4th	26·143	19th	·141	68·6	80·3	0	63·4	−1·5	71·9	−0·8	16·9	88·0	3rd	60·1	4 days	27·9
36	Mysore	Chitaldroog	2,405	27·486	+·010	29·801	27·552	3rd	27·431	23rd	·121	77·2	92·5	−1·2	71·7	+0·7	82·1	−0·3	20·8	99·2	1st & 8th.	65·4	10th	33·8
		Bangalore	3,021	26·906	+·010	29·802	26·960	1st	26·863	26th	·117	75·8	91·3	0?	69·4	+0·3	80·4	+0·2?	21·9	97·8	7th, 8th & 9th.	64·3	23rd	33·5
		Hassan	3,091	26·847	+·003	29·823	26·915	4th	26·799	19th	·116	75·6	87·6	0?	67·6	+1·0	77·6	+0·5?	20·0	95·5	6th	64·0	26th	31·5
		Mysore	2,518	27·399	+·004	29·828	27·472	1st	27·339	19th	·133	75·8	90·6	−1·5	69·5	−0·1	80·1	−0·8	21·1	97·1	7th	65·0	22nd & 23rd.	32·1
56	Madras (East Coast, South).	Negapatam	31	29·807	+·013	29·767	29·915	2nd	29·746	26th	·169	85·2	91·4	−5·9	79·6	−0·6	85·5	−3·3	11·8	98·2	17th	73·0	19th	25·2
		Cuddalore	12	29·832	+·037	29·773	29·934	1st	29·764	30th	·170	85·3	94·1	−4·7	78·7	−1·4	86·4	−3·1	15·4	100·7	30th	72·7	18th & 19th.	28·0
		Trichinopoly	255	29·594	+·016	29·781	29·675	2nd	29·546	26th	·129	83·5	99·1	−2·7	77·7	−1·0	88·4	−1·9	21·4	105·7	7th	70·9	19th	34·8
		Madras	22	29·814	+·030	29·766	29·921	1st	29·743	30th	·178	85·4	94·4	−4·1	79·1	−2·0	86·8	−3·1	15·3	101·0	17th	75·0	19th	26·0
		Vellore	707	29·127		29·769	29·230	1st	29·072	30th	·158	84·1	97·8		76·7		87·1		21·1	105·3	10th	71·5	19th & 20th.	33·8
5	Madras (East Coast, Central).	Nellore	71	29·761	+·058	29·765	29·866	1st	29·664	30th	·202	86·7	99·9	−6·1	79·5	−2·5	89·7	−4·3	20·4	106·3	30th	74·6	20th	31·7
		Masulipatam	15	29·820	+·064	29·769	29·935	1st	29·726	26th & 30th.	·209	87·2	96·2	−3·9	80·6	−1·0	88·4	−2·5	15·6	104·2	28th & 31st.	77·1	20th	27·1
54	Madras (Central)	Cuddapah	433	29·398	+·020	29·765	29·488	1st	29·342	29th	·146	88·3	103·3	−3·0	80·7	−2·8	92·0	−2·9	22·6	109·8	1st	73·8	19th	36·0
		Kurnool	945	28·884	?	29·760	28·979	1st	29·814	26th	·165	86·7	102·9	−1·9	80·2	−0·8	91·6	−1·4	22·7	107·8	6th & 7th.	74·0	11th	33·8
		Bellary	1,475	28·379	+·028	29·786	28·458	3rd	28·311	26th	·147	83·5	101·4	−1·0	77·7	+0·2	89·6	−0·4	23·7	107·0	1st & 7th.	71·2	22nd	35·8
52	Madras (East Coast, North).	Cocanada	26	29·808	+·059	29·769	29·925	20th	29·703	30th	·222	86·5	96·4	−4·3	80·8	−2·0	88·6	−3·2	15·6	103·6	4th & 29th.	72·0	5th	31·6
		Waltair (Vizag.)	226	29·597	+·060	29·763	29·725	20th	29·476	30th	·249	86·2	90·9	?	80·1	?	85·5	?	10·8	93·4	25th, 29th & 30th.	78·4	4 days	15·0
		Gopalpur	21	29·776?	+·073?	29·736?	29·896	20th	29·648	30th	·248	85·6	90·8	+1·0	80·2	−0·3	85·5	+0·4	10·6	96·3	31st	77·1	5th	19·2
	XII.—Hill Stations.																							
58	Baluchistan	Pishin											80·7		48·6		64·7		32·1	90·4	30th & 31st.	42·1	5th, 12th & 13th.	48·3
		Quetta	5,502	24·655	+·071		24·855	20th	24·545	26th	·310	65·6	78·7	−4·8	51·5	−0·7	65·1	−2·8	27·2	86·7	31st	43·9	19th	42·8
		Kalat										65·0	79·2	−6·2	33·7	−9·5	56·5	−7·9	45·5	86·8	10th	25·2	13th	61·6
		Chaman	4,311	25·684	+·053		25·896	20th	25·551	30th	·345	74·2	86·6	−7·7	61·6	−4·3	74·1	−6·0	25·0	95·7	30th	50·1	12th	45·6
30	Punjab and North-West Frontier Provinces.	Leh	11,503	19·751	+·024		20·069?	21st	20·597	17th	·472?	45·8	60·9	−3·1	35·4	−1·4	48·0	−2·3	25·5	68·1	23rd	30·4	20th	37·7
		Srinagar	5,203	24·896	+·018		25·116	20th	24·769	30th	·347	57·8	72·3	−4·6	50·4	−1·7	61·4	−3·2	21·9	83·7	31st	43·7	7th	40·0
		Sonemarg		21·870			21·944	24th	21·800	5th	·144	37·9	58·2		33·1		45·7		25·1	70·9	23rd	22·6	15th	48·3
		Skardu*		22·873			23·137	20th	22·702	18th	·435	58·3	71·2		43·3		60·3		21·9	80·0	23rd	42·7	20th	37·3
		Dras		20·842			21·042	21st	20·686	17th	·356	45·0	58·7		33·5		46·1		25·2	71·9	31st	23·6	6th	43·3
		Gilgit	4,890	25·122			25·422	20th	24·991	26th	·431	65·6	80·4	−4·9	59·3	−2·5	69·9	−3·7	21·1	91·5	23rd & 30th.	51·7	19th	39·8
		Chitral		24·543			24·555	18th, 27th & 29th	24·520	20th	·035	60·8	76·0		51·7		63·9		24·3	87·1	31st	45·0	19th	42·1
		Killa Drosh										61·1	76·0		56·2		66·1		19·8	86·8	26th	46·5	12th	40·3
		Para Chinar	6,000	24·451			24·624	20th	24·356	28th	·278	64·0	72·9		52·8		62·9		20·1	85·1	30th	46·1	19th	39·0
		Cherat		25·674	+·081		25·878	20th	25·528	30th	·350	68·1	79·4	−10·2	62·5	−5·8	71·0	−8·0	16·9	93·4	30th	50·0	13th	43·4

* Observations of 20 days.

I—*continued.*

in India, Burma, etc., in May, 1903—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 1903	Normal rainfall for period, 1st to 31st May.	Variation from normal of period, 1st to 31st May 1903.	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
																				3·76	2·25	+1·51					XI.—South India.		
1	3	2	2	1	5	10	5	2	S 52° W	10·4	11·0			74	·918	3·1	3	1·20	+ 1·80	1·33	0·55	+ 0·78	1·33	0·55	+ 0·78	0·90	Pamban	Madras (South)	57
	4	3		1		6	10	7	N 70° W	5·0	4·8			64	·792	5·4	3	3·30	− 0·30	1·16	1·37	− 0·21	1·16	1·37	− 0·21	0·47	Tinnevelly.		
7	10	2	1	1				10	N 12° W	2·8	3·2	3·7	− 14	67	·811	4·0	10	4·20	+ 5·80	4·20	2·65	+ 1·55	4·20	2·65	+ 1·55	0·75	Madura.		
13	3		2	1	1		7	4	N 60° W	2·9	3·1			67	·726	3·3	8	5·10	+ 2·90	2·85	2·73	+ 0·12	2·85	2·73	+ 0·12	0·81	Periyakulam.		
10	1	1	1		1	7	10		S 72° W	3·2	2·9	4·4	− 34	77	·877	4·3	12	7·10	+ 4·90	7·99	5·01	+ 2·98	7·99	5·01	+ 2·98	2·17	Salem	Madras (South Central).	
14	1		5			4	7		S 55° W	5·2	4·6	5·3	− 13	85	·878	3·9	7	4·70	+ 2·30	3·56	2·28	+ 1·28	3·56	2·28	+ 1·28	1·70	Coimbatore.		
9	4	7	1			3		7	N 5° W	5·4	5·0	5·3	− 6	90	·624	8·3	11	9·00	+ 2·00	7·05	5·78	+ 1·27	7·05	5·78	+ 1·27	2·06	Mercara	Coorg	35
3			1			11	13	3	S 75° W	7·1	6·2			76	·710	7·9	6	4·60	+ 1·40	5·54	3·74	+ 1·80	5·54	3·74	+ 1·80	3·28	Chitaldroog	Mysore	36
		1	1	2		9	14	4	S 78° W	8·6	7·5	5·5	+ 36	74	·660	4·2	10	6·50	+ 3·50	2·51	4·22	− 1·71	2·51	4·22	− 1·71	0·55	Bangalore.		
	1	3	1	2	2	4	9	9	N 78° W	4·0	3·5			72	·632	5·6	8	7·80	+ 0·20	8·94	5·17	+ 3·77	8·94	5·17	+ 3·77	5·66	Hassan.		
		1			1	11	13	5	S 79° W	8·4	9·0			81	·711	7·1	12	8·30	+ 3·70	8·68	3·37	+ 5·31	8·68	3·37	+ 5·31	1·90	Mysore.		
19			1	1	1	7	2		S 39° W	4·7	4·1	7·4	− 45	74	·900	5·0	4	2·10	+ 1·90	5·01	1·61	+ 3·40	5·01	1·61	+ 3·40	2·21	Negapatam	Madras (East Coast, South).	56
23	1			2	1	2	2		S 36° W	3·4	4·2			76	·930	5·7	5	1·20	+ 3·30	3·72	0·28	+ 3·44	3·72	0·28	+ 3·44	1·83	Cuddalore.		
11	1		1	1		4	5	8	N 75° W	4·2		6·0	− 28	74	·848	3·8	9	3·50	+ 5·50	7·88	2·94	+ 4·94	7·88	2·94	+ 4·94	2·83	Trichinopoly.		
			1	3	19	4	2	2	S 8° W	6·6		9·2	− 28	74	·903	4·7	4	2·30	+ 1·70	5·32	0·90	+ 4·42	5·32	0·90	+ 4·42	1·84	Madras.		
21	1			1			1	7	N 45° W	1·9	1·9			72	·801	1·7	5	4·40	+ 0·60	1·98	3·02	− 1·04	1·98	3·02	− 1·04	0·59	Vellore.		
9		2		5	11		1	3	S 9° E	5·0				72	·908	4·5	4	1·60	+ 2·40	4·92	0·39	+ 4·53	4·92	0·39	+ 4·53	3·68	Nellore	Madras (East Coast, Central).	55
1			1	8	8	7	4	2	S 12° W	7·9	7·6	8·9	− 15	82	1·058	6·5	3	1·90	+ 1·10	1·76	1·27	+ 0·49	1·76	1·27	+ 0·49	0·90	Masulipatam		
	1	3	3	4	1	5	9	5	S 85° W					58	·768	4·2	7	2·50	+ 4·50	2·82	1·80	+ 1·02	2·82	1·80	+ 1·02	0·81	Cuddapah	Madras (Central).	54
3	1	1	1	3	5	5	2	10	S 77° W	8·5				65	·816	4·4	2	2·90	− 0·90	0·66	0·95	− 0·29	0·66	0·95	− 0·29	0·35	Kurnool.		
4	1	2	2	1		2	10	9	N 62° W	6·5	6·9	8·4	− 18	67	·765	5·0	4	3·20	+ 0·80	1·49	1·98	− 0·49	1·49	1·98	− 0·49	0·59	Bellary.		
9	2	5	1	2		9	3		S 57° W	7·9	6·6			78	·994	5·5	3	2·80	+ 0·20	3·71	0·93	+ 2·78	3·71	0·93	+ 2·78	3·36	Cocanada	Madras (East Coast, North).	52
		3	4	2	4	18			S 17° W	14·3				68	·818	5·8	1	3·40	− 2·40	0·40	2·47	− 2·07	0·40	2·47	− 2·07	0·27	Waltair (Vizag.)		
1			1		15	14			S 20° W	17·6	17·2	13·3	+ 29	81	·988	1·4	0	3·30	− 3·30	0·04	2·10	− 2·06	0·04	2·10	− 2·06	0·02	Gopalpur.		
																											XII.—Hill Stations.		
																	2	0·70	+ 1·30	0·62	0·19	+ 0·43	0·62	0·19	+ 0·43	0·33	Pishin	Baluchistan.	48
29				1	1				S 24° E	1·9	2·0	4·7	− 57	58	·355	1·7	3	1·10	+ 1·90	0·97	0·40	+ 0·57	0·97	0·40	+ 0·57	0·38	Quetta.		
	4		5		20		2		S 11° E					52	·315		4	0·90	+ 3·10	0·52	0·26	+ 0·26	0·52	0·26	+ 0·26	0·16	Kalat.		
	4	2	5	6	6	5	2	1	S 31° E	5·1	5·6			39	·318	1·4	1	0·10	+ 0·90	0·53	0·05	+ 0·48	0·53	0·05	+ 0·48	0·41	Chamas.		
		2	3	3	15	6		2	S 3° E	3·0				41	·125	5·5	0	0·90	− 0·90	0·16	0·22	− 0·06	0·16	0·22	− 0·06	0·06	Leh	Punjab and N.-W. Frontier Provinces.	30
4	3			5	6	3	2	3	S 64° W	5·2	4·8			85	·414	4·4	6	5·80	+ 0·20	2·55	2·60	− 0·05	2·55	2·60	− 0·05	0·88	Srinagar.		
23			1			1	1		S 45° W	3·2	2·9			93	·217	3·8	12			5·93			5·93			1·52	Sonemarg.		
19	1	3	1			2	4		N 53° W	7·4	7·5					4·9	0	1·90	− 1·90	0·04	1·04	− 1·00	0·04	1·04	− 1·00	0·02	Skardu.		
21				1	1	3	5		S 59° W	4·6	3·7			68	·200	4·4	1	5·20	− 5·20	1·41	2·82	− 1·41	1·41	2·82	− 1·41	1·06	Dras.		
29						1	1		S 63° W	3·1	2·8			46	·284	5·8	0	1·70	− 1·70	0	0·57	− 0·57	0	0·57	− 0·57	0	Gilgit.		
29		1	1						N 63° E					61	·324	2·5	7			4·25			4·25			1·50	Chitral.		
25		1	4			1			E					63	·323	2·2	7			4·96			4·96			1·55	Killa Drosh.		
18	1			2	2	1	6	1	S 72° W	6·0	5·5			56	·318	3·0	11	6·50	+ 4·50	4·58	2·02	+ 2·56	4·58	2·02	+ 2·56	0·90	Para Chinar.		
	23	1		1	1		3	2	N 7° W	8·3	7·5			48	·309	0·8	3			1·99	1·21	+ 0·78	1·99	1·21	+ 0·78	0·75	Cherat.		

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
30	Punjab and North-West Frontier Province—(*concld.*).	Murree	6,333	23·845	+·048		24·017	20th	23·744	30th	·273	64·0	71·5	−5·4	54·5	−4·9	63·0	−5·2	17·0	82·3	31st	40·0	19th	42·3
		Kailang	10,087	21·014			21·218	20th	20·808	18th	·410	43·3	56·5	−5·5	35·3	−2·8	45·9	−4·2	21·2	67·3	31st	28·5	1st	38·8
		Poo**											67·5		45·0		56·3		22·5	75·8	23rd	35·0	15th	40·8
		Simla	7,224	23·125	+·053		23·263	20th	23·034	30th	·229	61·9	70·3	−2·8	56·7	−1·9	63·5	−2·4	13·6	78·4	12th	45·3	18th	33·1
25	United Provinces.	Chakrata	7,022	23·284	+·038		23·408	20th	23·183	30th	·225	62·6	73·6	−0·7	56·8	+0·2	65·2	−0·3	16·8	81·0	24th	42·8	14th	38·2
		Mussooree	6,705	23·558	+·044		23·691	20th	23·430	26th	·261	66·2	76·8	−1·2	57·8	−0·4	67·3	−0·8	19·0	88·3	24th	46·0	14th	42·3
		Ranikhet	6,069	24·093	+·047		24·226	20th	23·956	30th	·270	69·0	80·7	+2·5	61·9	+1·4	71·3	+2·0	18·8	89·1	22nd	50·0	13th	39·1
		Muktesar	7,600	22·869			22·998	20th	22·745	30th	·253	65·0	76·3		56·1		66·2		20·2	84·0	22nd	44·8	13th	39·2
													59·1		39·8		49·4		19·3	69·1	21st	33·9	9th	35·2
13	Bengal	Yatung	10,480?																					
		Darjeeling	7,376	23·018	+·037		23·108	20th	22·900	30th	·208	58·8	66·1	+2·3	52·2	−0·4	59·2	+1·0	13·9	71·7	22nd	45·6	3 days	26·1
8	Assam Hill Tracts	Shillong	4,920	25·113			25·204	11th	24·987	30th	·217	69·2	76·9		60·4		68·7		16·5	82·7	4 days	55·0	2 days	27·7
		Cherra Poonjee	4,309	25·668			25·759	20th	25·547	30th	·212	67·2	73·8		62·0		67·9		11·8	77·8	25th	54·0	2 days	23·8
	Central India	Mount Abu	3,945	26·008	+·028		26·175	20th	25·864	26th	·311	80·9	88·7	+0·5	72·8	+1·7	80·8	+1·1	15·9	93·2	23rd	61·4	17th	31·8
		Pachmarhi	3,528	26·403	+·036		26·526	1st	26·281	26th	·245	81·9	93·8	−1·3	72·9	−2·2	83·4	−1·8	20·9	99·7	7th	63·2	26th	36·5
	South India	Wellington	6,200	24·238	+·004		24·336	4th	24·181	20th	·125	66·7	75·5	−0·6	56·6	−1·4	66·1	−1·0	18·9	79·2	8th	49·7	23rd	29·5
		Kodaikanal	7,688	22·825			22·891	4th	22·717	10th	·174	60·6	67·3		54·3		59·4		13·0	71·0	6th & 8th.	49·4	20th	21·6
		Ootacamund		23·059			23·117	4th	22·999	20th	·118	62·3	68·7		52·4		60·5		16·3	72·5	1st & 5th.	46·2	3rd	26·3
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·845	P	29·783	29·938	1st	29·790	10th	·148	81·9	92·5	−0·5	77·7	−1·1	85·1	−0·8	14·8	95·5	7th	71·5	17th	24·0
		Colombo	40	29·850	−·006	29·816	29·915	1st	29·781	19th	·134	81·8	88·4	+0·4	76·7	−1·7	82·6	−0·7	11·7	92·0	6th	69·5	18th	22·5
												67·7			55·8	−1·4						46·9	3rd	
	Persia	Meshed	3,104																					
		Teheran		25·865‡			26·020	14th	25·700	19th	·320	72·0	83·7§	+0·8	59·5*	+0·1	71·8§	+0·5	24·2	93·4	28th	46·8	2nd	46·6
		Ispahan		24·336‡			24·490	21st	24·250	9th & 19th.	·240	67·1	82·7	−1·4	49·5	−4·6	66·1	−3·0	33·2	89·9	28th	39·1	2nd	50·8
		Bushire	14	29·807	+·040	29·780	29·965	2nd	29·622	26th	·343	82·4	89·2	+0·1	76·3	+1·0	82·8	+0·6	12·9	103·0	28th	69·6	3rd	33·4
		Bahrein‖	30	29·797			30·002	8th	29·599	26th	·403	83·2	91·5		78·2		84·8		13·3	99·2	28th	70·3	1st	28·9
		Jask¶		29·751	+·008		29·947	21st	29·602	27th	·345	83·9	90·7	−2·0	78·5	−0·4	84·6	−1·2	12·2	101·3	31st	72·2	3rd	29·1
		Muscat	20	29·729	−·005	29·697	29·910	1st	29·555	26th	·355	87·4	89·3	−2·3	84·7	−1·2	87·1	−1·8	4·6	98·7	31st	78·3	1st	20·4
	Arabia	Baghdad	220	29·743	+·032	29·689	29·958	2nd	29·558	18th	·400	79·2	98·0	+6·2	69·5	+1·7	83·8	+4·0	28·5	107·4	17th	61·8	1st	45·6
		Busrah		29·838			30·030	2nd	29·645	26th	·385		97·8		73·5		85·7		24·3	107·9	27th	59·0	3rd	48·9
		Aden	94	29·801	+·033	29·826	29·881	7th	29·697	29th	·184	85·5	91·8	−1·5	81·6	+0·6	86·7	−0·5	10·2	96·8	27th	74·9	5th	21·9
		Perim	201	29·672	+·040	29·805	29·730	8th	29·590	27th	·140	85·8	91·6	−0·9	81·4	−0·5	86·5	−0·7	10·2	95·5	27th	75·2	22nd	20·3
												61·2	75·8	−6·9	49·0	−4·2	62·4	−5·6	26·8	86·1	10th	42·4	19th	43·7
	Afghanistan	Kabul**																						
	Central Asia	Kashgar**	4,255	25·469‡‡			25·700	21st	25·310	3 days	·390	65·1	80·3	−0·7	55·0	−2·1	67·7	−1·9	25·3	90·1	22nd	43·8	3rd & 6th	46·3
	Arabian Sea Islands.	Amini Devi	13																					
		Minicoy	7	29·903		29·835	30·006	2nd	29·845	19th	·161	84·8	88·4	−0·3						91·7	1st			
	Africa	Zanzibar	73	29·978	−·029	29·978	30·025	21st	29·908	5th	·117	77·8	83·2	+0·8	76·1	+0·4	79·7	+0·6	7·1	86·0	5th	72·2	11th	13·8
		Do. Dunga		29·912			29·970	23rd	29·833	1st	·137	75·9	83·7		72·3		78·0		11·4	86·9	5th	67·3	20th	19·6
	Straits Settlements.	Penang§§	20	29·917		29·862	29·947	31st	29·883	28th	·064	82·9	91·0		74·5		82·8		16·5	92·0	8 days	73·0	4 days	19·0
		Singapore§§	10	29·936		29·867	29·969	2nd	29·868	27th	·094	85·1	88·0		75·5		81·8		12·5	90·9	21st	71·5	19th	19·4

NOTES.—When a query is inserted against any reading or in the variation returns of

* Mean of 22 days. Observation of 28 days.

† Mean of 25 days.

‡ Aneroid uncorrected.

§ Mean of 30 days.

I—*concluded.*

in India, Burma, etc., in May, 1903—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 (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 1903.	Normal rainfall for period, 1st to 31st May.	Variation from normal of period, 1st to 31st May 1903.	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	5
19	2		3	4	2			1	S 68° E	6·5	7·0	8·3	−16	52	·296	3·2	8	6·30	+1·70	4·09	2·97	+ 1·12	4·09	2·97	+ 1·12	1·19	Murree	Punjab and North-West Frontier Province—(*concld.*),	3
			1	3	3	12	10	2	S 55° W	2·1				66	·185	4·3	5			2·02	2·58	− 0·56	2·02	2·58	− 0·56	0·59	Kallarg,		
22		2	1	3	1			1	S 76° E							3·2	3			0·94	0·71	+ 0·23	0·94	0·71	+ 0·23	0·48	Poo,**		
4	12	4		6	5				N 51° E	5·2	5·0	2·9	+72	43	·232	4·0	6	5·20	+0·80	4·32	3·06	+ 1·26	4·32	3·06	+ 1·26	1·72	Simla,		
4	14	2	1	3	3			4	N 8° E	10·5		6·0	+75	42	·231	3·2	3	5·90	−2·90	2·96	2·43	+ 0·53	2·96	2·43	+ 0·53	1·10	Chakrata	United Provinces.	25
2		6	9	3	2		6	3	N 73° E					44	·235	3·4	3	4·30	−1·30	1·71	2·24	− 0·53	1·71	2·24	− 0·53	1·03	Mussooree,		
15	3	3	2			3	2	3	N 22° W	3·2	3·6	3·3	+ 7	41	·286	1·5	3	5·50	−2·50	1·07	2·28	− 1·21	1·07	2·28	− 1·21	0·53	Ranikhet,		
9	3		5	5	3		3	3	S 72° E	5·3	4·8			40	·241	2·1	3			1·32			1·32			0·60	Muktesar,		
																	19	14·50	+4·50	7·69	4·88	+ 2·81	7·69	4·88	+ 2·81	1·40	Yatung	Bengal	13
19		2		1		3	5	1	S 81° W	6·9	6·3	6·2	+ 2	82*	·396*	4·3†	14	13·43	+0·57	10·01	8·78	+ 1·23	10·01	8·78	+ 1·23	2·63	Darjeeling,		
4	2	1			4	13	3	4	S 62° W	6·5	7·3			68	·481	4·0	14	17·80	−3·80	6·33	10·15	− 3·82	6·33	10·15	− 3·82	0·88	Shillong	Assam Hill Tracts.	8
4	1	5	2	2		11	6		S 56° W	6·3	7·2			61	·541	6·0	20	21·10	−1·10	21·33	49·93	−28·60	21·33	49·93	−28·60	2·26	Cherra Poonjee.		
2	2	4	2		2	9	5	5	W	8·6	8·7	9·4	− 7	32	·324	1·0	2	1·30	+0·70	0·77	0·99	− 0·22	0·77	0·99	− 0·22	0·47	Mount Abu	Central India.	
4	1	1	3	3	1	8	1	9	S 84° W	6·9	7·1	6·8	+ 4	39	·401	4·3	5	1·30	+3·70	4·10	0·50	+ 3·60	4·10	0·50	+ 3·60	1·33	Pachmarhi,		
17	2	3	2	3	1	1	1	1	N 75° E	2·6		3·0	−13	71	·461	4·6	10	8·20	+1·80	4·54	3·76	+ 0·78	4·54	3·76	+ 0·78	1·16	Wellington	South India,	
	7	3	2	3	3	2		11	N 17° W	11·8				75	·392	4·3	11	9·30	+1·70	6·00	6·47	− 0·47	6·00	6·47	−0·47	1·50	Kodaikanal,		
14		7	4	3		1	1	1	N 72° E	2·2	2·1			69	·387	4·6	13	9·70	+3·30	11·56	5·93	+ 5·63	11·56	5·93	+ 5·63	2·60	Ootacamund,		
																											XIII.—Extra India.		
6						25			S 45° W					84	·918	2·5	7			5·75	2·46	+ 3·29	5·75	2·46	+ 3·29	2·18	Trincomalee	Ceylon.	
		1	8	7	6	8	1		S 24° E	7·2		8·51	−15	87	·954	6·6	18			20·60	11·12	+ 9·48	20·60	11·12	+ 9·48	3·55	Colombo,		
														74	·504	3·3	7			2·47	0·74	+1·73	2·47	0·74	+ 1·73	1·00	Meshed	Persia.	
14			2	3	2	9			S 10° W	3·7	4·8			42	·326	2·7	5			0·80	0·33	+ 0·47	0·80	0·33	+ 0·47	0·17	Teheran, ††		
21	1					2	4	3	N 76° W	2·7	3·5			64	·430	1·0	0			0·31	0·11	+ 0·20	0·31	0·11	+ 0·20	0·08	Ispahan,		
2	8	6	3	2			1	9	N 4° E	8·1	9·6	8·9	+8	54	·589	2·4	0			0	0	0	0	0	0	0	Bushire,		
	9	1	2		1	3	9	3	N 51° W					72	·830		0			0			0			0	Bahrein,		
1	1		10	1	1	2	9	4	N 79° W	9·6	8·0			73	·843	0·1	0			0	0	0	0		0	0	Jask,		
1		1		11				18	N 34° W	3·9	4·0			67	·856	0·2	0			0	0	0	0	0	0	0	Muscat,		
17	6	1	1				1	5	N 17° W	2·5	3·3			42	·418	1·8	0			0	0·24	− 0·24	0	0·24	− 0·24	0	Baghdad	Arabia.	
																	2			0·82			0·82			0·45	Busrah,		
3		8	9	4	1	4	1	1	S 89° E	13·2	10·7	10·6	+1	73	·906	3·2	0			0	0·19	− 0·19	0	0·19	− 0·19	0	Aden,		
		2	3	16		2	6	2	S 35° E	10·8	9·8			75	·935	2·0	2			0·47	0·37	+ 0·10	0·47	0·37	+ 0·10	0·30	Perim,		
		3	1	8	4	6	1	7	S 8° W					58	·270	2·9	7			3·11	0·54	+ 2·57	3·11	0·54	+ 2·57	0·80	Kabul	Afghanistan,	
25				1	4				S 11° E	3·1	2·8			44	·267	0·7	0			0	0·88	− 0·88	0	0·88	− 0·88	0	Kashgar	Central Asia,	
																											Amini Devi	Arabian Sea Islands.	
	2	1		2		2	7	17	N 56° W	7·1	7·6			77	·919	5·2	13			5·67	6·40	− 0·73	5·67	6·40	− 0·73	1·62	Minicoy,		
					18	13			S 18° W	9·1	8·5			89	·848	6·8	11			8·56	10·62	− 2·06	8·56	10·62	− 2·06	1·61	Zanzibar	Africa.	
12				1		18			S 43° W	5·2	5·0			95	·849	6·1	12			7·30			7·30			1·30	Do, Dunga,		
6	7	9	1	2	4			2	N 38° E	3·6						0	10			7·82			7·82			3·12	Penang	Straits Settlements.	
	3	3	2	16	2	1	1	3	S 60° E	?						5·0	10			4·63			4·63			0·79	Singapore,		

station, the data for that station are not utilized in calculating the provincial variations.

¶ Observations of 29 days. ** Observations of 30 days. †† Wind variable 1. ‡‡ Aneroid corrected.

§§ 9 hour observations.

Table II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63 Stations in India, Burma, etc., in May 1903.

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	29·832	29·746	·086	29·787	+·034	29·779	89·7	79·6*	10·1	94·4	76·2	18·2	86·9	86·5	83·6*	+ 1·4	76·8	81·4	80·6	79·6
	Rangoon	57	·817	·695	·122	·760	+·022	·754	93·3	77·9	15·4	101·2	73·4	27·8	87·1	88·2	83·4	+ 0·9	75·4	79·2	79·6	78·1
	Diamond Island	41	·810	·735	·105	·786	+·020	·761	88·0	80·2	7·8	91·4	73·4	18·0	85·6	85·6	83·2	+ 0·5	75·6	79·4	79·4	78·1
	Cocos Island	119	·761*	·684‡	·077	·721	?	·773§	92·0‡	80·0*	12·0	95·4	75·1	20·3	88·7*	86·6‡	84·3§	+ 2·2	75·5*			
	Akyab	20	·837	·720	·117	·783	+·025	·745	91·3	79·6	11·7	97·1	76·0	21·1	87·8	89·0	84·8	+ 1·6		81·7	81·7	
Bengal and Orissa.	Chittagong	87	·755	·635	·120	·696	+·027	·730	90·7	76·6	14·1	94·3	69·2	25·1	87·1	87·0	82·7	+ 1·7	75·4	79·7	79·7	78·3
	Calcutta (Alipore)	21	·769	·639	·130	·705	+·047	·671	98·6	78·8	19·8	106·2	73·2	33·0	91·0	95·4	88·3	+ 2·9	74·7	80·1	79·3	78·0
	Saugor Island	25	·775	·654	·121	·717	+·050	·685	93·3	82·3	11·0	96·3	74·9	21·4	89·0	90·3	86·7	+ 1·5	78·6	82·1	82·6	81·1
	False Point	21	·787	·671	·116	·731	+·047	·694	90·5	80·1	10·4	92·9	74·1	18·8	88·4	87·0	84·2	+ 0·2	77·7	81·5	80·8	80·0
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·777	27·665	·112	27·725	+·042	·613	100·6	77·6	23·0	106·9	69·4	37·5	92·0	96·1	87·9	+ 2·3	64·7	67·7	67·8	66·7
	Darbhanga	166	29·597	29·456	·141	29·525	+·027	·640	100·2	77·5	22·7	106·5	72·7	33·8	91·3	98·7	88·1	+ 3·5	70·1	77·9	78·3	75·4
	Allahabad	309	·432	·297	·135	·364	+·047	·615	107·6	80·5	27·1	114·3	73·3	41·0	99·4	105·8	91·1	+ 1·7	65·5	72·2	72·6	70·1
Upper Sub-Himalayas.	Dehra Dun	2,233	27·540	27·448	·092	27·484	+·024	·610	97·1	69·2	27·9	104·4	62·4	42·0	87·6	92·2	82·2	— 0·4	57·2	65·5	65·8	62·8
	Roorkee	899	28·830	28·716	·114	28·767	+·033	·602	103·7	71·8	31·9	110·2	64·5	45·7	94·5	101·4	87·5	— 0·4	58·9	68·3	69·0	65·4
	Meerut	738	·992	·878	·114	·927	+·049	·605	104·0	73·3	30·6	112·0	66·3	45·7	95·4	101·0	88·2	— 0·3	63·1	68·8	69·5	66·8
	Lahore	702	29·028	·939	·089	·976	+·069	·627	102·3	72·7	29·6	113·0	63·9	49·1	93·9	99·0	86·9	— 0·5	63·2	71·1	71·5	68·6
	Ludhiana	812	28·914	·819	·095	·860	+·058	·614	102·6	75·1	27·5	111·9	67·1	44·8	92·9	100·5	88·7	+ 0·8	65·2	68·7	70·9	68·3
N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.	Peshawar	1,110	·699	·607	·092	·646	+·103	·726	92·2	67·4	24·8	105·7	59·0	46·7	85·0	89·6	79·5	— 3·9	60·5	68·0	69·1	65·9
	Jacobabad	186	29·563	29·450	·113	29·499	+·091	·636	110·5	77·2	33·3	121·0	66·3	54·7	100·0	106·3	93·1	— 1·1	68·6	83·1	85·6	79·1
	Kurrachee	30	·752	·662	·090	·706	+·030	·686	95·2	81·2	14·0	114·3	76·1	38·2	90·9	90·9	86·2	+ 2·2	76·2	82·0	83·9	80·7
East Rajputana, Central India and Gujarat.	Jaipur	1,431	28·354	28·240	·114	28·296	+·051	·637	105·8	77·9	27·9	112·4	67·6	44·8	96·2	102·2	91·1	+ 0·5	63·1	70·7	71·1	68·3
	Udaipur	1,925	27·888	27·782	·106	27·835		·645	102·4	77·3	25·1	107·2	70·6	36·6	94·9	97·7	88·7		66·6	72·0	73·0	70·5
	Deesa	466	29·313	29·187	·126	29·249	+·015	·650	108·9	79·6	29·3	113·4	71·7	41·7	96·9	107·1	93·6	+ 2·4	66·0	73·5	71·9	70·5
	Jamnagar	61	·742	·631	·111	·686		·693	100·8	76·1	24·7	111·7	69·6	42·1	92·6	95·6	87·1		71·9*	76·8	77·1	75·2
Deccan.	Belgaum	2,539	27·344	27·230*	·114	27·291	+·013	·702*	91·3*	68·4	22·9	99·7	65·8	33·9	82·3	86·0*	77·3*	— 0·4	66·5	69·6	72·5*	69·5
	Sholapur	1,590	28·250	28·104	·146	28·179	+·027	·665	101·9	76·6	25·3	107·7	70·5	37·2	91·1	98·2	87·9	— 1·3	67·3	71·3	71·8	70·2
	Akola	930	·868	·724	·144	·795	+·036	·646	105·7	78·5	27·2	113·3	69·8	43·5	95·7	102·3	91·5	— 2·3	65·8	74·6	74·2	71·5
	Buldana	2,132	27·706	27·582	·124	27·643	+·025	·646	99·7	76·5	23·2	105·7	67·2	38·5	90·1	96·6	87·6	— 1·1	63·5	68·7	68·2	66·8
	Khandwa	1,044	28·751	28·610	·141	28·680	+·031	·642	105·9	80·5	25·4	113·2	69·8	43·4	95·9	103·4	92·5	0	65·2	72·7	72·1	70·0
	Nagpur	1,025	·776	·630	·146	·702	+·070	·648	105·0	79·4	25·6	112·8	73·1	39·7	94·6	101·5	91·6	— 3·0	67·0	72·7	72·8	70·8
	Nagpur (Sanitary Commr.'s Office)	1,013	·784	·639	·145	·711		·647	105·6	81·8	23·8	113·4	76·0	37·4	96·0	102·0	92·8		68·3	74·3	75·6	72·7
	Hyderabad (Deccan)	1,690	·149	·021	·128	·085	+·038	·666	100·5	79·0	21·5	105·9	67·6	38·3	91·2	97·2	89·0	— 2·1	70·4	73·9	74·4	72·9
West Coast.	Bombay	37	29·826	29·716	·110	29·769	0	·745	89·5	79·3	10·2	93·7	75·4	18·3	85·3	86·4	83·5	— 1·2	75·9	78·3	78·9	77·7
	Karwar	44	·825	·737	·088	·779	0	·754	89·2	79·3	9·9	91·8	72·7	19·1	86·5	87·5	83·7	— 0·2	77·5	80·3	81·4	79·7

* Mean of 30 days. ‡ Mean of 29 days. § Mean of 28 days.

II.

Stations in India, Burma, etc., in May, 1903.

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
																									%	%						
.894*	1.005	.971	.957	+.020	88*	78	77	81	−2	6·5	7·8	7·2	+0·5					23	8	14	14	3	S. 17° W.	S. 38° W.	55	41	188†	171	9·26	2·80	Port Blair .	Burma Coast and Bay Islands.
.850	.895	.899	.881	+.011	89	70	69	76	−2	7·2	7·0	7·1	+0·2	4	1	1	13	7	8	10	14	4	S 19° W.	S 21° W.	26	58	40†	113	4·11	0·94	Rangoon .	
.821	.923	.927	.890	−.001	80	75	75	77	+3	5·0	5·5	5·3	−1·0	2		1	1	9	7	7	12	23	S. 87° W.	S. 72° W.	40	47	221†	177	13·65	3·56	Diamond Island.	
.829*					81*					5·5*	5·8‡	5·7	−0·8		9	1	3	2	15	8	12	9	S. 72° W.	S. 51° W.	34	58	72	?	10·55	2·44	Cocos Island.	
	1.000	.988				76	72			5·4	4·8	5·1	−0·4			2		17	7	24	5	7	S. 24° W.	S. 24° W.	53	30	75†	89	9·83	4·82	Akyab .	
.868	.917	.918	.901	+.030	94	71	72	79	−1	5·4	1·9	3·7	−1·7		1	4	4	7	11	25	6	4	S. 28° W.	S. 1° E.	50	42	152†	150	4·04	1·42	Chittagong .	Bengal and Orissa.
.808	.883	.786	.826	−.057	82	61	48	64	−10	4·0	3·7	3·9	−0·4	1		2	1	2	27	25	3	1	S. 22° W	S. 7° E	76	65	171	172	1·53	0·84	Calcutta (Alipore).	
.932	1.006	1.012	.983	−.004	84	73	71	76	−4	5·5	3·6	4·6	−1·2					6	36	17	3		S. 11° W.	S. 8° W.	85	73	479	394	2·82	2·09	Saugor Island.	
.919	.985	.969	.958	−.012	89	73	76	79	−3	4·0	4·9	4·5	−0·3					5	38	17		2	S. 11° W.	S. 23° W.	85	73	288†	338	1·66	1·51	False Point	
.454	.379	.330	.389	−.078	49	28	22	33	−7	4·7	7·0	5·9	+2·3		11	2	1	1	3	14	16	14	N. 75° W.	S. 83° W.	55	15	187†	222	2·71	1·70	Hazaribagh	Gangetic Plain and Chota Nagpur.
.643	.779	.699	.707	−.058	68	54	39	54	−8	1·9	1·5	1·7	−0·3	13		1	19	17		3	7	2	S. 60° E.	S. 82° E.	39	60	71	152	0·27	0·22	Darbhanga.	
.433	.426	.361	.406	−.120	41	23	16	27	−10	3·0	2·7	2·9	+1·3	8	4	6	4		2	4	16	18	N. 59° W.	N. 3° W.	44	24	150†	149	0·04	0·02	Allahabad .	
.323	.356	.311	.330	−.077	46	27	22	32	−7	3·3‡	3·7‡	3·5	+0·8	5	2	1	4	3	2	11	25	9	S. 85° W.	S. 80° W.	52	25	48	54	0·39	0·20	Dehra Dun	Upper Sub-Himalayas.
.333	.345	.279	.319	−.109	43	22	14	26	−9	1·1	1·9	1·5	−0·1	7	1	4	1	11	5	5	4	24	N. 71° W.	S. 53° W.	23	11	104	90	0·05	0·05	Roorkee .	
.419	.356	.305	.360	−.134	51	22	16	30	−10	1·6	3·6	2·6	+0·9	11	1		5	6	1	9	16	13	S. 86° W.	N. 54° W.	35	22	39†	64	1·03	0·98	Meerut .	
.458	.459	.407	.441	0	58	30	25	38	+5	2·4	2·7	2·6	+0·4	4	20	6	8	3	2		8	11	N. 3° W	N. 11° E.	45	17	72	79	0·82	0·59	Lahore .	
.502	.382	.364	.416	−.079	57	26	20	34	−7	2·0	2·5	2·3	+0·2	2	2	10		6		2	27	13	N. 65° W.	N. 61° W.	47	11	72†	58	0·70	0·51	Ludhiana .	
.446	.481	.463	.463	+.040	68	43	37	49	+10	3·5	5·0	4·3	+1·4	15	11	5	5	1	4	2	9	10	N. 27° W.	N. 17° E.	29	29	63†	116	2·10	0·82	Peshawar .	N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.
.591	.914	.961	.822	?	63	48	42	51	?	1·4	2·5	2·0	+0·9	35	4	1	10	1	3		6	2	N. 59° E.	S. 40° E.	8	10	66†	112	0·35	0·35	Jacobabad.	
.843	.979	1.072	.965	+.076	80	69	75	74	+1	1·2	1·2	1·2	−0·9			1			4	33	24		S. 60° W.	S. 66° W.	87	86	301†	407	0	0	Kurrachee .	
.402	.435	.373	.403	−.033	42	25	20	29	−3	2·6	5·3	4·0	+1·8	1	4	4	4	1	5	9	22	12	N. 84° W.	N. 66° W.	48	49	84	156	0·49	0·35	Jaipur .	East Rajputana, Central India and Gujarat.
.519	.504	.505	.509		56	31	29	39		1·3	3·3	2·3		13	2	3	6	5	4	11	15	3	S. 55° W.		26		116†		1·11	0·66	Udaipur .	
.467	.513	.311	.430	−.136	46	31	13	30	−10	0·5	1·0	0·8	−0·7		3	1	1	2	14	23	14	4	S. 50° W.	S. 60° W.	63	68	264	325	0·10	0·10	Deesa .	
.733*	.718	.689	.711		82*	48	42	58		1·0	1·6	1·3			2	1			2	24	26	5	S. 57° W.		38		577†		0	0	Jamnagar‖ .	
.630	.565	.632*	.611	+.016	90	53	53*	66	+5	4·0	4·4*	4·2	+0·6		2	2	5	1		5	14	7	N. 75° W.	S. 88° W.	44	60	?	124	3·89	1·36	Belgaum .	Deccan.
.557	.523	.452	.511	+.040	62	38	27	42	+5	2·9	6·2	4·6	+0·5		5	5	4	10	2	8	7	21	N. 56° W.	N. 49° W.	25	55	338†	255	2·85	1·17	Sholapur .	
.472	.577	.471	.507	+.099	50	36	26	37	+9	3·2	5·4	4·3	+1·9	3	4	5	1	4	5	7	10	23	N. 65° W.	N. 50° W.	42	75	169†	221	1·68	0·78	Akola .	
.428	.438	.337	.401	−.024	49	33	22	35	+1	1·9	4·2	3·1	+0·6		14	5	3	2	6	3	12	17	N. 42° W.	N. 49° W.	44	69	239†	286	1·64	0·79	Buldana .	
.439	.511	.392	.447	−.019	43	33	21	32	−1	2·8	5·4	4·1	+2·0	3	5	5	2	3	2	5	13	24	N. 55° W.	N. 62° W.	50	72	177	241	1·98	1·02	Khandwa .	
.511	.537	.451	.500	+.052	52	34	24	37	+8	2·5	6·4	4·5	+0·7	13	6	6	3	7	3	16	3	5	S. 46° W.	N. 46° W.	13	41		228	2·09	0·79	Nagpur .	
.528	578	.557	.554		50	35	29	38		2·5	5·5	4·0		5	1	21		17		12		6	S. 88° E.		23		54†		2·89	0·98	Do. (Sanitary Commr.'s Office).	
.641	.624	.568	.611	+.050	65	44	34	48	+7	4·4	4·7	4·6	+1·7	19	1	3	5	8		3	19	4	S. 81° W	N. 57° W.	18	50	114†	173	2·00	0·98	Hyderabad (Deccan).	
.853	.880	.892	.875	−.002	85	72	71	76	+2	3·7	3·3	3·5	−0·3		1	1	2	1	6	12	21	18	S. 89° W.	N. 83° W.	63	70	242	247	7·79	3·08	Bombay .	West Coast.
.923	.952	.994	.956	+.103	92	75	76	81	+8	1·8	2·9	2·4	−0·8	10	2					8	20	22	N. 74° W.	N. 67° W.	69	82	102	128	8·89	3·75	Karwar .	

† Corrected.

‖ Wind variable 2.

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.
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	28·912	28·782	·130	28·865			97·0	73·4	23·6	101·6	69·4	32·2	87·8	90·0	83·4		70·1	75·4	75·3	73·6
	Salem	940	·929	·784	·145	·869	−·006	29·727	97·6	76·5	21·1	103·9	69·7	34·2	87·9	93·7	84·7	−0·2	72·7	79·2	81·6	77·8
	Chitaldroog	2,405	27·484	27·358	·126	27·422	+·001	·701	92·4	71·7	20·7	99·2	65·3	33·9	82·7	90·3	81·5	+0·2	67·4	72·5	72·1	70·7
	Bangalore	3,021	26·910	26·790	·120	26·857	+·012	·706	91·3	69·4	21·9	97·9	64·5	33·4	82·4	87·8	79·5	+0·9	65·4	70·9	69·1	68·5
	Hassan	3,091	·852	·748	·104	·807	−·004	·738	87·4	67·6	19·8	95·5	64·0	31·5	80·7	83·7	76·6	+1·2	65·4	69·3	68·6	67·8
	Mysore	2,518	27·398	27·272	·126	27·335	−·007	·726	90·5	69·6	20·9	97·0	64·8	32·2	80·8	87·7	79·3	+0·2	67·9	72·0	73·1	71·0
	Madras	22	29·816	29·705	·119	29·774	+·042	·724	94·5	78·9	15·6	101·1	74·8	26·3	89·5	88·9	85·2	−2·2		79·6	80·7	79·4
	Bellary	1,475	28·382	28·238	·145	28·312	+·022	·691	101·3	77·6	23·7	106·8	71·2	35·6	89·3	97·5	88·1	−0·5	68·4	77·1	80·1	75·2
	Waltair	226	29·599	29·489	·110	29·544		·708	91·1	80·5	10·6	94·4	78·3	16·1	87·9	87·3	84·8		76·6	79·2	79·6	78·5
Hill Station, Baluchistan.	Quetta	5,502	24·661	24·589	·072	24·616	+·069		79·2	51·4	27·9	87·9	44·1	43·8	73·0	76·5	64·6	−2·5	47·5	57·5	58·4	54·5
Hill Stations, Northern India.	Leh	11,503	19·755	19·678	·077	19·729	+·036		61·3	35·3	26·0	68·1	30·4	37·7	53·2	58·3	47·9	−0·5	31·6	39·1	42·4	37·7
	Srinagar	5,204	24·907	24·826	·081	24·858	+·054		72·5	50·4	22·1	83·8	43·7	40·1	62·8	69·7	60·8	−3·8	48·1	59·1	65·0	57·4
	Simla (Ridge)	7,224	23·143	23·095	·048	23·110	+·049		70·6	56·3	14·3	78·4	45·3	33·1	64·6	66·5	62·8	−2·3	47·3†	51·3	51·7	50·1
	Chakrata	7,022	·302	·251	·051	·268	+·042		73·9	56·9	17·0	81·0	42·8	38·2	68·4	69·1	64·6	−0·2	46·5	52·6	52·2	50·4
	Ranikhet	6,069	24·105	24·034	·071	24·058	+·044		81·0	61·9	19·1	89·1	49·9	39·2	74·6	75·7	70·5	+2·3	51·4	55·9	56·2	54·5
	Muktesar	7,600	22·886	22·822	·064	22·854			76·5	56·1	20·4	84·0	44·8	39·2	69·5	70·4	64·8		46·1	53·3	54·2	51·2
	Katmandu	4,388	25·657	25·563	·094	25·606	P		87·4	59·1	28·3	95·4	52·0	43·4	78·5	81·3	71·7	+1·0	56·5	63·8	63·6	61·3
	Darjeeling	7,376	23·026	22·973	·053	22·995	+·049		66·0	52·2	13·8	71·5	45·4	26·1	62·6	63·7	58·5	+2·2	49·6	57·5‡	58·3‡	55·3
Hill Stations, Central India.	Mount Abu	3,945	26·024	25·911	·083	25·981	+·021		88·8	72·8	16·0	93·2	61·6	31·6	84·0	86·6	80·2	+1·2	57·4	62·8	64·1	61·4
	Pachmarhi	3,528	·416	26·319	·097	26·367	+·038		93·8	72·9	20·9	99·8	63·2	36·6	86·9	90·2	82·6	−1·7	60·2	65·5	66·1	63·9
	Chikalda	3,642	·301	·204	·097	·251	+·031		91·5	72·8	18·7	98·4	64·9	33·5	83·8	89·6	81·7	−1·2	60·7	65·0	66·7	64·1
Hill Stations, S. India.	Kodaikanal	7,688	22·843	22·773	·070	22·806			67·3	54·3	13·0	71·0	49·4	21·6	64·3	61·7	59·5		50·1	57·8	58·0	55·4
	Ootacamund		23·073	23·004	·069	23·039			68·6	52·3	16·3	72·3	46·2	26·1	65·5	63·3	59·1		51·0	57·4	58·1	55·5
Extra India.	Aden	94	29·810	29·692	·118	29·748	+·031	·772	91·8	81·6	10·2	96·9	74·9	22·0	87·8	85·9	86·4	+0·3	75·7	79·4	79·0	78·0
	Perim	201	·680	·560	·120	·617	+·031	·748	91·7	81·4	10·3	95·5	75·2	20·3	88·8	88·9	85·9	−0·7	76·3	80·5	80·5	79·1
	Minicoy	7	·922	·857	·065	·888		·820	88·3			91·4			86·2	86·2				79·4	79·0	
	Zanzibar	73	·998	·899	·099	·949	−·026	·949	83·2	76·1	7·1	86·0	72·2	13·8	79·1	82·5	79·5	+1·5	72·0	76·0	76·3	74·8
	Port Victoria (Seychelles).	15	·950	·872	·078	·911	−·030	·850	84·6	75·2	9·4	87·7	72·3	15·4	83·1	84·0	79·7	−1·2	74·4	77·5	77·5	76·5
	Mauritius (Pamplemouses).	181				·902	+·003	30·031				81·8	58·5	23·3			72·2	+0·1				67·5

† Mean of 30 days. ‡ Mean of 22 days.

II—*concluded.*

Stations in India, Burma, etc., in May, 1903—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
																									%	%						
·696	·713	·683	·703		85	55	50	62		3·1	5·9	4·5		4	12	2	11	5	13	2	9	4	S. 60° E.		5		76*		2·85	0·81	Periyakulam	South India.
·751	·892	·936	·860	+·098	83	67	59	70	+ 7	3·7	6·9	5·3	+0·7	10	2	3	5		12	14	16		S. 47° W.	S. 47° W.	42	55	71*	98	7·99	2·17	Salem.	
·620	·669	·560	·616	+·049	80	61	41	61	+ 5	4·1	4·8	4·5	+0·3	3	4	5	4	2	2	9	19	14	N. 74° W.	N 80° W.	43	75	146*	232	5·54	3·28	Chitaldroog.	
·584	·625	·496	·568	−·026	81	57	40	59	−3	3·6	5·9	4·8	+0·4		6	8	6	2	4	11	14	11	N. 70° W.	S. 78° W.	29	68	180*	143	2·51	0·55	Bangalore.	
·602	·583	·527	·571	−·039	89	57	48	65	− 5	5·3	7·2	6·3	+0·9		4	11	5	7	1	11	16	7	N. 74°W.	N. 85° W.	18	72	84*	109	8·92	5·66	Hassan.	
·667	·679	·638	·661	+·056	92	65	51	69	+ 5	6·9	7·1	7·0	+1·6		5	6	3	3	5	15	15	10	S. 87° W.	S. 83° W.	37	64	216*	271	8·68	1·90	Mysore.	
	·873	·939	·929	+·052		62	69	77	+ 9	4·5	4·0	4·3	+0·5		1	2	9	19	14	9	7	1	S. 18° E.	S. 13° E.	52	65	155	219	5·32	1·84	Madras.	
·584	·784	·817	·728	+·151	62	57	46	55	+11	4·8	7·1	6·0	+1·1	4	5	3	7	3	5	8	14	13	N. 79°W.	N. 73° W.	29	55	166*	201	1·49	0·59	Bellary.	
·864	·885	·911	·887		83	67	70	73		5·1	5·3	5·2				1	10	6	18	27			S. 6° W.		66		164		0·40	0·27	Waltair.	
·292	·315	·300	·302	+·026	78	40	34	51	+10	1·6	3·0	2·3	+1·1	11	6	2	3	3	4	6	14	13	N. 73°W.	N. 68° W.	35	47	36*	91	0·97	0·38	Quetta.	Hill Station, Baluchistan.
·149	·120	·138	·136	+·008	71	30	28	43	+ 4	5·5	6·7	6·1	−0·2		6	8	6	4	11	11	13	3	S. 48° W.	S. 71° W.	18	31	72	73	0·16	0·06	Leh.	Hill Stations, Northern India.
·312	·468	·580	·453	+·022	84	81	78	81	+10	4·1	6·4	5·3	+1·8	4	9	5		6	6	4	12	16	N. 59° W.	S. 78° E.	34	11	112*	95	2·55	0·88	Srinagar.	
·233†	·243	·232	·236	−·043	54†	41	38	44	−2	4·1	5·8	5·0	+1·2	6	20	3		9	19	1	2	2	S. 61° E.	N. 12° W.	8	33	116*	143	4·32	1·72	Simla (Ridge).	
·215	·236	·218	·223	−·053	48	35	33	39	− 9	3·2	4·3†	3·8	+0·3	1	5	4	3	17	27	1	1	3	S. 25° E.	S. 65° W.	53	33	254§	164	2·96	1·10	Clakr ta.	
·274	·254	·251	·260	−·074	51	31	30	37	−13	2·1	3·7	2·9	−0·5	5	4	5	2	2	1	17	15	11	N. 88° W.	S. 65° W.	45	46	88*	94	1·07	0·53	Ranikhet.	
·210	·241	·256	·236		48	35	36	40		3·1	4·5	3·8		9	3	5	4	11	5	4	5	16	N. 57°W.		6		116*		1·32	0·60	Muktesar.	
·431	·421	·390	·414	−·082	85	45	39	56	−12	3·0	5·2	4·1	−1·3		5	2	13		5		37		N. 86° W.	S. 88° W.	37	49	52	43	2·84	0·76	Katmandu.	
·331	·429‡	·452‡	·404	−·004	84	77‡	77‡	79	− 8	5·1	6·9	6·0	−1·4	4	1	1	2	3	1	26	15	9	S. 69° W.	S. 74° W.	60	38	151*	170	10·01	2·63	Darjeeling.	
·297	·331	·344	·324	−·030	38	29	27	31	− 6	0·9	2·8	1·9	+0·5		2	6		1	5	25	14	9	S. 72° W.	S. 67° W.	56	71	208*	247	0·77	0·47	Mount Abu.	Hill Stations, Central India.
·380	·382	·365	·376	+·027	48	32	28	36	+ 4	3·5	5·8	4·7	+1·9	5	3	6	4	7	2	12	5	18	N. 71° W.	N. 66° W.	23	58	172*	170	4·10	1·33	Pachmarhi.	
·391	·403	·394	·397	+·024	51	37	30	39	+ 4	2·5	5·6	4·1	+1·2	27	9	3		2		5		16	N. 33° W.	N. 36° W.	34	65	196*	239	3·10	1·20	Chikalda.	
·323	·417	·449	·400		76	70	82	79		5·5	7·4	6·5		1	15	11	5	7	5	1	3	9	N. 23° E.		32		283		6·00	1·50	Kodaikanal.	Hill Stations South India.
·364	·393	·433	·397		92	63	75	77		5·5	7·6	6·6		17	4	15	12	2	2	4	3	3	N. 57° E.		31		52*		11·56	2·60	Ootacamund	
·814	·896	·851	·854	+·008	75	68	60	68	0	2·6	1·4	2·0	+0·4	4		14	13	11	2	15	2	1	S. 61° E.	S. 60° E.	32	40	262*	266	0	0	Aden.	Extra India.
·844	·932	·930	·902	+·027	79	68	68	72	+ 3	1·0	1·1	1·2	−0·4			4	6	36		1	11	4	S. 44° E.	S. 82° E.	45	32	235*	337	0·47	0·30	Perim.	
	·912	·896				73	72			6·2	5·9	6·1			7	2		1		5	12	35	N 53° W.		7 7		182*		5·67	1·62	Minicoy.	
·735	·862	·827	·808	+·013	82	86	75	81	− 1	6·8	6·4	6·6	+0·8			1		9	33	18	1		S. 7° W.	S. 5° E.	84	85	206*	194	8·56	1·61	Zanzibar.	
·844	·874	·860	·859	+·047	96	78	74	83	+ 7	6·2	6·5	6·4	+1·3	6		3	4	32	9			8	S. 44° E.	S. 44° E.	53	58	148	173	16·85	3·60	Fort Victoria (Seychelles).	
			·596	−·019				76	− 3			4·5	−0·6										S. 67° E.	S. 64° E.			221	245	1·00	0·31	Mauritius (Pamplemousses).	

*Corrected. ¶ Wind variable 5. § Mean of 25½ days. ‖ Mean of 29½ days.

G. I. C P. O.—No. 137 Meteo.—12-10-03.—385.—C. T.

CHART

OF

INDIA

SHEWING THE MEAN 8 A.M. DISTRIBUTION OF PRESSURE, WIND DIRECTIONS AND WIND VELOCITIES IN THE MONTH OF **MAY 1903.**

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

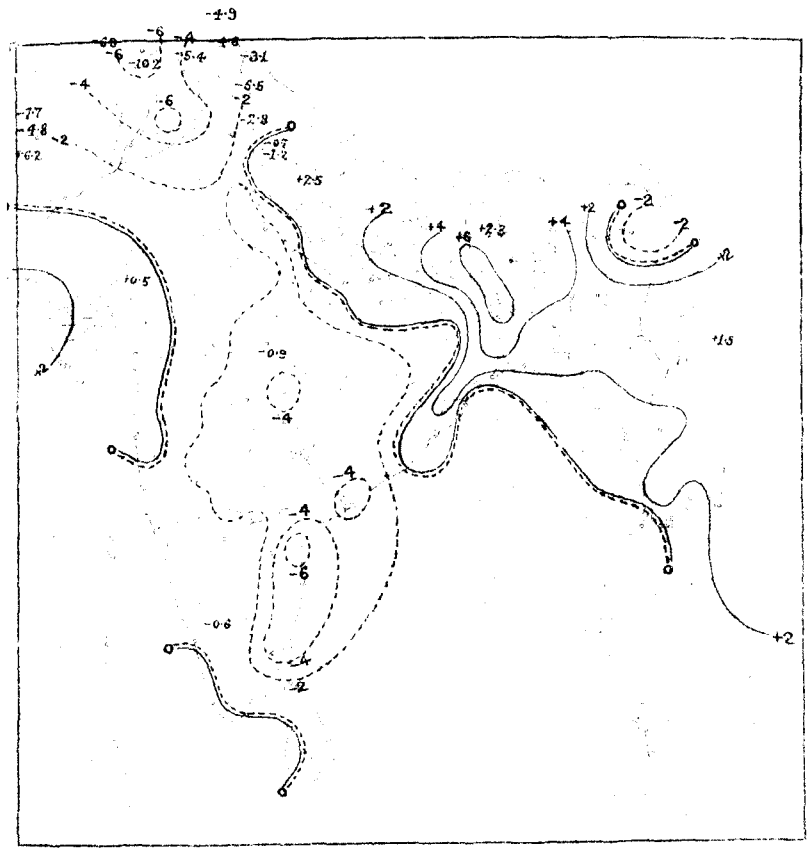
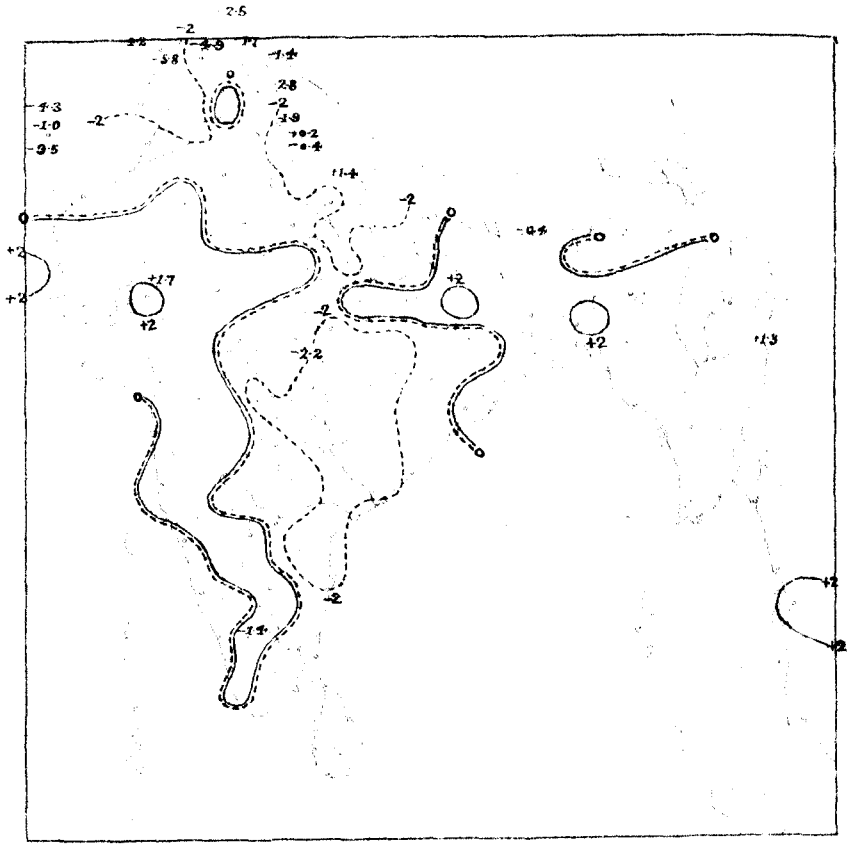


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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 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 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

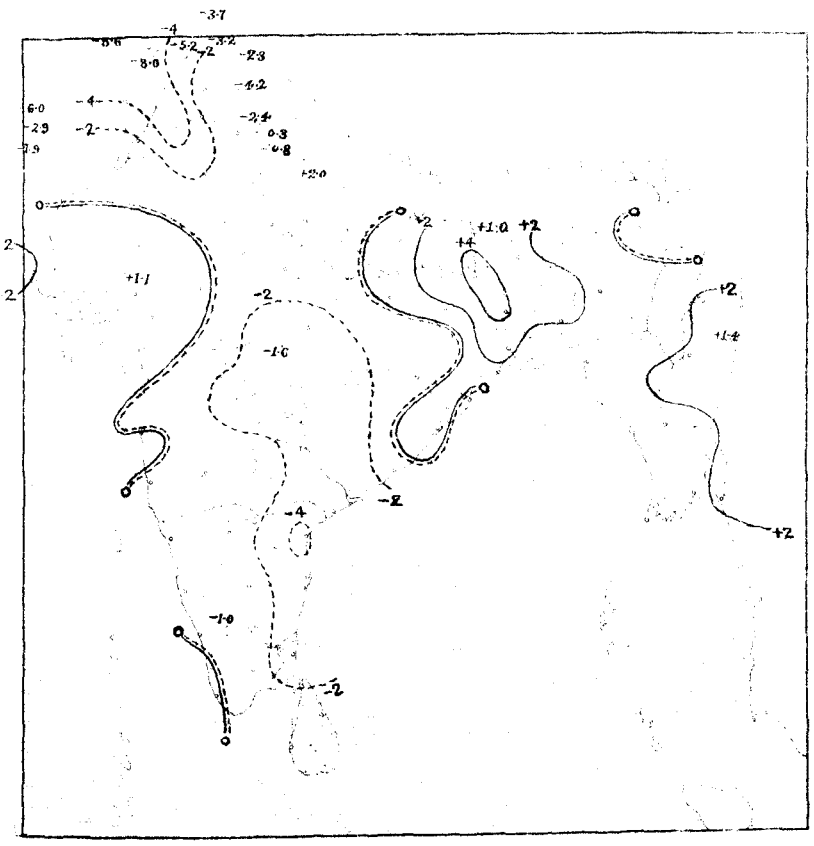
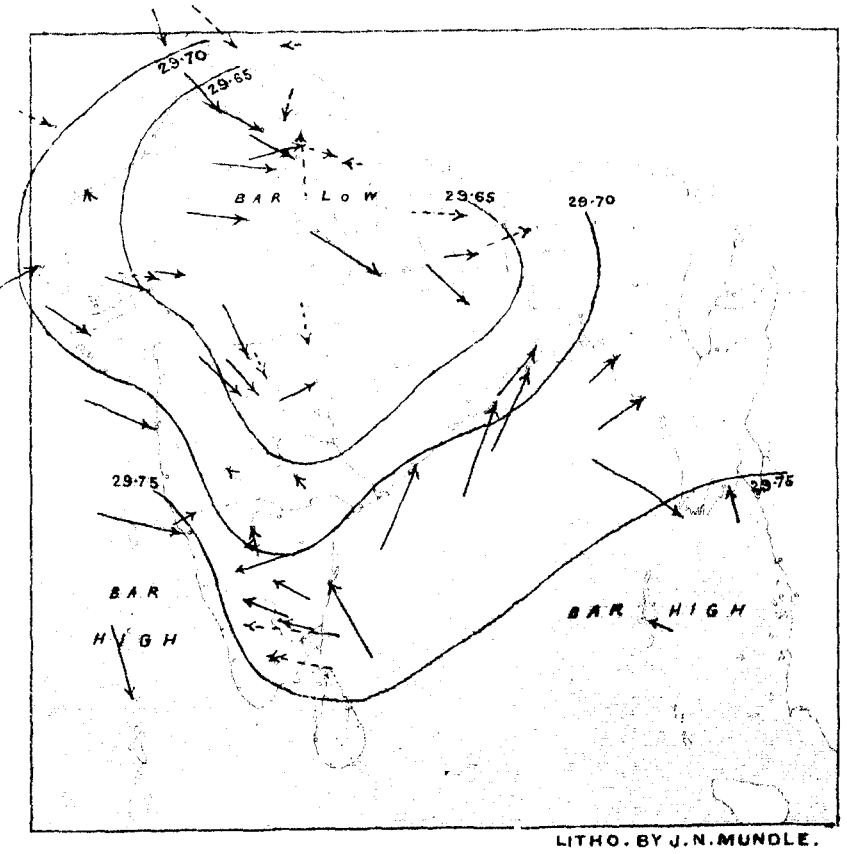


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF MAY 1903.



LITHO. BY J. N. MUNDLE.

Explanation.

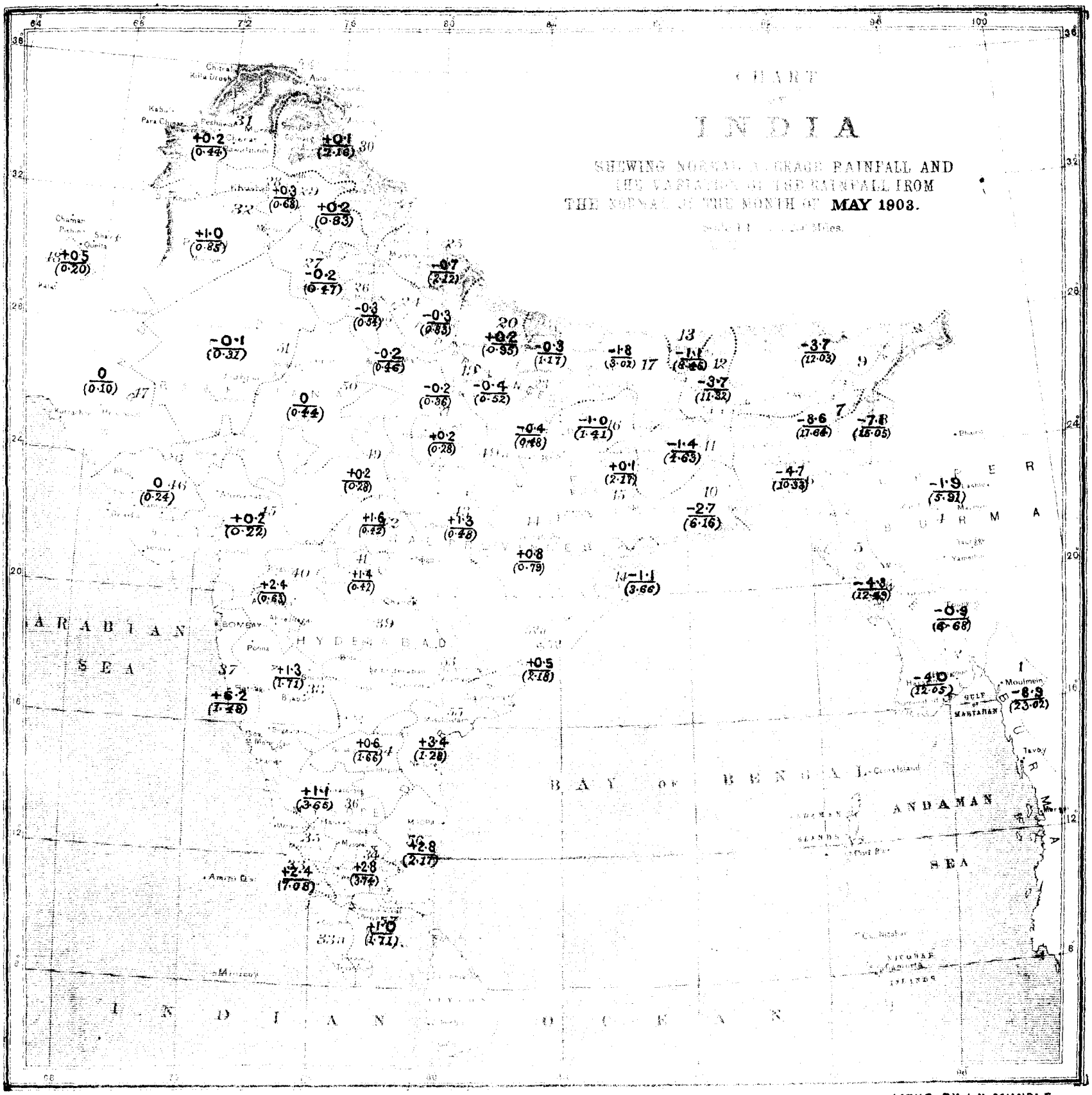
Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers: broken or dotted lines that it was in defect by amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient 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 $\frac{1}{8}$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.



Explanation

The Chart gives the variations of the rainfall of the [illegible] whole of India and Burma [illegible] Upper Burma, for which [illegible] number of years to [illegible] conditions are fairly [illegible] similar in character and the [illegible] been calculated, and the numbers given in the centre of each division usually [illegible] between the actual and normal mean rainfall of the district of the month. A plus sign [illegible] negative sign that it was in defect by the amounts indicated by the numbers to which [illegible] average rainfall is also given below in smaller figures enclosed within brackets so that the percentage [illegible] estimated. The name of the district can be at once ascertained by referring in the following list to the [illegible] 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. [illegible]
18. [illegible] Provinces, East
19. [illegible]
20. [illegible]
21. [illegible] Provinces, Central
22. [illegible] do. West
23. [illegible] East Submontane
24. [illegible] do., West do.
25. [illegible] Hills
26. [illegible] Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malacca
33a. Travancore
34. Madras, South Central
35. Coorg
36. Mysore
37. Konkan
38. [illegible]
39. Hyderabad, North
40. Khandesh
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. [illegible]
46. Kathiawar
47. Sind
48. Rajputana 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

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, JUNE, 1903.

INTRODUCTION.

THIS review of the weather in India during the month of June, 1903, 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 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, 1903.

The principal features of interest in the meteorology of the month of June were, (1) the delay in the setting-in of the south-west monsoon current along the west coast, (2) the appearance of the current and of a slight storm off the Malabar coast, and their subsequent extension northward along the coast on the 11th, and (3) the lightness of the monsoon on both sides of India throughout the month.

Between the 1st and the 6th there was practically no rain of any importance over the Peninsula and the central parts of the country. This absence of rain was accompanied with much higher temperatures than usual all over north-western, central and southern India. The area of greatest excess lay at first over the Deccan. This area then advanced northward and was shown on the 4th, in the extreme north-west where, at some stations, the excess of the mean temperature amounted to over 8°·0, but later the area was re-transferred southward and was again shown over Khandesh, part of the Central Provinces and the Deccan, where on the 5th and 6th the excess of the mean temperature varied between 6° and 8°. During these six days more or less rain fell daily over Burma and north-east India, and the mean temperature was very unsteady over those areas, changing from day to day according to the alterations in the extent and amount of the rainfall. The change in the distribution of temperature, relatively to the normal, over central and north-west India, was occasioned by a sudden burst of rain over the hill and submontane regions of northern India. Owing to this rainfall the mean temperature was reduced to below the normal over that area, and lower temperatures than usual were consequently shown over northern India from Bengal as far west as the Punjab. The following table shows for each day, from the 1st to the 6th, the two stations exhibiting the greatest deficiency in the mean temperature :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
1st June	Darbhanga	— 3·9
	Jessore	— 2·7
2nd „	Purnea	— 7·7
	Dinajpur	— 6·5
3rd „	Darbhanga	— 6·3
	Patna	— 5·9
4th „	Chaibassa	— 2·0
	Gorakhpur	— 2·0
5th „	Bahraich	— 9·0
	Patna	— 7·5
6th „	Gorakhpur	—10·0
	Umballa	— 8·2

The following gives comparative data for the 5th and 6th for the provinces of Bihar, the United Provinces and

the Punjab, and shows the extent of the change over that area:—

Province or Division.	Varation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	5th June.	6th June.
	°	°
Bihar	−4·4	−3·9
United Provinces of Agra and Oudh	−1·9	−2·1
Punjab	+0·6	−1·8

The mean temperature increased quickly over northern India between the 6th and the 7th, and from the latter date to the 13th the heat was generally greater than usual, more especially in the interior. During the greater part of this period there was no important rain over India, and along the west coast, where in normal years the monsoon should have been blowing strongly, the winds were light and variable and the weather fine. In consequence there was a large excess of temperature over the greater part of the country, but more especially in the inland districts, where maxima of over 11° above the normal were recorded at the following stations on the following dates:—

Date.	Stations.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
7th June	Poona	104·5	92·6	+11·9
8th „	Chanda	114·2	102·9	+11·3
9th „	Akola	114·5	101·3	+13·2
	Khandwa	114·2	101·1	+13·1
	Amraoti	113·5	101·1	+12·4
	Ahmednagar	103·9	92·2	+11·7
10th „	Nagpur	113·2	101·6	+11·6
	Akola	112·1	100·6	+11·5
	Mainpuri	114·7	103·4	+11·3
	Raipur	111·5	100·3	+11·2
	Amraoti	111·4	100·3	+11·1
11th „	Hyderabad (D)	106·9	94·9	+12·0
	Raipur	110·5	99·4	+11·1
12th „	Pachmarhi	99·7	88·3	+11·4
	Jubbulpore	111·0	99·6	+11·4
	Khandwa	110·2	99·0	+11·2
	Indore	107·3	96·2	+11·1
13th „	Khandwa	110·2	98·3	+11·9
	Pachmarhi	99·2	87·4	+11·8
	Hoshangabad	111·4	99·7	+11·7
	Amraoti	109·4	98·1	+11·3
	Indore	106·8	95·6	+11·2
	Sambhar	114·5	103·3	+11·2

On the 11th the thermometer rose at Jacobabad to 123°·5 which reading was 9°·9 above the normal and was the highest reading of the year. In the meantime important changes were in progress over Burma and north-east India and along the west coast. In Burma and north-east India rain began to increase, in amount and extent, on the 11th, and temperature fell to below the normal over Burma, Orissa, Assam, Bihar, Bengal, the United Provinces, and the north of the east coast, and remained unsteady and more or less lower than usual, over those areas until the 16th. The following gives comparative data of temperature for the above dates:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	11th June.	12th June.	13th June.	14th June.	15th June.	16th June.
	°	°	°	°	°	°
Burma	−0·8	−0·1	−0·1	+0·3	+0·8	+1·3
Assam	−1·7	+0·2	−0·2	−1·5	−1·9	−1·2
Bengal	+1·7	+0·9	+0·2	−1·5	+0·5	−0·5
Orissa	−1·8	−1·6	+0·1	−0·8	−0·3	+3·4
Bihar	+0·4	−1·8	−1·4	−3·3	−1·0	−1·6
United Provinces	+3·7	+4·4	+1·9	−2·1	+0·1	+0·4
Madras Coast	+1·2	−1·4	−1·7	−0·5	+1·7	+1·9

On the morning of the 11th the weather became unsettled over Malabar and Ceylon, where rain was falling, the wind increasing, and the sea rising. On the following morning, the 12th, a slight cyclonic storm was shown off the north Malabar coast and the monsoon had broken at Colombo and in Travancore where heavy rain had fallen. During the next four days, the 13th to the 16th, this storm in the Arabian Sea formed the principal feature in the weather conditions. It advanced northward and north-westward over the east and north of the Arabian Sea and was followed by an advance of the monsoon current, heavy monsoon rainfall reaching Bombay on the 14th, or about ten days later than the normal date. The following are the principal falls of rain, exceeding 4·50" in 24 hours, recorded over the west of the Peninsula during this advance of the monsoon:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Malabar	Calicut	13th June	6·49
Travancore	Karunagapally	„ „	6·07
Malabar	Manjeri	„ „	5·86
	Tellicherry	„ „	5·56
	Nilambur	„ „	5·15
Ratnagiri	Vengurla	„ „	4·92
	Malvan	14th „	4·89

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Savantvadi	Kudal	14th June	4·63
North Kanara	Karwar	15th „	4·86
Ratnagiri	Dapoli	„ „	4·71
Godavari	Narasapur	16th „	5·25
		17th „	6·37
Kistna	Pandraka	„ „	5·14

The storm, which is fully described in the section on barometric depressions, disappeared over the north of the Arabian Sea during the 17th. On the 17th and 18th there occurred heavy showers of rain over the Gangetic plain and over Madras, and on these two days the mean temperature of those areas was reduced to 5° or more below 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.
		°
17th June	Benares	—12·6
	Gaya	— 8·7
	Bahraich	— 7·6
	Gorakhpur	— 7·3
	Patna	— 5·5
	Cuddalore	—12·1
	Madras	—10·5
	Masulipatam	—10·1
	Nellore	— 8·8
	Cocanada	— 7·4
	Negapatam	— 5·7
	Cuddapah	— 5·3
	Trichinopoly	— 5·1
18th „	Benares	— 9·2
	Gorakhpur	— 5·4
	Mymensingh	— 5·1
	Nellore	—12·5
	Masulipatam	—10·9
	Cuddapah	—10·0
	Madras	— 8·0
	Cuddalore	— 6·5
	Cocanada	— 6·1

The day temperature was principally affected by this rainfall, and was more than 12° below the normal at the following places on these days :—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
17th June	Benares	81·1	100·2	—19·1
	Cuddalore	80·1	98·1	—18·0
	Madras	82·0	98·3	—16·3
	Masulipatam	82·5	96·9	—14·4
	Nellore	87·8	101·1	—13·3
18th „	Masulipatam	80·0	96·7	—16·7
	Nellore	84·3	101·0	—16·7
	Benares	83·1	99·4	—16·3
	Cuddapah	85·7	99·4	—13·7
	Madras	86·0	98·3	—12·3

Rain ceased more or less along the west coast on the 20th, and from that day to the 25th excessively hot weather was experienced over central and north-west India where, in the absence of rainfall and of damp winds, ordinary hot weather conditions prevailed. The following gives comparative data of maximum temperature for those stations at which the day temperature was more than 12° above the normal during these six days :—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
22nd June	Hoshangabad	106·4	93·2	+ 13·2
23rd „	Sutna	108·6	93·9	+ 14·7
	Nowgong	111·0	96·9	+ 14·1
	Dehra Dun	104·5	90·7	+ 13·8
	Jhansi	111·8	98·6	+ 13·2
24th „	Sutna	109·1	93·4	+ 15·7
	Nowgong	112·0	96·4	+ 15·6
	Jhansi	112·9	98·1	+ 14·8
	Hoshangabad	106·4	92·1	+ 14·3
	Saugor	104·9	90·8	+ 14·1
	Dehra Dun	104·0	90·3	+ 13·7
	Sialkot	117·0	103·7	+ 13·3
	Mainpuri	110·2	96·9	+ 13·3
	Pachmarhi	93·2	80·1	+ 13·1
25th „	Jubbulpore	107·0	90·2	+ 16·8
	Saugor	105·9	90·2	+ 15·7
	Nowgong	111·5	95·9	+ 15·6
	Sutna	108·1	92·9	+ 15·2
	Hoshangabad	105·9	91·6	+ 14·3
	Pachmarhi	93·2	79·6	+ 13·6

During this period showers fell daily, but not heavily, over Burma, Bengal and Assam, and the mean temperature was generally lower than usual over those provinces. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	20th June.	21st June.	22nd June.	23rd June.	24th June.	25th June.
	°	°	°	°	°	°
Burma	—0·7	—1·4	—1·4	+0·2	+1·1	+0·9
Assam	—3·0	—3·7	—2·3	—3·4	+0·3	+1·9
Bengal	—2·3	—1·8	+0·9	+1·0	+0·2	+1·9
Orissa	+0·7	—2·4	+4·6	+6·8	+3·1	—3·2
Bihar	—2·6	—1·0	+0·6	+1·8	—0·4	+3·1

On the 25th, at the head of the Bay, there appeared a small storm which subsequently advanced into Chota Nagpur and Bihar, and occasioned rain over the Central Provinces, the east coast north, and Bengal .In consequence temperature fell decidedly over those areas and was lower than usual from the 25th to the 28th. The following gives comparative data:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	25th June.	26th June.	27th June.	28th June.
	°	°	°	°
Assam	+1·9	+1·0	—1·4	—2·7
Bengal	+1·9	+0·1	—0·8	—0·9
Orissa	—3·2	—0·1	+0·2	—1·4
Bihar	+3·1	+2·1	—1·4	—3·6
Chota Nagpur	+2·6	—0·2	—2·0	—0·8
Central Provinces	+5·2	+1·5	—1·4	+1·2
Berar	+3·2	+4·5	—2·7	+4·2

On the 25th rain fell over Kashmir and the submontane districts of north-west India, and temperature was lower than usual over Kashmir, the North-West Frontier Province, and part of the Punjab from that date till the close of the month. The following gives daily temperature variation data for the stations in these areas from the 25th to the 30th:—

Hill or Plain Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	25th June.	26th June.	27th June.	28th June.	29th June.	30th June.
	°	°	°	°	°	°
Leh	—2·2	—9·5	—13·2	—9·9	—8·8	—12·3
Srinagar	—0·8	—9·0	— 7·6	—4·4	—2·7	— 4·6
Murree	—5·1	—2·6	— 5·1	—1·6	—0·2	— 8·3
Peshawar	—1·7	—5·0	— 0·7	—2·6	—0·9	— 4·8
Dera Ismail Khan	+2·3	+2·4	+ 0·9	+1·0	—0·7	— 6·9
Rawalpindi	+3·2	+1·5	+ 0·4	+1·4	+ 1·4	— 3·5
Sialkot	+7·7	+0·6	+ 4·9	+3·0	+6·0	+ 1·5
Lahore	+7·0	—0·2	+ 0·6	+1·3	+3·5	— 2·3
Khushab	+1·0	+1·2	?	+1·2	+ 2·4	— 5·1
Mooltan	+1·5	+4·1	+ 2·7	+1·8	—2·1	— 3·2
Montgomery	+1·2	+3·5	— 1·7	—2·0	...	—11·7?

Along the west coast during this period the winds were mainly southerly, so that though rain was received almost daily at the west coast ports, very little extended inland, and the mean temperature over the south Deccan and north-west India was steadily excessive.

Pressure:—The mean pressure of the Indian land area was above the normal over all parts of the country except the south of the Peninsula and Ceylon. The excess was greatest within a band which extended from north Bombay eastward across the head of the Peninsula and the north of the Bay to Burma. Relatively to the general condition, pressure was in defect over Ceylon, the south of the Peninsula, the Arakan coast, central Bengal, the Gangetic plain, the Punjab and the North-West Frontier Province, and was in excess over the remainder of the country. The anomalies were generally small and unimportant, but there was a moderate excess shown over north Bombay (Ahmedabad +0·032″) and a moderate deficiency over the Madras and Malabar coasts (Cochin —0·039″) and Ceylon (Colombo—0·037″). At all the hill stations the pressure, on the mean of the month, exceeded the normal and generally by larger amounts than at the stations on the neighbouring plains. The vertical pressure anomalies were hence, except in the Sikkim area, positive —more particularly in the north-west.

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 June, 1903.	Pressure anomaly, June, 1903.
	″	″
Burma Coast and Bay Islands	+·019	+·004
Burma Inland	+·026	+·011
Assam	+·017	+·002
Bengal and Orissa	+·018	+·003
Gangetic Plain and Chota Nagpur	+·013	—·002
Upper Sub-Himalayas	+·004	—·011
Indus Valley and North-West Rajputana	+·022	+·007
East Rajputana, Central India and Gujarat	+·029	+·014
Deccan	+·021	+·006
West Coast	—·002	—·017
South India	+·003	—·012

Temperature:—There was considerable delay in the complete establishment of monsoon rainfall over India, and hence a considerable excess of temperature over the greater part of the country.

The mean maximum or day temperature of the month was excessive except over part of the Madras coast, over parts of north-east India, of inland Burma and of the mid-west coast where the mean maximum temperature was in trifling to slight defect. Over the whole of the remainder of India the mean day temperature was in excess of the normal. The amount of this excess increased from the coasts inland, and was as much as 9°·2 at Hoshangabad, 8°·7 at Sutna, 7°·9 at Nowgong and 7°·4 at Jhansi. The absolute maximum temperature recorded during the month was 123°·5 at Jacobabad on the 11th.

The mean minimum temperature of the month exhibited very similar variations. There were trifling deficiencies at several stations in the south of the Peninsula and a general slight deficiency over the inland parts of Burma and over a large portion of north-east India. Elsewhere the mean night temperature was everywhere in excess, more particularly over the central districts where the variations amounted to + 5°·6 at Ajmer, + 5°·4 at Jhansi, +5°·0 at Nowgong and + 4°·8 at Sutna.

As the distribution of the variations of the mean maximum and mean minimum temperatures of the month was similar, so also was that of the mean temperature. The heat was slightly less than usual over the Madras coast, part of north-east India, and part of inland Burma, but was normal or excessive elsewhere. The excess was considerable to large over the inland parts of India, and amounted to 6°·6 at Hoshangabad, 6°·8 at Sutna, 6°·5 at Nowgong and 6°·4 at Jhansi.

There was a remarkable deficiency of temperature, both by day and night, at the hill stations in the Kashmir Himalayas, while, on the contrary, the mean temperature, both by day and night, was in excess of the normal at the hill stations in the Kumaun Himalayas.

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

Meteorological Province.	Variation of actual from normal of		
	Mean maximum temperature, June 1903.	Mean minimum temperature, June 1903.	Mean daily temperature, June 1903.
	°	°	°
Burma Coast and Bay Islands	+0·4	+0·4	+0·4
Burma, Inland	−0·7	−0·2	−0·5
Assam	−1·0	−0·6	−0·8
Bengal and Orissa	+0·6	−0·6	0
Gangetic Plain and Chota Nagpur	+3·1	+1·3	+2·2
Upper Sub-Himalayas	+4·4	+2·7	+3·6
Indus Valley and North-West Rajputana.	+2·8	+1·8	+2·3
East Rajputana, Central India and Gujarat.	+4·7	+2·8	+3·8
Deccan	+5·6	+2·2	+3·9
West Coast	+0·6	+0·7	+0·6
South India	+0·7	+0·4	+0·6

Winds:—Approximately normal winds prevailed over the Bay area during June. On the Bengal coasts the force generally exceeded the normal, but the winds did not extend well inland, and over the Gangetic plain and upper India, the wind was, on the whole, lighter than usual, though the steadiness was about the average. The monsoon was delayed along the west coast, and the winds at Karwar and Bombay, though blowing from about the normal directions, were lighter and less steady than usual. In the Deccan there was somewhat more northing and in south India somewhat more westing than usual in the wind's direction. In the south-east trades region the winds were approximately normal, on the mean of the month, except at Zanzibar, where the wind blew from a few degrees to the west of south instead of from a few degrees to the east of south.

Humidity:—One of the most marked features of the meteorology of the month was the dryness of the air over the central parts of the country and portions of north-west India, a consequence of the delay in the monsoon and the failure of the currents to penetrate inland. The mean humidity was 20 below the normal over part of Central India and along the foot of the north-west Himalayas. On the other hand, there was a trifling excess of humidity over the western desert and along the Konkan coast, and a slight excess over the east of the Peninsula, the Burma coast and in Assam and north Bengal. The greatest excess (+ 11·7) was reported from Cocanada.

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, June 1903.	Variation of actual from normal, June 1903.	Average actual, June 1903.	Variation of actual from normal, June 1903.
	"	"	%	
Burma Coast and Bay Islands.	·912	+·010	86	− 1
Bengal and Orissa	·950	−·004	80	− 4
Gangetic Plain and Chota Nagpur.	·775	−·016	62	− 4
Upper Sub-Himalayas	·552	−·102	38	−13
Indus Valley and North-West Rajputana.	·692	−·048	50	− 7
East Rajputana, Central India and Gujarat.	·600	−·100	40	−12
Deccan	·666	−·019	57	− 7
West Coast	·908	+·021	83	+ 1
South India	·719	+·045	71	+ 1

Cloud:—The deficiency in the mean cloud amount over India and Burma was as noticeable as the deficiency in the mean relative humidity. On the mean of the month, cloud was in slight to trifling excess over portions of the Peninsula including parts of the Konkan coast, of the north Deccan and of south India, and in slight excess over the Brahmaputra valley, central Bengal and north Bihar. The variations from the normal were largest at Mymensingh (+ 1·5),

Bogra (+1·6), Darbhanga (+1·1), Secunderabad (+1·4), and Mormugao (+1·2). In all other parts of the country the mean cloud amount was below the average. The deficiency was considerable at the head of the Bay and considerable to large over north-west and Central India, the variations amounting to —3·3 at Saugor, to —3·1 at Hoshangabad to—3·7 at Roorkee, to—4·0 at Pachpadra and to —3·5 at Deesa. At all the hill stations the sky was clearer than usual. In the south-east trades region, the sky was, on the mean of the month, more cloudy than the avearage.

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

Meteorological Province.	Mean cloud amount. Average actual, June 1903.	Mean cloud amount. Variation of actual from normal, June 1903.
Burma Coast and Bay Islands	8·1	+0·1
Bengal and Orissa	7·1	—0·3
Gangetic Plain and Chota Nagpur	5·1	—0·5
Upper Sub-Himalayas	2·5	—1·0
Indus Valley and North-West Rajputana	1·6	—0·8
East Rajputana, Central India and Gujarat	2·4	—2·4
Deccan	6·2	—0·6
West Coast	6·3	—1·2
South India	7·0	—0·1

Rainfall :—The monsoon was about a week later than usual in arriving on the west coast, and the current was weak and somewhat interrupted throughout the month. On the 11th heavy rain commenced in Malabar, and on the following day the monsoon broke at Colombo and Cochin. Rain then advanced up the west coast, reaching Bombay on the 15th. The monsoon fell off on the 20th, 21st and 22nd, but on the 23rd another temporary advance occurred. On the 26th and 27th the monsoon again strengthened, but from the 28th to the close of the month the current was light. The monsoon rainfall did not extend properly inland throughout the month, but on the 17th and 18th and again on the 26th rain, in small or moderate amounts, was carried through the Central Provinces and Central India into north-west India. Very showery weather prevailed over north-east India during the first half of the month and the Bay monsoon set in on the 16th, heavy rain falling over Bengal on the 18th. Rain then partially ceased, but on the 24th a small local storm appeared at the head of the Bay and general rain again fell over north-east India. As a result of these conditions the month's rainfall was generally excessive over north-east India, while the whole of the area served by the Arabian Sea current reported more or less deficient rain.

The following table gives rainfall data of the eleven meteorological provinces of the empire :—

Meteorological Province.	Rainfall. Mean actual for June 1903.	Rainfall. Mean normal for June	Rainfall. Variation of actual from normal, June 1903.	Rainfall. Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	24·80	27·58	—2·79	—10
Burma, Inland	6·84	6·65	+0·19	+3
Assam	22·07	16·81	+5·26	+31
Bengal and Orissa	14·96	13·55	+1·41	+10
Gangetic Plain and Chota Nagpur	4·84	7·36	—2·52	—34
Upper Sub-Himalayas	0·46	4·25	—3·75 *	—88
Indus Valley and North-West Rajputana.	0·25	0·93	—0·68	—73
East Rajputana, Central India and Gujarat.	0·92	4·67	—3·69 *	—79
Deccan	3·66	6·46	—2·83 *	—44
West Coast	25·05	27·94	—2·89	—10
South India	3·15	2·71	+0·44	+16

* 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.

General remarks for the Indian monsoon area :—The barometric changes over western Siberia during June were large but very irregular, and that there is any relation between these changes and the changes occurring over Kashgaria and further Kashmir is exceedingly doubtful. On the 1st there occurred a barometric rise which was common to nearly the whole region, but from that date on to the 8th the barometric changes were very irregular in different parts of the region. On the 9th and 10th there occurred a barometric fall at Barnaul, Omsk, and Tomsk. At the same time Kashgar and Gilgit reported a brisk fall on the 9th and a brisk recovery on the 10th, while at Chitral pressure was steady. A general fall occurred on the 11th and a general recovery on the 12th, after which the pressure changes were large and very irregular until the 25th, when a considerable rise took place, which was, so far as can be judged, general over the whole of Siberia, Asiatic Turkey, Persia, Arabia, India and the monsoon area. After the 25th the available information was very fragmentary, but apparently the changes were again irregular.

The information from the Caspian area was so scanty as to be practically useless for the purposes of comparison with the changes taking place over Asiatic Turkey and Persia. Apparently there occurred a barometric decrease over the Caspian area on the 1st, and at Baghdad and Bushire there was also a slight decrease, but the fall did not extend over the greater part of Persia and Arabia where the barometer was rising on this day. On the 9th and 10th there was apparently a slight fall over the Caspian region and this fall seemingly extended over Mesopotamia, Persia, and Arabia. On the 13th and 14th the Caspian observations exhibited a slight oscillation, the barometer falling on the former and recovering on the latter date, while over Persia and Arabia there was a fairly general rise on the 13th and a fall on the 14th. After the 14th the only day on which the changes were more or less general throughout the region, was the 25th, when, as stated above,

there occurred a rise throughout the whole area. In Egypt the mean barometric pressure of the month was 0·051″ above the normal. The weather was undisturbed and the depressions of the Mediterranean area instead of, as in the winter months, passing eastward along the sea and thence into the Levant, formed to the west of Italy and thence passed northward into Europe, leaving the east Mediterranean region unaffected. There was thus no passage of storms from the European or Mediterranean region into Asia Minor, and the barometric information from Baghdad and the Persian area confirms this view. Pressure was in excess at Baghdad and at the Persian stations, and there was no rain during the month at Baghdad, Bussrah, Bahrein, Teheran, Ispahan, Meshed, Bushire or Jask, so that the quiet weather, which prevailed over Egypt, extended over the whole of this large area. Rain occurred during the last week of the month over Afghanistan, and a very cool period was experienced over that area, but this relative coolness did not apparently extend into Persia or Asiatic Turkey, as no depression of temperature was recorded at the stations in that area. Over the Indian seas and the Indian Ocean the weather was apparently quiet, but pressure remained very low over the trades region where Zanzibar and the Seychelles reported a mean depression of the barometer amounting to 0·044″. A telegram from Zomba states that the rainfall in Nyassaland between January and May was 23″ below the normal, and the rainfall at Mombassa during June was apparently less than usual. The following table shows the variations of pressure from the normal for certain selected stations in the monsoon area:—

PRESSURE VARIATION FROM NORMAL OF

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	″	″	″	″	″	″	″	″	″
1	+·024	—·022	+·056	+·085	—·046	—·067	+·063	+·019	+·014
2	+·033	+·002	+·006	+·073	—·034	—·077	+·063	—·001	+·008
3	+·025	+·010	+·046	+·055	—·036	—·062	+·070	+·014	+·015
4	+·033	+·005	+·064	+·099	—·035	—·011	+·085	+·035	+·027
5	+·028	+·012	+·002	+·086	—·034	—·029	+·058	—·015	+·014
6	—·033	—·060	—·054	+·052	—·057	—·068	+·009	—·042	—·030
7	+·002	+·033	+·008	+·063	—·060	—·044	+·042	—·033	+·001
8	+·023	—·023	+·076	+·065	—·036	—·036	+·052	—·017	+·013
9	+·008	+·012	+·018	+·027	—·045	—·006	+·018	—·016	+·002
10	+·029	—·014	+·016	—·016	—·048	—·008	+·014	—·043	—·009
11	+·001	—·103	—·039	+·043	—·069	—·010	—·039	—·093	—·039
12	+·080	—·099	—·037	—·018	—·023	+·012	—·001	—·059	—·018
13	+·036	—·057	+·018	+·025	—·017	—·041	—·073	+·012	—·012
14	—·022	—·057	+·013	—·017	—·019	—·018	—·067	+·014	—·022
15	—·005	—·069	—·028	—·036	—·030	—·028	—·050	+·027	—·027
16	—·025	—·044	+·020	+·018	—·013	+·014	+·004	+·037	+·001

PRESSURE VARIATION FROM NORMAL OF

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	″	″	″	″	″	″	″	″	″
17	—·071	—·038	+·037	—·001	—·030	+·003	+·046	+·064	+·001
18	—·022	—·020	+·057	—·020	—·055	—·013	+·028	+·044	0
19	—·005	+·076	+·092	—·002	—·073	—·020	+·043	—·001	+·014
20	+·037	+·054	+·069	—·012	—·049	—·061	+·031	—·005	+·008
21	+·045	—·022	+·060	—·007	—·044	—·057	+·035	—·019	—·001
22	+·016	—·034	+·036	+·030	—·047	—·060	+·036	—·022	—·006
23	—·009	—·105	+·025	—·011	—·051	—·077	—·016	—·040	—·036
24	+·002	+·078	+·078	—·021	—·064	—·040	+·003	—·029	+·001
25	+·118	+·053	+·341	+·034	—·019	—·016	+·017	—·059	+·031
26	+·046	—·054	+·003	—·012	—·077	—·063	—·045	—·097	—·037
27	—·013	—·126	—·059	—·034	—·073	—·081	—·066	—·088	—·058
28	+·001	—·120	...	—·025	—·068	—·069	—·028	—·027	—·048
29	+·030	—·049	...	—·043	—·020	—·033	+·037	+·015	—·009
30	+·080	—·030	+·114	+·036	—·019	—·034	+·067	+·016	+·016

The preceding data show that pressure was generally in excess of the normal, except in the south-east trades region, from the 1st to the 9th. It then fell and remained about normal until the 23rd. On the 25th an increase of pressure, which was apparently common to the whole monsoon area, took place, but on the 26th a fresh decrease occurred and continued during the following day. From the 28th to the end of the month a slight rise took place.

The principal feature in the meteorological conditions of the month of June, and indeed of the whole year, is the setting-in of the south-west monsoon. The conditions influencing the current on its arrival in India are shown generally in the charts of mean barometric pressure, winds, and temperature over the Indian area, but for the sea area much less information is available and the influential conditions are less well known. In the following table certain information is given of the abnormal conditions of pressure and winds over the sea area which may be of assistance in unravelling the problem:—

Day of month (June).	Diurnal variation of pressure gradient from normal between Mauritius and Seychelles.	Diurnal variation of pressure gradient from normal between Seychelles and Bombay.	Easterly deflection of wind at Mauritius.	Easterly deflection of wind at Seychelles.	Variation of hourly wind velocity from normal at Mauritius.	Variation of daily wind velocity from normal, at Seychelles.	Mean variation of rain over India.
	″	″	°	°	Miles.	Miles.	Inch.
1 . .	+·075	—·212	+21	+ 1	—2·2	— 46	—0·08
2 . .	+·052	—·213	+15	...	—2·7	— 88	—0·07
3 . .	+·025	—·206	+10	...	—2·2	—101	—0·08

Day of month (June).	Diurnal variation of pressure gradient from normal between Mauritius and Seychelles.	Diurnal variation of pressure gradient from normal between Seychelles and Bombay.	Easterly deflection of wind at Mauritius.	Easterly deflection of wind at Seychelles.	Variation of hourly wind velocity from normal at Mauritius.	Variation of daily wind velocity from normal at Seychelles.	Mean variation of rain over India.
	"	"	°	°	Miles.	Miles.	Inch.
4 . .	+·080	—·192	+17	...	+5·5	— 47	—0·11
5 . .	+·074	—·119	+17	+69	+4·7	—157	—0·02
6 . .	+·073	—·132	+17	+24	—1·7	+ 24	—0·13
7 . .	+·027	—·118	+13	+ 1	—2·4	+ 91	—0·17
8 . .	+·013	—·106	+ 1	+ 1	—5·0	+ 18	—0·15
9 . .	—·034	—·065	—22	+24	—3·2	+ 36	—0·10
10 . .	—·049	—·035	0	—21	+1·2	— 60	—0·13
11 . .	—·047	+·012	+ 6	—21	+0·6	—132	—0·04
12 . .	—·037	+·021	+21	—21	+4·6	— 55	—0·11
13 . .	—·029	0	+30	—21	—5·1	+150	+0·03
14 . .	—·096	+·004	...	—21	—6·9	+ 19	—0·09
15 . .	—·048	—·093	—34	+24	+1·4	— 3	—0·03
16 . .	+·013	—·017	— 8	—21	+2·4	+ 65	—0·04
17 . .	+·041	—·044	— 1	+24	—2·4	+ 84	+0·07
18 . .	+·011	—·023	+10	+24	+0·1	— 2	+0·14
19 . .	—·004	—·053	+17	+24	—3·5	— 91	+0·14
20 . .	+·033	—·072	—20	—21	—3·3	— 66	—0·04
21 . .	+·046	—·057	+ 8	+24	+3·7	+ 94	—0·13
22 . .	+·014	—·043	+19	+24	+3·5	— 20	—0·06
23 . .	—·035	—·031	+27	+24	—4·4	— 58	—0·09
24 . .	—·045	—·017	—41	+24	—6·5	+ 39	—0·06
25 . .	+·010	+·019	+15	+24	+2·7	+ 15	—0·04
26 . .	+·060	+·023	+10	+24	+8·3	+ 34	+0·05
27 . .	+·036	+·004	+16	—21	+4·5	+ 8	+0·18
28 . .	+·025	+·004	+ 7	+24	+2·3	+ 11	+0·10
29 . .	—·022	—·035	+16	+24	+0·2	+ 55	—0·08
30 . .	—·040	—·036	+31	—21	—2·5	— 95	—0·17

With the setting-in of the monsoon in June the pressure and winds over the whole monsoon area become one continuous system, pressure decreasing from a high pressure area in the extreme south to a low pressure area over north-west India, while the winds are linked up into a continuous circulation extending from the extreme south to the extreme north of the monsoon area. The data given in the preceding table show the variations in the daily rainfall which occurred over India, and the changes in the pressure and winds over the sea areas, and permit of a comparison which should show if any relationship exists between the different elements. The Indian rainfall was considerably below the normal from the 1st to the 16th. It then increased and a burst of heavier rain occurred between the 17th and 19th. Rainfall quickly decreased after the latter date, and from the 20th to the 25th was below the normal. Another burst of heavy rain occurred between the 26th and 28th after which the fall was light till the end of the month. The pressure variations show that large departures from the normal conditions prevailed throughout a considerable portion of the month. From the 1st to the 8th pressure gradients were steeper than usual in the south-east trades region, but, on the other hand, were much less than usual over the Arabian Sea. During this time rain was very light over India. From the 9th to the 15th gradients were less than usual in the equatorial belt while they were fairly normal over the Arabian Sea, and during this period the rains remained light over India. Between the 16th and the 28th pressure gradients were again generally excessive over the south-east trades region, and during this period there occurred two bursts of heavy rain over India, during the first of which, *viz.*, between the 17th and 19th, the gradient over the Arabian Sea was less, and during the second, *viz.*, between the 26th and 28th, it was greater than usual. It is difficult to trace any connexion between the deflection of the wind at Mauritius and the Seychelles and the rainfall over India, but it may be noted that on both occasions of an increase of rain over India the wind was generally more easterly than the normal at both the equatorial stations. The only general conclusion which can be drawn from a consideration of the data in the preceding table is that when *all* the elements are in excess, *i.e.*, when the pressure gradient is above the normal over both the equatorial belt and the Arabian Sea, when the wind is unusually easterly at both Mauritius and the Seychelles, and when the force of the wind is excessive at both the south-east trades stations there is a tendency for this condition to be followed by or accompanied with heavier rain over India.

Magnetic and Solar disturbances.

The following telegraphic notices were issued on the following dates by the Director of the Kodaikanal Observatory, regarding magnetic and solar disturbances during the month of June:—

June 2nd.—Large disturbance in magnetic force commenced at 19 hours on June 1st and still continues.

June 4th.—Very large disturbance in magnetic force from 6 hours to 16 hours on June 2nd, and another small one lasted for one hour from midnight on same date.

" *20th.*—After long period of comparative quiescence new outbreak of spots. Three extensive groups, but individual spots are not large.

Weather prevents observations of spectra and prominences.

June 22nd.—First fine day this month. Considerable spot activity, but no important faculæ or prominences. Spot spectra unchanged from normal character of last twelve months.

In the following table is given a detailed account of the solar and magnetic disturbances recorded at this observatory.

SOLAR PHYSICS OBSERVATORY, KODAIKANAL.

Spots, Faculæ and Magnetic disturbances—June, 1903.

Day of month.	Spots. Large.	Spots. Small.	Faculæ (groups).	Magnetic disturbances.
1	...	...	1	Small.
2	...	...	1	Moderate; Small.
3	...	...	1	Small.
4	...	...	...	Small.
5	...	2	...	Small.
6	...	2	1	...
7	...	1	1	...
8	...	2	1	...
9	...	1	1	...
10	...	2	1	...
11	...	2	1	Small.
12	Sun not visible		...	...
13	...	...	...	...
14	...	7	2	...
15	...	2	3	...
16	Sun not visible		...	Small.
17	...	3	1	Moderate.
18	Sun not visible		...	Small.
19	...	8	1	Small.
20	...	15	...	Small.
21	2	8	...	Small.
22	2	11	...	Moderate. Small.
23	3	3	...	...
24	3	4	...	Small.
25	Sun not visible		...	...
26	1	2	1	...
27	...	2	1	...
28	...	1	1	Moderate.
29	...	1	1	Moderate; Small. Moderate.
30	...	...	1	Moderate.

The following note on the magnetic record at Colaba has been received from the Director of that observatory.

The magnetic traces for the month do not show any unusually large disturbances. There were 11 calm days, 14 days of small, 4 days, namely, 2nd, 17th, 29th and 30th, of moderate, disturbances, and 1 day of great disturbance, the last being recorded on the 1st.

Small period movements, 9 serrated movements (the oscillations continuing for sometime) and 26 abrupt movements (appearing as if suddenly damped in their propagation) have been noticed.

The selected quiet days of the month were the 7th, 10th, 13th, 15th and 27th.

The means of the observed absolute values of the several elements for the month under review and for the previous five months of the present year were as follows :—

Elements.	January, 1903.	February, 1903.	March, 1903.
Declination	0° 18′ 17″ E	0° 8′ 1″ E	0° 17′ 58″ E
Horizontal Force	C. G. S. units 0·37430.	C. G. S. units 0·37436.	C. G. S. units 0·37442.
Dip	21° 40′·7	21° 40′·3	21° 41′·3
Elements.	**April, 1903.**	**May, 1903.**	**June, 1903.**
Declination	0° 16′ 29″ E	0° 15′ 8″ E	0° 16′ 0″ E
Horizontal Force	C. G. S. units 0·37431.	C. G. S. units 0·37425.	C. G. S. units 0·37437.
Dip	21° 40′·7	21° 41′·0	21° 42′·0

The following table gives the ranges of the mean monthly diurnal inequalities of the Horizontal Force and Declination; and also Σ ranges or sums without regard to sign of all 24 ordinates of the inequalities, from January to June, 1903:—

Month.	Horizontal Force. Range.	Horizontal Force. Σ Range.	Declination. Range in arc.	Declination. Σ Range in arc.
	C G S	C G S		
January, 1903	·000275	·001646	1′·37	6′·40
February „	308	2038	1′·19	4′·82
March „	460	2952	2′·12	7′·59
April „	491	3232	3′·45	13′·38
May „	397	2797	3′·91	15′·53
June „	411	2710	4′·64	19′·62

There were two small seismic disturbances—the first on the 2nd at about 19 hours, and the second on the 8th at about 11 hours, their amplitudes being 0·8 m.m. and 0·4 m.m., respectively.

The following gives the dates of the magnetic disturbances at Colaba during June, 1903.

June, 1903.		June, 1903.		June, 1903.	
1	G	11	S	21	S
2	M	12	C	22	S
3	S	13	C	23	S
4	S	14	S	24	S
5	C	15	C	25	C
6	C	16	S	26	C
7	C	17	M	27	C
8	C	18	S	28	S
9	S	19	S	29	M
10	C	20	S	30	M

The magnitudes of the disturbances are determined from Horizontal Force traces. C.=calm ; S.=small ; M.=moderate ; G.=great ; V. G.=very great. Days are reckoned from midnight to midnight.

The Director of the Royal Alfred Observatory, Mauritius, reports the following disturbances in the Horizontal Force during the month :—From 13 hours on the 1st to 24 hours on the 2nd ; from 20 hours on the 16th to 3 hours on the 17th ; and from 12 hours on the 28th to 24 hours on the 30th.

Groups of sunspots were observed on the 16th, 18th and from the 20th to the 28th, while individual spots were recorded on the 11th, 12th, 13th, 14th, 15th and from the 22nd to 24th. Faculæ were observed on the 1st and from the 13th to the 29th, with the exception of the 17th and 19th, when the weather was cloudy.

Atmospheric Pressure.

The mean 8 A.M. atmospheric pressure of the Indian land area was above the normal in all places, except the south of the Peninsula and Ceylon. The variations were generally moderate or small, and for the whole country the mean excess was 0·015″.

Pressure, on the mean of the month, was highest in Ceylon (Colombo 29·803″) and south Tenasserim (Mergui 29·830″), and was lowest over the western desert, where Mooltan had a mean pressure of 29·460″. The general distribution of pressure was very nearly normal, but the range was slightly greater than usual. The most important departure from the normal conditions was shown over the central parts of the Indian area, a ridge of relatively high pressure extending from north Bombay eastward across the head of the Peninsula and the north of the Bay to Burma. The general excess of pressure over northern and central India was slightly more marked in the atmosphere at the level of the hill stations than on the neighbouring plains. The excess extended westward over Afghanistan and Persia, where pressure was slightly higher than usual, and apparently reached as far west as Egypt, where, on the mean of the four principal stations, the barometer, on the mean of the month, was 0·051″ above the average. The excess likewise extended south-westward over Arabia, as both at Aden (+·018″) and Perim (+·011″) the barometer read higher than usual. On the other hand, the deficiency in pressure, shown over the south of the Peninsula and Ceylon, appears to have been a common feature of the pressure conditions over the south of the monsoon area, and the amount of the deficiency appears to have increased southward, as at the Seychelles (—·044″), Zanzibar (—·043″) and Mauritius (—·037″) the negative variations were greater than over the south of the Indian area.

Over the Indian land area the pressure, relatively to the general condition (+·015″), was in local defect over the south of the Peninsula, Ceylon, the Arakan coast, central Bengal, the Gangetic plain, the North-West Frontier Province and the Punjab. The anomalies in these areas were generally slight or small, but amounted to 0·020″ or more at the stations for which comparative data are given below :—

Province or Division.	Station.	Variation from normal of mean 8 A.M. pressure of June, 1903.	Pressure anomaly, June, 1903.
		″	″
South India	Cochin	—·024	—·039
	Calicut	—·019	—·034
	Negapatam	—·015	—·030
	Trivandrum	—·014	—·029
	Madras	—·013	—·028
	Coimbatore	—·010	—·025
	Trichinopoly	—·005	—·020
Ceylon	Colombo	—·022	—·037
Gangetic Plain.	Agra	—·007	—·022

Over the remainder of India pressure was in relative excess, but the excess was small and unimportant, except

over north Bombay and the adjacent districts, where it exceeded 0·020″ at the following stations:—

STATION.	Variation from normal of mean 8 A. M. pressure of June, 1903.	Pressure anomaly, June, 1903.
	″	″
Ahmedabad	+·047	+·032
Indore	+·043	+·028
Bhuj	+·042	+·027
Rajkot	+·040	+·025
Hyderabad (S)	+·039	+·024
Kurrachee	+·039	+·024
Surat	+·038	+·023
Veraval	+·037	+·028

Pressure was in excess at all the hill stations, and was everywhere, except at Darjeeling, in greater excess at the level of the hills than on the neighbouring plains. This was especially the case in regard to the Kashmir, Punjab and the Kumaun Himalayan areas, where the vertical pressure anomalies were positive to a marked extent. The following gives data for ten pairs of stations:—

HILL STATION.	Variation from normal pressure, June, 1903.	PLAIN STATION.	Variation from normal pressure, June, 1903.	Vertical pressure anomaly (Hill-Plain).
	″		″	″
Quetta	+·053	Jacobabad	+·035	+·018
Leh	+·036	Lahore	+·003	+·033
Murree	+·017	Peshawar	+·014	+·003
Simla	+·038	Ludhiana	+·003	+·035
Chakrata	+·028	Roorkee	+·010	+·018
Ranikhet	+·022	Bareilly	+·012	+·010
Darjeeling	+·008	Dhubri	+·018	—·010
Mount Abu	+·042	Deesa	+·035	+·007
Pachmarhi	+·033	Khandwa	+·028	+·005
Wellington	+·007	Coimbatore	—·010	+·017

The chief features of the pressure conditions of the month may be summed up as follows:—

(1) Pressure, on the mean of the month, was normal or in slight excess, except over the south of the Peninsula and Ceylon.

(2) The mean excess for the whole country was 0·015″.

(3) The local pressure anomalies were generally slight or small, but there was a moderate local excess over north Bombay and a moderate local deficiency over the south of the Peninsula and Ceylon.

(4) The pressure, on the mean of the month, was above the normal at all the hill stations, and the vertical pressure anomalies, except in the Sikkim area, were positive, more especially in the north-west.

Barometric depressions and cyclonic storms of the month.

During the first ten days of the month quiet weather prevailed over the Indian area. Strong southerly winds were blowing over the Bay and giving good rain to Burma and north-east India, while hot weather conditions and excessive temperatures prevailed over other parts of the country.

On the 11th the barometer was falling over the west of the Peninsula, and pressure was in considerable to large defect in Malabar. Along the west coast the winds on this day were light and unsteady, but at Colombo the force of the wind was increasing with a rough sea. On the following day, the 12th, a low pressure area was shown off the north Malabar coast, and winds were irregularly cyclonic at the coast stations.

Slight cyclonic storm of the 12th to the 17th:—

June 12th.—On the 12th pressure was increasing over the whole Indian region. The increase was, however, slight or small on the Malabar coast, and pressure was in considerable to large defect in that area. 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 24 hours.			
	″	″	″				Inches	
Colombo	29·795	+·066	—·025	SSW	16	10	0·58	Sea rough.
Trivandrum	·760	+·048	—·036	ESE	6	10	1·40	Showery.
Cochin	·728	+·048	—·074	Calm	2	10	6·12	Sea very rough.
Calicut	·685	+·055	—·101	SE	9	10	0·48	
Mangalore	·635	+·021	—·140	ESE	1	9		Thunder.
Karwar	·645	+·006	—·091	N	4	8	0·11	Thunderstorm.
Mormugao	·668	+·017	—·054	SSE	8	10	0·14	Thunder.
Goa	...	...	...	NE	...	10	0·24	
Ratnagiri	·662	+·029	—·038	ESE	11	10		Thunder.
Bombay	·676	+·036	—·001	SW	8	9		

The preceding observations show that pressure was increasing briskly in Ceylon and Travancore and slightly along the west coast from Mangalore to Bombay, but that pressure was lower than usual over the whole of that area, more particularly at Mangalore, where the depression equalled —0·140″. The winds were generally south-easterly along the coast from Trivandrum to Ratnagiri, but the velocity was low. Heavy rain had fallen at Cochin and showers in parts of southern and western India.

The following gives marine data for this day for the east of the Arabian Sea:—

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. *Tirol* . .	Colombo.		29·826	...	...	
S.S. *Matiana* .	7 04	79 40	·807	SW	2	Showery.
S.S. *R. Reunion* .	7 56	67 50	·775	SW	7	Violent squalls of wind and rain.
S.S. *Howick Hall*	8 15	70 51	...	W	7	High following sea and squally; 4 P.M. heavy rain squalls.
S.S. *Lindenfels* .	8 28	71 24	·648	SW	6	
S.S. *Sconfels* .	8 34	68 21	·758	WSW	7 to 8	
S.S. *Reichstag* .	9 11	62 24	·825	WSW	4 to 5	Overcast; 8 P.M. hard rain squalls.
S.S. *Falls of Keltie*	14 32	73 56	...	Var.	3	Smooth sea and fine.
S.S. *Shirley* .	15 43	73 24	·660	NNW	4	Smooth sea and cloudy; 8 P.M. occasional rain squalls.

The preceding data show that strong westerly and south-westerly winds were blowing over the south of the Arabian Sea with squally, showery weather, but that elsewhere conditions were quiet with light variable winds.

June 13th.—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 at 8 A.M. Direction	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Remarks.
	″	″	″				Inches	
Colombo .	29·828	+·033	+·006	ESE	8	7	1·16	
Trivandrum .	·804	+·044	+·008	Calm	6	10	2·12	Showery.
Cochin . .	·780	+·052	—·023	ENE	5	10	2·62	Sea very rough.
Calicut .	·773	+·088	—·014	ESE	8	10	6·49	Do.
Mangalore .	·716	+·081	—·059	Calm	3	10	1·30	Thunderstorm.
Karwar .	·670	+·025	—·065	SW	5	10	2·20	Do.
Mormugao .	·650	—·018	—·071	SSE	15	10	1·61	Do.
Goa . .	...	...	...	SSE	...	10	0·60	Sea slight.
Ratnagiri .	·644	—·018	—·055	SSE	10	10	0·19	Do.
Bombay .	·604	—·072	—·073	NNE	12	10	1·09	Thunderstorm.

The preceding observations show that pressure had continued to increase over the south of the Peninsula, but had decreased at the Bombay coast ports. The slight cyclonic storm had advanced slowly northward, and the greatest depression of the barometer, which was only —0·073″, was reported from Bombay. The winds were south-easterly to easterly, except at Bombay, where the direction was north-north-easterly, and moderate to heavy rain had been received along the west coast. The storm was apparently very slight and was of the usual type of storms preceding the advance of the monsoon current.

The following gives the marine data for the east of the Arabian Sea for this date:—

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. *Kirkfield* .	4 20	78 12		Var.	2	High swell; 4 P.M. clear.
S.S. *Matiana* .	Colombo		29·784			8 P.M. cloudy.
S.S. *Lindenfels* .	7 16	74 47	·598	WSW	4	
S.S. *Howick Hall*	7 44	74 32		WSW	6	High following sea and passing showers.
S.S. *Warora* .	7 45	77 40*	·784	SW by W	5	Heavy south-west swell and squally; 4 A.M. occasional rain.
S.S. *Sconfels* .	8 04	73 09	·758	SSW	5	
S.S. *Booldana* .	8 09	77 04*	·837	WSW	2	Occasional heavy squalls.
S.S. *R. Reunion* .	10 25	69 03	·705	SW	6	Heavy squalls of wind and rain.
S.S. *Malta* .	10 46	61 55	·749	SSW	3	Passing rain squalls.
S.S. *Reichstag* .	11 03	65 03	·771	W	7 to 6	Hard squalls.
S.S. *Asia* . .	16 31	63 42	·669	WSW	4	Very rough sea and overcast; 4 P.M. squally with rain.
S.S. *Marquis Bacquehem.*	16 59	64 29	·712	W	4	Noon cloudy.
S.S. *Falls of Keltie.*	17 30	72 57		Var.	2	Cloudy; 8 P.M. threatening rain.
S.S. *Bhundara* .	Bombay		·469			Midnight cloudy.

* Noon position.

The above data show that moderate to fresh south-westerly to westerly winds prevailed over the south-east and centre of the Arabian Sea with frequent squalls and some rain, but that the weather was not more disturbed than is usual at this season.

June 14th.—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 at 8 A.M. Direction	WIND at 8 A.M. Average hourly velocity in miles past 24 hours.	Cloud.	Rainfall.	REMARKS.
	"	"	"				Inches	
Colombo .	29·830	+·002	+·007	SE	6	7	0·01	Sea rough.
Trivandrum	·812	+·008	+·015	Calm	5	8	0·72	Showery.
Cochin .	·803	+·023	−·002	E	4	9	1·72	Sea slight.
Calicut .	·796	+·023	+·008	NE	5	10	2·31	Thunder-storm.
Mangalore .	·761	+·045	−·014	Calm	2	10	1·87	Do.
Karwar .	·700	+·030	−·035	Calm	4	10	1·15	Sea rough.
Mormugao .	·685	+·035	−·035	SSW	24	10	0·75	
Goa . .	...	...	...	SSW	...	10	1·11	Sea rising.
Ratnagiri .	·658	+·014	−·040	S	19	10	1·20	Sea rough.
Bombay .	·609	+·005	−·067	SE	17	10	0·15	
Surat . .	·607	−·036	−·025	SW	8	4	...	
Veraval .	·563	−·067	−·036	SE	12	8	...	Sea slight.
Dwarka .	·575	−·053	...	WSW	12	1	...	Do.

The barometer had risen slightly over the Peninsula but had fallen over Kathiawar, and the storm, which remained of very slight intensity, was shown over the north-east of the Arabian Sea. The winds were southerly and south-easterly, and at 8 A.M. were blowing at the rate of over 20 miles per hour at Mormugao, Ratnagiri, Bombay, Veraval and Dwarka. Rain was falling along the west coast, but the amounts were not heavy.

The following gives the 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. *Warora* .	Cochin		29·791	NE by N	4	Prually with rain.
S.S. *Malta* .	9 21	66 31	·727	SSW	6 to 5	Passing squalls of heavy rain.
S.S. *Reichstag* .	12 18	68 30	·756	W	4	Cloudy; 8 P.M. few rain squalls.
S.S. *R. Reunion* .	13 32	69 26	·685	WSW	4	South-west swell and overcast; 4 A.M. light rain.
S.S. *Asia* . .	17 34	68 09	·584	WSW	6 to 7	Wind and rain squalls with high sea; 4 A.M. heavy rain with vivid lightning and peals of thunder.
S.S. *Marquis Bacquehem.*	17 54	68 48	29·545	NNW	6	Heavy rain.
S.S. *Bhundara* .	18 10	72 45	·592	SE	7	Occasional heavy rain squalls and high sea.
S.S. *Kenley* .	Bombay		·703			Noon continual heavy rain.
S.S. *Goalpara* .	22 11	68 34*	·584	SW	2	8 P.M. lightning to south-west.

* Noon position.

The *Bhundara* near Bombay reported a moderate south-east gale and the *Marquis Bacquehem* in Lat. 17° 54′ N and Long. 68°48′ E a strong north-north-west wind and heavy rain, and the cyclonic storm lay apparently midway between those vessels. The weather was very rainy and squally all over this area, but the force of the wind was not high.

June 15th.—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 at 8 A.M. Direction	WIND at 8 A.M. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	REMARKS.
	"	"	"				Inches	
Colombo .	29·837	+·007	+·012	S	6	6	0·05	Sea rough.
Trivandrum	·823	+·011	+·024	N	5	10	0·80	
Cochin .	·823	+·020	+·017	SE	3	10	1·18	Sea very rough.
Calicut .	·816	+·020	+·028	NE	5	10	2 53	Sea rising.
Mangalore .	·785	+·024	+·010	ESE	1	10	3·92	Thunder-storm.
Karwar .	·759	+ 059	+·025	SW	5	10	4·65	Do.
Mormugao .	·746	+·061	+·027	S	22	10	0·83	Do.
Goa . .	...	...	...	SE	...	10	1·16	Sea rough.
Ratnagiri .	·694	+·036	−·004	SSE	21	10	4·12	Continuous rain.
Bombay .	·625	+·016	−·050	SE	19	10	4·03	Thunder.
Surat . .	·611	+·004	−·018	SE	13	4	0·01	
Veraval .	·499	−·064	−·097	SE	30	9	0·06	Sea rough.
Dwarka .	·485	−·090	...	E	12	9	0·02	Sea rising.
Bhuj . .	·539	−·035	−·026	SE	13	10	...	Thunder-storm.
Rajkot .	·550	−·041	−·041	SE	12	10	...	
Kurrachee .	·524	−·015	−·007	NNE	11	0	...	

The barometer had again fallen over Gujarat and Kathiawar and risen elsewhere. As a result the pressure gradients had increased and the storm was better defined. At Veraval pressure was 0·097″ below the normal. The winds were south-easterly and strong on the Konkan and

north Bombay coasts, and at 8 A.M. were blowing at the rate of 40 miles per hour at Veraval and 32 miles at Bhuj. Heavy rain had fallen along the west coast, but there had been no important rain in Kathiawar.

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. *Reichstag* .	14 12	71 29	29·798	WSW	4	Very rough sea and overcast; 4 A.M. heavy rain squalls and lightning in south-east.
S.S. *Kohinur* .	14 29	74 00	·722	S by W	2 to 5	Rough sea and rainy; 4 A.M. heavy rain squalls and heavy lightning to south-east.
S.S. *Bhundara* .	15 58	73 15	·676	WSW	6	Heavy south-west swell; 4 A.M. hard rain squalls.
S.S. *R. Reunion*.	16 21	71 04	·665	SW	4	Showery.
S.S. *Kenley* .	16 34	73 02	·753	S by W	6	Cross sea; noon squally with rain.
S.S. *Asia* . .	Bombay *		·662	SSW	7 to 6	Rain squalls; 4 A.M. rain with thunder and lightning.
S.S. *Marquis Bacquehem.*	Bombay *		·665	SSW	7 to 6	Passing showers.
S.S. *Goalpara* .	20 52	69 52	·446	SE	6	High confused sea and heavy rain squalls.

* Noon position.

The cyclonic storm lay off the west Kathiawar coast, and the *Goalpara* in Lat. 20° 52′ N. and Long. 69° 52′ E. reported a strong south-east wind and heavy rain squalls, while the vessels off the Konkan coast experienced south-westerly moderate gales and rain. To the westward of the storm the pressure gradients were slight and the winds light and unimportant.

June, 16th.—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.	Remarks.
	″	″	″				Inches	
Trivandrum.	29·808	—·015	+·008	N	5	6	0·26	Thunder.
Cochin .	·828	+·005	+·020	E	2	10	0·32	Sea very rough.
Calicut .	·835	+·019	+·046	NNE	3	10	0·82	Thunder.
Mangalore	·793	+·008	+·018	Calm	1	10	1·48	Thunder-storm.
Karwar .	29·762	+·003	+·029	SW	5	8	0·72	Sea very rough.
Mormugao	·757	+·011	+·039	WSW	14	7	0·38	Sea rising.
Goa .	...	...	...	ENE	...	10	0·52	Sea rough.
Ratnagiri	·731	+·037	+·033	SE	6	5	0·94	Showery.
Bombay .	·678	+·053	+·004	SSE	27	9	2·08	Thunder.
Surat .	·675	+·064	+·048	S	13	3	0·23	
Veraval .	·580	+·081	—·013	SSE	32	9	...	Sea rough.
Dwarka	·525	+·040	...	SSE	27	5	0·15	Sea very rough.
Bhuj .	·573	+·034	+·012	SSE	31	6	...	Duststorm.
Kurrachee	·557	+·033	+·030	E	7	7	...	

The storm in the Arabian Sea had continued its advance north-westward and was probably filling up. Pressure had increased all over western India, and, over parts of Gujarat, the change had been brisk. The winds were southerly on the Konkan and Kathiawar coasts and easterly at Kurrachee showing the eastern and northern portions of the cyclonic circulation around the storm. They were still strong at Bombay, Veraval, Dwarka and Bhuj. Showers had fallen in Gujarat and moderate rain along the west 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. *Clan Sutherland.*	10 30	68 10	29·744	SW	6	Rough sea; noon cloudy.
S.S. *City of Calcutta.*	10 42	61 09	·668	SW	5	High quarterly sea and passing clouds.
S.S. *Kenley* .	13 33	74 09	·833	SSW	5	Strong south-west sea and showery; 8 P.M. heavy squalls with heavy rain and lightning.
S.S. *Reichstag* .	Goa		·777	SSW	3 to 4	Rough sea and overcast; 4 P.M. rain squalls.
S.S. *Palitana* .	16 12	60 30	·619	SW	4	Heavy sea and cloudy.
S.S. *Kohinur* .	17 38	72 55	·660	Var.	1 to 5	Slight haze; 4 A.M. heavy squalls.
S.S. *Goalpara* .	19 20	72 02	·633	SSW	5	High south-west sea and passing squalls.
S.S. *Sofala* .	19 34	60 20	·472	Var.	1	Moderate south-west swell and overcast.
S.S. *Husara* .	Bushire *		·571	N	2	Midnight hazy.

* Noon position.

The preceding data show that there was practically no information for the portion of the Arabian Sea affected by the storm. Moderate south-westerly winds prevailed in other parts of the area.

June, 17th.—The following gives 8 A.M. data for ports on the Konkan and north Bombay coasts :—

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.	REMARKS.
	"	"	"				Inches.	
Karwar .	29·790	+·028	+·055	W	4	10	0·98	Thunder.
Mormugao .	·782	+·025	+·064	SSW	10	10	2·25	Sea rough.
Goa . .	...	...	...	ENE	...	10	2·65	Do.
Ratnagiri .	·770	+·039	+·072	SE	9	9	1·01	Do.
Bombay .	·718	+·040	+·046	S	19	5	0·95	Thunder.
Surat . .	·699	+·024	+·075	S	16	3	...	Gale of wind.
Veraval .	·654	+·074	+·063	S	26	8	0·37	Sea rough.
Dwarka .	·598	+·073	...	SSE	28	4	0·06	Do.
Bhuj . .	·619	+·046	+·056	S	21	6	...	Showery.
Rajkot .	·649	+·062	+·062	S	10	8	...	
Kurrachee .	·587	+·030	+·063	SE	12	5	...	

Pressure was increasing,—more particularly over Kathiawar,—and the storm continued its movement north-westward. The winds were southerly and south-easterly on the Sind and Kathiawar coasts and remained strong in force, but the storm had practically ceased to affect the weather over the Indian region, and there was no rain of importance to the north of Bombay.

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. *Fultala* .	10 34	75 35	29·752	WNW	2	Slight sea and cloudy ; 4 A.M. frequent rain squalls.
S.S. *Gutenfels* .	14 48	55 23	·640	SW	7	High sea and cloudy.
S.S. *Egypt* . .	14 57	56 33	·635	SW	6	Fine.
S.S. *Mosaffari* .	18 23	70 45*	·715	SW	6	Heavy rain.
S.S. *Palitana* .	18 46	62 56	·422	SSW	6 to 7	Overcast and heavy broken sea.
S.S. *Reichstag* .	Bombay.		·808	ESE	4 to 3	High swell and rain squalls.
S.S. *Sofala* . .	20 22	62 07	28·722	SW	11 to 12	Overcast ; noon heavy cyclone with squalls, and 3-30 P.M. heavy squalls with blinding rain.
S.S. *Kerbela* .	24 47	61 28*	29·715	NE by N	5	High swell ; 4 A.M. cloudy.

* Noon position.

The only vessels in the neighbourhood of the storm were the *Kerbela* in Lat. 24° 47′ N. and Long. 61° 28′ E. to the north-west of the storm, and the *Sofala* in Lat. 20° 22′ N. and Long. 62° 07′ E. and the *Palitana* in Lat. 18° 46′ N. and Long. 62° 56′ E. to the south-west of the storm. The observations recorded on board these vessels apparently placed the centre of the storm in about Lat. 22° N and Long. 64° E. The *Sofala* reported a heavy south-west gale, and the following is her log for this day :—

HOUR.	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.
		° ′	° ′	"			
17th 2 A.M.	S.S. *Sofala* .			29·190	WNW		
4 ,,	,, .			29·090	W by N	10 to 11	Fierce gale and frequent heavy squalls and high sea.
7 ,,	,, .			28·790	WSW		
7-30 ,,	,, .			·720	SW		
8 ,,	,, .	20 22	62 07	·723	SW	11 to 12	Overcast.
8-30 ,,	,, .			·670	SW by S		
9 ,,	,, .			·620	SW by S		
10 ,,	,, .			·570	SSW		
11 ,,	,, .			·620	S	12	Heavy cyclone with squalls and high sea.
11-30,,	,, .			·720	S by E		
Noon	,, .			·620	S by E		
1 P.M.	,, .			·720	S by E		
1-30 ,,	,, .			·770	S by E		
2 ,,	,, .			·770	S by E		Fierce cyclonic wind, high sea and frequent heavy squalls with blinding rain.
2-20 ,,	,, .			·770	SSE		
2-30 ,,	,, .			·820	SSE		
3 ,,	,, .			·870	SSE		
3-30 ,,	,, .			·870	SSE		
4 ,,	,, .			·870	SE		
5 ,,	,, .			·920	SE		
5-30 ,,	,, .			·920	SE		
6-30 ,,	,, .			·970	SE by E		
7-30 ,,	,, .			28·970	SE by E		
8 ,,	,, .			29·020	SE by E		Wind decreasing with occasional lulls.
8-30 ,,	,, .			·010	SE by E		
9 ,,	,, .			·020	SE by E		
9-30 ,,	,, .			·070	SE by E		
10 ,,	,, .			·070	SE by E		
10-30,,	,, .			·070	SE by E		
11 ,,	,, .			·120	SE by E		
11-30,,	,, .			·120	SE by E		
Midnight.	,, .			·120	SE by E		

The above shows that the vessel passed round the east and north-east sides of the storm, her barometer falling to 28·570″ at 10 A.M. with a south-south-west hurricane.

On the 18th the winds had returned to south-westerly directions on the north Bombay coasts and the storm had disappeared from the Indian area. The centre was apparently off the Mekran coast near Gwadar at 8 A.M. on this day, but the fall of pressure at Jask and Muscat was slight and the ship's observations gave hardly any indication of the continued existence of the storm. The following particulars of this cyclone, as experienced by the transport *Sofala*, are extracted from the *Times of India*:—

"The *Sofala* left Aden at noon of the 12th instant in company with the steamer *Naderi*. Ordinary monsoon weather was experienced and good progress was made. At noon on the 16th the vessel was in Lat. 19° 58′ N. and Long. 60°56′ E., the barometer marking 29·60″ and the wind being light from west-north-west. At 6 P.M. the wind was moderate and the barometer falling slowly. At 10 P.M., in Lat. 21° N. and Long. 68° 22′ E (?), the barometer was 29·43″ and the wind increasing from east. It was concluded that there must be a cyclone to the north-eastward, and the vessel was turned round to the southward. At 2 A.M. on the 17th the barometer marked 29·32″. At 4 A.M. the wind was west by north and the barometer 29·27″. At 5 A.M. the wind increased to a gale with a heavy sea. At 7 A.M. the wind was west-south-west and the vessel was hove to. At 8 A.M. the wind was south-west, blowing with hurricane force with mountainous seas, and the barometer marked 28·90″. At 9 A.M. the hurricane was blowing in terrific gusts with an ever-increasing mountainous sea. These conditions continued up to 8 P.M., when occasional lulls took place and the barometer rose to 29·20″. At midnight the wind was south-easterly and the sea had gone down considerably."

Small storms formed over the head of the Bay of Bengal between the 15th and the 20th, and, occasioning a strong flow of winds from the Bay into north-east India, were followed by heavy rain in Bengal and Assam, but the storms were feeble and unimportant, and drifted very slowly north-westward into west Bengal, where they filled up.

Between the 20th and 24th the weather was quiet. Heavy rain fell along the west coast, but did not penetrate inland, while the Bay monsoon current was weak and confined to the Bay and Burma. In consequence hot weather conditions prevailed throughout the greater part of India with very excessive temperature and an almost complete absence of rain.

On the 24th a very feeble storm was developed at the head of the Bay. At the "Torch" Light vessel between 7A.M. and noon on this day a moderate south-west breeze with unsettled cyclonic-looking weather was experienced, and during the afternoon thunder and continuous moderate rain. At the Intermediate Light station calms were reported until after sunrise, when the wind became light from north-east with occasional showers. The winds subsequently shifted from north-east to north-west. At 6 P.M. the wind was from north of force 6 and at 8 P.M. hard frequent squalls were experienced, the wind drawing into west. After midnight the squalls took off and the wind became south-westerly of force 6. At 8 A.M. on the 25th a small storm was shown crossing the Bengal coast. The centre of the storm lay a little to the west of Saugor Island, where at 8 A.M. the wind was southerly, blowing at the rate of 32 miles per hour. The storm advanced in a north-westerly direction, and at 8 A.M. on the 26th the centre lay near Ranchi. The winds were irregularly cyclonic around the depression, and pressure was giving way briskly over the storm area. The depression curved to north during the succeeding 24 hours, and was central near Patna at 8 A.M. of the 27th, where the barometer read about one-seventh of an inch in defect of the normal. The depression subsequently filled up during the day, but on the morning of the 28th another small shallow depression was shown over central Bengal. This depression filled up during the next 24 hours, but the two disturbances had determined a considerable amount of rain to north-east India. The following gives some of the more remarkable falls in 24 hours:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Sibsagar	Sibsagar	26th June	7·45
Goalpara	Marnai	27th „	8·85
Darjeeling	Mongpoo	„ „	7·82
	Kurseong	„ „	7·62
Saran	Basantpur	„ „	7·50
Goalpara	Kachugaon	„ „	7·15
		28th „	14·41
Cooch Behar	Fulbari	„ „	11·54
Jalpaiguri	Bhagalpur	„ „	11·00
Goalpara	Marnai	„ „	10·80
	Dhubri	„ „	10·10
Jalpaiguri	Jalpaiguri	„ „	8·92
Garo Hills	Tura	„ „	8·85
Cooch Behar	Dinhatta	„ „	8·47
	Cooch Behar	„ „	6·68
Khasi and Jaintia Hills	Cherrapoonjee Police Station.	29th „	17·07

During the 29th and 30th the weather was very quiet over India, and there was practically no monsoon along the west coast.

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.

The following falls of snow were received in the mountain area around north-west India during June. So far as can be judged, the falls do not appear to have been heavier or more extensive than usual.

(1) *Killa Drosh.*—There was no snowfall on the hills

around Drosh and Chitral during June, but the hospital assistant at Mastuj reported a fall of about 2 inches of snow on the 13th and 15th June on the hills around Chamarkand and Shah Jenali.

(2) *Chitral.*—All the high hills towards the east and north of Chitral are still covered with the snow which fell during the seven months from November to May. The inhabitants say that the snowfall and rainfall of the past winter have been heavier than in the previous year.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Kashmir.*—At Sonemarg snow fell as follows:—

June 5th	2ft 8 ins.
„ 10th	1 „ 6 „
„ 27th	0 „ 8 „

At Skardu there was no snow near the observatory during June.

At Dras snow fell on the higher mountains on the 4th, 6th, 7th, 8th, 17th, 18th, 24th, and 25th June.

At Minimarg moderate snow fell during June. From Gulmarg the following accounts of snowfall have been received:—

June 4th.—Fresh light snow fell on Afferwata mountain.

„ *9th.*—A further light fall of snow occurred on the Afferwata mountain in the evening.

„ *25th.*—Fresh light snowfall observed on the western mountains.

„ *26th.*—Surrounding mountains received moderate snowfall, especially the upper border of Khelanmarg.

„ *29th.*—Fresh light snow fell on the western mountains but thawed quickly.

June 30th.—High surrounding mountains received fresh moderate snowfall.

(2) *Kangra.*—Snow fell from the 28th to 30th May and on the 4th, 5th, 14th, 15th, 17th, 18th, and 21st of June, the snow descending to an elevation of 10,000 feet.

The following shows the accumulation of snow at the end of June on the various passes of the sub-division:—

Tahsil Kulu.		Tahsil Plach.	
Rohtang Pass	½ foot	Srikhand Pass	4 feet
Hamta „	1½ feet	Gargarasan	1 foot
		Tirath	2 feet

The amount of snow at the end of June was stated to be equal to that at the end of June 1902.

Sohangarh (*Kulu*).—Snow fell as low as 8,000 feet on the 26th and presumably was very heavy on the higher hills.

(3) *Chamba.*—A fall of snow measuring 1 ft. 9 inches occurred on the Sach Pass (14,000 ft.) on the 11th June, The weather was unusually cold.

(4) *Bushahr.*—Simla district; snow fell on the hills in the Bushahr district on the 17th, 18th, 27th and 28th June but the falls were slight.

III.—UNITED PROVINCES HIMALAYAS.

(1) *Almora.*—Snow fell as under during June—

Malla Johar.	
16th June	1 foot.
24th „	1 „
26th „	½ „
	TOTAL 2½ feet.

In Malla Danpur and Byans, Chandas and Darmand snow fell during the month.

The snowfall was less than in the previous year.

(2) *Garhwal.*—Snow fell on the perpetual snows on the 8th and 20th varying in depth from about 1 to 2 feet.

Summary of Special Storm Reports.

The number of local storms during the month was exceptionally large. The following gives a brief statement of the storms of which reports have been received from the observers:—

June 2nd.—A violent hailstorm coming up from north-east occurred at Raipur at 3-25 P.M. and lasted 15 minutes.

A duststorm with much thunder and showers of rain was experienced at Nagpur at 2 P.M.

„ *3rd.*—A duststorm passed over Akola between 3-35 P.M. and 4-45 P.M. with a few drops of rain.

A thunderstorm with heavy rain and lightning occurred between 5-7 and 5-12 P.M. at Cuddapah.

At 2-20 P.M. a very heavy duststorm passed over Hoshangabad, travelling from south-west to north-east. The storm abated in half an hour.

A thunderstorm with lightning and showers of rain passed over Nagpur at 1-30 P.M.

June 3rd.—At Gulmarg there occurred a storm between 3 P.M. and 4 A.M., 4th, which did some damage to the trees.

„ *4th.*—A very severe thunderstorm broke over Sarain at about 5 P.M. and continued until 7 P.M. Hail fell for about 20 minutes and the stones weighed about 1½ tolas.

A storm occasioning thunder, lightning, hail and rain was experienced at Gulmarg between 3 P.M. and 7 P.M. The rainfall amounted to 0·42 inch.

A duststorm with thunder and lightning passed over Lahore between 1-30 and 4 A.M. and a second storm between 8-20 and 10 P.M.

A storm with thunder, lightning and drizzling rain occurred at Srinagar between 3 P.M. and 6 P.M.

A thunderstorm passed over Simla between 4-45 P.M. and 6-30 P.M. and another storm between 11 P.M. and midnight.

June 6th.—A very heavy duststorm passed over Hoshangabad from south-west to north-east at 1-20 P.M. The storm abated in 20 minutes.

" *7th.*—At Ajmer at 5-15 P.M. a duststorm appeared in the north-east and lasted till 5-30 P.M.

A duststorm commenced at Jaipur at 4-10 P.M. and lasted till 5-5 P.M.

" *7th-8th.*—A severe thunderstorm passed over Gulmarg between 11 P.M., 7th, and 5 A.M., 8th, with rain and strong westerly winds.

" *8th.*—There was a duststorm with strong wind and showers at 10 P.M. at Khandwa.

" *9th.*—A duststorm occurred at Cuddapah between 6 P.M. and 6-40 P.M.

A thunderstorm with rain and hail passed over Dehra Dun between 2-35 P.M. and 2-55 P.M. The winds were very strong.

A thunderstorm commenced at Gulmarg at 1 P.M. and lasted till 7 P.M. at which time a severe gale was blowing. The rainfall was light.

A very heavy duststorm passed over Hoshangabad from south-west to north-east at 4-2 P.M. It lasted 25 minutes. Another storm occurred at midnight lasting 20 minutes.

A duststorm occurred at Jaipur between 3-50 P.M. and 4-25 P.M. There was no rain.

At 5-30 P.M. there was a duststorm with strong winds at Khandwa.

" *10th.*—A dust and thunderstorm of moderate intensity passed over Allahabad between 3 P.M. and 5 P.M. Light rain fell at 3-45 P.M.

A severe duststorm from north passed over Cocanada at 5-20 P.M. The storm lasted 15 minutes and was accompanied with light rain.

At 3 P.M. a very heavy duststorm passed over Hoshangabad from south-west to north-east. It abated in half an hour. A few drops of rain fell. A second storm occurred at this station at 6-20 P.M. lasting 20 minutes.

A thunderstorm occurred at Nagpur at 3 P.M.

" *11th.*—At Cocanada a severe storm occurred at 11-15 A.M. lasting 45 minutes. The winds were violent and the rain heavy.

A thunderstorm passed over Cuddapah between 4-45 P.M. and 6 P.M.

A severe storm from north passed over Gopalpur at 5 A.M. giving heavy rain, thunder and lightning. The storm lasted 30 minutes.

A very heavy duststorm was experienced at Hoshangabad at 2-20 P.M. The storm came up from south-west and lasted half an hour.

June 11th.—A very heavy duststorm passed over Hyderabad (Deccan) at 5 P.M., coming up from east. The storm lasted 20 minutes.

A duststorm occurred at Nagpur at 2-30 P.M.

A sudden storm with severe gales of wind and heavy rain passed over Waltair between 8 A.M. and 2 P.M.

" *12th.*—A thunderstorm with lightning and rain occurred at Nagpur at 8 P.M.

" *13th.*—A slight duststorm passed over Allahabad between 10 A.M. and 4 P.M.

Storms occurred at Hoshangabad at 1-10 P.M. and 7-20 P.M. Each lasted about 20 minutes.

At Ludhiana a storm came up from north-east at 6-5 P.M. The storm travelled very rapidly and lasted about one hour. No rain fell.

" *14th.*—A slight thunderstorm was experienced at Gulmarg between 2 P.M. and 7 P.M.

At 4-10 P.M. a heavy duststorm passed over Hoshangabad. It lasted half an hour. A second storm came on at 6 P.M. travelling from south-west to north-east. The second storm lasted 15 minutes.

At Khandwa there was a duststorm with strong wind at 8-30 P.M. The storm lasted 45 minutes.

A duststorm occurred at Srinagar, commencing at 4 P.M. and lasting 45 minutes.

" *15th.*—A thunderstorm with strong winds, hail and rain passed over Gulmarg between 3-30 P.M. and 11-30 P.M.

Duststorms passed over Hoshangabad at 2-40 P.M. and 6-30 P.M. each lasting about half an hour.

A thunderstorm accompanied with rain, lightning and strong winds was experienced at Khandwa at 6-30 P.M.

A thunderstorm was experienced at Simla between 4-47 and 6-30 P.M. Heavy rain fell during the storm.

There was a duststorm at Srinagar between 5 P.M. and 8 P.M. followed by drizzling rain.

" *16th.*—A severe duststorm passed over Allahabad between 3-30 A.M. and 6 A.M. The wind blew in violent gusts and a few drops of rain followed the storm.

Heavy duststorms occurred at Hoshangabad at 1-15 P.M. and 6-45 P.M. The storms travelled from south-west to north-east and lasted between 20 and 30 minutes.

A thunderstorm with rain, lightning and strong winds prevailed at Khandwa at 4-45 P.M.

A nor'wester with thunder, lightning and rain was experienced at Nagpur at 4-45 P.M.

June 17th.—A moderate thunderstorm occurred at Allahabad between 9 P.M. and 9-30 P.M. Light showers followed the storm.

A severe thunderstorm passed over Gulmarg between 0-30 P.M. and 9 P.M. Showers of rain fell.

At 8 P.M. a very heavy duststorm passed over Hoshangabad. The storm lasted half an hour.

A thunderstorm came up suddenly over Lahore at 5 P.M. and lasted until 8-30 P.M. Light rain fell during the storm.

At Ludhiana a storm came on from north-west at 5-30 P.M. The storm lasted till 6-30 P.M.

A duststorm with rain commenced at Pachmarhi at 3 A.M. and lasted 10 minutes.

" *19th.*—A thunderstorm commenced at Gulmarg at 12 noon and lasted till 6 P.M. Rain and hail fell during the storm.

A thunderstorm passed over Hoshangabad travelling from south-west to north-east at 7-10 P.M. The storm abated in half an hour.

A duststorm occurred at Lahore between 6-45 P.M. and 7-30 P.M. with thunder, lightning and drizzling rain.

A thunderstorm occurred at Simla. It commenced from north-west at noon and lasted till 2-20 P.M. Hail and rain fell.

A second storm commenced at 6-8 P.M. and lasted for half an hour.

" *20th.*—A severe nor'wester passed over Gulmarg between 1 P.M. and 6 P.M. giving light rain.

Duststorms occurred at Hoshangabad at 6-10 A.M. and 7-20 P.M. They travelled from south-west to north-east and lasted between 20 and 30 minutes.

A storm with thunder, lightning and light rain occurred at Lahore between 5 A.M. and 7 A.M.

" *21st.*—A thunderstorm occurred at Cuddapah between 4 P.M. and 5 P.M.

A heavy duststorm passed over Hoshangabad at 2-45 P.M., lasting 25 minutes.

" *22nd.*—A very heavy duststorm was experienced at Hoshangabad at 5-40 P.M. The storm lasted 20 minutes.

" *23rd.*—A very heavy storm passed over Hoshangabad from south-west to north-east at 7-45 P.M. It lasted half an hour.

A thunderstorm with lightning and rain occurred at Nagpur at 10 P.M.

" *24th.*—A thunderstorm with light rain and severe gale of wind occurred at Gulmarg between noon and 7 P.M.

A very heavy storm passed over Hoshangabad at 7 P.M. The storm lasted 45 minutes.

A duststorm with thunder, lightning and rain occurred at Nagpur at 7-30 P.M.

June 25th.—A very heavy duststorm passed over Hoshangabad at 5-20 P.M. from south-west to north-east. It abated in 45 minutes.

A duststorm with rain occurred at Pachmarhi at 5 P.M. The storm came up from west and lasted 15 minutes.

A thunderstorm occurred at Sarain between 1-30 P.M. and 4-30 P.M. The storm advanced from west.

A thunderstorm was reported at Simla at 6-35 P.M. The storm lasted 10 minutes.

" *26th.*—A severe duststorm with rain and lightning passed over Agra at 2 A.M.

A severe duststorm accompanied with thunder and some rain occurred at Allahabad at 1 P.M. The storm lasted till 5 P.M.

A nor'wester with rain was experienced at Gulmarg between 1 P.M. and 11 P.M.

A storm passed over Hoshangabad at 1-40 P.M. from south-west to north-east.

A thunderstorm occurred at Lahore between 6 P.M. and 10 P.M.

A very severe thunderstorm occurred at Sarain between 11 A.M. and 0-15 P.M. It came up from west and gave heavy rain.

A thunderstorm occurred at Simla at 11-30 A.M. and a second thunderstorm commenced at 4 P.M. and a third at 11-33 P.M. Light rain fell during each storm.

" *27th.*—There was a thunderstorm at Sarain between 0-30 P.M. and 1-30 P.M. with light rain.

" *28th.*—A duststorm with thunder, lightning and light rain occurred at Lahore between 8 P.M. and 10 P.M.

" *28th—29th.*—A long continued thunderstorm occurred at Gulmarg between 6 P.M. of 28th and 10 P.M. of 29th. Some hail and rain fell.

" *29th.*—There was a severe thunderstorm at Sarain between 1 P.M. and 3 P.M. The storm came up from west and gave heavy rain for 10 minutes.

A thunderstorm occurred at Simla between 1-25 A.M. and 1-50 A.M. and a second thunderstorm prevailed from 5-25 A.M. to 8 A.M. Heavy rain followed.

" *30th.*—A nor'wester with rain occurred at Gulmarg between 5 P.M. and 11 P.M. with light rain.

A severe duststorm occurred at Lahore between 8-24 P.M. and 11-15 P.M. There was no rain but the wind was very high.

A thunderstorm with light rain was experienced at Nagpur at 6 P.M.

June 30th.—A duststorm was experienced at Skardu between 8 A.M. and 3 P.M.

The following notices of storms have been collected from newspaper reports:—

June 8th.—A severe local storm passed over Bhagalpur (Bengal). A number of country boats were struck by the storm and swept high and dry on the river bank.

„ *12th.*—Between 7 and 8 o'clock a severe thunderstorm broke over Chaibassa.

„ *16th.*—A storm passed over Jaffna (Ceylon) on the night of the 16th between 12 P.M. and 1 A.M. Rain was incessant.

Exceptionally wet weather and unusual floods have been experienced over the western province of Ceylon, and the rivers have overflowed their banks and spread over the surrounding country.

Hail storms were reported as under:—

Indore State.—The amin of Betma reported that on June 2nd at about 5-30 P.M. hail fell after much thundering for about ten minutes. The hailstones were of the size of plums. No damage was, however, reported. The direction of the storm was from south to north.

The amin of Indore reported that on June 2nd at about 5 P.M. hail fell over twelve villages for about 15 minutes. The hailstones were of about the size of gram or plums.

The amin of Kataphor (Nemawar district) reported that on June 3rd at about 3 P.M. hailstones fell for about five minutes in the villages of Nemlai, Chorwa and Bhaili. The stones were of about the size of plums and gram. No damage was reported.

On June 4th a storm accompanied with hail as big as lemons occurred at Bagode. The tiles of the roof of the Bagode dispensary and two hundred medicine bottles were broken into pieces and also the tiles of certain other houses. The Nagyiri stream came down in flood and two carts of merchants which were lying close by the stream were caught in the flood and borne away.

The villages of Soormanya and Khuradi in the Nemawar district, Indore, experienced a hailstorm at 4 P.M. on the 9th June. The size of the stones was about that of a plum or gram.

The observer at Chikalda reported that a hailstorm occurred between 5-45 P.M. and 6 P.M. on the 4th. The storm lasted ten minutes.

Dr. Lingard writing from Muktesar on 6th June says:—

You may be interested to hear a few details of a hailstorm which came upon us together with a severe thunderstorm on Thursday evening at 5-2 P.M. First a cyclone struck the laboratory and whirled off some of the corrugated iron plates from the roof. I was sitting in my office room upstairs and thought that a fusillade had been opened from some battery into the laboratory building: the noise of falling bodies was so great that the windows (26 in number) began to smash and large hail stones appeared in the interior of the building. This state of affairs lasted for 12 to 15 minutes and then the phenomenal calm after the storm ensued. The largest hailstones weighed 80 to 90 grammes, medium sized 55 grammes and forty-two picked up from the grass plot in the north aspect promiscuously weighed 1,200 grammes. These latter were not collected until 20 minutes after the hail had ceased. On section the largest hailstones showed 9 layers varying in thickness, some of these, in fact alternate ones, were formed of transparent ice, while the intervening ones were agate or milky giving quite the appearance of a polished section of agate. The nucleus of each stone was elongated in shape and not circular. The diameters varied from 2 to about 3 inches. The majority of the stones were as hard as golf-balls and contact with the ground (in very few instances) appeared to have had little or no effect on their contour.

The roof of the observatory shed was taken clean away during the cyclone; I am having a new one adjusted.

We have been kept fairly lively lately for on May 29th at 9 minutes to 1 P.M. an earthquake was felt here and was severe, the pillars (stone) on my verandah oscillated and, we feared, would come down with a crash. The violent wave ran towards the west and at 7 minutes to 1 returned accompanied with distinct and loud rumbling sounds.

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

Arabian Sea.—Variable winds prevailed over this area from the 1st to the 3rd. On the following day moderate south-westerly winds appeared in the neighbourhood of Socotra, subsequently, between the 4th and the 10th, extending all over the west and north of the sea, though variable and north-westerly to northerly winds continued to prevail in the east. On the 11th a local cyclonic circulation of the winds commenced over the south-east of the sea, but in other parts of the area the wind's direction was practically unaffected. This cyclonic circulation progressed northward and north-westward along the west coast of the Peninsula and finally broke up and disappeared off the Mekran coast on the 17th. During this period no important change occurred over the west of the sea where the winds were steadily south-westerly. Between the 18th and the 22nd steady south-westerly winds were shown over the west and north of the Arabian sea and north-westerly winds in the east, but on the 24th the south-westerly winds decreased in strength over the west and centre and variable winds again set in in the east and continued from that date till the close of the month.

During the prevalence of the slight cyclonic storm between the 12th and the 17th, the winds were generally moderate to strong except on board the S.S. *Sofala* on the 17th when a severe gale was experienced.

On the mean of the month the force of the monsoon in the Arabian sea was only 3·9, the normal force being 4·5. The force was above the average on the 15th and 21st and again on the 26th, 27th and 28th but was below at other times.

Bay of Bengal.—From the 1st to the 7th the winds were generally southerly over the west and north of the Bay and westerly in the east, but on the 8th southerly to south-westerly winds prevailed over the whole area and these conditions continued until the close of the month

except that, owing to a very slight cyclonic storm on the 22nd, slight irregularities were introduced in the wind's direction at the head of the Bay.

Unlike the current in the Arabian sea, which was weaker than usual, the mean force of the monsoon over the Bay was exactly normal on the mean of the month. The force, however, exceeded the average on the 10th, 12th, and from the 16th to the 27th.

Equatorial Belt.—Winds were variable over the equatorial belt from the 1st to the 4th, but on the latter date an advance of south-east trades took place and south-east to south-west winds prevailed over the west of the belt from that date to the close of the month. At the Seychelles the wind, at the commencement of the month, was very variable, but after the 6th the wind was very steady between south and south-east, and at Zanzibar was equally steady from south-south-west. At both places the velocity, on the mean of the month, was about normal.

Temperature of the Air.

The general temperature conditions of the month were mainly determined by the delay in the complete establishment of the Arabian sea monsoon current and the consequent deficiency of rain over a very large part of the country.

The mean maximum or day temperature of the month was below the normal over the southern half of the Madras coast and over parts of the mid-west coast, of south India, of the east Gangetic plain, of Bengal, of Assam and of inland Burma. In these areas the deficiency in the mean maximum temperature was generally small and unimportant and exceeded 1°·0 only at the stations for which comparative data are given below:—

Province or Division.	Station.	Mean maximum temperature.		
		Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
		°	°	°
Southern half of the Madras coast.	Nellore	100·1	101·8	−1·7
	Madras	96·8	98·5	−1·7
	Cuddalore	96·8	98·2	−1·4
Mid-West Coast	Goa	84·0	85·2	−1·2
South India	Salem	94·0	95·2	−1·2
Bengal	Darbhanga	89·5	92·4	−2·9?
	Purnea	90·4	92·1	−1·7
	Dinajpur	88·4	89·5	−1·1
	Bogra	88·4	89·8	−1·4
	Mymensingh	86·1	87·2	−1·1
Assam	Sibsagar	87·1	89·3	−2·2
Burma	Minbu	90·7	93·0	−2·3?
	Bhamo	88·7	90·5	−1·8
	Thayetmyo	90·2	91·4	−1·2

Over the whole of the remainder of India the mean monthly maximum temperature exceeded the normal. The amount of the excess increased, from the coast, inland and was more than 4° over the whole of the interior of India. The greatest excess was reported from the Central India plateau and the adjacent districts of the Central and United Provinces and was more than 6° at the stations for which comparative data are given below:—

Station.	Mean maximum temperature.		
	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
	°	°	°
Hoshangabad	107·3	98·1	+9·2
Sutna	107·4	98·7	+8·7
Nowgong	109·5	101·6	+7·9
Jhansi	110·2	102·8	+7·4
Saugor	104·9	97·8	+7·1
Jaipur	109·6	102·5	+7·1
Jubbulpore	103·8	96·9	+6·9
Raipur	104·0	97·2	+6·8
Sambhar	109·1	102·3	+6·8
Mainpuri	107·7	101·2	+6·5
Umballa	107·8	101·4	+6·4
Amraoti	103·6	97·2	+6·4
Akola	104·4	98·2	+6·2
Seoni	100·4	94·2	+6·2

The highest maximum temperatures of the month and also of the year in the north-west were generally recorded between the 11th and the 16th. This delay in the occurrence of the maximum temperatures was of course due to the delay in the complete establishment of monsoon rainfall over India. The following gives the highest

maximum recorded in each division of India together with the highest previously recorded at station :—

PROVINCE OR DIVISION.	Station.	Highest maximum temperature recorded in June 1903.	Date on which recorded.	Highest maximum temperature recorded in June previous to 1903.	Year in which recorded.
		°		°	
BURMA . .	Monywa .	102·8	3rd	...	...
ASSAM . .	Silchar . .	97·6	25th	99·6	1895, and 1900
BENGAL . .	Midnapore .	106·4	1st	112·4	1888
ORISSA . .	Balasore . .	106·5	1st	113·0	1888
BIHAR . .	Daltonganj .	113·6	10th	116·1	1897
CHOTA NAGPUR	Chaibassa .	107·7	1st	112·1	1895
UNITED PROVINCES.	Jhansi . .	116·4	10th	119·2	1873
PUNJAB . .	Montgomery .	119·0	13th	120·6	1897
NORTH-WEST FRONTIER PROVINCE.	Dera Ismail Khan.	118·2	13th and 14th	121·5	1882
SIND . .	Jacobabad .	123·5	11th	126·0	1897
RAJPUTANA .	Bikaner . .	117·8	15th	119·8	1897
GUJARAT . .	Ahmedabad .	111·8	9th	116·9	1897
CENTRAL INDIA	Nowgong .	114·0	3rd and 10th	117·2	1878
CENTRAL PROVINCES.	Khandwa .	114·2	9th	113·7	1897
BERAR . .	Akola . .	114·5	9th	113·7	1889
WEST COAST .	Cochin . .	94·3	3rd	93·5	1900
BOMBAY DECCAN	Malegaon .	107·8	8th	110·8	1900
MYSORE . .	Chitaldroog .	95·1	3rd	99·2	1900
MADRAS COAST	Nellore . .	107·3	6th, 7th and 11th	116·2	1894
MADRAS DECCAN	Hanumkonda .	109·7	8th	111·7	1900
SOUTH INDIA .	Tinnevelly .	105·0	9th	105·5	1900

These temperatures were, except in Berar and the west coast, lower than those previously recorded.

The absolute maximum of the year was 123°·5 registered at Jacobabad on the 11th. This reading was 1°·5 lower than the absolute maximum recorded at the same station last year.

The mean maximum temperature of the month was generally considerably lower than usual at the stations in the Kashmir Himalayas, about normal in Baluchistan and at Darjeeling and above the normal in the Kumaun Himalayas.

The variations of the mean minimum or night temperature were generally similar in character to those of the mean maximum temperature. There was a trifling deficiency at the stations on the south Madras coast, in part of Mysore and of the mid-west coast and a slight deficiency over Bengal, the east Gangetic plain, Assam and the inland parts of Burma. The deficiency exceeded 1°·5 only at the following places:—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
	°	°	°
Gorakhpur	77·2	79·7	−2·5
Darbhanga	77·5	79·2	−1·7
Dinajpur	75·9	77·5	−1·6

Over the whole of the remainder of India the mean minimum temperature was normal or in excess of the normal. The excess was greatest over the inland parts of India, but the area of greatest excess in the mean night temperature lay somewhat to the north-west of the area of greatest excess of the mean day temperature. This is shown by the following table which gives comparative data for the stations exhibiting the greatest excess:—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
	°	°	°
Ajmer	86·4	80·8	+5·6
Jhansi	89·4	84·0	+5·4
Nowgong	87·4	82·4	+5·0
Sutna	85·9	81·1	+4·8
Saugor	81·9	77·6	+4·3
Sambhar	86·5	82·4	+4·1

The relative coolness noticed over the Kashmir Himalayas was generally more pronounced in the case of

the night than in the case of the day temperatures, as is shown by the following comparative data :—

HILL STATION.	Mean maximum variation, June 1903.	Mean minimum variation, June 1903.
	°	°
Leh	−6·0	−4·6
Gilgit	−3·0	−4·1
Srinagar	0	−3·5
Murree	+2·5	−1·2

The mean temperature of the month exceeded the normal over by far the greater part of the Indian area. The excess increased from the coast inland and was greatest and more than 5° over the inland parts of the country. The following gives data in illustration :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
	°	°	°
Sutna	96·7	89·9	+6·8
Hoshangabad	95·1	88·5	+6·6
Nowgong	98·4	91·9	+6·5
Jhansi	99·8	93·4	+6·4
Saugor	93·4	87·7	+5·7
Jaipur	97·3	91·8	+5·5
Sambhar	97·8	92·3	+5·5
Ajmer	96·1	90·7	+5·4
Mainpuri	96·4	91·3	+5·1

The mean temperature of the month was below the normal in two areas. The first included the south Madras coast and part of south India, the second included the inland districts of Burma, Assam, a considerable part of Bengal and the east Gangetic plain. The variations in these two areas were generally small and insignificant, amounting to −1°·2 at Madras and Nellore, to −1°·4 at Sibsagar and Dinajpur and to −2°·3 (?) at Darbhanga. The mean temperature was also in trifling local defect in part of the mid-west coast.

The principal abnormal features of the mean temperature distribution were hence :—

(1) A trifling deficiency, both by day and night, along the south Madras coast.

(2) A slight deficiency, both by day and night, over the inland parts of Burma, Assam, Bengal and the east Gangetic plain.

(3) An excess, both by day and night, over the whole of the remainder of the country. The amount of this excess increased from the coast inland and was greatest and large over the interior of India including the central India plateau, the Central Provinces and north Deccan.

(4) A deficiency of temperature, both by day and night, at the hill stations in the Kashmir Himalayas.

The following gives temperature data for the extra-Indian stations :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
	°	°	°
Trincomalee	85·9	85·0	+0·9
Colombo	82·8	81·6	+1·2
Kashgar	73·8	77·8	−4·0
Kabul	71·3	74·1	−2·8
Teheran	81·1	81·2	−0·1
Ispahan	75·6	78·2	−2·6
Bushire	87·1	86·2	+0·9
Jask	89·4	89·4	0
Muscat	90·6	91·1	−0·5
Baghdad	90·6	88·6	+2·0
Aden	89·0	89·3	−0·3
Perim	88·7	89·0	−0·3
Zanzibar	79·4	77·7	+1·7
Seychelles	77·8	78·7	−0·9
Mauritius	78·9	78·6	+0·3

The preceding data show that in Ceylon the mean temperature exceeded the normal and this excess appears to have extended over the south-east trades region where Zanzibar and Mauritius reported higher temperatures than usual. Over Kashgaria, Afghanistan, Persia, and Arabia the heat, on the mean of the month, was less than usual, but at the head of the Persian gulf and in Asiatic Turkey this depression of temperature disappeared and was replaced by an excess.

The following table gives comparative data of the mean temperature conditions of the month in 57 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	87·0	75·3	81·2	11·7	19·2	+1·0	+0·5	+0·5
	Lower Burma (Deltaic)	85·7	77·2	81·5	8·6	15·5	−0·4	+0·8	−1·2
	Central do.	90·3	75·2	82·8	15·1	21·4	+0·1	−1·0	+1·1
	Upper do.	92·3	76·7	84·5	15·6	25·2	−0·6	0	−0·6
	Arakan	86·6	78·6	82·6	8·0	16·7	+0·6	+0·5	+0·1
Bengal and Assam	Eastern Bengal	88·2	76·7	82·5	11·5	22·5	+0·3	−0·6	+0·9
	Assam (Surma)	88·5	76·2	82·4	12·3	24·8	−0·9	0	−0·9
	Do. Hills	71·6	63·1	67·4	8·5	16·7	...	...	...
	Do. (Brahmaputra)	87·1	75·2	81·2	11·9	21·5	−1·0	−0·9	−0·1
	Deltaic Bengal	93·8	78·9	86·4	14·9	26·9	+1·8	+0·6	+2·4
	Central do.	93·1	77·6	85·4	15·5	28·2	+0·1	−0·9	+1·0
	North do.	88·3	75·7	82·0	12·6	22·0	0	−0·6	+0·6
	Bengal Hills	62·8	51·7	57·3	11·2	20·2	−0·1	−0·9	+0·8
	Orissa	92·8	79·9	86·4	12·9	28·8	+1·2	−0·2	+1·4
	Chota Nagpur	96·9	77·4	87·2	19·5	34·4	+4·4	+1·3	+3·1
	South Bihar	100·1	80·2	90·2	19·9	35·3	+0·5	−0·1	+0·6
	North do.	91·6	77·1	84·4	14·5	28·6	−1·7	−0·7	−1·0
United Provinces of Agra and Oudh.	United Provinces (East)	106·4	84·9	95·7	21·5	35·1	+4·7	+2·4	+2·3
	Oudh (South)	103·3	82·9	93·1	20·4	37·0	+2·8	+1·6	+1·2
	Do. (North)	96·9	78·7	87·8	18·2	37·1	−0·5	−0·5	0
	United Provinces (Central)	108·0	86·2	97·1	21·8	40·4	+6·3	+3·7	+2·6
	Do. (West)	106·2	85·8	90·0	20·5	34·3	+3·9	+3·3	+0·6
	Do. (Submontane, East).	96·1	77·2	86·7	18·9	34·1	...	...	...
	Do. (Submontane, West).	102·1	79·5	90·8	22·6	40·0	+4·4	+1·9	+2·5
	Do. (Hills)	79·0	61·0	70·0	18·0	36·5	+2·7	+1·1	+1·6
Punjab	Punjab (South-East)	106·6	86·8	96·7	19·8	36·9	+3·4	+3·5	−0·1
	Do. (South)	108·2	85·0	96·6	23·3	39·6	+3·4	+3·5	−0·1
	Do. (Central)	110·2	82·7	96·5	27·5	40·5	+2·8	+3·4	−0·6
	Do. (Submontane)	109·0	81·9	95·5	27·2	42·9	+5·4	+2·7	+2·7
	Do. (Hills)	79·7	54·9	67·4	24·8	40·1	−0·9	−2·1	+1·2
	Do. (West)	111·0	85·4	98·2	25·6	42·5	+3·3	+2·0	+1·3
N.-W. F. Province	N.-W. F. Province	109·4	80·1	94·8	29·3	43·6	+2·4	+0·9	+1·5
Bombay and Malabar Coast Districts (Madras).	Malabar	85·6	75·9	80·8	9·8	18·3	+1·4	+1·0	+0·4
	Madras (South Central)	92·5	73·9	83·2	18·6	28·7	−0·1	+1·0	−1·1
	Coorg	75·3	63·1	69·2	12·2	24·0	+2·4	−0·2	+2·6
	Mysore	85·4	68·0	76·8	17·4	28·8	+1·8	+0·4	+1·4
	Konkan	86·4	78·1	82·3	8·3	17·9	+0·1	+0·4	−0·3
	Bombay Deccan	92·3	71·8	82·1	20·5	33·6	+3·4	+0·7	+2·7
	Hyderabad (North)	98·0	75·9	87·0	22·1	36·7	...	...	...
	Khandesh	97·7	74·3	86·1	23·4	37·2	+5·5	+1·5	+4·0
Central Provinces and Berar.	Berar	104·0	80·5	92·3	23·6	39·8	+6·3	+3·2	+3·1
	Central Provinces (West)	104·8	81·6	93·2	23·3	39·8	+6·8	+2·8	+4·0
	Do. (Central)	103·3	79·9	91·6	23·3	39·7	+6·4	+2·2	+4·2
	Do. (East)	103·3	81·3	92·3	22·0	44·3	+6·0	+1·8	+4·2
Bombay (North)	Gujarat	100·0	81·6	90·8	18·4	29·4	+3·3	+1·6	+1·7
	Kathiawar and Cutch	96·6	79·8	88·2	16·8	26·3	+1·9	+0·6	+1·3
	Sind	105·9	84·2	95·1	21·7	30·6	+2·2	+1·5	+0·7
	Baluchistan Hills	95·4	62·4	78·9	33·0	45·0	+0·3	−0·2	+0·5
Rajputana and Central India.	Central India (East)	105·3	82·8	94·1	22·5	37·8	+7·1	+3·8	+3·3
	Rajputana (East), Central India (West)	107·3	85·3	96·3	22·0	36·7	+5·7	+3·7	+2·0
	Do. (West)	108·8	85·3	97·0	23·5	37·1	+4·7	+4·0	+0·7
Madras	East Coast (North)	92·7	80·7	86·7	12·0	27·1	+1·1	+0·3	+0·8
	Hyderabad (South)	98·8	77·5	88·2	21·3	36·0	+3·8	+1·9	+1·9
	Madras (Central)	99·1	78·5	88·8	20·7	34·7	+2·0	+0·7	+1·3
	East Coast (Central)	98·8	81·4	90·1	17·4	32·7	−1·0	+0·2	−1·2
	Do. (South)	96·7	79·1	87·9	17·5	30·3	−1·0	−0·1	−0·9
	Madras (South)	96·1	78·2	86·7	17·9	25·7	+1·1	+0·7	+0·4

The preceding table shows that the hottest areas over India, on the mean of the month, were the west Punjab, with a mean temperature of 98°·2, the central division of the United Provinces, with a mean temperature of 97°·1, and western Rajputana, with a mean temperature of 97°·0, while the coolest area was Coorg, with a mean temperature of 69°·2. The mean daily range of temperature was greater than usual over a large part of the country—more particularly over the Central Provinces and Khandesh, where the excess amounted to between 4°·0 and 4°·2.

The following gives a brief summary of the larger changes of temperature conditions during the month: —

Between the 1st and the 6th rain fell almost daily over Burma and Bengal, and the mean temperature was lower than usual over those two provinces, the deficiency having been greatest over Burma on the 4th. The following gives comparative data for these two areas for these six days:—

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

On the 5th the rainfall suddenly extended north-westward along the Himalayas, and lower temperatures than usual were suddenly developed over the Gangetic plain and as far west as the central Punjab. The following gives comparative data for the districts in this area for the 5th and 6th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	5th June.	6th June.
	°	°
Bihar	−4·4	−3·9
Chota Nagpur	−2·2	−0·4
United Provinces	−1·9	−2·1
Punjab	+0·6	−1·8

In other parts of the country the heat was almost everywhere greater than usual. The day temperature rose to 121° at Jacobabad on the 1st and to 122° on the 5th, and in the west Punjab and the North-West Frontier Province the day temperatures, during this period, were from 8° to 9° above the normal. The following gives data for the 6th for all divisions, except those quoted above, to illustrate the generally prevailing high temperature:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 6th June.	Mean minimum temperature, 6th June.	Mean daily temperature, 6th June.
	°	°	°
Assam	+2·1	−0·3	+0·9
Orissa	−1·5	+1·9	+0·2
North-West Frontier Province	−0·5	−0·7	−0·6
Sind	+2·7	+1·7	+2·2
Rajputana	+0·4	+1·7	+1·1
Gujarat	−1·3	+1·2	−0·1
Central India	+4·2	+0·7	+2·5
Central Provinces	+4·7	+1·2	+3·0
Berar	+4·5	+2·1	+3·3
West Coast	+1·7	+2·2	+2·0
Bombay Deccan	+7·1	+0·1	+3·6
Mysore	+3·1	+2·0	+2·6
Madras Coast	−0·5	+1·2	+0·4
Madras Deccan	+5·9	+4·8	+5·4
South India	+2·3	+0·6	+1·5

Monsoon rainfall continuing to hold off the mean temperature from the 7th to the 12th was more or less excessive over nearly the whole country. The excess of temperature was generally greatest over the central parts of India, where, in years of ordinary rainfall, monsoon showers are experienced at this time, and at the following central stations, between the 8th and the 13th, the day or maximum temperature was more than 11° above the normal:—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
8TH JUNE	Chanda	114·2	102·9	+11·3
9TH "	Akola	114·5	101·3	+13·2
	Khandwa	114·2	101·1	+13·1
	Amraoti	113·5	101·1	+12·4
	Ahmednagar	103·9	92·2	+11·7
10TH "	Nagpur	113·2	101·6	+11·6
	Akola	112·1	100·6	+11·5
	Raipur	111·5	100·3	+11·2
	Amraoti	111·4	100·3	+11·1
11TH "	Hyderabad (Deccan)	106·9	94·9	+12·0
	Raipur	110·5	99·4	+11·1

Date.	Station.	Maximum temperature. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
12th June	Pachmarhi	99·7	88·3	+11·4
	Jubbulpore	111·0	99·6	+11·4
	Khandwa	110·2	99·0	+11·2
	Indore	107·3	96·2	+11·1
13th "	Khandwa	110·2	98·3	+11·9
	Pachmarhi	99·2	87·4	+11·8
	Hoshangabad	111·4	99·7	+11·7
	Amraoti	109·4	98·1	+11·3
	Indore	106·8	95·6	+11·2
	Sambhar	114·5	103·3	+11·2

The following gives comparative data for all divisions for the 10th, and illustrates the general character of the temperature excess prevailing at this time:—

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

The 10th and 11th were the hottest days of the year, the day temperature rising to 123°·5 at Jacobabad on the 11th and to 116°·4 at Jhansi, to 115°·7 at Hyderabad, to 115°·5 at Mooltan, to 115°·4 at Bikaner and to 115° at Montgomery on the 10th.

Rain increased over Burma, Assam, Bengal and the east coast between the 10th, and the 13th, and the mean temperature was generally below the normal over those areas on those dates. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 10th June.	11th June.	12th June.	13th June.
	°	°	°	°
Burma	−0·5	−0·8	−0·1	−0·1
Assam	−2·7	−1·7	+0·2	−0·1
Bengal	+1·3	+1·7	+0·9	+0·2
Orissa	−0·5	−1·8	−1·6	+0·1
Madras Coast	+1·3	+1·2	−1·4	−1·7

Showers occurred over the north Gangetic plain between the 13th and the 16th, and the mean temperature was lower than usual over the divisions in that area. The following gives data:—

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.
	°	°	°	°
Bihar	−1·4	−3·3	−1·0	−1·6
United Provinces	+1·9	−2·1	+0·1	+0·4

The most important feature in the weather at this time was, however, the slight cyclonic storm over the east of the Arabian Sea. This storm gave heavy rain to the west of the Peninsula, and occasioned a brisk fall of temperature over the Peninsular divisions. The following gives comparative temperature data from the 13th to the 16th for these divisions:—

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	−0·5	−0·8	−0·4
Bombay Deccan	+2·8	+0·4	−0·3	−0·3
Mysore	+1·6	−1·6	−1·2	−0·3
Madras Coast	−1·7	−0·5	+1·7	+1·9
Madras Deccan	+2·3	+1·5	+0·7	+2·7
South India	−2·1	−2·2	−0·8	+0·8

Over the whole of the interior of the country, as well as over north-west India, the mean temperature was steadily higher than usual during this period, and at the following stations on the following dates the day temperatures were more than 10° in excess of the normal:—

DATE.	STATION.	MAXIMUM TEMPERATURE. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
13TH JUNE 1903	Khandwa	110·2	98·3	+11·9
	Pachmarhi	99·2	87·4	+11·8
	Hoshangabad	111·4	99·7	+11·7
	Amraoti	109·4	98·1	+11·3
	Indore	106·8	95·6	+11·2
	Sambhar	114·5	103·3	+11·2
	Jaipur	115·2	104·2	+11·0
	Malegaon	106·3	95·3	+11·0
	Akola	109·1	98·7	+10·4
	Jubbulpore	109·0	98·6	+10·4
	Nagpur	109·2	99·0	+10·2
	Neemuch	110·1	100·0	+10·1
14TH " "	Sambhar	115·5	102·8	+12·7
	Jhansi	114·9	103·7	+11·2
	Jubbulpore	108·5	97·6	+10·9
	Ajmer	111·9	101·3	+10·6
	Jaipur	114·2	103·7	+10·5
	Khandwa	108·2	97·7	+10·5
	Akola	108·2	98·1	+10·1
15TH " "	Chanda	113·2	98·0	+15·2
	Sambhar	114·5	102·3	+12·2
	Bikaner	117·8	106·8	+11·0
	Sutna	109·6	99·0	+10·6
	Jaipur	113·2	103·1	+10·1
16TH " "	Hoshangabad	108·4	97·2	+11·2
	Sutna	109·1	98·2	+10·9
	Raipur	106·0	95·8	+10·2
	Ranchi	99·7	89·5	+10·2

On the 17th a small storm determined heavy showers to Bihar, and a very rapid fall of temperature occurred in that area, where the mean temperature was very considerably below the normal on that and the succeeding day. This is shown below :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	17th June.	18th June.
	°	°
Bihar	−4·5	−1·1

The depression of temperature was more marked in the day than in the night temperatures, and the maximum was more than 6·0° below the normal at the following places in Bihar, etc., on these two days :—

DATE.	STATION.	MAXIMUM TEMPERATURE. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
17TH JUNE 1903	Benares	81·1	100·2	−19·1
	Gaya	89·9	99·0	− 9·1
	Gorakhpur	89·0	96·6	− 7·6
	Bahraich	90·1	96·8	− 6·7
	Patna	90·0	96·1	− 6·1
18TH "	Benares	83·1	99·4	−16·3
	Gorakhpur	89·5	96·2	− 6·7

Very similar changes were experienced over Madras, where heavy thundershowers occasioned a very rapid decrease of temperature. The following gives comparative data for the Madras districts for the same days :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	17th June.	18th June.
	°	°
Madras Coast	−7·6	−6·9
Madras Deccan	+0·5	−5·0

As was the case in Bihar, the depression of temperature over Madras was shown mainly in the day records, and

the maximum temperature was more than 12° below the normal at the following stations on the 17th and 18th:—

Date.	Station.	Maximum temperature. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
17th June 1903	Cuddalore	80·1	98·1	−18·0
	Madras	82·0	98·3	−16·3
	Masulipatam	82·5	96·9	−14·4
	Nellore	87·8	101·1	−13·3
18th ,,	Masulipatam	80·0	96·7	−16·7
	Nellore	84·3	101·0	−16·7
	Cuddapah	85·7	99·4	−13·7
	Madras	86·0	98·3	−12·3

On the 19th heavy rain fell in Burma and along the west coast, and the mean temperature was lower than usual over Burma, north-east India and the Peninsula, while it was higher than usual over north-western and central India. The following gives comparative data for all districts for this day, and exhibits the conditions prevailing:—

Province or Division.	Variation from normal of: Mean maximum temperature, 19th June.	Mean minimum temperature, 19th June.	Mean daily temperature, 19th June.
	°	°	°
Burma	−1·7	−0·8	−1·3
Assam	−5·1	−2·4	−3·8
Bengal	−1·5	−2·8	−2·2
Orissa	+3·9	−2·0	+1·0
Bihar	−2·3	−2·4	−2·4
Chota Nagpur	+1·1	−0·9	+0·1
United Provinces of Agra and Oudh	+3·0	+4·5	+3·8
Punjab	+2·6	+6·7	+4·7
North-West Frontier Province	+0·4	+2·4	+1·4
Sind	−0·1	+1·0	+0·5
Rajputana	+3·0	+3·7	+3·4
Gujarat	+2·6	+1·4	+2·0
Central India	+6·3	+3·0	+4·7
Central Provinces	+5·4	+0·5	+3·0
Berar	+2·2	+0·9	+1·6
West Coast	−2·4	−1·8	−2·1
Bombay Deccan	+1·0	−0·6	+0·2
Mysore	−1·2	−1·1	−1·2
Madras Coast	−6·4	−1·3	−3·9
Madras Deccan	−3·1	−2·1	−2·6
South India	−4·0	−0·2	−2·1

On the 20th the monsoon weakened and the rainfall began to take off over a large part of the country. Simultaneously temperature rose and, except in parts of north-east India and of the Peninsula, was more or less excessive until the 25th. The following gives data for all divisions for the 23rd, and shows that hot weather conditions practically prevailed over a large part of the country:—

Province or Division.	Variation from normal of: Mean maximum temperature, 23rd June.	Mean minimum temperature, 23rd June.	Mean daily temperature, 23rd June.
	°	°	°
Burma	+0·2	+0·1	+0·2
Assam	−4·7	−2·1	−3·4
Bengal	+1·9	+0·1	+1·0
Orissa	+8·3	+5·2	+6·8
Bihar	+3·1	+0·5	+1·8
Chota Nagpur	+9·7	+4·5	+7·1
United Provinces of Agra and Oudh	+8·6	+5·5	+7·1
Punjab	+6·4	+5·9	+6·2
North-West Frontier Province	+5·9	+6·6	+6·3
Sind	+1·5	+0·9	+1·2
Rajputana	+4·8	+2·9	+3·9
Gujarat	+4·3	+1·5	+2·9
Central India	+11·4	+7·9	+9·7
Central Provinces	+9·3	+4·1	+6·7
Berar	+9·3	+2·3	+5·8
West Coast	−1·1	−0·7	−0·9
Bombay Deccan	+2·3	−0·3	+1·0
Mysore	−0·5	−0·5	−0·5
Madras Coast	+1·1	+1·0	+1·1
Madras Deccan	+0·3	−1·0	−0·4
South India	+1·2	+0·9	+1·1

The absence of rain was most marked over the central and north-west districts, and over these regions the day temperatures during these five days were very excessive.

At the following places on the following dates the maximum temperature was more than 13° above the normal:—

DATE.	STATION.	MAXIMUM TEMPERATURE. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
22ND JUNE 1903 .	Hoshangabad . .	106·4	93·2	+13·2
23RD „ .	Sutna . . .	108·6	93·9	+14·7
	Nowgong . . .	111·0	96·9	+14·1
	Dehra Dun . .	104·5	90·7	+13·8
	Jhansi . . .	111·8	98·6	+13·2
24TH „ .	Sutna . . .	109·1	93·4	+15·7
	Nowgong . . .	112·0	96·4	+15·6
	Jhansi . . .	112·9	98·1	+14·8
	Hoshangabad . .	106·4	92·1	+14·3
	Saugor . . .	104·9	90·8	+14·1
	Dehra Dun . .	104·0	90·3	+13·7
	Sialkot . . .	117·0	103·7	+13·3
	Mainpuri . . .	110·2	96·9	+13·3
	Pachmarhi . .	93·2	80·1	+13·1
25TH „ .	Jubbulpore . .	107·0	90·2	+16·8
	Saugor . . .	105·9	90·2	+15·7
	Nowgong . . .	111·5	95·9	+15·6
	Sutna . . .	108·1	92·9	+15·2
	Hoshangabad . .	105·9	91·6	+14·3
	Pachmarhi . .	93·2	79·6	+13·6

The rains re-commenced along the west coast on the 23rd, and on the 24th a small storm commenced to form at the head of the Bay. This storm determined rain to the east coast on the 24th and 25th, to the Central Provinces on the 26th and 27th, and to Bengal and Assam on the 27th and 28th. In consequence the mean temperature over these areas fell to below the normal. This is shown below:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF 24th June.	25th June.	26th June.	27th June.	28th June.
	°	°	°	°	°
Madras Coast . .	+1·2	−1·4	−0·1	+0·6	+1·8
Orissa . . .	+3·1	−3·2	−0·1	+0·2	−1·4
Central Provinces .	+7·6	+5·2	+1·5	−1·4	+1·2
Bengal . . .	+0·2	+1·9	+0·1	−0·8	−0·9
Assam . . .	+0·3	+1·9	+1·0	−1·4	−2·7

Over the Peninsular districts at this time the mean temperature was generally about normal, but in the north-west the heat was excessive. The following gives comparative data from the 24th to the 27th for the different divisions of north-west India:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF 24th June.	25th June.	26th June.	27th June.
	°	°	°	°
Central India	+10·2	+9·2	+6·1	+3·2
United Provinces . . .	+7·5	+6·6	+3·8	−2·3
Rajputana	+5·2	+6·4	+5·8	+4·0
Punjab	+6·7	+5·5	+3·7	0
North-West Frontier Province .	+5·0	+0·3	−1·3	+0·2
Sind	+0·4	+0·5	+0·6	+1·4
Gujarat	+1·9	+2·7	+3·5	+3·0

On the 27th rain fell over the Kashmir valley and snow on the higher mountains. This was followed by a rapid fall of temperature, which extended over Kashmir, north-west India and Baluchistan and reduced temperature to below the normal over the whole of that large area. The following gives comparative data for Kashmir, north-west India and Baluchistan from the 27th to the 30th:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF 27th June.	28th June.	29th June.	30th June.
	°	°	°	°
Kashmir	−13·2	−9·9	−8·8	−12·3
North-West Frontier Province .	+ 0·2	−0·9	−0·8	− 5·8
Punjab	0	+0·9	+2·0	− 2·1
Rajputana	+ 4·0	+3·6	+5·0	+ 1·1
Sind	+ 1·4	+1·0	+1·3	+ 0·3
Baluchistan	− 5·7	−4·4	−5·4	− 2·7

During this period the mean temperature was steadily more or less below the normal over north-east India, as is shown by the following data for the 29th and 30th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	29th June.	30th June.
	°	°
Burma	+2·0	+2·0
Assam	−4·0	−2·8
Bengal	−2·0	−0·3
Orissa	−1·0	+0·6
Bihar	−0·8	+1·9
Chota Nagpur	+0·8	+4·3

Over the interior of India and the Peninsula the mean temperature was generally in excess, though, owing to the occurrence of scattered showers, the temperature over this area was somewhat unsteady. The following gives data from the 28th to the 30th for the central and Peninsular divisions :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	28th June.	29th June.	30th June.
	°	°	°
Central Provinces	+1·2	+2·9	+2·5
Berar	+4·2	+4·8	+3·6
West Coast	+0·6	+0·2	+1·4
Bombay Deccan	+1·7	+2·1	+2·9
Mysore	+1·3	+1·3	+3·2
Madras Coast	+1·8	+1·8	+1·6
Madras Deccan	+2·4	+3·5	+3·7
South India	+0·8	+2·1	+2·7

Winds.

With the exception of Rangoon, where the mean direction of the wind was more easterly than usual, the winds blew from about the normal directions at the Bay Islands and on the Burma coast. This is shown below :—

Station.	Mean wind direction.	
	Actual, June, 1903.	Normal, June.
	°	°
Port Blair	S 53 W	S 43 W
Cocos Island	S 26 W	S 34 W
Rangoon	S 14 E	S 23 W
Diamond Island	S 24 W	S 35 W
Akyab	S 3 W	S 3 E

The velocity and steadiness of the wind were normal or above the normal in this region.

On the Bengal and Orissa coasts the winds were slightly stronger than usual, and the steadiness was considerably above the average, while the directions exhibited no important variations from the normal. The following gives comparative data of steadiness and velocity :—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, June, 1903.	Normal percentage, June.	Variation of actual from normal, June, 1903.	Actual, June, 1903.	Normal, June.	Variation of actual from normal, June, 1903.
Chittagong	63	60	+ 3	206	160	+46
Calcutta	80	59	+21	145	142	+ 3
Saugor Island	78	68	+10	423	372	+51
False Point	84	64	+20	310	303	+ 7

The winds were as usual very variable over the Gangetic plain and the upper sub-Himalayas, but the steadiness was on the whole greater than usual and the velocity above the average at some stations. The following gives data for the stations in these areas :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, June, 1903.	Normal percentage, June.	Variation of actual from normal, June, 1903.	Actual, June, 1903.	Normal, June.	Actual, June, 1903.	Normal, June.	Variation of actual from normal, June, 1903.
				°	°			
Hazaribagh	25	15	+10	N 85 W	S 38 W	209	225	−16
Darbhanga	68	70	− 2	S 72 E	S 85 E	99	148	−49
Allahabad	25	15	+10	N 7 E	N 9 W	172	166	+ 6
Dehra Dun	38	16	+22	S 88 W	S 53 W	54	40	+14
Roorkee	22	17	+ 5	S 8 E	S 10 E	129	95	+34
Meerut	13	10	+ 3	S 48 W	N 16 W	61	64	− 3
Lahore	15	6	+ 9	N 21 W	N 19 E	81	88	− 7
Ludhiana	22	8	+14	S 37 W	S 64 W	96	64	+32

At Peshawar the wind was north-north-easterly, at Jacobabad southerly, and at Kurrachee south-westerly, so that in the Indus valley also the winds were very variable, and in this region both the velocity and steadiness were less than usual.

At Jaipur the wind was somewhat more southerly than usual, while at Deesa the mean wind direction was approximately normal. At both stations the mean steadiness exceeded the average.

The following gives comparative data of the air movement over 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, June, 1903.	Normal percentage, June.	Variation of actual from normal, June, 1903.	Actual, June, 1903.	Normal, June.	Variation of actual from normal, June, 1903.
Bay Islands	79	85	— 6	231	231	0
Burma	68	67	+ 1	137	145	— 8
Bengal	76	58	+18	271	244	+27
Bihar	68	70	— 2	99	148	—49
Chota Nagpur	25	15	+10	209	225	—16
Orissa	84	64	+20	310	303	+ 7
United Provinces of Agra and Oudh.	25	15	+10	104	91	+13
North-West Frontier Province.	27	31	— 4	71	113	—42
Punjab	19	7	+12	89	76	+13
Rajputana	89	58	+31	276	281	— 5
Sind	66	65	+ 1	245	274	—29

The winds were thus slightly above the normal steadiness, but the velocity was on the whole less than usual.

Over the Deccan the wind's direction was somewhat more northerly than usual, but the variation was generally small and unimportant. The following gives data for those stations at which this feature was noticeable:—

Station.	Mean wind direction.	
	Actual, June, 1903.	Normal, June.
Sholapur	N 74° W	S 86° W
Buldana	N 58° W	N 73° W
Khandwa	N 57° W	N 79° W
Hyderabad (Deccan)	N 75° W	N 84° W

Along the west coast the wind's direction was approximately normal, but both the steadiness and velocity were below the average, due to the great delay in the establishment of the monsoon. The following gives data for the two stations in this area:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, June, 1903.	Normal percentage, June.	Variation of actual from normal, June, 1903.	Actual, June, 1903.	Normal, June.	Actual, June, 1903.	Normal, June.	Variation of actual from normal, June, 1903.
Bombay	57	65	— 8	S 54° W	S 64° W	264	376	—112
Karwar	60	74	—14	S 88° W	S 73° W	92	128	— 36

There was somewhat more westing than usual in the winds over south India—more particularly in the Salem district, but the winds were generally more unsteady than usual and the velocity was less than the average. This is shown below:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, June, 1903.	Normal percentage, June.	Variation of actual from normal, June, 1903.	Actual, June, 1903.	Normal, June.	Actual, June, 1903.	Normal, June.	Variation of actual from normal, June, 1903.
Salem	53	76	—23	S 76° W	S 54° W	81	113	—32
Chitaldroog	72	77	— 5	S 87° W	S 76° W	159	261	—102
Bangalore	68	87	—19	S 73° W	S 72° W	213	209	+ 4
Hassan	72	82	—10	S 83° W	S 80° W	88	125	—37
Mysore	80	77	+ 3	S 69° W	S 75° W	282	365	—83
Madras	50	61	—11	S 45° W	S 36° W	178	212	—34
Bellary	73	78	— 5	N 78° W	S 86° W	227	251	—24

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

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, June, 1903.	Normal percentage, June.	Variation of actual from normal, June, 1903.	Actual, June 1903.	Normal, June.	Variation of actual from normal, June, 1903.
Central Provinces	66	62	+ 4	156	237	—81
Berar	63	69	— 6	272	238	+34
Bombay Deccan	69	74	— 5	381	436	—55
Madras Deccan	67	74	— 7	205	234	—29
West Coast	59	70	—11	178	252	—74
Mysore	73	81	— 8	186	240	—54
Madras Coast	50	61	—11	178	212	—34
South India	53	76	—23	81	113	—32

In this region both the steadiness and velocity were hence below the normal.

At Quetta the wind, on the mean of the month, was practically normal, except that the velocity was much lower than usual.

In Kashmir, on the contrary, the wind was considerably stronger than usual, but the mean direction varied very largely from the average. At Leh the mean wind direction was south-westerly, while at Srinagar it was west-north-west. At the outer Himalayan stations the wind was very variable in direction, but at the following three stations was more easterly than the average :—

HILL STATION.	MEAN WIND DIRECTION.	
	Actual, June, 1903.	Normal, June.
	°	°
Simla	N 9 E	N 12 W
Chakrata	S 11 E	S 73 W
Darjeeling	S 29 E	S 9 W

The velocity of the wind was generally excessive, more particularly at Chakrata, and the steadiness was on the whole greater than usual.

At Aden the wind, on the mean of the month, was about normal, but at Perim the mean wind direction was south-westerly instead of north-westerly, and the velocity and steadiness were less than usual.

In the south-east trades region also the general wind conditions were approximately normal, except that at Zanzibar the wind blew slightly from the west of south instead of from the east of south. The following gives comparative data for the stations in the south-east trades region :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		CITY IN MILES PER DIEM.		
	Actual percentage, June, 1903.	Normal percentage, June.	Variation of actual from normal, June, 1903.	Actual, June, 1903.	Normal, June.	Actual, June, 1903.	Normal, June.	Variation of actual from normal, June, 1903.
				°	°			
Zanzibar . .	87	86	+ 1	S 1 W	S 4 E	226	216	+10
Seychelles . .	73	79	— 6	S 24 E	S 21 E	272	278	— 6
Mauritius . .	...	...	...	S 68 E	S 60 E	247	269	—22

Humidity and Cloud.

Up to the present time the data employed in discussing the humidity and cloud conditions of the month have been those supplied by the second class observatories, where observations are recorded at 10 hours and 16 hours. The number of these observatories has in recent years steadily decreased, so that it followed at last that large areas of country were left wholly unrepresented when the humidity distribution was being considered. In order to avoid this very unsatisfactory condition it has been decided to employ the 8 A.M. observations in the discussion of the humidity and cloud conditions just as is done in the case of the temperature and pressure conditions.

The charts giving the variations of the mean humidity at 8 A.M. from the normal show that over the east and south of the Peninsula both the absolute and relative humidities were in excess of the normal. The excess was considerable to large over the Circars coast, at some stations in the south of the Peninsula and in Ceylon, and, if the observations be correct, in the neighbourhood of Kurnool and Bellary. The following gives data for those stations where the variations of relative humidity from the normal were more than +5 :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, June, 1903.	Normal, June.	Variation of actual from normal, June, 1903.	Actual, June, 1903.	Normal, June.	Variation of actual from normal, June, 1903.
	"	"	"	%	%	
Cocanada . . .	1·039	·866	+·173	84·0	72·3	+11·7
Masulipatam . .	1·041	·950	+·091	83·0	77·1	+ 5·9
Madras . . .	·847	·801	+·046	69·0	63·2	+ 5·8
Trichinopoly . .	·820	·732	+·088	68·0	62·5	+ 5·5
Trincomalee . .	·933	·876	+·057	83·0	76·2	+ 6·8
Colombo . . .	·943	·886	+·057	86·0	80·5	+5·5
Kurnool . . .	·867	?	?	77·0	66·3	+10·7
Bellary . . .	·717	·640	+·077	69·0	60·8	+ 8·2

A second area of excessive relative humidity was shown over the western desert but in this case the variations from the normal were small and unimportant except at Jacobabad where the observations or the normals are very doubtful. The following gives comparative data for the stations in this area :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
	"	"	"	%	%	
Jacobabad	1·081	·786	+·295?	71·0	51·3	+19·7?
Mooltan	·755	·702	+·053	51·0	47·9	+ 3·1
Bhuj	·915	·873	+·042	73·0	70·6	+ 2·4
Hyderabad	·810	·792	+·018	63·0	60·7	+ 2·3
Pachpadra	·985	·911	+·074?	72·0	71·5	+ 0·5?

A third area of excessive relative humidity was shown along the Konkan coast. In this region the mean temperature was about normal and the absolute humidity normal or in trifling defect so that the excess of the relative humidity was only slight. The following gives data for the stations in this area :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
	"	"	"	%	%	
Mormugao	·928	·935	—·007	88·0	84·9	+ 3·1
Karwar	·861	·867	—·006	84·0	83·4	+ 0·6
Ratnagiri	·892	·901	—·009	84·0	83·4	+ 0·6
Poona	·699	·706	—·007	73·0	72·5	+ 0·5
Belgaum	·700	·695	+·005	87·0	86·8	+ 0·2
Goa	·891	·910	—·019	85·0	84·8	+ 0·2
Bombay	·944	·929	+·015	83·0	82·9	+ 0·1

Finally the mean relative humidity was in excess of the normal over parts of north-east India and of Burma. Over this region the mean absolute humidity was in slight excess or defect, the mean temperature generally less than usual and the mean relative humidity in some excess at the stations for which data are given below :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.	Actual, June 1903.	Normal, June.	Variation of actual from normal June 1903.
	"	"	"	%	%	
Darbhanga	·936	·924	+·012	88·0	81·8	+ 6·2
Sibsagar	·930	·938	—·008	95·0	91·7	+ 3·3
Narayanganj	·992	·982	+·010	92·0	89·4	+ 2·6
Gaya	·976	·916	+·060	77·0	74·6	+ 2·4
Purnea	·909	·932	—·023	87·0	85·6	+ 1·4
Silchar	·954	·923	+·031	90·0	89·3	+ 0·7
Dhubri	·898	·902	—·004	91·0	90·5	+ 0·5
Bogra	·915	·952	—·037	88·0	87·5	+ 0·5
Dinajpur	·895	·928	—·033	89·0	88·8	+ 0·2
Bhamo	·916	·886	+·030	93·0	89·1	+ 3·9
Thayetmyo	·902	·874	+·028	86·0	82·5	+ 3·5
Diamond Island	·952	·903	+·049	86·0	83·1	+ 2·9
Minbu	·902	·890	+·012	84·0	81·7	+ 2·3
Akyab	·989	·972	+·017	93·0	92·5	+ 0·5
Mergui	·917	·894	+·023	91·0	90·7	+ 0·3

Over the whole of the remainder of India the mean relative humidity was less than usual. The areas of greatest deficiency lay (1) over the east and north of the Central Provinces and the adjacent districts of Central India and (2) over the North-West Frontier Province, the Punjab and the adjacent districts of the United Provinces and Rajputana. Within these two areas the mean relative humidity was more than 10 below the normal at the following places :—

AREA.	STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
		Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
		"	"	"	%	%	
FIRST AREA.	Nowgong	·613	·756	—·143	41·0	61·0	—20·0
	Saugor	·589	·707	—·118	46·0	64·8	—18·8
	Sutna	·577	·714	—·137	41·0	59·7	—18·7?
	Raipur	·684	·762	—·078	55·0	67·5	—12·5
	Seoni	·629	·706	—·077	55·0	66·8	—11·8
	Sambalpur	·793	·859	—·066	62·0	73·5	—11·5
	Jubbulpore	·670	·722	—·052	54·0	65·0	—11·0

Area.	Station.	Absolute humidity. Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.	Relative humidity. Actual June, 1903.	Normal June.	Variation of actual, from normal, June 1903.
		"	"	"	%	%	
Second area.	Rawalpindi	·397	·620	—·223	28·0	50·4	—22·4
	Ludhiana	·483	·726	—·243	35·0	55·6	—20·6
	Umballa	·664	·799	—·135	47·0	67·3	—20·3
	Sialkot	·490	·699	—·209	32·0	52·3	—20·3
	Dehra Dun	·542	·678	—·136	48·0	69·8	—21·8
	Jaipur	·603	·718	—·115	41·0	56·6	—15·6
	Sambhar	·631	·725	—·094	42·0	57·0	—15·0
	Mainpuri	·721	·821	—·100	51·0	65·5	—14·5
	Roorkee	·651	·728	—·077	50·0	62·9	—12·9
	Meerut	·686	·747	—·061	50·0	61·5	—11·5
	Agra	·650	·764	—·114	44·0	57·1	—13·1
	Montgomery	·486	·667	—·181	30·0	43·4	—13·4
	Khushab	·473	·594	—·121	30·0	43·0	—13·0
	Peshawar	·474	·593	—·119	32·0	43·5	—11·5
	Lahore	·609	?	?	41·0	51·5	—10·5

This distribution of the mean humidity, relatively to the normal, was due to the weakness of the monsoon currents.

On both sides of India the wind's direction was about normal but the rain did not penetrate inland and over the whole of the central parts of the country, as well as most districts of upper India the air was drier than usual, in some places by large amounts.

The mean relative humidity of the month was less than 40 % and more than 90 % at the following stations:—

Mean actual relative humidity, June 1903.

Station.	Less than 40%.	Station.	More than 90%.
Kotah	38	Sibsagar	95
Ludhiana	35	Sirajganj	93
Sialkot	32	Akyab	93
Peshawar	32	Bhamo	93
Khushab	30	Dibrugarh	92
Montgomery	30	Narayanganj	92
		Tezpur	91
		Dhubri	91
		Mergui	91
		Tavoy	91
		Rangoon	91

The regions defined by these stations were hence the driest and dampest regions within the Indian area. The following low humidities were recorded during the month under review:—

Station.	Date.	Hour.	Lowest humidity recorded during June 1903.
			%
Lahore	1st June	4 P.M.	9
Peshawar	3rd ,,	,,	9
Jaipur	8th ,,	,,	9
Khushab	11th ,,	8 A.M.	9
Bellary	13th ,,	From minima.	9
Jaipur	10th ,,	4 P.M.	8
Do.	12th ,,	,,	8
Montgomery	11th ,,	8 A.M.	8
Do.	12th ,,	,,	3
Do.	13th ,,	,,	0?

The air was drier than usual, on the mean of the month, at the stations on the north-west Himalayas but the variations, though considerable, were less than at stations on the neighbouring plains. At the central hill stations, on the other hand, the air was generally drier at the elevation of the hills than it was at the level of the plains. The following gives data for the different hill stations:—

Hill Station.	Absolute humidity. Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.	Relative humidity. Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
	"	"	"	%	%	
Cherat	·313	·503	—·190	31·0	50·7	—19·7
Murree	·284	·383	—·099	35·0	52·4	—17·4
Leh	·150	·184	—·034	40·0	42·2	— 2·2
Srinagar	·532	·574	—·042	84·0	81·0	+ 3·0
Simla	·333	·402	—·069	50·0	65·5	—15·5
Chakrata	·368	·437	—·069	53·0	71·4	—18·4
Mussooree	·421	·472	—·051	58·0	74·1	—16·1
Ranikhet	·456	·498	—·042	63·0	73·4	—10·4
Darjeeling	·475	·498	—·023	94·0	94·8	— 0·8
Pachmarhi	·584	·621	—·037	59·0	71·7	—12·7
Mount Abu	·513	·571	—·058	61·0	72·9	—11·9

At Aden as also over the south-east trades region, both the absolute and relative humidities were in excess of the

normal. The following gives data for the stations in these regions:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, June 1903.	Normal, June	Variation of actual from normal, June 1903.	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
	"	"	"	%	%	
Perim	·926	·955	—·029	71·0	72·7	—1·7
Aden	·979	·938	+·041	74·0	71·6	+2·4
Zanzibar	·806	·728	+·078	87·0	83·1	+3·9
Seychelles	·800	·750	+·050	82·0	76·0	+6·0
Mauritius	·552	·533	+·019	75·0	75·5	—0·5

The variations in the mean cloud amount of the month were similar in general character to those of mean humidity and were due to the same causes. There was, owing to the delay in the monsoon, a considerable deficiency of cloud over most of the northern and central districts of India.

The mean cloud amount of the month was in trifling excess over parts of the Peninsula. The following gives data for the stations in these areas of excess:—

Station.	Mean cloud amount.		
	Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
Hyderabad (Deccan)	7·6	6·2	+1·4
Mormugao	8·0	6·8	+1·2
Gulbarga	7·2	6·3	+0·9
Mysore	8·9	8·1	+0·8
Cuddalore	5·8	5·4	+0·4
Goa	8·5	8·1	+0·4
Ahmednagar	6·8	6·5	+0·3
Cochin	7·9	7·6	+0·3
Tinnevelly	6·7	6·5	+0·2
Bangalore	7·1	6·9	+0·2
Waltair	7·6	7·4	+0·2
Sholapur	6·8	6·7	+0·1
Ratnagiri	7·7	7·6	+0·1

The mean cloud amount was also in trifling excess over Assam, parts of Bengal and Bihar and at Gorakhpur. This is shown below:—

Province.	Station.	Mean cloud amount.		
		Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
Assam	Sibsagar	9·2	8·8	+0·4
	Dhubri	8·4	8·1	+0·3
Bengal	Bogra	8·3	6·7	+1·6
	Mymensingh	9·1	7·6	+1·5
	Burdwan	8·4	7·5	+0·9
	Dinajpur	8·2	8·0	+0·2
	Berhampore	8·2	8·1	+0·1
United Provinces.	Gorakhpur	5·4	4·9	+0·5

The data in the two preceding tables show that the greatest excess of cloud was reported from the stations of Mymensingh, Bogra, Hyderabad (Deccan) and Mormugao but that even at these stations the excess was only slight.

Over the whole of the remainder of the country the mean cloud amount was in defect of the normal. The deficiency was considerable in three areas, *viz.*, Tenasserim, upper Burma, and around the north coasts of the Bay and over north-west, upper, and central India. The deficiency was most pronounced in north-west and central India and exceeded 3·0 over the Saugor and Hoshangabad districts of the Central Provinces, the south-west of Rajputana, the Roorkee and Dehra Dun districts of the United Provinces and the south-east of the Punjab. The deficiency was more than 2·0 at the stations for which comparative data are given below:—

Province or Division.	Station.	Mean cloud amount.		
		Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
North Coast of the Bay.	Gopalpur	4·8	7·2	—2·4
	Barisal	5·8	8·1	—2·3
	Chittagong	5·5	7·8	—2·3
Central Provinces.	Saugor	1·7	5·0	—3·3
	Hoshangabad	2·9	6·0	—3·1
	Jubbulpore	2·9	5·2	—2·3
United Provinces.	Roorkee	0·5	4·2	—3·7
	Dehra Dun	1·9	5·0	—3·1
	Cawnpore	2·5	5·4	—2·9
	Lucknow	3·3	5·8	—2·5
	Bareilly	1·9	4·4	—2·5
	Benares	3·3	5·6	—2·3
Rajputana	Pachpadra	0	4·0	—4·0
	Deesa	2·4	5·9	—3·5
	Jaipur	1·2	4·2	—3·0
	Sambhar	1·1	4·0	—2·9

Province or Division.	Station.	Mean cloud amount. Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
Punjab	Ludhiana	0·2	3·3	—3·1
	Sirsa	1·7	4·5	—2·8
	Umballa	0·6	3·1	—2·5
Sind	Hyderabad	1·2	3·8	—2·6

There was less cloud than usual at all the hill stations with the exception of Wellington where there was a trifling excess and of Leh where the mean cloud amount was exactly normal. The variations were largest at the stations in the Kumaun Himalayas and amounted to —4·3 at Ranikhet, to —3·5 at Mussooree, and to —3·3 at Simla.

The following table shows the stations at which the cloud amount, on the mean of the month, was less than 1·0 and more than 8·0 and hence defines the areas where the weather was most serene and most cloudy on the mean of the month:—

Area of least cloudiness. Station.	Mean amount of cloud, June 1903.	Area of greatest cloudiness. Station.	Mean amount of cloud, June 1903.
Bikaner	0·9	Rangoon	9·6
Bharatpur	0·8	Sibsagar	9·2
Khushab	0·7	Mymensingh	9·1
Mooltan	0·7	Gauhati	8·9
Kotah	0·7	Mysore	8·9
Umballa	0·6	Yamethin	8·7
Montgomery	0·6	Silchar	8·6
Roorkee	0·5	Akyab	8·5
Sialkot	0·5	Thayetmyo	8·5
D. I. Khan	0·4	Goa	8·5
Jacobabad	0·3	Dhubri	8·4
Ludhiana	0·2	Sirajganj	8·4

Area of leat cloudiness. Station.	Mean amount of cloud, June 1903.	Area of greatest cloudiness. Station.	Mean amount of cloud, June 1903.
Pachpadra	0	Burdwan	8·4
		Naya Dumka	8·4
		Bogra	8·3
		Toungoo	8·2
		Berhampore	8·2
		Dinajpur	8·2
		Mangalore	8·2
		Monyala	8·1
		Belgaum	8·1
		Hassan	8·1

The sky was unusually clear of cloud at Perim but was more cloudy at Aden. This is shown below:—

Station.	Mean cloud amount. Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
Aden	4·0	3·0	+1·0
Perim	1·4	3·5	—2·1

In the south-east trades region the mean cloud amount was in excess of the normal by small amounts. The following gives data:—

Station.	Mean cloud amount. Actual, June 1903.	Normal, June.	Variation of actual from normal, June 1903.
Zanzibar	5·2	5·1	+0·1
Seychelles	7·3	7·1	+0·2
Mauritius	5·1	5·0	+0·1

Rainfall.

Hardly any rain fell over the Malabar and south Kanara coast districts between the 1st and 10th as the usual thunder showers were almost altogether absent. On the 10th the barometer was falling briskly in Malabar and on the 11th rain commenced and a depression appeared over the south-east of the Arabian sea. On the following day, the 12th, the monsoon broke at Colombo and in south Malabar where heavy rain was reported. The depression noticed above proved to be very slight and progressed slowly along the west-coast. Heavy rain followed in the wake of the depression reaching Bombay by the 15th. During this period the winds were generally southerly along the

west coast and the rainfall did not properly extend inland into the Deccan and the Central Provinces though on the 17th and 18th there occurred showers over those areas and over the United Provinces. Monsoon rainfall decreased considerably on the 20th, 21st, and 22nd but on the 23rd another advance of monsoon winds occurred along the west coast and the weather was showery over the interior. On the 26th the monsoon current strengthened and carried rain through the Central Provinces into parts of north-west India, but from the 28th onward to the close of the month, the monsoon was again light and interrupted and though rain occurred daily along the west coast little or none fell over the interior of the country.

Showery weather prevailed over Burma and north-east India during the first half of the month and the monsoon probably commenced in Bengal on the 16th, and rain fell heavily over east Bengal on the 18th, but between the 19th and the 24th the rainfall was interrupted and partial. On the latter date a shallow storm appeared at the head of the Bay and advancing north-westward occasioned general rain over Bengal and Bihar on the 26th, 27th and 28th. With the dispersion of this storm on the 29th pressure rose to above the normal over north-east India and rainfall took off so that on the last day of the month the fall was light and mainly confined to Burma, Assam and east Bengal.

The monsoon was thus about a week late in arriving along the west coast and was light and much interrupted throughout the whole month. Monsoon rainfall arrived at about the normal date in Bengal (16th), but the monsoon current was nearly as weak and interrupted in this area as over western India. Slight advances of monsoon winds carried rain into central and north-western India on different occasions during the latter half of the month but the advances were of a temporary character and it cannot be said that the monsoon was established over central and north-western India throughout the month.

The distribution of the rainfall of the month was hence largely determined:—

(1) By the delay in the advance of the monsoon current on to the west coast.

(2) The light and interrupted character of the Arabian Sea current after its arrival.

(3) The weakness of the Bay current over Bengal and its failure to advance, except temporarily further westward than Bihar and

(4) The failure of the Arabian Sea current to advance over the central parts of the country and into north-west India.

The following table gives comparative rainfall data of June 1903 for the 57 meteorological divisions of India:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, June 1903.	Average normal, June.	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.
				Inches.	Inches.	Inches.
Burma	Tenasserim	25·8	25·7	36·32	40·11	−3·79
	Lower Burma (Deltaic)	23·8	22·7	18·81	20·42	−1·61
	Central do.	20·0	16·2	12·78	10·29	+2·49
	Upper do.	9·6	9·4	7·69	6·53	+1·16
	Arakan	24·1	24·1	34·64	40·85	−6·21
Bengal and Assam	Eastern Bengal	18·4	16·3	19·90	17·99	+1·91
	Assam (Surma)	20·8	20·8	25·75	24·31	+1·44
	Do. (Hills)	23·7	20·7	32·35	29·16	+3·19
	Do. (Brahmaputra)	18·7	16·0	18·81	15·08	+3·73
	Deltaic Bengal	12·4	12·9	10·42	11·06	−0·64
	Central do.	11·2	11·9	8·70	10·50	−1·80
	North do.	16·2	15·7	24·34	20·94	+3·40
	Bengal Hills	21·0	19·9	27·12	22·59	+4·53
	Orissa	8·6	10·5	6·41	9·35	−2·94
	Chota Nagpur	8·3	10·6	5·33	9·25	−3·92
	Bihar (South)	6·5	7·9	3·70	6·97	−3·27
	Do. (North)	10·2	9·1	9·85	8·89	+0·97
United Provinces of Agra and Oudh.	United Provinces (East)	3·5	6·0	1·68	5·02	−3·34
	Oudh (South)	3·2	5·3	1·38	4·86	−3·48
	Do. (North)	4·6	6·3	2·99	5·72	−2·73
	United Provinces (Central)	2·7	5·1	1·38	4·43	−3·05
	Do. do. (West)	1·7	3·6	0·70	2·67	−1·97
	Do. do. (East Submontane)	6·4	7·1	5·50	6·56	−1·06
	Do. do. (West do.)	2·9	6·1	1·61	5·71	−4·10
	Do. do. (Hills)	8·3	10·9	4·07	8·80	−4·73
Punjab	Punjab (South-East)	1·0	3·4	0·35	2·43	−2·08
	Do. (South)	0·7	2·6	0·20	1·87	−1·67
	Do. (Central)	0·7	2·4	0·15	1·67	−1·52
	Do. (Submontane)	1·0	3·5	0·33	2·83	−2·50
	Do. (Hills)	4·4	6·8	1·71	5·14	−3·43
	Do. (West)	0·9	1·4	0·39	0·76	−0·37
N.-W. F. Province	North-West Frontier Province	1·0	1·7	0·32	0·99	−0·67

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, June 1903.	Average normal, June.	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.
				Inches.	Inches.	Inches.
Bombay and Malabar Coast Districts (Madras.)	Malabar	20·4	23·9	23·10	35·54	−12·44
	Travancore	18·8	...	18·58	...	...
	Madras (South Central)	5·4	3·8	2·90	1·96	+0·94
	Coorg	18·6	...	11·72	...	...
	Mysore	8·6	6·7	4·93	4·24	+0·69
	Konkan	15·8	18·6	16·96	26·60	−9·64
	Bombay Deccan	7·1	8·8	4·25	6·01	−1·76
	Hyderabad North	6·3	8·1	3·76	5·46	−1·70
	Khandesh	4·4	8·0	2·60	5·70	−3·10
Central Provinces and Berar.	Berar	5·8	8·2	3·74	5·67	−1·93
	Central Provinces (West)	6·7	8·7	4·35	7·13	−2·78
	Do. (Central)	6·0	9·0	3·91	7·79	−3·88
	Do. (East)	6·9	9·6	3·82	8·76	−4·94
Bombay (North)	Gujarat	2·4	7·0	1·19	6·86	−5·67
	Kathiawar and Cutch	1·7	4·5	0·68	4·21	−3·53
	Sind	0·1	0·6	0·01	0·41	−0·40
	Baluchistan Hills	0·3	0·6	0·11	0·30	−0·19
Rajputana and Central India.	Central India (East)	3·3	6·9	1·74	6·85	−5·11
	Rajputana (East), Central India (West)	2·1	4·2	0·82	3·17	−2·35
	Rajputana (West)	0·2	2·1	0·04	1·39	−1·35
Madras	East Coast (North)	6·8	7·2	6·05	5·19	+0·86
	Hyderabad (South)	5·1	3·8	2·34	3·95	−1·61
	Madras (Central)	5·2	4·5	2·66	2·54	+0·12
	East Coast (Central)	2·8	2·9	2·14	1·63	+0·51
	Do. (South)	4·2	3·3	2·38	1·93	+0·45
	Madras (South)	1·8	2·0	0·88	0·97	−0·09

The total rainfall of the month was less than one-tenth of an inch in Rajputana (west) and Sind and less than one quarter of an inch in the south and central divisions of the Punjab and in Baluchistan. From this area of light rainfall the average actual fall increased in all directions and amounted to over 30″ in Tenasserim, Arakan, and the Assam hills, and to over 20″ in the Surma valley of Assam, north Bengal, the Bengal hills and Malabar. The total rainfall of the month was more than 20% greater than the average in five divisions, *viz.*, central Burma (+24%), Assam Brahamputra (+25%), Madras south-central (+48%), east coast central (+31%) and the east coast, south (+23%) and more or less exceeded the normal over upper Burma, Assam, east and north Bengal, the Bengal hills, north Bihar, and the east, centre and part of the south of the Peninsula. In all other parts of the country the month's rainfall was less than usual and in the following 22 divisions the deficiency amounted to 50% or more, *viz.*, the east of the United Provinces (−67%), south Oudh (−72%), United Provinces, central (−69%), United Provinces west (−74%), United Provinces, west submontane (−72%), United Provinces, hills (−54%), south-east Punjab (−86%), south Punjab (−89%) central Punjab (−92%), Punjab submontane (−88%), Punjab hills (−67%), North-West Frontier Province (−68%), Khandesh (−54%), Central Provinces, central (−50%), Central Provinces, east (−56%), Gujarat (−83%), Kathiawar and Cutch (−84%), Sind (−98%), Baluchistan hills (−63%), Central India east (−75%), Rajputana east and Central India, west (−74%) and west Rajputana (−97%).

The preceding data show that while there was some excess in the rainfall over parts of Burma, of north-east India and of the Peninsula the fall was in most parts of the country far below the normal. The mean variation of the rainfall of the whole country (excluding the hills) derived from the fifth figure column of the above table amounted to −1·90 inch,

Tenasserim, lower and central Burma and Arakan received practically daily rain during the month, but the falls were not generally heavy until after the 17th of June. On the 18th the rainfall increased and on the 19th and 20th, was very generally heavy. The following falls

amounting to or exceeding 4″ in 24 hours were recorded during the month in these divisions :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches
Thaton	Kyaikto	3rd June	4·00
Amherst	Moulmein	9th ,,	5·32
Thaton	Thaton	,, ,,	4·15
Kyaukpyu	Ramree	10th ,,	4·15
	Kyaukpyu	11th ,,	4·69
Akyab	Akyab	12th ,,	5·37
	Maungdaw	,, ,,	4·90
	Rathedaung	,, ,,	4·32
Kyaukpyu	Ramree	,, ,,	4·20
Akyab	Rathedaung	13th ,,	5·12
	Akyab	,, ,,	4·42
Tavoy	Thayetchaung	19th ,,	6·75
Sandoway	Saungup	,, ,,	6·57
Tavoy	Launglon	,, ,,	6·48
Sandoway	Sandoway	,, ,,	4·18
	Gwa	20th ,,	10·35
Tavoy	Tavoy	,, ,,	4·93
Sandoway	Saungup	,, ,,	4·76
Tavoy	Launglon	24th ,,	4·12
Thaton	Kyaikto	27th ,,	6·13

In upper Burma the rainfall was much lighter and less continuous than in the other divisions. There was a fairly general burst of showers between the 3rd and 5th, and the 12th and 19th and during these periods the following amounts exceeding 3″ in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Myingyan	Popa	3rd June	5·77
Myingyan	Natogyi	,, ,,	4·63
Pakokhu	Pauk	,, ,,	3·40
Yamethin	Pyinmana	4th ,,	5·25
Katha	Banmauk	,, ,,	4·45
Shwebo	Ye—u	,, ,,	3·87
	Kyunhla	5th ,,	7·36
Upper Chindwin	Paungbyin	,, ,,	4·61
Katha	Banmauk	,, ,,	3·56
Upper Chindwin	Tamu	13th ,,	4·71
Katha	Kyaukpazat	13th June	4·26
	Wuntho	,, ,,	3·90
Upper Chindwin	Maingkaing	,, ,,	3·16
Myitkyina	Myitkyina	14th ,,	3·36
Upper Chindwin	Tamu	,, ,,	3·10
	Tamu	15th ,,	7·54
Ruby Mines	Mogok	18th ,,	4·62
Bhamo	Shwegu	19th ,,	5·41
	Bhamo	,, ,,	4·05

On the 19th the rainfall diminished quickly and from the 20th to the end of the month only light scattered showers were received over the more northern districts of the division. The rainfall of the month was about normal except in central Burma where it was in some excess. The following gives data for the different divisions of Burma :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.	Average actual, June 1903.	Average normal, June.
	Inches.	Inches.	Inches.			
Tenasserim	36·32	40·11	—3·79	— 9	25·8	25·7
Lower Burma (Deltaic)	18·81	20·42	—1·61	— 8	23·8	22·7
Central Burma	12·78	10·29	+2·49	+24	20·0	16·2
Upper Burma	7·69	6·53	+1·16	+ 18	9·6	9·4
Arakan	34·64	40·85	—6·21	—15	24·1	24·1

In Assam more or less heavy showers from thunderstorms were experienced from the 1st to the 12th, the largest amounts, exceeding 5″ in 24 hours, having been as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Sylhet	Maulvi Bazar	6th June	5·07
Goalpara	Marnai	10th ,,	5·90
	Bijni	,, ,,	5·74
	Kachugaon	,, ,,	5·30
Sylhet	Sylhet	,, ,,	5·12

On the 12th general rain set in continuing until the 22nd when a partial break of two or three days took place. On the 26th general rain set in again and continued till the end of the month. During these two bursts of general rain the following falls exceeding 5″ in 24 hours were received :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Sylhet	Samanbagh	18th June	6·62
	Langla	,, ,,	5·73
	Chandpur	19th ,,	7·15
	Habiganj	20th ,,	11·15
	Maulvi Bazar	,, ,,	5·35
	Sylhet	21st ,,	6·16
	Lalakhal	,, ,,	5·90
	Habiganj	,, ,,	5·65
Goalpara	Marnai	22nd ,,	6·20
Sibsagar	Sibsagar	26th ,,	7·45
	Marnai	27th ,,	8·85
	Kachugaon	,, ,,	7·15
	Bijni	,, ,,	5·70
Goalpara	Kachugaon	28th ,,	14·41
	Marnai	,, ,,	10·80
	Dhubri	,, ,,	10·10
	Goalpara	,, ,,	5·04
Kamrup	Barduar	29th ,,	5·80

In the Surma valley the total rainfall of the month was about normal, while in the Brahmaputra valley it was in some excess. The following gives comparative data for the eight plains districts of the province :—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	19·27	21·32	—2·05	—10
Sylhet	28·80	27·03	+1·77	+ 7
Goalpara	35·16	24·73	+10·43	+42
Kamrup	19·24	13·61	+5·63	+41
Darrang	14·24	14·30	—0·06	0
Nowgong	11·86	10·41	+1·45	+14
Sibsagar	16·25	12·05	+4·20	+35
Lakhimpur	20·38	18·39	+1·99	+11

Over the Assam hills the rainfall was practically uninterrupted throughout the month. It was, however, relatively light during the first eight days. The fall then increased and was heavy until the close of the month. Cherrapoonjee (Police Station) reported a fall of 17·07″ in 24 hours on the 29th; Wahmaulien, a fall of 16·35″ on the 9th and of 12·21″ on the 10th; Jowai, a fall of 8·05″ on the 17th and Tura, a fall of 8·85″ on the 28th. In the Naga and Lushai hills the rainfall was lighter than in the Assam hills but Lungleh reported a fall of 5·43″ on the 19th. The total fall for the hills was about normal, as is shown by the following comparative statement :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.	Average actual, June 1903.	Average, normal June.
	Inches.	Inches.	Inches.			
Assam Hills	32·35	29·16	+3·19	+11	23·7	20·7

The total rainfall of the month was very light in the south of Bihar and Chota Nagpur during the first half of the month. Otherwise showery weather prevailed throughout the month over Bengal, while two periods of general rain occurred; one about the middle and the second towards the end of the month. Heavy rain fell over east Bengal during the second rainy period.

South-West Bengal received general showers between the 3rd and the 5th, the 16th and 20th, and the 24th to the 30th. The falls were not generally heavy but exceeded 3″ in 24 hours at the following places on the following dates during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
24-Parganas	Dum Dum	5th June	3·52
Jessore	Jhenida	9th ,,	3·50
Khulna	Morelganj	12th ,,	3·04
	Rampal	15th ,,	4·06
Jessore	Jessore	16th ,,	3·71
Murshidabad	Jangipur	18th ,,	4·50
Khulna	Morelganj	19th ,,	3·35
	Khulna	24th ,,	3·05
24-Parganas	Saugor Island	25th ,,	3·95
Howrah	Howrah	27th ,,	3·95

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
24-PARGANAS	Alipore (observatory)	27th June	3·59
	Dum Dum	" "	3·40
	Barasat	" "	3·06
BIRBHUM	Labpur	28th "	4·02
KHULNA	Kaliganj	" "	4·00
MURSHIDABAD	Lalgola	" "	3·42
BIRBHUM	Bolpur	" "	3·38
KHULNA	Tala	30th "	3·53
24-PARGANAS	Basirhat	" "	3·16

The total rainfall of the month over this division was about normal, except in the Burdwan, Birbhum, Bankura, and Midnapore districts, as is shown by the following comparative data of the contained districts :—

DISTRICT.	RAINFALL.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burdwan	7·69	10·15	—2·46	—24
Birbhum	6·86	11·30	—4·44	—39
Bankura	6·07	10·83	—4·76	—44
Midnapore	7·46	10·25	—2·79	—27
Hooghly	9·04	10·36	—1·32	—13
Howrah	10·66	10·93	—0·27	— 2
24-Parganas	8·99	10·89	—1·90	—17
Calcutta	10·70	11·04	—0·34	— 3
Nadia	10·33	9·99	+0·34	+ 3
Murshidabad	11·21	10·14	+1·07	+11
Jessore	14·59	11·69	+2·90	+25
Khulna	12·62	12·74	—0·12	— 1

In north Bengal there were almost constant showers during the month with general rain between the 9th and the 11th, the 16th and the 23rd, and the 26th to the 29th. The rainfall was very heavy in this area on the 27th and 28th when a shallow local depression lay over central Bengal and was fairly heavy on the 18th and 19th, when a slight depression was passing from the head of the Bay north-westward through Bengal. The following falls exceeding 6″ in 24 hours were recorded over this division during the month :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
COOCH BEHAR	Fulbari	10th June	6·23
DARJEELING	Kurseong	18th "	6·74
COOH BEHAR	Fulbari	22nd "	7·60
RANGPUR	Sundarganj	" "	7·04
COOCH BEHAR	Cooch Behar	" "	6·23
DARJEELING	Mongpoo	27th "	7·82
	Kurseong	" "	7·62
	Darjeeling	" "	6·61
	Siliguri	" "	6·50
COOCH BEHAR	Dinhatta	" "	6·42
	Fulbari	28th "	11·54
JALPAIGURI	Bhagatpur	" "	11·00
	Jalpaiguri	" "	8·92
COOCH BEHAR	Dinhatta	" "	8·47
	Cooch Behar	" "	6·68
JALPAIGURI	Baxa	" "	6·27

The total rainfall was about or slightly above the normal, as is shown by the following data of the different districts :—

DISTRICT.	RAINFALL.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rajshahi	10·69	10·51	+0·18	+ 2
Dinajpur	12·43	13·78	—1·35	—10
Jalpaiguri	29·05	26·66	+2·39	+ 9
Darjeeling	27·12	22·59	+4·53	+20
Cooch Behar	33·92	27·44	+6·48	+24
Rangpur	22·28	17·06	+5·22	+31
Bogra	17·37	12·83	+4·54	+35
Pabna	11·11	11·49	—0·38	— 3

East Bengal received no rain of importance until the 13th when fairly general and moderately heavy rain commenced

and continued until the 21st. The rainfall then took off for about four days after which another general burst occurred lasting from the 26th to the end of the month. The rainfall was not as heavy as in north Bengal, but in the Mymensingh district there were some heavy falls about the middle of the month. The following gives the amounts exceeding 5″ in 24 hours recorded during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
Chittagong	Mirsarai	14th June	5·40
Noakhali	Fenny	,, ,,	5·09
Mymensingh	Netrakona	17th ,,	10·51
	Mymensingh	18th ,,	10·86
Tippera	Nasirnagar	,, ,,	7·00
Mymensingh	Netrakona	,, ,,	6·76
Noakhali	Noakhali	19th ,,	7·90
Chittagong Hill Tracts	Barkal	,, ,,	5·55
Backergunge	Daulatkhan	,, ,,	5·10
Mymensingh	Netrakona	20th ,,	5·82

The rainfall was irregularly distributed, but the total fall of the month for the division was about normal, as is shown by the following data for the included districts:—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dacca	16·52	12·64	+3·88	+31
Mymensingh	27·11	17·90	+9·21	+51
Faridpur	12·27	12·37	—0·10	—1
Backergunge	14·69	17·37	—2·68	—15
Tippera	18·81	14·58	+4·23	+29
Noakhali	24·27	22·20	+2·07	+9
Chittagong	18·45	23·56	—5·11	—22

In Bihar there were three periods of general showers, *viz.*, between the 1st and the 6th, the 16th and the 20th and the 26th to the 28th. The two last periods coincided with the appearance of the two shallow depressions of the month over Bengal. As ordinarily occurs when the weather is of this showery character, the rainfall was very unevenly distributed, but the following amounts exceeding 4″ in 24 hours were recorded on the following dates during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
Darbhanga	Ledenea	5th June	5·03
		14th ,,	6·00
Sonthal Parganas	Pakaur	18th ,,	4·06
Darbhanga	Ledenea	26th ,,	5·00
Saran	Basantpur	27th ,,	7·50
Saran	Gopalganj	,, ,,	6·34
Champaran	Bagaha	,, ,,	5·58
Purnea	Kaliganj	,, ,,	5·14
Champaran	Burhurwa	,, ,,	4·54
	Bettiah	,, ,,	4·30
Saran	Sripur	,, ,,	4·20
Darbhanga	Madhubani	,, ,,	4·09
Bhagalpur	Pratapganj	28th ,,	6·00
Purnea	Kaliganj	29th ,,	4·10

The rainfall of the month was about normal over north Bihar and was below the normal in the south. The following gives data for the different districts:—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Patna	2·94	7·71	—4·77	—62
Gaya	2·60	6·52	—3·92	—60
Shahabad	3·59	6·45	—2·86	—44
Saran	5·83	7·91	—2·08	—26
Champaran	13·37	9·34	+4·03	+43
Muzaffarpur	7·74	7·41	+0·33	+4
Darbhanga	10·84	7·47	+3·37	+45
Monghyr	5·03	7·62	—2·59	—34
Bhagalpur	9·51	8·34	+1·17	+14
Purnea	11·92	12·60	—0·68	—5
Malda	9·74	10·11	—0·37	—4
Sonthal Parganas	6·46	9·79	—3·33	—34

The rainfall was scattered and unevenly distributed over Orissa and as no storm from the Bay traversed this division there were no very heavy falls. The following

gives the only amounts exceeding 4″ in 24 hours recorded during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Orissa Tributary Mahals.	Athmalik . . .	10th June .	4·45
Cuttack . . .	False Point . .	28th ,, .	4·33

The general rainfall of the division was only about two-thirds of the normal, as is shown by the following data for the contained districts:—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuttack	7·61	9·71	—2·10	— 22
Balasore	7·76	9·10	—1·34	— 15
Angul	5·10	9·78	—4·68	— 48
Orissa Tributary Mahals . .	5·67	9·77	—4·10	— 42
Puri	5·38	8·22	—2·84	— 35

Scattered showers occurred over Chota Nagpur during the greater part of the month and the only period of fairly general rain was on the 26th and 27th. In Singhbhum there were some heavy falls of rain on the 26th of which the more important were 10·54″ at Kharswan, 3·94″ at Seraikilla and 4·68″ at Kalikapur. The total rainfall of the division was little more than half the normal, as is shown by the following data for the different districts :—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hazaribagh	3·26	8·43	—5·17	— 61
Ranchi	4·40	9·64	—5·24	— 54
Palamau	2·80	6·80	—4·00	— 59
Manbhum	5·70	9·59	—3·89	— 41
Singhbhum	9·11	10·57	—1·46	— 14

The United Provinces received fairly general showers between the 16th and the 21st and between the 27th and 29th, due in large part to the two depressions which formed over the head of the Bay and advanced north-westward into Bihar. At other times only scattered and generally light showers were received except in the case of the submontane division where the showers were both heavier and more continuous. The only falls exceeding 3″ in 24 hours were recorded at the following places on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Gorakhpur . .	Padrauna . . .	26th June .	4·15
Pilibhit . . .	Puranpur . . .	,, ,, .	3·32
Etah . . .	Aliganj . . .	,, ,, .	3·21
Bahraich . .	Bahraich . . .	27th ,, .	5·04
Gorakhpur . .	Hata . . .	,, ,, .	4·20
Jaunpur . . .	Kutahan . . .	,, ,, .	3·35
Ballia . . .	Ballia . . .	,, ,, .	3·29
Gorakhpur . .	Gorakhpur . .	,, ,, .	3·07

The total rainfall of the month was more or less below the normal in all divisions of these provinces. The average actual rainfall was heaviest (5·50″) in the east submontane division and the deficiency was least both actually and relatively to the normal in that area (—16 %). In north Oudh and the hills divisions the total rainfall was about half the normal while in the east, centre and west of the United Provinces and in south Oudh the percentage departures varied between —67 % and —74 %.

The rainfall was very light over the Punjab and except on and near the hills, where showers occurred between the 3rd and 5th and between the 14th and the 18th, the only important rainfall was recorded between the 27th and 30th when a feeble advance of monsoon winds from the Arabian Sea took place. The average actual rainfall, except on the hills and in Montgomery, Umballa, Rawalpindi and Jhang, was less than half an inch, and much below the average as is shown by the following data for the different districts of the province :—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inch.	Inches.	Inches.	
Hissar	0·38	1·66	—1·28	— 77
Ferozepore . . .	0·23	1·77	—1·54	— 87
Montgomery . . .	0·82	0·80	+0·02	+ 3
Gurgaon . . .	0·48	2·30	—1·82	— 79

DISTRICT.	RAINFALL. Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rohtak	0·47	2·08	—1·61	— 77
Delhi	0·11	2·83	—2·72	— 96
Karnal	0·10	2·69	—2·59	— 97
Lahore	0·15	1·69	—1·54	— 91
Umballa	0·70	3·93	—3·23	— 82
Ludhiana	0·04	2·52	—2·48	— 98
Jullundur	0·13	2·66	—2·53	— 95
Hoshiarpur	0·37	3·41	—3·04	— 89
Gurdaspur	0·22	3·77	—3·55	— 94
Amritsar	0·25	2·24	—1·99	— 89
Simla	1·82	4·69	—2·87	— 61
Kangra	1·71	5·25	—3·54	— 67
Gujranwala	0·28	1·63	—1·35	— 83
Sialkot	0·10	2·55	—2·45	— 96
Gujrat	0·05	2·04	—1·99	— 98
Jhelum	0·21	1·44	—1·23	— 85
Rawalpindi	0·64	1·88	—1·24	— 66
Mianwali	0·37	0·59	—0·22	— 37
Shahpur	0·30	1·06	—0·76	— 72
Jhang	0·82	0·88	—0·06	— 7
Dera Ghazi Khan	0·23	0·74	—0·51	— 69
Muzaffargarh	0	0·38	—0·38	—100
Mooltan	0·40	0·38	+0·02	+ 5

Monsoon rainfall did not extend into the North-West Frontier Province during the month and the only rain received was showers on the 7th and 8th, the 16th, the 20th, the 24th and 25th and the 30th. The total fall of the month was, on the whole, less than half the normal, as is shown by the following comparative data for the different districts:—

DISTRICT.	RAINFALL. Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Peshawar	0·20	0·56	—0·36	—64
Hazara	0·72	2·29	—1·57	—69
Kohat	1·03	1·45	—0·42	—29
Bannu	0·25	0·81	—0·56	—69
Dera Ismail Khan	0·05	0·81	—0·76	—94

Baluchistan received a few light local showers during the month but the total amount was much less than the average. From Kashmir three periods of light scattered showers were reported, the first lasting from the 3rd to the 9th, the second from the 15th to the 20th and the third from the 25th to the end of the month. The showers were generally light, the heaviest falls having been 1·64″ at Uri on the 29th and, so far as can be judged, the total rainfall was less than the normal. Western Rajputana received practically no rain, though a few scattered showers were reported from different parts of the Jodhpur state. Eastern Rajputana had three showery periods, *viz.*, on the 5th and 6th, between the 16th and the 20th and between the 26th and the end of the month. The last was occasioned by an advance of monsoon winds from the Arabian Sea and included the only important rainfall of the month. During this period Rajgarh (Alwar) recorded 3·02″ in 24 hours, Sirmathra (Dholpur) 1·90″, Mangrol (Kotah) 2·27″, Dug (Jhalawar) 1·76″ and Chaoni (Jhalawar) 1·95″. The total rainfall of the month was much below the normal, as is shown by the following comparative data for some of the larger states:—

STATE.	RAINFALL. Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jaipur	0·66	2·34	—1·68	— 72
Alwar	0·81	2·42	—1·61	— 67
Bharatpur	0·98	2·84	—1·86	— 65
Dholpur	0·87	2·95	—2·08	— 71
Karauli	1·57	3·87	—2·30	— 59
Kotah	1·10	5·42	—4·32	— 80
Ajmer Merwara	0·74	2·60	—1·86	— 72
Udaipur	0·47	4·01	—3·54	— 88

In Central India the rainfall was somewhat heavier and more general and lasted longer than in Rajputana but occurred on approximately the same dates. The period of most important and most general rainfall was that between the 26th and the end of the month when an advance of monsoon winds from the Arabian Sea occurred. The heaviest falls reported, exceeding 2″ in 24 hours, were recorded at the following places on the following dates:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
INDORE	Indore	26th June	2·30
REWA	Tyonthar	,, ,,	2·11
	Ramnagar	27th ,,	2·58
BHOPAL AGENCY	Sirong	30th ,,	3·08
BUNDELKHAND	Chhatarpur	,, ,,	2·30

Only about one quarter of the normal amount of rain was received during the month, as is shown by the following data for the principal Central India states:—

STATE.	RAINFALL			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Indore	5·83	6·29	—0·46	— 7
Rutlam	2·34	5·22	—2·88	—55
Bhopal Agency	1·85	8·32	—6·47	—78
Gwalior	1·60	6·08	—4·48	—74
Rewah	2·27	7·07	—4·80	—68
Bundelkhand	1·19	7·75	—6·56	—85

Berar received occasional scattered showers between the 1st and the 17th. Between the 18th and 20th fairly general rain was reported and a second general fall occurred between the 24th and the end of the month. The heaviest falls exceeding 2″ in 24 hours were generally recorded in one or other of these rainy periods. The following gives the dates and places of these falls:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
WUN	Ner	18th June	2·65
BULDANA	Deulgaon Raja	" "	2·55
BASIM	Umerkheir	" "	2·09
AMRAOTI	Badnera	" "	2·02
BASIM	Pusad	19th "	2·65
AMRAOTI	Murtazapur	" "	2·20
BULDANA	Mehkar	26th "	2·35
WUN	Digras	" "	2·32
BULDANA	Donegaon	" "	2·08
WUN	Wun	27th "	2·05
BASIM	Umerkheir	30th "	2·50

The total rainfall of the division was lighter than usual, as is shown by the following comparative data for the different districts:—

DISTRICT.	RAINFALL			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Amraoti	3·84	5·79	—1·95	—34
Ellichpur	3·00	6·35	—3·35	—53
Akola	2·37	5·00	—2·63	—53
Buldana	3·47	5·22	—1·75	—34
Wun	4·60	6·29	—1·69	—27
Basim	5·54	5·70	—0·16	— 3

The distribution of rain in the Central Provinces was generally similar to that in Berar. From the 1st to the 17th, when there was either no monsoon along the west coast or the shallow storm noticed in previous sections was passing up that coast, only light scattered rain was received, but between the 18th and 20th there occurred a feeble advance of monsoon winds and between the 25th and the end of the month another and slightly stronger advance. Most of the heavy rain occurred during these two advances, as is shown by the following table which gives the dates and places at which amounts exceeding 2″ in 24 hours were recorded:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
NARSINGHPUR	Narsinghpur	19th June	2·48
SAUGOR	Rehli	" "	2·24
BHANDARA	Tirora	20th "	2·05
FEUDATORY STATES	Khairagarh	25th "	2·25
WARDHA	Wardha	26th "	2·42
NAGPUR	Katol	" "	2·25
CHANDA	Mul	" "	2·15
RAIPUR	Drug	27th "	2·49
CHANDA	Warora	" "	2·20
	Armori	" "	2·17
	Brahmapuri	" "	2·12
BHANDARA	Sakoli	28th "	2·31
HOSHANGABAD	Harda	29th "	4·70
NAGPUR	Katol	" "	2·17

The total rainfall over this area was very short of the normal, as is shown by the following data for the different districts;—

DISTRICT.	RAINFALL. Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	inches.	Inches.	Inches.	
Raipur	4·25	8·82	−4·57	−52
Bilaspur	3·68	8·17	−4·49	−55
Sambalpur	3·01	10·08	−7·07	−70
Saugor	2·53	7·18	−4·65	−65
Damoh	2·53	6·33	−3·80	−60
Jubbulpore	2·60	7·25	−4·65	−64
Mandla	2·16	7·53	−5·37	−71
Seoni	5·94	8·71	−2·77	−32
Narsinghpur	3·28	7·66	−4·38	−57
Chanda	5·36	7·74	−2·38	−31
Bhandara	6·61	8·84	−2·23	−25
Balaghat	5·07	9·35	−4·28	−46
Hoshangabad	3·25	7·67	−4·42	−58
Nimar	3·14	5·93	−2·79	−47
Betul	3·18	6·99	−3·81	−55
Chhindwara	4·15	7·22	−3·07	−43
Wardha	4·72	6·11	−1·39	−23
Nagpur	6·70	7·90	−1·20	−15

Rain occurred in Mysore generally between the 4th and the 8th, the 12th and 14th, and the 17th and 20th but scattered showers were received at other times during the month. The total fall of the month was about normal, as is shown by the following statement:—

DIVISION.	RAINFALL. Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Mysore	4·93	4·24	+0·69	+16

Over the Bombay Presidency the rainfall was lighter and less continuous than usual. In the Konkan coast districts there was very little rain between the 1st and the 12th. On the 13th the monsoon commenced in the wake of the slight depression which was travelling up the west coast at this time. Heavy rain fell on the 13th, 14th and 15th and from that time up to the close of the month daily rain was experienced. The first burst of the monsoon was less heavy than is frequently recorded but the following falls of rain exceeding 4″ in 24 hours were registered on the following dates:—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M of date.
			Inches.
RATNAGIRI	Vengurla	13th June	4·92
	Malvan	14th ,,	4·89
SAVANTVADI	Kudal	,, ,,	4·63
NORTH KANARA	Bhatkal	,, ,,	4·24
	Karwar	15th ,,	4·86
RATNAGIRI	Dapoli	,, ,,	4·71
	Ratnagiri	,, ,,	4·04
KOLABA	Alibag	19th ,,	5·23
RATNAGIRI	Malvan	,, ,,	5·00
KOLABA	Mangaon	,, ,,	4·34
	Pen	,, ,,	4·32
RATNAGIRI	Rajapur	21st ,,	4·02
	Vengurla	22nd ,,	4·76
	Devgad	23rd ,,	6·35
	Malvan	,, ,,	4·40
SAVANTVADI	Kudal	24th ,,	10·25
RATNAGIRI	Ratnagiri	,, ,,	5·92
	Rajapur	,, ,,	4·70
	Devgad	,, ,,	4·45
NORTH KANARA	Kumta	,, ,,	4·15
	Bhatkal	,, ,,	4·11
RATNAGI	Rajapur	25th ,,	4·85

The following gives comparative data for the different districts in the division and shows that only about two-thirds of the normal rainfall was received during the month:—

DISTRICT.	RAINFALL. Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North Kanara	18·03	27·63	— 9·60	−35
Savantvadi	30·06	38·24	— 8·18	−21
Ratnagiri	24·08	32·14	— 8·06	−25
Kolaba	12·81	25·97	—13·16	−51
Thana	10·18	18·85	— 8·67	−46

In the Karnatak the weather was showery during the first two weeks and there occurred a moderate burst of rain between the 11th and 14th when the storm in the Arabian Sea was passing along the Bombay coast. After the 14th, however, the rainfall fell off quickly and during the last ten days only light scattered showers were experienced. There were no heavy falls of rain during the month and the following data for the different districts show that the total fall except in Bijapur was lighter than usual:—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dharwar	3·87	4·10	—0·23	— 6
Bijapur	4·34	3·55	+0·79	+22
Belgaum	5·56	7·32	—1·76	—24
Kolhapur, etc.	4·33	5·46	—1·13	—21

In the south Deccan general showers were received on the 8th and 9th and a fairly general but moderate burst of rain between the 12th and 17th. After the latter date general rain ceased and showery weather was experienced up to the close of the month. The burst of the monsoon was accompanied in this region by no heavy fall of rain, and the total rain of the month was deficient. The following gives data for the contained districts:—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Satara	4·30	8·76	—4·46	— 51
Sholapur	3·62	4·11	—0·49	— 12
Poona	3·70	6·91	—3·21	— 46

Khandesh received no general or heavy rain during the month but showers were fairly general on the 15th and 16th and again on the 25th and 30th. The following comparative data for the different districts show the lightness of the month's rainfall:—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ahmednagar	3·50	4·61	—1·11	—24
Nasik	2·27	7·83	—5·56	—71
Khandesh	2·42	4·84	—2·42	—50

In the Surat and Broach districts of Gujarat the latter half of the month was showery and at some places moderately heavy falls of rain were received but the general fall of the month was exceedingly scanty. The following gives data for the different districts:—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Surat	2·63	10·45	—7·82	—75
Broach	1·41	6·65	—5·24	—79
Kaira	0·14	5·06	—4·92	—97
Panch Mahals	1·02	5·35	—4·33	—81
Ahmedabad	0·51	4·37	—3·86	—88

Kathiawar received showers about the middle and end of the month, the principal falls having been 3·32″ at Chhota Udepur on the 24th, 1·05″ at Lunavada on the 15th, 1·06″ at Palitana on the 24th, 1·25″ at Vankaner on the 25th and 1·44″ at Bhavnagar on the 30th. The total fall of the month was as short as in Gujarat, as is shown below:—

State or District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Baroda	0·05	5·76	—5·71	—99
Rewa Kantha	1·73	6·26	—4·53	—72
Mahi Kantha	0·23	4·65	—4·42	—95
Palanpur	0·13	2·35	—2·22	—94
Kathiawar	0·80	4·39	—3·59	—82
Cutch	0·06	1·82	—1·	—97

In Sind there was no rain during the month.

In Travancore monsoon rainfall commenced on the 10th and was heavy on the 11th, 12th and 13th. In Malabar the fall commenced on the 12th and in South Canara on the 14th. The following gives the average actual daily rainfall for these three regions from the 11th to the 16th :—

DISTRICT.	RAINFALL DURING 24 HOURS PRECEDING 8 A.M. OF						
	11th June.	12th June.	13th June.	14th June.	15th June.	16th June.	TOTAL.
	"	"	"	"	"	"	"
Travancore . . .	1·71	2·47	1·74	1·09	0·73	0·39	8·13
Malabar	0·33	0·68	3·98	2·60	1·58	0·82	9·99
South Canara . . .	0·53	0·17	0·90	2·90	2·25	0·70	7·45

The burst of rain initiating the monsoon was thus not so heavy as usual and the heaviest falls in 24 hours, exceeding 5″, were as follows :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
MALABAR . . .	Cochin . . .	12th June .	6·12
TRAVANCORE . .	Alleppey . . .	,, ,, .	5·80
MALABAR . . .	Calicut . . .	13th ,, .	6·49
TRAVANCORE . .	Karunagapally . .	,, ,, .	6·07
MALABAR . .	Manjeri . . .	,, ,, .	5·86
	Tellicherry . .	,, ,, .	5·56
	Nilambur . . .	,, ,, .	5·15

The rainfall fell off after the 17th but there was a second burst of moderately heavy rain between the 24th and 27th 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.
TRAVANCORE . .	Karunagapally . .	24th June .	4·07
MALABAR . .	Calicut . . .	27th ,, .	5·23
	Cannanore . .	,, ,, .	4·75
	Bodagara . . .	,, ,, .	4·16

The general rainfall for the whole division was lighter than usual, as is shown by the following data for the two contained districts :—

DISTRICT.	RAINFALL.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from nomal.
	Inches.	Inches.	Inches.	
Malabar . . .	22·22	33·23	—11·01	—33
South Canara . .	24·10	39·64	—15·54	—39

South Madras received scattered showers occasionally during the month. They were heavy only on the 2nd but the total rainfall of the month was, on the whole, about normal. The following gives data for the districts :—

DISTRICT.	RAINFALL.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Madura. . . .	1·06	1·05	+0·01	+ 1
Tinnevelly . . .	0·49	0·87	—0·38	—44

In south central Madras the principal rainfall occurred on the 17th and 18th, showers only having been received at other times. The general rainfall of the division was, however, heavier than usual, as is shown by the following data for the districts :—

DISTRICT.	RAINFALL.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Salem	3·36	2·07	+1·29	+62
Coimbatore . . .	1·94	1·59	+0·35	+22

Central Madras received showers between the 4th and the 8th, between the 12th and the 22nd and in some places on the 30th. The showers were heavy on some occasions, the more important having been 3·70″ in 24 hours at Madanapalle on the 30th, 2·23″ at Chitvel on the 12th, 2·20″ at Kampli on the 12th and 2·07″ at Harpanahalli on the 7th. The general rainfall of the month was above the normal, as is shown by the following data for the districts :—

DISTRICT.	RAINFALL.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah . . .	3·04	2·29	+0·75	+33
Anantapur . . .	2·52	2·35	+0·17	+ 7
Bellary	3·32	2·59	+0·73	+28
Kurnool . . .	1·76	2·95	—1·19	—40

The northern division of the east coast received general rain on the 11th and 12th, between the 16th and the 20th and between the 24th and the 30th. The falls were frequently moderately heavy and amounted to over 4″ 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.
Ganjam	Chatrapur	11th June	4·15
Vizagapatam	Parvatipuram	12th „	4·65
Kistna	Tenali	„ „	4·50
Godavari	Narasapur	16th „	5·25
		17th „	6·37
Kistna	Pandraka	„ „	5·14
Godavari	Kottapeta	„ „	4·50
	Pithapuram	„ „	4·17
Kistna	Mangalagiri	„ „	4·17
Vizagapatam	Jeypore	20th „	4·35
	Gajapatinagram	„ „	4·35
Godavari	Bhadrachalam	„ „	4·02

The total rainfall of the month, on the whole, exceeded the normal amount, as is shown by the following data for the districts :—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	4·92	5·73	—0·81	—14
Vizagapatam	6·17	4·69	+1·48	+32
Godavari	6·94	4·65	+2·29	+50
Kistna	5·15	3·94	+1·21	+31

The rainfall in the central division of the east coast was actually considerably lighter than in the more northern division and the only general and heavy fall of rain was on the 17th and 18th, but the total fall of the month, relatively to the normal, was equally heavy, as is shown by the following data :—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Nellore	2·14	1·63	+0·51	+31

In the south division of the east coast there was a period of general showers between the 14th and the 20th, but at other times only scattered occasional showers were reported. The total rainfall of the different districts generally exceeded the normal, as is shown below :—

District.	Rainfall.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madras	1·46	2·08	—0·62	—30
Chingleput	1·49	2·11	—0·62	—29
North Arcot	3·39	2·72	+0·67	+25
South Arcot	2·29	1·95	+0·34	+17
Tanjore	2·20	1·43	+0·77	+54
Trichinopoly	2·53	1·40	+1·13	+81

The following gives comparative data of rainfall at the extra-Indian stations and shows that Colombo, like Malabar, received less rain than usual, while Trincomalee on the east coast of Ceylon shared in the excess which prevailed over the Madras coast districts. To the north, north-west and west of India the weather was practically rainless during the month. At Kabul there was, during the month, a total fall of 0·40″ which was nearly twice as much as usual, but this excess was purely local as in Kashgaria, Persia, Asiatic Turkey, and as far west as Egypt there was no rain whatever during the month under review. Over Arabia there occurred a trifling local fall of rain at Muscat, but the remaining stations in this area were rainless. In the south-east trades region the variations in the rainfall were large and irregular. At the Seychelles a fall of 20·06″ was reported, the normal fall being 6·42″, while at Zanzibar the total rainfall was 0·87″ instead of 1·07″ and at Mauritius 2·10″ instead of 1·95″, so

that while there was a large excess at the Seychelles the month's fall was about normal at Zanzibar and Mauritius :—

STATION.	RAINFALL.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee . . .	3·14	1·51	+1·63	+108
Colombo . . .	5·53	8·23	−2·70	— 33
Minicoy . . .	8·36	8·60	−0·2	— 3
Kabul	0·40	0·21	+0·19	+ 90
Kashgar . . .	0	0·31	−0·31	−100
Meshed . . .	0	0·23	−0·23	−100
Teheran . . .	0	0·04	−0·04	−100

STATION.	RAINFALL.			
	Average actual, June 1903.	Average normal, June.	Variation of actual from normal, June 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ispahan . . .	0	0	0	0
Bushire . . .	0	0	0	0
Jask	0	0·11	−0·11	−100
Muscat . . .	0·03	0·36	−0·33	— 92
Baghdad . . .	0	0	0	0
Aden	0	0·01	−0·01	−100
Perim	0	0	0	0
Zanzibar . . .	0·87	1·07	−0·20	— 19
Seychelles . . .	20·06	6·42	+13·64	+212
Mauritius . . .	2·10	1·95	+ 0·15	+ 8

Crop Report.

Madras.—During June the rainfall was good to fair over Madras and irrigation supplies were generally sufficient. The standing crops, at the close of the month, were generally fair, and ploughing, sowing and transplanting progressed throughout the Presidency. Pasture was scanty in parts.

Bombay.—The rainfall was irregularly distributed during the month and at the close of the month more rain was urgently needed in parts of Thar and Parkar, Gujarat, the Carnatic, the Deccan and Baroda. The crops were suffering from insufficient moisture in parts of the Panch Mahals, but were generally in good condition, though they had been damaged by locusts and insects in some places. Sowing was retarded by want of moisture in parts of Poona, Satara and the Carnatic.

Bengal.—Rain was fairly general during the month and was heavy in parts of east and north Bengal towards the end of the month. More rain was needed in the districts of Bankura, Midnapore, Murshidabad, Rajshahi, Patna, Gaya, Shahabad, Muzaffarpur, Monghyr, Balasore, Angul, Puri, Ranchi, Palamau and Singhbhum. Early rice and jute were doing well and the estimated outturn of jute was 85% of a normal crop.

United Provinces.—The rainfall during June was generally light and scattered and at the close of the month more rain was urgently needed throughout the provinces and in seventeen districts the sowings of autumn crops were retarded for want of sufficient moisture. Fodder was scarce in places.

Punjab.—The rainfall was irregular during the month and more was urgently wanted in some districts though the sowings of autumn crops continued. The condition and prospects of the standing crops were good.

North-West Frontier Province.—The rainfall was light throughout the province until the last week when general rain fell. At the close of the month the autumn crops promised well.

Burma.—The rainfall was fairly well distributed except in Sagaing and Shabeitkin where rain was badly wanted, and the crop prospects were poor in parts of lower Chindwin and of Yamethin where the sesamum and cotton crops were withering for want of rain.

Central Provinces.—The weather was showery but the rainfall during June was abnormally deficient, particularly in Saugor, Mandla and Hoshangabad, and more rain was wanted at the close of the month everywhere as sowings were being retarded.

Assam.—Rain fell during the month in every district but more was wanted in the hill districts. Ploughing and sowing and the plucking and manufacture of tea were in progress and early rice was being reaped in Sylhet. The outturn of tea was short in Cachar, good in Lakhimpur, and fair elsewhere. The prospects of rice were generally good.

Mysore.—The general prospects were good but more rain was wanted in Shimoga and in parts of Tumkur.

Coorg.—The sowing of rice and transplanting of rain were completed during the month. Water and fodder were ample at the close of the month.

Berar.—The weather was warm and cloudy and the preparation of land continued during the month in all districts except Amraoti. Water and fodder were sufficient.

Hyderabad.—At the close of the month lands were being extensively prepared for further sowings and there was at that time a fair supply of water in the tanks.

Rajputana.—The preparation of land for autumn crops progressed during the month and sowing commenced in parts. Fodder was sufficient and the cattle in good condition.

Central India.—Light and insufficient rain fell in most agencies during the month. It was generally sufficient in Bhopal, Malwa and parts of Gwalior and insufficient elsewhere. Locusts were causing damage in Bhopawar and agricultural stock and pasturage were generally good.

Kashmir.—The condition of the standing crops was fair and fodder generally sufficient, but the outlook at the close of the month seemed gloomy. Land was being perpared for autumn sowings.

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 229 Stations in India, Burma, etc., in June, 1903.

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
	I.—Burma Coast and Bay Islands.				+·019								86·8	+0·4	76·5	+0·4	81·7	+0·4	10·2					17·4
1	Tenasserim and Bay Islands.	Car Nicobar	25																					
		Port Blair	61	29·767	+·010	29·759	29·845	13th	29·703	23rd	·142	80·8	85·6	—0·4	78·2*	+0·4	81·9*	0	7·4	88·6	3rd	74·1	22nd	14·5
		Mergui	96	29·802	+·032?	29·830	29·857	17th	29·732	23rd	·125	79·8	88·6	+2·9	75·3	+2·2?	82·0	+2·6?	13·3	92·6	5 days	72·9	20th	19·7
		Tavoy	26	29·858	+·020	29·815	29·927	12th	29·772	23rd	·155	78·7	86·5	+1·7	75·0	+0·3	80·8	+1·0	11·5	92·2	14th	71·5	17th	20·7
		Moulmein	94	29·740	+·018	29·772	29·841	12th	29·625	23rd	·216	78·5	85·9	+1·3	75·5	+0·7	80·7	+1·0	10·4	90·5	14th	73·3	2 days	17·2
2	Lower Burma	Rangoon	57	29·765	+·025	29·760	29·853	13th	29·635	23rd	·218	79·8	85·7	—0·8	76·2	—0·3	81·0	—0·6	9·5	89·1	2nd	74·9	5 days	14·2
		Bassein	27	29·776	+·027	29·738	29·855	4th	29·625	23rd	·230	80·7	85·9	—0·4	77·3	+1·0	81·7	+0·3	8·6	91·7	3rd	72·7	6th	19·0
		Diamond Island	41	29·749	+·007	29·725	29·820	2 days	29·595	23rd	·225	82·1	85·6	0	78·0	+1·6	81·8	+0·8	7·6	88·4	9th	75·2	18th	13·2
5	Arakan	Akyab	20	29·715	+·014	29·678	29·812	4th	29·571	20th	·241	81·2	86·6	+0·6	78·6	+0·5	82·6	+0·6	8·0	91·9	3rd	75·2	21st	16·7
	Central Burma	Toungoo	183	29·624	+·033	29·749	29·712	13th	29·482	20th	·230	81·2	90·4	+1·3	74·5	—1·0	82·5	+0·2	15·9	94·4	8th	72·6	28th	21·8
	II.—Burma Inland				+·026								91·9	—0·7	76·6	—0·2	84·3	—0·5	15·4					24·5
3	Central Burma.	Thayetmyo	130	29·647	+·031	29·718	29·735	13th	29·500	20th	·235	80·8	90·2	—1·2	75·9	—0·9	83·1	—1·1	14·3	95·5	3rd	71·5	10th	21·0
4	Upper Burma	Minbu	165	29·598	+·032	29·706	29·705	4th	29·448	20th	·257	81·1	90·7	—2·3?	77·5	—0·3	84·1	—1·3?	13·2	99·2	3rd	74·1	4th	25·1
		Yamethin	657	29·120	+·027	29·725	29·210	4th	28·967	20th	·243	80·9	92·2	+0·3	75·5	+0·2	83·9	+0·3	16·7	97·3	2nd	73·7	2 days	23·6
		Monywa		29·459		29·678	29·583	4th	29·316	2 days	·267	82·6	95·0		77·1		86·1		17·9	102·8	3rd	72·8	4th	30·0
		Mandalay	250	29·495	+·020	29·693	29·610	4th	29·354	20th	·256	84·0	94·8	—0·2	78·5	0	86·7	—0·1	16·3	99·0	2 days	75·1	2 days	23·9
		Bhamo	381	29·345	+·018	29·682	29·480	4th	29·201	21st	·279	78·8	88·7	—1·8	74·8	—0·1	81·8	—1·0	13·9	92·5	2 days	69·1	19th	23·4
4(a)	Burma Hill Stations.	Maymyo		26·527			26·390	13th	26·222	22nd	·168	72·5	79·0†		66·3		72·7†		12·7	82·0	24th	63·8	1st	18·2
		Lashio		27·004	+·012		27·114	3rd	26·888	2 days	·226	74·1	83·4	—2·1	70·1	+0·8	76·8	—0·7	13·3	90·0	2nd	66·5	18th	23·5
	III.—Assam				+·017								87·3	—1·0	75·4	—0·6	81·4	—0·8	12·0					22·1
7	Surma	Silchar	104	29·606	+·019	29·662	29·722	2nd	29·435	20th	·287	80·9	88·5	—0·9	76·2	0	82·4	—0·5	12·3	97·6	25th	72·8	18th	24·8
9	Brahmaputra	Sibsagar	333	29·364	+·013	29·653	29·507	4th	29·213	20th	·294	78·4	87·1	—2·2	75·8	—0·6	81·5	—1·4	11·3	92·2	9th	73·0	4th	19·2
		Dhubri	115	29·554	+·018	29·624	29·685	4th	29·363	20th	·322	78·7	85·9	+0·2	75·2	—1·2	80·6	—0·5	10·7	91·7	9th	71·7	28th	20·0
		Gauhati	195	29·497		29·648	29·630	4th	29·309	20th	·321	78·5	87·5		75·8		81·7		11·7	94·0	9th	74·0	2 days	20·0
		Tezpur	252	29·434		29·645	29·570	4th	29·262	20th	·308	78·6	88·0		75·8		81·9		12·2	97·2	4th	73·4	15th	23·8
		Dibrugarh	353	29·354		29·669	29·486	4th	29·203	20th	·283	78·1	86·9		73·3		80·1		13·6	93·7	26th	69·0	17th	24·7
	IV.—Bengal and Orissa				+·018								91·1	+0·6	77·6	—0·6	84·4	0	13·5					25·7
6	East Bengal	Chittagong	87	29·602	+·005	29·636	29·723	4th	29·419	20th	·304	81·9	87·8	+1·2	76·8	+0·2	82·4	+0·7	11·0	91·5	2 days	71·1	18th	20·4
		Noakhali	43	29·637		29·627	29·769	4th	29·445	20th	·324	82·7	87·7		77·2		82·5		10·5	92·2	1st	69·9	2nd	22·3
		Comilla	36	29·651		29·635	29·798	1st	29·460	20th	·338	80·4	87·3		75·9		81·6		11·4	93·8	4th	70·8	2nd	23·0
		Sirajganj	49	29·610		29·608	29·763	4th	29·405	20th	·358	79·7	88·1		76·1		82·1		12·0	93·3	11th	72·7	1st, 3rd & 10th	20·6
		Narayanganj	26	29·642	+·028?	29·616	29·771	2 days	29·418	20th	·353	81·5	89·1	+0·1	77·3	—1·0	83·2	—0·5	11·8	98·1	13th	73·2	3rd	24·9
		Barisal	13	29·651	+·017	29·609	29·785	4th	29·477	20th	·308	83·6	89·6	+0·9	77·5	—0·7	83·6	+0·1	12·1	98·3	3rd	72·6	19th	25·7
		Mymensingh	59	29·620	+·018	29·631	29·767	4th	29·418	20th	·349	79·5	86·1	—1·1	75·9	—1·0	81·0	—1·1	10·2	92·2	25th	72·6	1st & 6th.	19·6
		Faridpur	46	29·612		29·605	29·746	4th	29·410	20th	·336	82·1	89·7		77·2		83·5		12·5	95·3	12th	71·9	19th	23·4
10	Deltaic Bengal	Jessore	33	29·600	+·011	29·580	29·746	4th	29·407	20th	·339	83·2	92·1	+0·6	77·5	—1·3	84·8	—0·4	14·6	97·0	12th	71·2	1st	25·8
		Calcutta	21	29·611	+·025	29·578	29·740	4th	29·430	20th	·310	84·3	94·1	+3·0	78·5	0	86·3	+1·5	15·6	99·0	3rd	72·4	3rd	26·6
		Saugor Island	25	29·604	+·021	29·572	29·728	4th	29·435	25th	·293	86·1	92·2	+1·8	81·3	—0·4	86·8	+0·7	10·9	95·9	16th	74·6	16th	21·3
		Krishnagar	47	29·586		29·581	29·733	4th	29·299	20th	·334	82·5	93·8		78·1		86·6		15·7	98·8	1st & 16th.	71·5	1st	27·3
		Midnapore	149	29·466		29·561	29·594	4th	29·310	25th	·284	84·9	96·7		79·2		88·0		17·5	106·4	1st	72·7	11th	33·7

* Mean of 28 days. † Mean of 29 days.

NOTE 1.—When a query is inserted against any reading or in the returns of any

NOTE 2.—The divisional means of the figure columns

I.

in India, Burma, etc., in June, 1903.

WIND DIRECTION. Number of winds from									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 30th June.	Variation from normal of period, 1st May to 30th June 1903.			
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	57	58
														90	−0·9	·931	+·017	7·4	−1·2				24·80	27·58	−2·79					I.—Burma Coast and Bay Islands.		
4				2	4	10	9	1	S 51° W	8·6	9·6	10·0	− 4	90		·951		8·0		24			18·88	18·65	+ 0·23	28·14	35·74	− 7·60	1·91	Car Nicobar	TENASSERIM AND BAY ISLANDS.	1
21				4	3	1	1		S 36° W	2·0	1·8	1·9	− 5	91	+0·3	·917	+·023	5·6	−1·7	23	24·20	−1·20	22·95	30·29	− 7·34	32·93	49·55	−16·62	3·71	Port Blair.		
28					2				S 45° W	1·8				91	−0·7	·891	+·003	5·2	−2·4	20	25·80	−5·80	28·32	39·88	−11·56	37 11	65·93	−28·82	5·25	Mergui.		
18				1	6	4	1		S 18° W	3·2	3·6	3·4	+ 6	88	−3·8	·860	P	7·4	−0·5	25	26·10	−1·10	33·20	36·38	− 3·18	49·03	55·78	− 6·75	5·32	Tavoy.		
4		1	5	10	6	4			S 34° E	4·9	4·1	5·3	− 23	91	−1·7	·933	+·005	9·6	P	26	24·80	+1·20	21·05	17·52	+ 3·53	25·16	28·74	− 3·58	3·31	Moulmein.		
5	1	3	1	3	9	5	2	1	S 5° W	5·3		4·0	+ 33	90	−2·3	·947	+·008	6·7	−1·3	23	24·50	−1·50	18·17	23·42	− 5·25	25·93	33·72	− 7·79	2·24	Rangoon .	LOWER BURMA.	2
3				2	9	13	2	1	S 29° W	11·6	11·6	8·5	+ 36	86	+2·9	·952	+·049	7·4	−1·0	22	21·73	+0·27	19·92	23·17	− 3·25	33·57	33·60	− 0·03	2·53	Bassein.		
	2	1	16	11					S 33° E°	4·2	4·0	3·9	+ 3	93	+0·5	·989	+·017	8·5	−0·5	25	24·40	+0·60	45·81	44·79	+ 1·02	55·64	56·67	− 1·03	5·37	Diamond Island.		
3		2	17	8					S 35° E	4·7	4·7	4·8	− 2	87	−2·7	·937	+·011	8·2	−0·7	26	20·80	+5·20	14 89	11·15	+ 0·74	26·27	20·43	+ 5·84	2·14	Akyab .	ARAKAN.	5
														83	+1·9	·891	+ 017	7·0	0				6·84	6·65	+0·19					Toungoo .	CENTRAL BURMA.	3
			6	23	1				S 7° E	6·1		8·2	− 26	86	+3·5	·902	+·028	8·5	P	15	13·90	+1·10	7·01	6·34	+ 0·67	12·63	10·47	+ 2·16	1·18	II.—Burma Inland. Thayetmyo.	CENTRAL BURMA.	3
			21	9					S 32° E	10·1	12·0			84	+2·3	·902	+·012	7·4	P	12	9·10	+2·90	8·79	4·54	+ 4·25	11·77	10·55	+ 1·22	2·27	Minbu .	UPPER BURMA.	4
4			16	10					S 28° E	3·4	3·6			81	0	·855	+·005	8·7	P	9	7·40	+1·60	3·44	4·26	− 0·82	8·35	11·02	− 2·69	0·97	Yamethin.		
1			12	16	1				S 17° E	5·7	5·9			80		·898		8·1		6	6·80	−0·80	5·64	5·26	+ 0·38	7·43	8·80	− 1·37	1·72	Monywa.		
			3	23	4				S 1° W	10·4	10·5			75	−0·1	·875	+·009	1·7	P	7	6·50	+0·50	2·95	5·79	− 2·80	8·58	11·34	− 2·76	1·30	Mandalay.		
18	3	1	1	2	1	1	1	2	N	1·8	2·1			93	+3·9	·916	+·030	7·7	+0·1	19	19·10	−0·10	13·16	13·72	− 0·56	20·46	20·18	+ 0·28	4·05	Bhamo.		
26					1	3			S 31° W	3·4				84		·668		8·1		13	11·80	+1·20	16·37	7·20	+9·17	25·99	17·59	+ 8·40	8·27	Maymyo .	BURMA HILL STATIONS.	4(a)
	1	2	2	4	10	9	1	1	S 7° W	4·2				85	−2·2	·717	−·013	9·3	+1·1	20			12·03	10·70	+ 1·33	18·48	16·83	+ 1·65	1·16	Lashio.		
														92	+1·5	·905	+ ·006	8·4	+0·1				22·07	16·81	+5·26					III.—Assam.		
29				1					S 45° E	1·1	1·9	3·1	− 39	90	+0·7	·951	+·031	8·6	−0·4	19	21·10	−2·10	20·53	21·99	− 1·46	27 82	39·23	−11·41	3·71	Silchar .	SURMA .	7
9	3	17		1					N 42° E	2·1	1·9	2·6	− 27	95	+3·3	·930	−·008	9·2	+0·4	22	16·70	+5·30	30·14	13·59	+16·55	40·13	26·21	+13·92	7·45	Sibsagar .	BRAHMAPUTRA .	9
3		9	8	7	2		1		S 88° E	4·6	5·4	4·9	+ 10	91	+0·5	·898	−·004	8·4	+0·3	17	13 10	−1·10	30·11	23·17	+ 6·94	43·04	38·60	+ 4·44	10·10	Dhubri.		
14	4	6		3	1	1	1		N 46° E	1·3	1·5			90		·882		8·9		15	14·50	+0·50	16·26	11·22	+ 5·04	24·60	20·98	+ 3·62	5·09	Gauhati.		
3		6	13	3	2	2	1		S 86° E	2·8	3·0			91		·892		7·7		17	16·00	+1·00	14·16	11·87	+2·29	18·94	21·99	− 3·05	3·50	Tezpur.		
	7	5	2	3	1	4	3	5	N 12° W	1·3	1·2			92		·875		7·8		22	18·10	+3·90	21·24	19·03	+2·21	29·60	33·63	− 4·03	2·67	Dibrugarh.		
														85	−1·3	·944	−·011	6·8	−0·4				14·96	13·55	+ 1·41					IV.—Bengal and Orissa.		
			4	14	10	2			S 32° E	8·7	8·6	6·9	+25	84	−2·2	·923	+·001	5·5	−2·3	16	16·74	−0·74	18·40	21·76	− 3·36	22·44	32·07	− 9·63	4·34	Chittagong.	EAST BENGAL .	6
		2	7	10	9	2			S 41° E	6·8	7·3			86		·967		5·7		18	18·39	−0·39	28·17	23·29	+ 4·88	30·75	33·35	− 2·60	7·95	Noakhali.		
1	1	1		12	14	1			S 22° E	6·3	5·3			89		·921		7·4		20	17·39	+2·61	29·29	17·91	+11·38	38·62	28 92	+ 9·70	3·22	Comilla.		
7			2	13	4	3		1	S 28° E	1·9	2·0			93		·912		8·4		18	13·32	+4·68	13·47	11·57	+ 1·90	15·94	19·52	− 3·58	2·14	Sirajganj.		
1	1	2	7	7	10	1	1		S 43° E	7·9	6·8	7·2	− 6	92	+2·6	·992	+·010	7·3	−1·2	17	15·39	+1·61	18·9	12·64	+ 6·05	21·91	22·08	− 0·17	3·44	Narayanganj		
1		3	1	6	12	7			S 6° E	4·8				85	−2·3	·987	+·003	5·8	−2·3	20	16·52	+3·48	16 05	15·02	+ 1·03	15·81	24·21	− 4·37	4·73	Barisal.		
1			10	13	2	1	1	2	S 56° E	4·3	3·9			90	+0·4	·914	−·023	9·1	+1·5	25	18·19	+6·81	35·61	17·34	+18·30	47·55	30·30	+17·25	3·80	Mymensingh.		
			4	13	10	3			S 28° E	5·8	4·9			89		·982		6·4		12	14·23	−2·28	10·78	12·75	− 1·97	18·14	21·05	− 2·91	2·35	Faridpur .		
4		2	2	10	9	3			S 25° E	4·4	4·1	4·9	− 10	88	−0·3	1·001	−·005	7·3	−0·6	14	14·55	−0·55	15·79	12·56	+ 3·23	23 26	20·50	+ 2·76	3·71	Jessore .	DELTA C BENGAL	10
1			5	4	11	8	1		S 3° E	6·2		6·2	0	82	−3·4	·967	−·005	6·4	−0·9	11	12·88	−1·88	10·70	11·35	− 0·65	12 23	17·03	− 4·80	3·59	Calcutta.		
	1		2	2	16	6	1	2	S 9° W	17·8		14·6	+ 22	82	−2·6	1·021	+·007	6·7	−1·3	10	12·10	−2·10	10·22	10·02	+ 0·20	13·01	15·11	− 2·07	3·95	Saugor Island.		
3			3	11	11	1		1	S 25° E	3·8	4·2			87		·969		6·6		14	12·19	+1·81	10 42	9·88	+ 0·54	11 08	16·43	− 2·35	1·79	Krishnagar.		
6	2			1	21				S 3° E	5·2	4·6			79		·945		3·3		12	12·00	0	7·35	10·51	− 3·16	10·01	16·20	− 6·19	1·65	Midnapore.		

station, the data for that station are not utilized in calculating the Provincial variations.

Nos. 41, 43 and 45 are derived only from the data available.

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 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	29·292		29·538	29·423	4th	29·133	20th	·290	83·6	96·9		78·4		87·7		18·5	104·1	10th	73·9	14th	30·2
		Raniganj	334	29·279		29·560	29·404	4th	29·118	20th	·286	82·4	96·7*		78·2		87·6*		18·5	105·2	10th	72·4	3rd	32·8
		Burdwan	99	29·520	+·012	29·566	29·646	4th	29·338	20th	·308	84·1	95·2	+1·4	78·5	−0·8	86·9	+0·3	16·7	100·4	16th	73·8	3 days	26·6
		Naya Dumka	489	29·125		29·568	29·262	4th	28·968	21st	·294	82·7	93·6		77·6		85·6		16·0	101·0	10th	70·4	5th	30·6
		Berhampore	67	29·556	+·011	29·571	29·691	4th	29·388	20th	·303	82·4	92·7	+0·3	77·6	−0·9	85·2	−0·3	15·1	99·3	3 days	71·3	5th	28·0
		Rampur Boalia.	70	29·564		29·583	29·698	4th	29·368	20th	·330	82·4	90·8		77·3		84·1		13·5	93·1	10th & 11th,	69·1	3rd	29·0
		Malda	72	29·536		29·560	29·672	4th	29·369	20th	·303	81·5	90·3		76·8		83·6		13·5	97·1	10th	71·5	16th	25·6
		Bogra	61	29·583	+·022	29·596	29·733	4th	29·394	20th	·339	80·4	88·4	−1·4	76·1	−1·1	82·3	−1·3	12·3	94·2	10th	71·7	10th	22·5
12	North Bengal	Dinajpur	123	29·528	+·026	29·605	29·659	4th	29·358	20th	·301	79·6	88·4	−1·1	75·9	−1·6	82·2	−1·4	12·5	92·8	25th	69·5	2nd	23·3
		Rangpur	123	29·542		29·619	29·677	4th	29·356	20th	·321	79·7	88·1		75·1		81·6		13·0	93·7	25th	70·8	2nd	22·9
		Jalpaiguri	284	29·375	+·007	29·616	29·500	4th	29·198	21st	·302	80·1	89·0	+1·1	75·6	+0·4	82·4	+0·8	13·4	93·9	25th	72·1	28th	21·8
		Cooch Behar	156	29·515		29·627	29·647	4th	29·333	26th	·314	79·8	87·6		76·2		81·9		11·4	91·9	6th	72·1	10th	19·8
17	North Bihar	Purnea	125	29·514	+·025	29·593	29·665	1st	29·345	20th	·320	80·6	90·4	−1·7	76·6†	−0·7	83·5†	−1·2	13·8	96·2	1st	68·6	1st	27·6
14	Orissa	Balasore	50	29·578	+·015	29·569	29·687	4th	29·427	20th	·260	84·7	94·2	+2·3	78·8	+0·2	86·5	+1·3	15·4	106·5	1st	68·9	5th	37·6
		False Point	21	29·622	+·021	29·585	29·730	4th	29·479	23rd	·251	85·2	91·1	+0·8	79·6	−0·5	85·4	+0·2	11·5	100·5	2nd & 23rd,	72·1	5th	28·4
		Cuttack	80	29·560	+·028	29·582	29·652	4th	29·424	26th	·228	81·5	96·1	+0·6	79·8	−0·3	88·0	+0·2	16·3	102·4	24th	73·2	11th	29·2
		Puri	24	29·629		29·691	29·722	7th	29·492	26th	·230	84·5	89·8		81·5		85·6		8·3	94·2	23rd	74·1	11th	20·1
	V.—Gangetic Plain and Chota Nagpur.				+·013								98·3	+3·1	79·5	+1·3	88·9	+2·2	18·8					34·2
15	Chota Nagpur	Hazaribagh	2,007	27·615	+·008	29·540	27·715	4th	27·463	26th	·252	81·8	96·3	+3·8	76·7	+0·9	86·5	+2·4	19·6	104·6	10th & 11th	71·3	17th & 19th.	33·3
		Ranchi	2,128	27·509	+·011	29·549	27·608	4th	27·350	26th	·258	81·2	96·0	+4·9	76·3	+1·7	86·2	+3·3	19·7	104·2	10th	69·4	2nd	34·8
16	South Bihar	Daltonganj	730?	28·854		29·528	28·949	4th	28·735	26th	·214	86·1	104·3		81·3		92·8		23·0	113·6	10th	74·0	23rd	39·6
15	Chota Nagpur	Purulia		28·789		29·542	28·911	4th	28·634	26th	·277	83·5	98·0		77·9		88·0		20·1	107·2	9th	72·4	11th	34·8
		Chaibassa	760	28·815	+·014	29·548	28·956	4th	28·690	26th	·266	83·3	97·2	?	78·5	−0·3	87·9	?	18·7	107·7	1st	73·5	17th	34·2
16	South Bihar	Gaya	375	29·208	+·006	29·531	29·313	1st	29·072	27th	·241	87·0	101·3	+1·7	81·2	+1·0	91·2	+1·4	20·1	111·3	11th	71·8	2 days	39·5
		Dehri	351	29·226		29·527	29·338	4th	29·088	21st	·250	85·7	101·9		81·0		91·5		20·9	110·9	11th	72·0	17th	38·9
		Patna	183	29·423	+·020	29·557	29·550	12th	29·254	27th	·296	84·5	95·7	−0·7	78·8	−1·2	87·3	−1·0	16·9	102·0	10th	73·2	5th	28·8
		Arrah	190	29·410		29·550	29·538	4th	29·249	27th	·289	84·7	98·0		79·6		88·9		18·4	105·0	11th	71·1	16th & 17th.	30·9
		Buxar	239	29·343		29·534	29·473	4th	29·193	21st	·280	85·2	99·3		79·5		89·4		19·8	107·0	11th	73·1	16th & 17th.	33·9
17	North Bihar	Bhagalpur	160	29·454		29·566	29·606	1st	29·288	20th	·318	82·3	92·2		77·2		84·7		15·0	99·3	11th	68·6	3rd	30·7
		Darbhanga	166	29·466†	+·032†	29·586†	29·609	4th	29·281	27th	·328	80·9	89·5	−2·9?	77·5	−1·7	83·6	−2·3?	12·0	95·3	3 days	69·5	1st	25·8
		Muzaffarpur	178	29·431		29·562	29·576	4th	29·234	27th	·342	81·8	90·3		76·9		83·6		13·4	96·7	11th	67·2	1st	29·5
		Motihari	224	29·399		29·580	29·557	4th	29·193	27th	·361	80·7	90·4		75·8		83·1		14·6	96·4	1st & 9th.	66·9	6th	29·5
		Chapra	181	29·414		29·547	29·522	16th	29·238	27th	·284	84·8†	96·8		78·7		87·8		18·1	102·4	11th	74·1	7th & 17th,	28·3
18	United Provinces (East).	Benares	267	29·301	+·004	29·516	29·427	4th	29·154	20th	·273	87·7	?	?	82·2	+0·3	?	?	?	?		70·7	16th	?
		Allahabad	309	29·258	+·006	29·516	29·366	4th	29·116	20th	·250	89·8	106·4	+4·7	84·9	+2·4	95·7	+3·6	21·5	113·1	10th	78·0	16th	35·1
23	United Provinces (East Sub-montane).	Gorakhpur	257	29·343	+·028	29·55	29·485	4th	29·189	20th	·296	83·6	96·1	−0·8	77·2	−2·5?	86·7	−1·7	18·9	105·6	8th & 11th.	69·5	6th	34·1
19	South Oudh	Lucknow	368	29·201	+·011	29·523	29·301	4th	29·045	20th	·256	87·7	103·3	+2·8	82·9	+1·6	93·1	+2·2	20·4	110·3	2nd, 8th & 10th.	73·3	16th	37·0
20	North Oudh	Bahraich	401	29·187	+·009	29·515	29·323	4th	29·035	20th	·288	84·4	96·9	−0·5	78·7	−0·5	87·8	−0·5	18·2	105·6	11th	68·5	5th	37·1
21	United Provinces (Central).	Cawnpore	416	29·145	+·005	29·507	29·249	3rd	29·010	20th	·239	89·5	106·0	+4·9	84·1	+2·1	95·1	+3·5	21·9	114·1	10th	74·0	27th	40·1
		Mainpuri	516	29·053	+·013	29·515	29·149	3rd	28·914	21st	·235	90·6	107·7	+6·5	85·1	+3·6	96·4	+5·1	22·6	114·7	10th	73·0	26th	41·7

* Mean of 17 days. † Mean of 29 days.

NOTE 1.— When a query is inserted against any reading or in the returns of any

NOTE 2.—The divisional means of the figure columns

I—*continued.*

in India, Burma, etc., in June 1903—continued.

WIND DIRECTION. Number of winds from									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th June 1903.	Normal rainfall for period, 1st May to 30th June.	Variation from normal of period 1st May to 30th June 1903.			
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	57	58
14		1	4	6	1	1	3		S 45° E	4·5	5·3			79		·910		4·7		8	11·89	— 3·89	8·92	10·32	— 1·40	11·03	14·21	— 3·18	2·75	Bankura .	CENTRAL BENGAL	11
22		·	1	4		1		2	S 45° E	1·1				80		·887		4·7		11	12·21	— 1·21	7·24	9·93	— 2·69	10·07	13·70	— 3·63	2·28	Raniganj.		
9		1	2		10	5	3		S 17° W	3·9	3·9	4·9	−20	81	−1·3	·946	+·014	8·4	+0·9	11	12·71	— 1·71	8·98	9 92	— 0·94	12·92	16·27	— 3·35	1·62	Burdwan.		
5		1	11	5	3	2	2	1	S 58° E	4·3†	4·7			81		·902		8·4		11	12·03	— 1·03	6·17	9·96	— 3·79	9·01	13·56	— 4·55	1·21	Naya Dumka		
4	1	2	5	4	7	7			S 18° E	4·5	4·1	5·5	−25	87	−1·7	·959	−·013	8·2	+0·1	11	12 00	+ 2·00	9·11	9·54	— 0·43	11·45	14·95	— 3·50	1·39	Berhampur.		
24			1	1	3	1			S 14° E	2·1‡	2·1			85		·947		5·6		11	12·58	— 1·58	10·40	10·70	— 0·30	14·68	16·24	— 1·56	2·71	Rampur Boalia.		
	1	5	9	10	4	1			S 70° E	7·0†	6·4			86		·927	−·025	7·6		12	12·16	− 0·16	11·52	9·89	+ 1·63	14·73	13·74	+ 0·99	2·00	Malda.		
6			16	4	3		1		S 72° E	4·8	4·0			88	+0·5	·915	−·037	8·3	+1·6	16	14·35	+ 1·65	17·68	12·90	+ 4·78	25·25	20·94	+ 4·31	3·52	Bogra.		
	1	8	15	4	2				N 85° E	4·2	4·0			89	+0·2	·895	−·033	8·2	+0·2	16	13·45	+ 2·55	15·94	13·17	+ 2·77	20·18	21·62	— 1·44	2·72	Dinajpur.	NORTH BENGAL .	12
1		7	13	4	4			1	S 87° E	3·1	3·3			90		·918		7·8		19	15·61	+ 3·39	19·58	20·01	— 0·42	28·39	30·32	— 1·93	5·41	Rangpur.		
	4	3	8	10	4			1	S 77° E	1·1	1·4			87	−2·3	·896	−·011	5·1	−0·1	16	18·66	— 2·66	27·62	22·86	+ 4·76	35·18	34·90	+ 0·28	9·25	Jalpaiguri.		
6		4	13	3	2	1	1		S 83° E	2·1	2·2			90		·916		7·5		17	19·24	— 2·24	39 16	32·15	+ 7·01	50·15	47·41	+ 2·74	6·68	Cooch Behar		
1		7	12	9		1			S 85° E	4·5	3·9	3·3	+18	87	+1·4	·909	−·023	6·6	−0·2	12	11·50	+ 0·50	11·39	10·02	+ 1·37	14·22	14·79	— 0·57	3·51	Purnea .	NORTH BIHAR .	17
2	1				10	17			S 30° W	7·9				77	−7·9	·928	−·053	5·0	?	9	11·00	— 2·00	7·58	11·32	— 3·74	8·79	17·29	— 8·50	2·08	Balasore .	ORISSA . .	14
				1	9	12	6	2	S 41° W	12·5	13·0	11·5	+13	80	−3·7	·974	−·022	7·8	−0·2	10	9·27	+ 0·73	11·69	8·30	+ 3·39	13·35	13·53	— 0·18	4·33	False Point.		
3					7	15	6	1	S 45° W	4·2		4·0	+ 5	79	+1·3	·939	+·026	6·9	−0·1	9	11·26	— 2·26	6·44	10·82	— 4·38	10·89	15·06	— 4·17	1·88	Cuttack.		
6					2	20	2		S 45° W	19·2	18·0			86		1·005		6·6		7	8·11	—1·11	4·31	7·99	— 3·68	6·03	10·88	— 4·85	1·95	Puri.		
														73	−3·6	·866	—·004	4·5	—1·2				4·84	7·36	−2·52					V.—Gangetic Plain and Chota Nagpur.		
	2		2	1	11	8	2	4	S 32° W	9·8	8·7	8·9	− 2	66	5·6	·717	—·022	7·0	—0·2	7	11·19	− 4·19	3·40	9·11	− 5·71	6·11	11·44	− 5·33	1·09	Hazaribagh.	CHOTA NAGPUR.	15
		2		3	8	12	2	3	S 31° W	8·0	9·5			69	−6·6	·740	—·022	4·1	—1·8	8	12·47	− 4·47	5·22	10·36	— 5·14	8·45	12·44	— 3·99	2·45	Ranchi.		
19	2			1		?		1	S 59° W	5·8	4·7			62		·778		2·6		9	8·48	+ 0·52	2·60	6·10	− 3·50	3·51	7·14	− 3·63	0·84	Daltonganj.	SOUTH BIHAR .	16
4		1	6	6	3	4	5	1	S 13° E	4·2	5·2			78		·869		4·3		10	12·39	— 2·39	6·93	10·07	— 3·14	8·72	12·99	— 4·27	2·70	Purulia.	CHOTA NAGPUR.	15
14				2	6	6	2		S 67° W	1·6	1·4			77	?	·876	+·006	4·5	—1·3	13	11·29	+ 1·71	8·02	9·51	— 1·49	11·22	12·85	— 1·63	1·30	Chaibassa.		
4	2	9	4	3	1	4	1	2	N 60° E	5·5	4·3	3·4	+26	77	+2·4	·976	+·060	5·0	—0·3	5	8·32	− 3·32	2·97	7·43	− 4·46	3·46	8·41	− 4·95	1·11	Gaya .	SOUTH BIHAR .	16
3		4	10	1	3	6	2	1	S 66° E	6·3	5·6			69		·840		6·5		8	8 06	− 0·06	3·78	6·53	− 2·75	4 10	7·35	− 3·25	1·25	Dehri.		
1		6	18		1	1	2	1	N 81° E	8·8	9 9	4·2	+136	77	−0·4	·912	+·001	4·8	−1·0	5	7 81	− 2·81	2·30	8·54	− 6·24	2·47	10·47	− 8·00	0·92	Patna.		
7	2	10	3	6				2	N 65° E	5·3	5·2			73		·872		3·4		6	7·90	— 1·90	2·67	6·95	− 4·28	3·13	8·42	− 5·29	0·65	Arrah.		
		1	21	2	1	2	2	1	N 84° E	6·7	6·3			69		·827		4·2		5	8·06	— 3·06	4·76	5·44	− 0·68	5·23	6·26	− 1·03	3·95	Buxar.		
?	?	?	?	?	?	?	?	?	?					84		·924		6·7		9	9 90	− 0·90	6·73	8·28	− 1·55	8·54	11·07	− 2·73	1·78	Bhagalpur .	NORTH BIHAR .	17
3	1	2	12	9	2	1			S 70° E	4·3		3·3	+30	88	+6·2	·936	+·012	6·5	+1·1	14	8·43	+ 5·57	13·08	8·14	+ 4·94	13·35	11·21	+ 2·14	2·63	Darbhanga.		
5	1	6	11	6	1				E	5·7				86		·936		3·2		6	8·06	— 2·06	8·71	7·25	+ 1·46	11·20	9·65	+ 1·55	2·58	Muzaffarpur		
2		5	17	3		1		2	N 85° E	6·3	6·1			85		·889		5·6		13	9·39	+ 3·61	11·57	8·90	+ 2·67	12·25	11·55	+0·70	3·98	Motihari.		
3		1	17	4	3		1	1	S 77° E	6·0	5·3			75†		·897†		5·2		4	7·61	— 3·61	2·51	6·40	— 3·89	4·76	7·75	— 2·99	1·60	Chapra.		
2		5	11	4	1	2	3	2	S 89° E	3·7	4·2	5·1	−13	67	−5·3	·883	+·036	3·3	−2·3	4	6·80	−2·80	1·50	6·23	— 4·73	1·67	6·87	− 5·20	0·53	Benares .	UNITED PROVINCES (EAST).	13
2		5	13			2	6	2	N 63° E	7·1	8·1	6·9	+17	59	−6·9	·811	−·014	4·2	−1·6	3	6·20	−3·20	0·91	6·42	— 5·51	0·95	6·71	— 5·76	0·35	Allahabad.		
3	6	11	?	1	1			1	N 49° E	3·0		3·6	−17	78	−1·3	·892	?	5·4	+0·5	9	7·70	+ 1·30	6·30	9·09	— 2·79	7·02	10·43	− 3·41	2·96	Gorakhpur	UNITED PROVINCES (EAST SUB-MONTANE).	22
	1	5	9	7	2	3	2	1	S 73° E	4·0	4·4	4·2	+ 5	65	−1·3	·860	+·023	3·3	−2·5	3	6·10	— 3·10	1·18	5·71	— 4·53	1·21	6·72	— 5·51	0·59	Lucknow .	SOUTH OUDH .	19
4		1	15	9	1				S 75° E	7·4	7·0			89	?	1·070	?	3·0	−1·8	5	7·30	—2·30	7·55	6·53	+ 1·02	10·72	8·48	+ 2·24	5·04?	Bahraich .	NORTH OUDH .	20
2		2	13	1	2	2	6	2	S 81° E	6·0				62	−2·8	·816	—·020	2·5	−2·9	4	5·00	—1·00	2·07	4·09	— 2·02	2·07	4·40	— 2·33	1·20	Cawnpore .	UNITED PROVINCES (CENTRAL).	21
24		1	4	1					E	1·1	1·1			51	−14·5	·721	−·100	3·7	−1·2	2	4·60	—2·60	1·74	4·73	—2·99	2·76	5·16	− 2·40	1·00	Mainpuri		

‡ Mean of 2 days.

station, the data for that station are not utilized in calculating the Provincial variations.

Nos. 41, 43 and 45 are derived only from the data available.

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
	VI.—Upper Sub-Himalayas.				+·004								106·7	+4·4	82·4	+2·7	94·6	+3·6	24·3					40·3
24	United Provinces (West Sub-montane).	Bareilly	568	29·002	+·012	29·525	29·120	3rd	28·842	20th	·278	86·4	102·8	+3·1	81·2	+1·4	92·0	+2·3	2·.6	110·0	10th	70·1	5th	39·9
		Dehra Dun	2,233	27·391	+·003	29·528	27·507	3rd	27·224	21st	·283	82·9	98·8	+5·8	76·1	+1·7	87·5	+3·8	22·7	104·5	23rd	67·0	27th	37·5
		Roorkee	899	28·673	+·010	29·520	28·783	3rd	28·493	21st	·290	88·7	104·7	+4·3	81·1	+2·5	92·9	+3·4	23·6	110·7	23rd	68·2	5th	42·5
22	United Provinces West.	Meerut	738	28·816	-·001	29·502	28·918	3rd	28·634	21st	·284	89·1	105·1	+4·5	83·7	+3·3	94·4	+3·9	21·4	109·7	12th & 25th	74·3	7th	35·4
26	South-East Punjab.	Delhi	718	28·834	-·001	29·497	28·927	5th	28·682	21st	·245	91·3	106·6	+3·4	83·8	+3·5	96·7	+3·5	19·8	111·7	2nd & 3rd	74·8	6th	36·9
28	Central Punjab.	Lahore	702	28·823	+·003	29·476	28·969	7th	28·700	20th	·269	91·8	110·2	+2·8	82·7	+3·4	96·5	+3·1	27·5	116·4	4th & 12th	75·9	20th	40·5
27	South Punjab	Sirsa	662	28·885	+·013	29·492	28·995	29th	28·763	21st	·234	94·4	110·1	+3·4	86·6	+3·5	98·4	+3·5	23·5	117·3	13th	75·1	27th	42·2
		Patiala	818	28·748		29·513	28·912	5th	28·578	21st	·339	91·2	106·3		83·3		94·8		23·0	111·0	12th	74·0	2nd	37·0
29	Punjab Sub-montane.	Ludhiana	812	28·729	+·003	29·488	28·852	29th	28·576	21st	·276	91·4	109·2	+4·4	84·3	+3·6	96·8	+4·0	24·9	113·9	12th	73·2	29th	40·7
		Sialkot	830	28·699	0	29·473	28·815	7th	28·568	20th	·247	93·9	111·4	+5·9	84·4	+3·9	97·9	+4·9	27·0	117·5	4th	76·6	5th	40·9
		Umballa	892	28·666	-·001	29·503	28·768	3rd	28·500	21st	·268	89·9	107·8	+6·4	82·1	+1·9	95·0	+4·2	25·7	113·4	12th	70·2	5th	43·2
		Rawalpindi	1,674	27·898	+·006	29·497	28·045	7th	27·746	21st	·299	90·5	107·7	+4·9	76·6	+1·3	92·2	+3·1	31·1	115·0	21th	68·1	30th	46·9
	VII.—Indus Valley and North-West Rajputana.				+·022								108·7	+2·8	84·1	+1·8	96·4	+2·3	24·6					38·0
32	N.-W. Frontier Province.	Peshawar	1,110	28·455	+·014	29·516	28·667	7th	28·294	21st	·373	92·0	108·0	+2·1	77·3	0	92·7	+1·1	30·7	113·0	13th & 14th	69·9	1st	44·1
		D. I. Khan	590	28·940	+·011	29·464	29·098	8th	28·799	21st	·299	92·4	110·7	+2·7	82·9	+1·7	96·8	+2·2	27·8	118·2	13th & 14th	75·1	1st	43·1
31	West Punjab	Khushab	612	28·912	+·012	29·474	29·054	7th	28·779	20th & 23rd	·275	95·1	110·1	+3·0	83·2	+0·8	96·7	+1·9	26·9	117·4	12th	75·3	27th	42·1
		Montgomery	558	28·962	+·017	29·468	29·130	7th	28·841	26th	·289	95·8	111·5	?	86·0	+1·9	98·8	?	25·5	119·0	13th	74·0	30th	45·0
		Mooltan	420	29·083	+·004	29·460	29·226	7th	28·951	20th	·275	92·4	111·4	+3·6	86·9	+3·2	99·2	+3·4	24·5	118·9	13th	78·5	29th	40·4
47	Sind	Jacobabad	186	29·348	+·035	29·489	29·468	8th	29·205	20th	·263	93·1	116·4	+3·7	85·6	+1·2	101·0	+2·5	30·8	123·5	11th	83·6	14th	39·9
		Hyderabad	96	29·487	+·039	29·534	29·611	2nd	29·341	27th	·270	87·9	105·7	+1·5	82·0	+0·3	93·9	+0·9	23·7	115·7	10th	79·5	2nd	36·2
		Kurrachee	30	29·602	+·039	29·582	29·732	3rd	29·455	27th	·277	88·0	95·5	+1·5	85·0	+2·9	90·3	+2·2	10·5	98·4	16th	82·7	15th	15·7
51	West Rajputana	Bikaner	771	28·803	+·027	29·519	28·919	8th	28·701	20th	·218	94·3	111·2	+4·7	89·0	+4·0	100·1	+4·4	22·2	117·8	15th	80·0	30th	37·8
		Pachbadra	380	29·294	?	29·625	29·376	2nd	29·202	14th & 21st	·174	88·7	108·2	+2·5	82·4	?	95·3	?	25·8	116·0	9th & 15th	77·6	23rd	38·4
		Jodhpur	782	28·847		29·595	28·935	7th	28·743	26th	·192	88·7	106·9		84·4		95·7		22·5	114·8	9th	79·8	21st	35·0
	VIII.—East Rajputana, Central India and Gujarat.				+·029								103·1	+4·7	83·1	+2·8	93·1	+3·8	20·0					33·0
50	East Rajputana	Jaipur	1,431	28·204	+·029	29·555	28·296	7th	28·102	26th	·194	92·2	109·6	+7·1	84·9	+3·8	97·3	+5·5	24·7	115·2	4th 13th	75·6	30th	39·6
		Bharatpur	585	28·966		29·496	29·074	7th	28·837	10th	·237	92·7	109·0		87·1		98·1		21·9	115·3	4th	77·2	26th & 30th	38·1
		Kotah	819	28·778		29·572	28·870	3rd	28·670	26th	·200	95·0	110·1		89·1		99·6		21·0	116·1	4th	75·6	25th	40·5
		Sambhar	1,254	28·373	?	29·555	28·462	7th	28·279	26th	·183	92·6	109·1	+6·8	86·5	+4·1	97·8	+5·5	22·6	115·5	14th	74·9	26th	40·6
		Ajmer	1,611	28·038	+·024	29·573	28·125	2nd	27·944	26th	·185	90·0	105·7	+5·2	86·4	+5·6	96·1	+5·4	19·3	111·9	14th	80·5	20th & 21st	31·4
		Udaipur	1,925	27·773		29·609	27·891	1st	27·667	27th	·224	87·8	101·9		81·1		91·5		20·8	109·6	9th	77·8	20th	31·8
		Deesa	466	29·215	+·035	29·630	29·319	1st	29·103	27th	·216	87·0	105·7	+3·8	81·7*	+1·1*	93·9*	+2·5	24·0	113·1	9th & 16th	78·5	11th	34·6
46	Kathiawar and Cutch.	Bhuj	395	29·275	+·042	29·618	29·395	3rd	29·157	27th	·238	86·4	99·3	+1·7	79·8	0	89·6	+0·9	19·5	106·3	8th & 12th	76·9	8th	29·4
		Jamnagar	61	29·621		29·028	29·734	4th	29·499	15th	·235	86·7	98·4		80·0		89·2		18·4	105·2	11th	76·7	12th	28·5
		Rajkot	429	29·268	+·040	29·615	29·378	3rd	29·157	27th	·221	85·2	102·9	+3·1	78·2	+0·6	90·6	+1·9	24·7	109·9	10th	75·2	25th	34·7
		Veraval	18	29·697	+·037	29·657	29·815	4th	29·539	15th	·276	83·9	87·2	+0·8	82·1	+1·1	84·7	+1·0	5·1	89·1	4th & 13th	78·3	15th	10·8
		Dwarka	37	29·647		29·629	29·773	3rd	29·503	15th	·270	85·3	89·7		82·2		86·0		7·5	91·9	16th	78·8	16th	13·1
		Bhavnagar Para	55	29·664	?	29·663	29·772	2nd	29·556	27th	·216	86·8	102·0	+3·7	76·7	?	89·3	?	25·3	110·7	9th	69·5	16th	41·2
49	Central India	Nowgong	757	28·826	0	29·517	28·914	1st	28·736	22nd	·178	93·0	109·5	+7·9	87·4	+5·0	98·4	+6·5	22·1	114·0	3rd & 10th	77·4	28th	36·6
		Indore	1,823	27·889	+·043	29·638	27·975	1st	27·765	26th	·210	82·9	100·3	+5·9	76·9	+1·6	88·6	+3·8	23·4	109·3	9th	70·1	16th	39·2
		Neemuch	1,630	28·053	+·034	29·610	28·145	1st	27·955	27th	·190	86·1	104·2	+5·9	81·1	+3·8	92·7	+4·9	23·1	112·1	9th	73·2	3rd	38·9
45	Gujarat	Surat	39	29·698	+·038	29·679	29·805	1st	29·589	27th	·216	82·9	94·8	+1·1	80·7	+1·4	87·8	+1·3	14·1	103·7	10th & 14th	77·1	29th	26·6
		Ahmedabad	163	29·542	+·047	29·657	29·645	4th	29·435	27th	·210	88·5	105·1	+5·4	82·5	+1·8	93·8	+3·6	22·6	111·3	9th	79·6	15th	32·2

* Mean of 29 days.

NOTE 1.—When a query is inserted against any reading or in the returns of any

Note 2.—The divisional means of the figure columns

I—*continued.*

in India, Burma, etc., in June, 1903—continued.

WIND DIRECTION. Number of winds from										WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period 1st May to 30th June.	Variation from normal of period 1st May to 30th June 1903.				
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	57	58
														45	-14·1	·621	—·109	1·6	—2·4				0·46	4·25	-3·75					VI.—Upper Sub-Himalayas		
6		1	17	3			2	1	S 88° E	2·5	2·4	4·9	-51	67	-2·7	·826	+·002	1·9	-2·5	3	4·91	—1·91	1·32	5·96	—4·64	1·42	6·72	—5·30	0·71	Bareilly	UNITED PROVINCES (WEST SUB-MONTANE).	24
10	2	1	1	4	1	2	5	4	N 87° W	2·2		1·6	+38	48	—2·8	·542	—·136	1·9	—3·1	2	10·00	—8·00	0·98	10·26	—9·28	1·37	11·95	—10·58	0·64	Dehra Dun.		
3			2	22			1	2	S 47° E	6·3		3·9	+62	50	-12·9	·651	—·077	0·5	—3·7	2	6·00	—4·00	0·69	5·31	—4·62	0·74	6·13	—5·39	0·42	Roorkee.		
5		3	8	5		3	5	1	S 63° E	2·6	2·6	2·6	0	50	-11·5	·686	—·061	5·0	?	0	4·00	—4·00	0	3·49	—3·49	1·03	4·09	—3·06	0	Meerut	UNITED PROVINCES WEST.	22
7			4	8		1	6	4	S 2° E	6·3	5·7	4·9	+16	47	—9·2	·656	—·066	3·2	—1·8	1	4·10	—3·10	0·12	3·41	—3·29	0·37	4·13	—3·76	0·12	Delhi	SOUTH-EAST PUNJAB.	26
6	4	4	3	6			2	5	N 36° E	3·4		3·5	— 3	41	-10·5	·609	?	1·1	—1·7	1	2·30	—1·30	0·33	2·09	—1·76	1·15	2·91	—1·76	0·27	Lahore	CENTRAL PUNJAB	28
										7·6	6·9	5·2	+33	48	-2·5	·773	+·063	1·7	—2·8	2	3·20	—1·20	0·40	1·79	—1·39	0·72	2·50	—1·78	0·20	Sirsa	SOUTH PUNJAB.	27
														46		·676		1·1		0			0			0·24			0	Patiala.		
1	1		4	13	1	1	5	4	S 36° E	7·8	7·8																					
1	2	1		14	1	4	4	3	S 10° E	4·3	3·8	2·4	+58	35	-20·6	·483	—·213	0·2	—3·1	0	3·50	—3·50	0·05	3·02	—2·97	0·75	3·63	—2·88	0·04	Ludhiana	PUNJAB (SUB-MONTANE).	29
2	6	4	9	3	2		1	3	N 58° E	4·0		2·4	+67	32	-20·3	·490	—·209	0·5	—1·5	0	3·60	—3·60	0·12	3·08	—2·96	4·18	4·11	+0·07	0·08	Sialkot.		
7		1	2	16				4	S 54° E	7·1				47	-20·3	·664	—·135	0·6	—2·4	4	4·30	—0·30	0·85	6·29	—5·44	1·80	7·02	—5·22	0·35	Umballa.		
18	1		2	3	1	1	2	2	S	3·7	3·4	2·6	+31	28	-22·4	·397	—·223	1·7	—1·1	2	3·30	—1·30	0·63	2·01	—1·38	3·43	3·48	—0·05	0·45	Rawalpindi.		
														52	—5·5	·758	—·042	1·1	—1·3				0·25	0·93	—0·68					VII.—Indus Valley and North-West Rajputana		
16	3	1	3	1	1	1	1	3	N 18° E	2·8	3·1	4·3	—28	32	—11·5	·474	—·119	1·4	—0·5	1	0·90	+0·10	0·13	0·30	—0·17	2·23	1·05	+1·28	0·13	Peshawar	N.-W.F. PROVINCE	32
13	3	10		2	1			1	N 13° E	2·5	2·7	2·4	+13	50	— 6·0?	·760	—·037	0·4	—1·0	1	1·30	—0·30	0·11	0·65	—0·54	0·73	0·99	—0·26	0·11	D. I. Khan.		
	3	13	7	1	1	2	2	1	N 47° E	7·9	6·7			30	-13·0	·473	—·121	0·7	—1·1	2	1·50	+0·50	0·41	1·72	—1·31	0·96	2·50	—1·54	0·25	Khushab	WEST PUNJAB.	
2	2		1	5	4	13	3		S 22° W	11·8	10·1			30	-13·4	·486	—·181	0·6	—0·9	2	2·00	0	1·54	1·14	+0·40	1·62	1·41	+0·21	1·22	Montgomery		31
7		1		2	2	17	1		S 36° W	2·3	2·9	3·8	—24	51	+ 3·1	·755	+·053	0·7	0	0	1·10	—1·10	0	0·62	- 0·62	0·53	0·92	—0·39	0	Mooltan.		
17			3	9	1				S 52° E	3·0	3·1	4·7	—34	71	+19·7?	1·081	+·295?	0·3	—·8	1	0·30	+0·70	0·13	0·09	+0·04	0·48	0·25	+0·23	0·13	Jacobabad.	SIND.	47
				2	2	26			S 41° W	14·8	15·4	15·2	+ 1	63	+ 2·3	·810	+·018	1·2	—2·6	0	0·70	—0·70	0	0·38	—0·38	0·08	0·56	—0·48	0	Hyderabad.		
		1	1	1	2	12	13		S 62° W	12·9	16·1	18·5	—13	71	— 5·8	·941	—·030	4·3	—0·9	0	0·50	—0·50	0·05	0·71	—0·66	0·05	0·71	—0·66	0·05	Kurrachee.		
	1				2	11	15	1	S 71° W	14·0		7·8	+81	53	— 0·5	·852	+·078	0·9	—1·4	1	2·10	—1·10	0·40	1·70	—1·30	0·43	2·58	—2·15	0·40	Bikaner	WEST RAJPUTANA	51
					14	15		1	S 25° W	17·2	15·0	12·0	+25	72	+ 0·5?	·985	: +·071?	0	— 4·0	0	2·50	—2·50	0	1·46	—1·46	0	2·12	—2·12	0	Pachpadra.		
				1	18	11			S 60° W	11·2	10·1			53		·717		1·7		0	2·60	2·60	0	1·49	—1·49	0·88	1·76	—0·88	0	Jodhpur.		
														60	—8·5	·789	—·035	3·2	—1·8				0·92	4·67	—3·69					VIII.—East Rajputana, Central India and Gujarat		
1		1			2	8	15	3	S 78° W	7·3		7·3	0	41	—15·6	·603	—·115	1·2	—3·0	1	4·40	—3·40	0·20	2·66	—2·46	0·69	3·15	—2·46	0·11	Jaipur	EAST RAJPUTANA	50
														63		·953		0·8		2			1·67			1·80			1·02	Bharatpur.		
10		1	2	1		4	7	5	N 84° W	4·8	4·4																					
	1				1	9	10	9	W	9·6	7·7			38		·588		0·7		2	6·20	—4·20	0·90	3·57	—2·67	2·06	4·68	— 2·62	0·67	Kotah.		
	3	1				2	18	6	N 73° W	12·9		11·2	+15	42	—15·0	·631	—·094	1·1	—2·9	2	3·60	—1·60	0·82	1·58	—0·76	1·86	2·34	— 0·48	0·65	Sambhar.		
						5	19	6	N 89° W	14·6	13·0	8·3	+57	52	- 9·3	·726	—·024	1·7	—1·9	1	3·90	—2·90	0·19	2·48	—2·29	0·45	3·09	— 2·64	0·10	Ajmer.		
				3	10	12	1		S 65° W	9·0	7·9			50		·653		1·5		0	5·10	—5·10	0·33			1·44			0·08	Udaipur.		
4				6	20	4			S 42° W	15·8	16·8			64	— 3·6	·814	—·006	2·4	—3·5	0	2·18	—2·18	0·02	2·27	—2·25	0·12	2·52	— 2·40	0·02	Deesa.		
			1	3	14	12			S 57° W	19·6	16·5	16·1	+ 2	73	+ 2·4	·915	+·042	3·2	—1·8	0	2·40	— 2·40	0·02	2·03	—2·01	0·02	2·12	— 2·10	0·02	Bhuj	KATHIAWAR AND CUTCH.	46
			2	6	13	9			S 45° W	22·0	26·6			65		·847		4·0		1			0·34			0·34			0·23	Jamnagar.		
			1	4	12	12	1		S 59° W	14·6	14·5	15·6	— 7	68	— 6·4	·825	—·050	4·5	—1·1	1	5·30	—4·30	0·26	5·12	—4·86	0·57	5·34	—4·77	0·17	Rajkot.		
			2	2	12	13	1		S 62° W	17·5	17·5	10·6	+65	80	— 4·2	·947	—·017	5·8	—1·1	3	4·60	—1·60	1·02	5·23	—4·21	1·83	5·25	—3·42	0·37	Veraval.		
			1	1	3	13	12		S 57° W	18·5				78		·961		4·5		2			0·40			0·40			0·15	Dwarka.		
				1	3	19	5	2	S 51° W	10·0	9·4			66	— 9·5	·839	?	4·9	—1·2	3	5·70	—2·70	2·18	5·02	—2·84	2·18	5·12	—2·94	1·12	Bhavnagar Para.		
1	4		5			5	11	5	N 69° W	4·5	4·5	4·4	+ 2	41	—20·0	·613	—·143	5·4	?	2	7·30	—5·30	0·32	8·15	—7·83	0·50	8·48	—7·98	0·17	Nowgong	CENTRAL INDIA	49
	1				1	2	11	15	N 69° W	9·2	7·5	7·	+ 7	74	?	·838	?	5·3	—0·7	6	7·60	—1·60	5·83	6·35	—0·52	6·32	6·94	—0·62	2·30	Indore.		
					1	17	11	1	S 62° W	14·0	12·6	14·2	—11	62	— 7·5	·765	—·018	3·1	—1·3	1	6·20	—5·20	0·58	4·95	—4·37	0·69	5·40	—4·71	0·46	Neemuch.		
	2			1	10	9	7	1	S 43° W	10·8	10·2	15·6	—35	72	— 6·9	·912	—·006	5·4	—1·5	7	8·70	—1·70	1·95	9·62	—7·67	2·03	9·75	—7·72	0·66	Surat.	GUJARAT.	45
					3	18	7	2	S 56° W	5·2	8·5			64	— 8·1	·859	—·017	4·5	—1·7	1	4·80	—3·80	0·11	6·76	—6·65	0·39	6·77	—6·38	0·10	Ahmedabad		

station, the data for that station are not utilized in calculating the Provincial variations.

Nos. 41, 43 and 45 are derived only from the data available.

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
22	United Provinces West.	Agra	555	29·008	—·007	29·508	29·106	7th	28·888	21st	·218	92·3	107·3	+3·0	87·8	+3·3	97·6	+3·2	19·5	113·0	10th	79·9	27th	33·1
21	United Provinces Central.	Jhansi	858	28·740	+·009	29·528	28·827	1st	28·654	23rd	·173	94·3	110·2	+7·4	89·4	+5·4	99·8	+6·4	20·8	116·4	10th	77·1	26th	39·3
	IX.—Deccan				+·021								100·1	+5·6	77·9	+2·2	89·0	+3·9	22·2					38·1
38	Bombay Deccan	Belgaum	2,539	27·269	+·015	29·736	27·339	1st	27·203	12th	·136	72·8	83·2	+2·4	68·3	+0·2	75·8	+1·3	14·9	95·8	3rd	65·8	20th & 26th.	30·0
		Sholapur	1,590	28·177	+·012	29·705	28·245	1st	28·094	27th	·151	80·7	98·1	+3·3	75·2	+2·0	86·7	+2·7	22·9	107·2	5th	71·5	18th & 23rd.	35·7
		Poona	1,840	27·931	+·020	29·708	28·016	3rd	27·846	27th	·170	77·9	93·6	+4·4	72·6	0	83·1	+2·2	21·0	104·5	7th	67·4	1st & 2nd.	37·1
		Bijapur	1,948	27·828	+·016	29·707	27·897	1st	27·752	27th	·145	78·0	94·2	+3·7	71·0	P	82·6	P	23·2	104·4	3rd & 4th.	62·7	5th	41·7
40	Khandesh	Malegaon	1,430	28·300	+·025	29·665	28·381	2nd	28·201	27th	·180	83·9	100·4	+5·5	76·5	+1·5	88·5	+3·5	23·9	107·8	8th	72·0	25th	35·8
		Ahmednagar	2,152	27·629	+·033	29·702	27·705	1st	27·547	27th	·158	79·3	95·0	+4·6	72·1	P	83·6	P	22·9	104·9	6th	66·4	1st	38·5
41	Berar	Akola	930	28·775	+·030	29·640	28·847	1st	28·682	26th	·165	86·8	104·4	+6·2	80·7	+3·0	92·6	+4·6	23·7	114·5	9th	74·9	18th	39·6
		Amraoti	1,215	28·485	+·032	29·636	28·557	1st	28·384	26th	·173	85·3	103·6	+6·4	80·2	+3·4	91·9	+4·9	23·4	113·5	9th	73·5	26th	40·0
42	Central Provinces, West.	Khandwa	1,044	28·619	+·028	29·636	28·733	1st	28·531	26th	·202	86·1	103·2	+5·6	81·7	+3·0	92·5	+4·3	21·5	114·2	9th	71·6	26th	42·6
		Hoshangabad	1,006	28·685	P	29·610	28·750	1st	28·568	26th	·182	89·3	107·3	+9·2	82·9	+3·9	95·1	+6·6	24·4	111·4	13th	76·2	18th & 26th	35·2
		Nagpur	1,025	28·648	+·031	29·614	28·721	29th	28·543	26th	·178	86·3	104·0	+5·7	80·1	+1·6	92·1	+3·7	23·9	114·2	5th	72·6	26th	41·6
43	Central Provinces, Central.	Chanda	634	29·060	+·037?	29·629	29·129	30th	28·980	26th	·149	87·4	104·0	+5·5	80·0	+0·4	92·0	+3·0	24·0	114·2	5th & 8th.	70·5	26th	43·7
		Seoni	2,033	27·649	+·025	29·583	27·724	1st & 4th.	27·541	6th	·183	84·9	100·4	+6·2	76·8	+1·3	88·6	+3·8	23·6	108·9	10th	71·0	21st, 26th & 27th.	37·9
		Jubbulpore	1,327	28·301	+·014	29·558	28·377	29th & 30th.	28·184	26th	·193	87·2	103·8	+6·9	81·1	+2·7	92·5	+4·8	22·7	111·0	12th	7·1	19th	38·9
		Saugor	1,807	27·854	+·030	29·570	27·947	1st	27·738	26th	·209	87·9	104·9	+7·1	81·9	+4·3	93·4	+5·7	23·0	110·5	12th	72·1	30th	38·4
49	Central India	Sutna	1,040	28·542	+·006	29·516	28·626	30th	28·438	26th	·188	91·6	107·4	+8·7	85·9	+4·8	96·7	+6·8	21·5	113·6	4th & 10th.	77·1	28th	36·5
44	Central Provinces, East.	Raipur	970	28·672	+·021	29·572	28·754	29th	28·549	26th	·205	88·0	104·0	+6·8	81·2	+2·8	92·6	+4·8	22·8	112·5	5th	69·4	20th	43·1
		Sambalpur	486	29·145	+·016	29·573	29·219	2nd & 29th	29·018	26th	·201	87·4	102·5	+5·2	81·4	+0·7	92·0	+3·0	21·1	112·1	1st & 4th.	66·6	28th	45·5
39	Hyderabad (North).	Aurangabad	1,905	27·840		29·664	27·923	1st	27·750	27th	·173	81·5	98·5		73·7		86·1		24·8	107·1	1st & 9th.	70·2	2nd	36·9
		Indur		28·582			28·638	5th	28·491	26th & 27th.	·147	84·4	99·9		79·4		89·7		20·5	109·6	8th	71·2	20th & 21st.	38·4
		Bidar	2,165	27·598		29·679	27·662	30th	27·498	26th	·164	79·5	95·6		74·7		85·2		20·9	104·5	1st	69·8	20th	34·7
53	Hyderabad (South).	Gulbarga	1,503	28·258	+·009	29·701	28·317	1st	28·178	11th	·139	79·9	98·1	+3·5	75·0	+1·3	86·6	+2·4	23·1	107·6	3rd	70·5	13th	37·1
		Raichur	1,326	28·435	+·012	29·702	28·492	1st	28·362	11th	·130	81·3	97·1	+2·4	76·4	+1·6	86·8	+2·0	20·7	106·0	2nd	71·6	19th	34·4
		Hyderabad (Deccan).	1,690	28·054	+·016	29·668	28·112	29th	27·949	26th	·163	82·6	98·7	+4·4	78·6	P	88·7	P	20·1	106·9	8th & 11th.	73·2	18th	33·7
		Secunderabad	1,787	27·967	P	29·680	28·021	2nd	27·865	26th	·156	82·0	99·7	+5·4	77·3	+2·9	88·4	+4·2	22·4	107·7	2nd & 5th.	70·5	25th	37·2
		Hanamkonda	871	28·836		29·641	28·897	30th	28·761	11th	·136	85·4	100·6		80·3		90·4		20·3	109·7	8th	72·3	22nd, 28th & 29th.	37·4
	X.—West Coast				—·002								86·1	+0·6	77·1	+0·7	81·6	+0·6	8·9					18·0
37	Konkan	Bombay	37	29·724	+·015	29·700	29·830	4th	29·627	13th	·203	82·9	87·7	+0·1	79·7	+0·2	83·7	+0·2	8·0	93·0	13th	75·0	23rd	18·0
		Ratnagiri	110	29·680	+·020	29·728	29·760	1st & 3rd.	29·586	11th	·174	81·4	87·2	+0·6	78·2	+1·0	82·7	+0·8	9·0	92·3	13th	73·9	19th, 24th & 25th.	18·4
		Mormugao	60	29·746	+·011	29·741	29·829	1st	29·655	13th	·174	80·8	86·9	—0·1	77·7	—0·2	83·3	—0·2	9·2	92·5	10th	72·9	19th	19·6
		Goa	199									80·5	84·0	—1·2	78·6	+0·8	81·3	—0·2	5·4	88·5	12th	75·0	9 days	13·5
		Karwar	44	29·763	—·003	29·739	29·840	1st	29·664	11th	·176	80·3	86·2	+0·9	76·5	+0·4	81·4	+0·7	9·7	92·3	12th	72·5	19th, 21st & 26th.	19·8
33	Malabar	Cochin	10	29·847	—·024	29·785	29·917	18th	29·742	11th	·175	79·2	87·5	+2·5	75·7	+1·0	81·6	+1·8	11·8	94·3	3rd	72·2	22nd	22·1
		Calicut	27	29·819	—·019	29·775	29·895	18th	29·674	11th	·221	79·6	85·9	+1·3	76·2	+1·5	81·1	+1·4	9·7	92·3	4th & 8th.	73·2	18th & 19th.	19·1
		Mangalore	65	29·753	P	29·750	29·817	3rd	29·617	11th	·200	79·1	85·4	+0·4	75·5	+0·5	80·5	+0·5	9·9	90·7	11th	71·4	18th	19·3
		Trivandrum	198	29·660	—·014	29·789	29·710	18th	29·582	11th	·128	78·3	83·7	+0·8	76·0	+2·4	79·9	+1·6P	7·7	88·5	2nd & 3rd.	74·0	27th	12·5
	XI.—South India				+·003								94·2	+0·7	76·9	+0·4	85·5	+0·6	17·3					29·4
57	Madras (South)	Pamban	37	29·778		29·742	29·840	17th	29·712	11th	·128	84·6	90·8		81·6		86·3		9·2	93·8	30th	80·2	13th & 27th.	13·6
		Tinnevelly	168	29·651	—·004	29·747	29·709	17th	29·586	26th	·123	86·0	98·7	+1·6	80·4	+0·8	89·6	+1·2	18·3	105·0	9th	76·9	19th & 13th.	28·1
		Madura	447	29·353	—·003	29·732	29·421	17th	29·273	11th	·148	84·8	98·8	+0·6	77·6	+0·5	88·2	+0·6	21·2	102·5	30th	75·0	19th & 22nd.	27·5
		Periyakulam	945	28·866			28·930	17th	28·773	11th	·157	81·7	96·0		73·2		82·8		22·8	101·7	8th	68·3	23rd	33·4

Note 1.—When a query is inserted against any reading or in the returns of any

Note 2.—The divisional means of the figure column

I—*continued.*

***in India, Burma, etc., in June, 1903*—continued.**

WIND DIRECTION. NUMBER OF WINDS FROM										WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 30th June.	Variation from normal of period, 1st May to 30th June, 1903.				
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	57	58
3		2		6		17		2	S 22° W	8·1	9·6	5·7	+68	44	−13·1	·650	−·114	1·7		0	3·90	−3·90	0·11	2·90	− 2·79	0·19	3·46	− 3·27	0·03	Agra	UNITED PROVINCES WEST.	22
	1	2	1	4		9	7	6	S 78° W	6·5	7·2	5·8	+24	53	−2·9	·833	+·102	1·5	−2·0	3	5·80	−2·80	1·20	6·06	− 4·86	1·50	6·47	− 4·97	0·53	Jhansi	UNITED PROVINCES CENTRAL.	21
														64	−8·0	·715	−·038	5·1	−1·1				3·66	6·46	−2·83					IX.—Deccan.		
1		1			4	11	12	1	S 62° W	16·7		24·3	−31	87	+0·2	·700	+·005	8·1	−0·1	12	1·40	+10·60	5·68	8·44	− 2·76	9·57	10·93	− 1·36	1·28	Belgaum	BOMBAY DECCAN	38
		1	1		2	5	11	10	N 83° W	12·1	14·6	12·2	+20	65	−1·3	·667	−·003	6·8	+0·1	7	6·20	+0·80	6·93	4·36	+ 2·57	9·78	5·36	+ 4·42	2·80	Sholapur.		
	1		1	2		3	14	9	N 79° W	15·1		16·0	− 6	73	+0·5	·699	−·007	5·7	−1·6	4	8·50	−4·50	2·93	4·73	− 1·80	5·18	6·06	− 0·88	0·80	Poona.		
	1	1			2	8	13	5	S 84° W	11·8	11·6			76	−1·0?	·731	+·010	5·3	−1·7	6	6·20	−0·20	4·02	3·55	+0·47	4·75	5·34	− 0·59	1·05	Bijapur.		
					2	7	13	8	S 87° W	11·2	12·9	11·9	+ 8	59	−12·3	·683	?	4·0	−2·2	4	7·70	−3·90	2·65	4·44	− 1·79	9·46	5·17	+ 4·29	1·32	Malegaon	KHANDESH	40
3	2			2	2	3	7	11	N 75° W	9·1	11·1			73	−4·7?	·730	−·005	6·8	+0·3	9	7·40	+1·60	7·21	5·14	+ 2·07	9·12	6·02	+ 3·10	1·94	Ahmednagar.		
1						4	14	11	N 78° W	12·1	11·9	8·9	+34	59	−8·7	·732	−·026	4·3	−1·9	5	8·10	−3·10	2·02	5·20	− 3·18	3·70	5·63	− 1·93	0·75	Akola	BERAR	41
	1	1			1	6	15	6	N 73° W	11·8	10·5	7·4	+42	72	?	·886	+·132?	4·3	−1·7	5	9·00	−4·00	3·54	6·82	− 3·24	5·70	7·45	− 1·75	1·69	Amraoti.		
	2						7	21	N 52° W	8·8		9·2	− 4	59	−9·0	·717	−·032	4·6	−0·9	5	7·50	−2·50	2·72	5·81	− 3·09	4·65	6·16	− 1·51	1·82	Khandwa	CENTRAL PROVINCES, WEST.	42
						30			S 45° W	6·4	6·5	4·6	+41	63	−7·8	·863	?	2·9	−3·1	2	8·20	−6·20	1·33	6·78	− 5·45	3·33	7·33	− 4·00	0·82	Hoshangabad.		
5	1			1		12	6	5	S 75° W	5·6	?	10·0	−44	60	−4·2?	·717	−·035	5·6	−1·0	14	9·70	+4·30	7·01	8·52	− 1·51	9·10	9·24	− 0·14	1·50	Nagpur.		
11					2	4	12	1	S 75° W	4·1	3·6	6·3	−43	56	−7·6	·688	−·053	4·7	−1·9	11	9·40	+1·60	7·53	7·68	− 0·15	9·69	8·42	+ 1·27	2·00	Chanda	CENTRAL PROVINCES CENTRAL.	43
	4	2		1	2	6	9	6	N 80° W	4·6		5·7	−19	55	−11·8	·629	−·077	3·7	−1·4	10	12·30	−2·30	8·93	9·95	− 1·02	11·22	10·63	+ 0·59	1·97	Seoni.		
				1	3	6	11	6	S 80° W	5·0	4·4	5·3	−17	54	−11·0	·670	−·052	2·9	−2·3	5	10·40	−5·40	3·30	9·50	− 6·20	5·60	10·05	− 4·45	1·32	Jubbulpore.		
			1		1	3	23	2	S 86° W	10·4	9·3	5·2	+79	46	−18·8	?	−·118	1·7	−3·3	6	8·90	−2·90	1·63	8·79	− 7·16	4·35	9·29	− 4·94	0·53	Saugor.		
2		3	6	2	1	5	9	2	S 61° W	6·1	5·5	9·6	−43	41	− 8·7	·577	−·137	3·7	−0·9	2	7·20	−5·20	0·82	7·32	− 6·50	1·16	7·70	− 6·54	0·32	Sutna	CENTRAL INDIA	49
1						25	4		S 50° W	9·9	9·1	8·7	+ 5	55	−12·5	·684	−·078	6·2	−0·2	7	10·40	−3·40	2·99	8·88	− 5·89	3·61	9·82	− 6·21	1·04	Raipur	CENTRAL PROVINCES, EAST.	44
			2	1	6	13	8		S 42° W	4·9	4·8	3·4	+41	62	−11·5	·793	−·066	6·6	0	8	10·40	−2·40	2·93	11·35	− 8·42	3·83	12·97	− 9·14	1·33	Sambalpur.		
			1		1	5	21	2	S 83° W	15·0	14·9			61		·657		3·6		5	8·10	−3·10	1·75	6·25	− 4·50	4·28	6·99	− 2·71	0·50	Aurangabad	HYDERABAD (NORTH).	39
1		6				2	1	20	N 35° W	8·1	6·8			68		·780		6·3		6	8·90	−2·90	2·55	4·65	− 2·10	2·93	5·04	− 2·11	0·82	Indur		
	2	1	1		3	10	9	4	S 74° W	9·6	8·1			80		·802		5·1		8	7·80	+0·20	3·72	5·74	− 2·02	3·81	6·74	− 2·93	0·94	Bidar.		
	1	3		1		2	15	8	N 70° W	13·0	12·5			77	?	·773	+·032	7·2	+0·9	7	7·40	−0·40	3·66	5·71	− 2·05	5·40	6·87	− 1·47	2·05	Gulbarga	HYDERABAD (SOUTH).	53
						19	5	6	S 68° W	12·6	12·0			67	−2·8	·717	?	3·1	?	5	6·20	−1·20	2·54	3·12	− 0·58	4·61	3·84	+ 0·77	0·93	Raichur.		
3		1					26		N 88° W	7·8	7·6			65	−5·6	·720	+·007	7·6	+1·4	3			0·68	4·37	− 3·69	2·68	5·36	− 2·68	0·29	Hyderabad (Deccan).		
1		1	1			2	14	11	N 72° W	10·2		12·3	−17	65		·693		4·8		6	6·80	−0·80	1·54	4·37	− 2·83	3·97	5·36	− 1·39	0·37	Secunderabad.		
4	2			3	1	4	2	14	N 64° W	12·4	10·5			58		·691		7·1		7	6·70	+0·30	4·62			7·06			1·15	Hanumkonda.		
														86	−0·2	·885	−·001	7·8	0				25·05	27·94	−2·89					X.—West Coast.		
	1	2	1	7	8	5	5	1	S 9° W	11·0		16·2	−32	83	+0·1	·944	+·015	7·4	−0·5	14	14·70	−0·70	18·64	19·65	− 0·99	26·43	20·34	+ 6·09	4·90	Bombay	KONKAN	37
2	5	2	2	12	4		2	1	S 60° E	9·8	9·7	12·0	−19	84	+0·6	·892	−·009	7·7	+0·1	16	20·50	−4·50	23·35	30·20	− 6·85	26·25	31·65	− 5·40	5·93	Ratnagiri.		
4	6	1	1	4	5	3	3	3	S 68° W	9·3				88	+3·1	·928	−·007	8·0	+1·2	19			26·84	23·63	+ 3·21	33·86	26·20	+ 7·66	4·99	Mormugao.		
1	4	10	5	3	2	4		1	N 65° E					85	+0·2	·891	−·019	8·5	+0·4	20			23·81	28·72	− 4·91	32·60	31·05	+ 1·55	3·94	Goa.		
15	4	1	1	1		5	1	2	N 60° W	3·8				84	+0·6	·861	−·006	7·0	+1·0	19	23·30	−4·30	32·16	35·98	− 3·82	41·05	39·26	+ 1·79	4·65	Karwar.		
9	1	7	9	2			1	1	N 69° E	4·7				87	−0·4	·883	+·021	7·9	+0·3	20	24·20	−4·20	28·67	28·99	− 0·32	44·40	41·38	+ 3·02	6·12	Cochin	MALABAR	3
7	1	8	5	5	1		1	2	N 71° E	4·6				86	−2·4	·868	+·010	7·9	−0·3	19	24·30	−5·30	28·63	35·61	− 6·98	34·94	43·39	− 8·45	6·49	Calicut.		
21		1	3	3	1			1	S 71° E	2·2		3·7	−41	87	−2·2	·861	−·012	8·2	−0·6	20	24·60	−4·60	27·62	36·22	− 8·60	35·82	42·88	− 7·06	3·92	Mangalore.		
3	11	4	2	1			1	8	N 3° W	5·8				86	−1·1	·840	0	7·6	−0·5	20	16·50	+3·50	15·75	12·45	+ 3·30	21·28	21·50	− 0·22	2·12	Trivandrum.		
														74	+3·6	·826	+·051	5·8	−0·5				3·15	2·71	+0·44					XI.—South India.		
1			1	2	19	7			S 51° W	14·1	14·9			76		·898		3·3		0	0·50	−0·50	0·06	0·12	− 0·06	1·39	0·67	+ 0·72	0·06	Pamban	MADRAS (SOUTH)	37
	1	4	1	1	4	4	9	6	W	7·9	7·6			63	+1·0	·776	+·017	6·7	+0·2	0	1·20	−1·20	0·19	0·56	− 0·37	1·35	1·93	− 0·58	0·08	Tinnevelly.		
10	3					6	3	8	N 73° W	6·0	6·9	4·8	+44	67	+3·5	·803	+·040	4·4	−1·0	4	2·50	+1·50	1·32	1·25	+ 0·07	5·52	3·90	+ 1·62	0·71	Madura.		
12	5	3	2	2	1		3	2	N 8° E	3·7	4·0			64		·701		5·4		1	2·50	−1·50	0·44	1·05	− 0·61	3·29	3·78	− 0·49	0·24	Periyakulam.		

station, the data for that station are not utilized in calculating the Provincial variation.

No. 44, 43 and 45 are derived only from the data available.

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
34	Madras (South Central).	Salem	940	28·878	P	29·755	28·924	18th	28·783	11th	·141	80·7	94·0	−1·2	74·8	+0·6	84·4	−0·3	19·2	99·7	8th & 11th.	68·4	1st	31·3
		Coimbatore	1,348	28·465	−·010	29·755	28·518	18th	28·374	11th	·144	78·6	90·9	+1·0	73·0	+1·4	81·9	+1·2	17·9	96·9	12th	70·8	15th, 16th & 24th.	26·1
35	Coorg	Mercara	3,781	26·165	+·007		26·227	1st	26·060	11th	·167	67·4	75·3	+2·4	63·1	−0·2	69·2	+1·1	12·2	84·0	11th	60·0	21st	24·0
36	Mysore	Chitaldroog	2,405	27·418	+·012	29·738	27·487	1st	27·342	11th	·145	75·0	87·1	+1·3	70·0	+0·5	78·6	+0·9	17·1	95·1	3rd	64·9	10th	30·2
		Bangalore	3,021	26·848	−·002	29·755	26·907	1st	26·763	11th	·144	72·6	85·9	+1·2	67·5	+0·7	76·7	+1·0	18·4	93·3	2nd & 3rd.	64·3	8th	29·0
		Hassan	3,091	26·733	+·007	29·777	26·860	1st	26·703	11th & 12th.	·157	73·0	82·2	+2·7	66·5	+0·4	74·4	+1·6	15·7	89·3	2nd	63·6	8th	25·7
		Mysore	2,518	27·344	−·001	29·775	27·410	1st	27·238	11th	·172	74·2	86·4	+1·8	68·1	−0·1	77·3	+0·9	18·3	94·1	3rd	64·0	3rd	30·1
31	Madras, East Coast, South.	Negapatam	31	29·752	−·015	29·712	29·805	17th	29·664	11th	·141	85·7	93·9	P	80·1	+0·9	87·0	P	13·8	100·2?	16th	74·0	18th	26·2?
		Cuddalore	12	29·763	P	29·704	29·824	17th	29·683	11th	·141	85·3	96·8	−1·4	79·3	−0·1	88·1	−0·8	17·5	101·7	4th	73·2	17th	28·5
		Trichinopoly	255	29·546	−·005	29·731	29·598	17th	29·468	11th	·130	84·8	99·1	+0·1	79·0	+0·6	89·1	+0·4	20·1	102·6	4th 8th, 29th,	73·9	18th	28·7
		Madras	22	29·733	−·013	29·685	29·806	17th	29·647	11th	·159	85·5	96·8	−1·7	80·0	−0·7	88·4	−1·2	16·8	103·0	28th	74·5	15th	28·5
		Vellore	707	29·069		29·700	29·112	17th & 29th.	28·973	11th	·139	83·9	96·7		77·3		86·9		19·4	106·8	7th	71·5	17th	35·3
55	Madras, East Coast, Central.	Nellore	71	29·666	+·008	29·670	29·779	17th	29·580	26th	·199	87·2	100·1	−1·7	81·5	−0·7	90·8	−1·2	18·6	107·3	6th 7th, & 11th.	73·6	18th	33·7
		Masulipatam	15	29·709	+·018	29·658	29·813	17th	29·603	26th	·210	86·3	97·4	−0·3	81·2	+1·0	89·3	+0·4	16·2	105·7	15th	74·1	17th	31·6
54	Madras, Central	Cuddapah	433	29·331	−·001	29·698	29·410	17th	29·239	11th	·171	86·5	101·1	+0·8	80·8	+0·2	91·0	+0·5	20·3	109·2	1st	73·8	18th	35·4
		Kurnool	945	28·807	−·003	29·686	28·872	16th	28·715	11th	·157	83·3	99·4	+2·7	78·2	+1·3	88·8	+2·0	21·2	107·3	2nd	73·5	19th	33·8
		Bellary	1,475	28·304	+·005	29·713	28·374	1st	28·215	11th	·159	81·8	95·9	+2·4	76·4	+0·7	86·7	+1·6	20·5	105·0	3rd & 4th.	70·2	18th	34·8
52	Madras, East Coast, North.	Cocanada	26	29·679	+·013	29·640	29·778	3rd	29·560	26th	·218	85·5	96·0	+0·8	81·3	+0·3	88·6	+0·6	14·7	103·6	16th	74·0	17th	29·6
		Waltair (Vizag.)	226	29·455	+·026	29·620	29·551	2nd	29·340	23rd	·211	85·1	91·6	P	80·1	P	85·9	P	11·5	99·9	24th	70·9	8th & 24th.	29·0
		Gopalpur	21	29·634	+·027	29·594	29·713	8th	29·503	26th	·210	85·3	90·6	+1·4	80·8	+0·2	85·7	+0·8	9·8	96·2	22nd	73·5	11th	22·7
	XII.—Hill Stations.																							
48	Baluchistan	Shatigh											94·7		56·8		75·8		37·9	98·4	14th, 16th & 17th.	50·1	6th	48·3
		Pishin																						
		Quetta	5,502	24·533	+·053		24·651	2nd	24·416	27th	·235	75·5	90·6	0	58·5	−0·6	74·6	−0·3	32·1	94·1	14th & 16th.	51·4	1st	42·7
		Kalat										77·8	94·0	+2·2	39·2	−9·3	67·0	−3·6	54·8	100·0	15th	32·0	21st	68·0
		Chaman	4,311	25·520	+·032		25·682	2nd	25·400	27th	·282	86·4	100·8	+0·6	71·9	+0·3	86·4	+0·5	28·9	109·2	8th	65·1	10th	44·1
30	Punjab & N.W. Frontier Province.	Leh	11,503	19·716	+·036		19·833	7th	19·559	27th	·274	50·7	67·1	−6·0	40·0	−4·6	53·6	−5·3	27·1	75·1	25th	34·4	1st	40·7
		Srinagar	5,204	24·770	+·039		24·909	8th	24·659	21st	·250	65·8	83·1	0	55·2	−3·6	69·1	−1·8	27·9	89·7	24th	49·2	5th	40·5
		Gulmarg		21·828			21·941	7th	21·699	27th	·242	57·1	65·8*		41·7*		53·8*		24·1*	71·6	19th & 24th.	34·7	5th	36·9
		Sonemarg		21·834			21·983	1st	21·690	27th	·293	45·6	70·3		40·7†		55·6†		29·6†	76·4	24th	34·6	1st	41·8
		Skardu		22·805			22·924	8th	22·653	27th	·271	63·0	77·7		53·2		65·5		24·5	87·1	24th	45·2	5th & 9th.	41·9
		Dras		20·788			20·900	1st	20·635	27th	·265	55·5	72·4		41·4		56·9		31·0	80·4	18th	36·1	2nd	44·3
		Gilgit	4,890	25·008			25·155	4th	24·836	21st	·319	72·9	91·6	−3·0	66·0	−4·1	78·8	−3·6	25·6	100·0	24th	55·1	28th	44·9
		Chitral		24·558			24·577	21st	24·540	1st & 7th.	·037	75·7	90·5		61·1		75·8		29·4	96·2	15th & 24th.	52·0	1st	44·2
		Killa Drosh										73·2	90·2		67·7		79·0		22·5	95·4	14th & 23rd.	60·7	25th	34·7
		Para Chinar	6,000	24·311			24·465	7th	24·193	3rd	·272	77·6	87·9		62·7		75·3		25·2	93·3	13th	59·2	1st	34·1
		Cherat		25·535	+·027		25·676	7th	25·412	21st	·264	80·2	95·4	+1·1	74·5	+1·4	85·0	+1·3	20·9	103·4	13th & 14th.	64·1	30th	39·3
		Murree	6,333	23·749	+·017		23·851	7th	23·623	20th	·228	73·6	84·2	+2·5	63·3	−1·2	73·8	+0·7	20·9	92·4	24th	49·4	30th	43·0
		Kailang	10,087	20·947			21·078	4th	20·790	27th	·288	51·5	68·0	−3·8	41·3	−4·1	54·7	−4·0	26·7	75·6	24th	36·0	4th	39·6
		Poo											75·0		52·5		63·8		22·5	85·7	24th	42·8	5th	42·9
		Simla	7,224	23·043	+·038		23·140	4th	22·916	21st	·224	67·5	77·0	+2·6	62·2	+1·2	69·6	+1·9	14·8	82·4	25th	49·3	5th	33·1

* Mean of 29 days. † Mean of 27 days.

Note 1.—When a query is inserted against any reading or in the returns of any station,

Note 2.—The divisional means of the figure

I—*continued.*

in India, Burma, etc., in June, 1903—continued.

WIND DIRECTION. Number of winds from									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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 30th June, 1903.	Normal rainfall for period, 1st May to 30th June.	Variation from normal of period, 1st May to 30th June, 1903.				
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	57	58
6					4	6	13	1	S 67° W	2·4	3·1	4·9	−37	78	+4·0	·820	+·039	5·4	−0·6	10	4·80	+5·20	72·5	2·97	+ 4·28	15·23	7·98	+ 7·25	1·88	Salem .	Madras, (South Central).	34
5						19	6		S 56° W	4·8	3·8	7·7	−51	84	+3·4	·823	+·059	5·1	−0·8	5	4·90	+0·10	14·9	1·65	− 0·16	5·05	3·93	+ 1·12	0·63	Coimbatore.		
3	4						19	4	N 73° W	5·3	4·9	9·0	−46	93	+0·1	·620	+·014	8·7	−0·3	22	24·80	−2·80	13·23	27 35	−14·12	20·28	33·13	−12·85	2·11	Mercara .	Coorg . .	35
2						12	11	5	S 73° W	7·8	6·8			79	−2·6	·689	+·014	7·8	−0·8	9	6·00	+3·00	4·12	3 80	+ 0·32	9·66	7·54	+ 2·12	1·35	Chitaldroog.	Mysore . .	36
	1				1	12	13	3	S 75° W	10·2	8·7	8·4	+ 4	83	+2·2	·666	+·026	7·1	+0·2	9	5·70	+3·30	4·30	3·05	+ 1·25	6·81	7·27	− 0·46	1·11	Bangalore,		
1		1			4	9	11	4	S 71° W	4·1	3·6			82	−1·1	·663	+·023	8·1	−0·6	11	10·40	+0·60	6·93	5·01	+ 1·92	15·87	10·18	+ 5·69	1·53	Hassan,		
1		1				16	10	2	S 65° W	10·8	11·7			82	+1·7	·697	+·040	8·9	+0·8	9	6·00	+3·00	4·84	3·81	+ 1·03	13·52	7·18	+ 6·34	1·24	Mysore.		
4						16	10		S 62° W	5·7	5·0	8·3	−40	68	+3·8	·846	+·056	4·6	−0·2	3	3·20	−0·20	1·32	1·50	− 0·18	6·33	3·11	+ 3·22	0·72	Negapatam,	Madras, East Coast, South.	56
17					2	8	2	1	S 50° W	4·5	5·6			75	+3·5	·918	+·036?	5·8	+0·4	4	3·10	+0·90	0·93	2·00	− 1·07	4·65	2·28	+ 2·37	0·34	Cuddalore.		
4					1	10	10	5	S 77° W	6·6		9·2	−28	68	+5·5	·820	+·088	3·0	?	3	1·90	+1·10	1·27	1·50	− 0·23	9·15	4·44	+ 4·71	0·82	Trichinopoly.		
					7	11	11	1	S 54° W	7·5		9·0	−17	69	+5·8	·847	+·046	5·5	−0·7	4	8·10	−4·10	1·46	2·21	− 0·75	6·78	3·11	+ 3·67	0·74	Madras.		
														70		·806		4·1		7	4·60	+2·40	4·19	2·62	+ 1·57	6·17	5·64	+ 0·53	1·60	Vellore.		
1	3			4	3	1	2	16	N 54° W	3·4	3·4			65	+3·3	·835	+·013	5·0	−1·6	2	3·00	−1·00	3·55	1·20	+ 2·35	8·47	1·59	+ 6·88	3·30	Nellore .	Madras, East Coast, Central.	55
7	1	1		1	2	1	4	13	N 59° W	5·4				83	+5·9	1·041	+·091	6·6	0	5	6·00	−1·00	6·10	4·83	+ 1·27	7·86	6·10	+ 1·76	3·85	Masulipatam.		
				4	4	3	6	13	N 89° W	9·4	9·0	9·4	− 4	62	+0·6	·778	+·020	5·4	−1·0	6	4·60	+1·40	2·46	3·35	− 0·89	5·28	5·15	+ 0·13	1·16	Cuddapah.	Madras, Central	54
						4	13	13	N 75° W																							
1					1	7	11	10	N 88° W	11·3				77	+10·7	·867	?	6·0	−0·4	5	5·90	−0·90	1·72	3·36	− 1·64	2·38	4·31	− 1·93	0·42	Kurnool.		
3						7	12	8	N 88° W	8·9	9·4	10·5	−10	69	+8·2	·717	+·077	5·9	−1·7	4	4·20	−0·20	2·84	1·78	+ 1·06	4·33	3·76	+ 0·57	1·34	Bellary.		
8		1	1		1	10	8	1	S 65° W	8·3	7·0			84	+11·7	1·039	+·173	6·9	−0·1	7	6·20	+0·80	4·71	4·76	− 0·05	8·42	5·69	+ 2·73	1·73	Cocanada .	Madras, East Coast, North	52
			2		3	24	1		S 39° W	13·7				75	+1·0	·907	+·018	7·6	+0·2	7	5·70	+1·30	6·50	3·83	+ 2·67	6·90	6·30	+ 0·60	1·62	Waltair (Vizag.).		
2	4				10	11	2	1	S 39° W	17·6	17·2	11·6	+48	85	+1·5	1·032	+·069	4·8	−2·4	5	7·10	−2·10	4·52	6·14	− 1·62	4·56	8·24	− 3·68	3·32	Gopalpur.		
																													XII.—Hill Stations.		
																					1·50			0·70			1·05		Sharigh .	Baluchistan	48
																				0	0·20	−0·20	0	0·03	− 0·03	0·62	0·22	+ 0·40	0	Pishin.		
									Calm	1·5	1·6	4·7	−66	51	+1·6	·447	−·008	0·3	−0·3	0	0·80	−0·80	0·07	0·19	− 0·12	1·04	0·59	+ 0·45	0·07	Quetta.		
30																				0	0·50	−0·50	0	0·46	− 0·46	0·52	0·72	− 0·20	0	Kalat.¶		
			1		24				S 2° E					31		·297														Chaman,		
	3	2	7	4	3	7	2	2	S 32° E	7·7	8·5			28	−0·8	·362	0	0·3	−0·2	0	0·10	−0·10	0·02	0·09	− 0·07	0·55	0·14	+ 0·41	0·02			
	2	4	3	3	11	5	2		S 10° E	3·1				40	−2·2	·150	−·034	3·6	0	2	0·60	+1·40	0·35	0·17	+ 0·18	0·50	0·39	+ 0·11	0·16	Leh .	Punjab & N.-W. Frontier Province.	33
3	3	3	1	6	10	1	1	2	S 27° E	5·4	5·0			84	+3·0	·532	−·042	2·1	−1·1	1	3·80	−2·80	0·40	1·79	− 1·39	2·95	4·39	− 1·44	0·10	Srinagar,		
5		6	11	5	1	1		1	S 89° E	5·21	6·0			80		·381		2·4		9			2·68			2·68**			0·65	Gulmarg.		
21		3	1	3	1		1		S 77° E	3·6	3·3			89		·276		3·0		9			2·84			8·77			0·56	Sonemarg .		
8	5	6	2		1	4	3	1	N 3° W	6·8	6·9			44		·219		3·0		0	1·10	−1·10	0·23	0·40	− 0·17	0·27	1·44	− 1·17	0·06	Skardu.		
18	1	2		1	1	1	6		W	7·3	5·8			58		·252		2·5		2	1·70	+0·30	0·78	0·71	+ 0·07	2·19	3·53	− 1·34	0·22	Dras.		
28							2		W	4·0	3·5			39		·317		2·7		2	0·80	+1·20	0·32	0·35	− 0·03	0·32	0·92	− 0·60	0·21	Gilgit.		
24	2		4						N 63° E					36		·314		0·6		2			1·39			5·64			0·75	Chitral.		
23			7						E					45		·363		0·3		1			0·35			5·31			0·35	Killa Drosh.		
20	1	1	2	1	2	1	1	1	S 45° E	6·4	5·8			34		·317		3·5		5	3·40	+1·60	1·52	1·43	+ 0·09	6·10	3·45	+ 2·65	0·57	Para Chinar.		
	15	4		1	5	2		3	N	4·7	4·4			31	−19·7	·313	−·190	0·6		4			1·28	0·73	+ 0·55	3·27	1·94	+ 1·33	0·50	Cherat.		
15	2	1	1	2	3	3	1	2	S 31° W	6·6	7·1	6·6	+ 8	35	−17·4	·284	−·099	2·2	−1·3	2	8·00	−6·00	1·43	3·52	− 2·09	5·52	6·49	− 0·97	1·22	Murree.		
				3	8	15	4		S 76° W	2·0				63		·240		2·9		2			0·80	1·34	−0·54	2·82	3·92	− 1·10	0·44	Kailang.		
23		2	1			2			N 8° E									2·4		1			0·39	0·27	+ 0·12	1·33	0·98	+ 0·35	0·36	Poo.		
4	15	2	1	1	6		1		N 11° E	4·4	4·2	2·3	+83	50	−15·5	·333	−·069	1·7	−3·3	6	9·80	−3·80	2·57	7·85	− 5·28	6·89	10·91	− 4·02	1·11	Simla.		

‡ Mean of 28 days.

** Total for June, 1903, only.

¶ Observation of 25 days.

the data for that station are not utilized in calculating the Provincial variations.

columns Nos. 41, 43 and 45 are derived only from the data available.

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
25	United Provinces	Chakrata	7,022	23·200	+·028		23·286	12th	23·066	21st	·220	67·7	75·8	+1·5	61·3	+1·3	68·6	+1·4	14·5	83·1	23rd	47·3	6th	35·8
		Mussooree	6,705	23·462	+·022		23·562	3rd	23·326	21st	·236	69·4	79·4	+2·7	62·8	+2·1	71·1	+2·4	16·6	84·8	23rd & 24th.	51·0	5th	33·8
		Ranikhet	6,069	23·986	+·022		24·092	4th	23·840	21st	·252	69·6	81·9	+4·0	62·9	−0·1	72·4	+2·0	19·0	87·1	25th	50·0	5th	37·1
		Muktesar	7,600	22·769			22·873	4th	22·637	21st	·236	65·3	78·8		57·1		68·0		21·7	83·7	9th	44·4	5th	39·3
13	Bengal	Yatung	10,480?										60·5		48·0		54·3		12·5	65·1	7th & 24th.	41·9	2nd	23·2
		Darjeeling	7,376	22·928	+·008		23·042	4th	22·638	26th	·404	59·4	65·1	−0·1	55·3	−0·9	60·2	−0·5	9·8	68·7	25th	51·6	3rd	17·1
8	Assam Hill Tracts.	Shillong	4,920	25·007			25·115	4th	24·839	20th	·276	66·8	71·8		62·4		67·1		9·4	75·6	24th	59·0	2 days	16·6
		Cherra Poonjee	4,309	25·552			25·660	4th	25·383	20th	·277	66·1	71·4		63·8		67·6		7·6	78·3	25th	61·5	29th	16·8
	Central India	Mount Abu	3,945	25·903	+·042		26·006	3rd	25·786	27th	·220	76·5	86·9	+3·6	71·3	+3·2	79·1	+3·4	15·6	94·2	9th & 10th.	65·8	20th	28·4
		Pachmarhi	3,528	26·287	+·033		26·382	2nd	26·160	26th	·222	79·9	93·4	+7·5	75·4	+3·4	84·4	+5·5	18·0	101·2	9th	68·2	26th	33·0
	South India	Wellington	6,200	24·191	+·007		24·244	4th	24·117	26th	·127	66·7	75·5	+3·3	58·0	0	66·8	+1·7	17·5	80·7	7th	54·1	29th	26·6
		Kodaikanal	7,688	22·787			22·845	4th	22·716	26th	·129	60·0	66·5		54·7		60·6		11·8	72·0	4th & 7th	52·0	19th	20·0
		Ootacamund	...	23·015			23·066	1st	22·943	11th	·123	59·8	66·2		52·6		59·4		13·6	71·5	6th & 7th.	47·3	29th	24·2
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·810	P	29·748	29·866	17th	29·760	27th	·106	82·6	92·7	+1·1	79·0	+0·6	85·9	+0·9	13·7	96·5	6th	73·5	17th	23·0
		Colombo	40	29·838	−·022	29·803	29·878	17th & 19th.	29·764	11th	·114	81·9	87·4	+1·7	78·2	+0·7	82·8	+1·2	9·2	89·0	7 days	71·0	3rd	18·0
	Persia	Meshed	3,104									79·3			63·6	+0·2						56·8	1st	
		Teheran*	...	25·691†			25·850	3 days	25·500	20th & 21st.	·350	82·5	95·7	+0·9	66·4	−1·0	81·1	−0·1	29·3	102·8	28th	53·0	22nd	49·8
		Ispahan	...	24·226†			24·370	3rd & 4th.	24·000	21st	·370	76·1	93·1	−1·3	58·1	−3·8	75·6	−2·6	35·0	100·5	30th	51·1	6th & 12th.	49·4
		Bushire	14	29·590	+·016	29·563	29·694	2nd	29·485	17th	·209	86·6	93·2	+1·3	81·0	+0·5	87·1	+0·9	12·2	108·5	9th	75·5	30th	33·0
		Bahrein‡	30	29·588			29·690	2nd	29·498	17th	·192	88·5	95·4		84·4		89·9		11·0	106·7	10th	78·3	25th	28·4
		Jask§	...	29·608	+·037		29·855	25th	29·453	27th	·402	89·0‖	95·5	−0·2	83·3	+0·2	89·4	0	12·2	104·7	12th	77·2	8th	27·5
		Muscat	20	29·526	−·027	29·493	29·659	2nd & 3rd.	29·381	27th	·278	90·4	93·2	−0·6	87·9	−0·3	90·6	−0·5	5·3	103·2	12th	83·0	30th	20·2
	Arabia	Baghdad	220	29·583	+·004	29·773	29·730	1st	29·452	8th	·278	86·1	105·8	+4·0	75·5	0	90·6	+2·0	30·3	111·9	30th	68·6	21st	43·3
		Bussrah	...	29·642			29·781	1st	29·534	23rd	·247		101·8		78·9		90·4		22·9	110·4	9th	73·9	1st & 2nd.	36·5
		Aden	94	29·665	+·018	29·689	29·763	4th	29·588	29th	·175	88·2	94·4	−0·3	83·5	−0·2	89·0	−0·3	10·9	98·3	16th	80·8	30th	17·5
		Perim	201	29·548	+·011	29·679	29·641	1st	29·487	27th	·154	87·9	93·7	−1·5	83·7	+1·0	88·7	−0·3	10·0	99·7	25th	82·4	16th	17·3
	Afghanistan	Kabul	...									73·6	87·7	−1·6	54·7	−3·9	71·3	−2·8	33·0	93·1	14th	51·4	1st, 5th & 6th.	41·7
	Central Asia	Kashgar	4,255	25·452¶			25·660	1st	25·220	21st	·440	72·9	87·8	−2·1	59·7	−5·9	73·8	−4·0	28·1	95·1	16th	48·3	8th.	46·3
	Arabian Sea Islands.	Amini Devi	13																					
		Minicoy	7	29·862		29·794	29·923	4th	29·762	10th	·161	82·9	86·9	+1·4						89·4	1st, 2nd			
	Africa	Zanzibar	73	30·033	−·043	30·033	30·079	30th	29·999	3 days	·080	76·6	83·3	+1·9	75·5	+1·4	79·4	+1·7	7·8	84·9	4th	73·6	25th	11·3
		Do. Dunga	...	29·961			30·012	30th	29·891	21st	·121	74·4	84·6		70·7		77·7		13·9	87·0	23rd	65·8	14th	21·2
	Straits Settlements.	Penang (a)	20	29·859		29·835	29·932	29th	29·847	16th	·085	82·5	90·5		74·4		82·5		16·1	93·0	9th	73·0	5 days	20·0
		Singapur (a)	10	29·906		29·837	29·993	27th	29·862	6th	·131	83·2	87·9		75·1		81·5		12·8	90 2	19th	73·0	14th & 28th.	17·2

* Observations of 28 days. ‡ " 29 " Aneroid uncorrected. § Mean of 28 days. ¶ Aneroid corrected.

(a) Nine hour observations.

Note 1.— When a query is inserted against any reading or in the returns of any station,

Note 2.— The divisional means of the figure columns

I—*concluded.*

in India, Burma, etc., in June 1903—concluded.

WIND DIRECTION. Number of winds from									Wind resultant.	Wind Velocity.				Hygrometry, 8 A.M.				Cloud.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 30th June.	Variation from normal of period 1st May to 30th June 1903.			
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	57	58
6	1			9	14				S 18° E	12·0		5·7	+111	53	−18·4	·368	−·069	2·3	−1·7	6	10·60	−4·60	2·37	8·77	− 6·40	5·33	11·20	− 5·87	0·60	Chakrata .	United Provinces	25
1		2	8	6	5	4	2	2	S 39° E					58	−16·1	·421	−·051	2·2	−3·5	4	10·70	−6·70	1·53	10·81	− 9·28	3·24	13·05	− 9·81	0·51	Mussooree.		
13		1	1			3	10	2	W	3·8	4·3	3·2	+33	63	−10·1	·456	−·042	1·6	−4·3	6	10·40	−4·40	1·97	6·47	− 4·50	3·04	8·75	− 5·71	0·87	Ranikhet.		
8	3			1	3	2	3	10	N 66 W	5·0	4·5			66		·410		3·3		9			2·02			3·34			0·41	Muktesar.		
																				21	17·00	+ 4·00	10·57	7·17	+ 3·40	18·26	12·05	+ 6·21	2·46	Yatung .	Bengal . .	3
11		3	3	6	1	1	2	3	S 68° E	2·7	2·5	4·7	−47	94	− 0·8	·475	−·023	P	P	20	20·81	− 0·81	24·85	23·77	+ 1·08	34·86	32·55	+ 2·31	6·61	Darjeeling.		
20		1		1		7		1	S 45° W	2·2	2·5			87		·574		9·1		27	20·40	+ 6·60	25·68	15·87	+ 9·21	31·41	26·02	+ 5·39	3·76	Shillong .	Assam Hill Tracts.	8
4	1	5	2		2	11	4	1	S 57° W	7·7	8·9			95		·612		9·3		25	24·70	+ 0·30	109·77	101·56	+ 8·21	131·10	151·49	−20·39	18·64	Cherra Poonjee.		
		2		2	5	16	5		S 39° W	12·6	12·7	10·1	+26	61	−11·9	·513	−·058	4·0	−1·3	0	6·70	− 6·70	0·10	6·21	− 6·11	0·87	7·20	− 6·33	0·09	Mount Abu	Central India.	
			1			3	7	19	N 62° W	11·0	11·3	7·7	+47	59	−12·7	·584	−·037	5·3	−1·2	6	11·00	− 5·00	2·46	10·92	− 8·46	6·56	11·42	−4·86	0·87	Pachmarhi.		
11	4	3	1	1		7	3		N 83° W	3·7		5·1	−27	74	+4·3	·482	+·036	6·7	+0·2	7	8·00	−1·00	3·30	3·61	− 0·31	7·84	7·37	+0·47	1·26	Wellington	South India.	
	2	2	2	4	4		9	7	N 76° W	15·5				74		·387		6·5		11	8·50	+2·50	5·29	4·01	+ 1·28	11·29	10·48	+ 0·81	1·53	Kodaikanal.		
13	1		2	1		6	6	1	S 69° W	3·0	2·8			78		·399		6·1		13	13·30	−0·30	5·59	6·18	− 0·59	17·15	12·11	+5·04	0·81	Ootacamund		
																														XIII.—Extra India.		
					30				S 45° W					83	+6·8	·933	+·057	2·5	P	1			3·14	1·51	+1·63	8·89	3·97	+4·92	3·06	Trincomalee	Ceylon.	
			2	4	2	18	3	1	S 35° W	9·7		10·2	− 5	86	+5·5	·943	+·057	7·7	+0·5	15			5·53	8·23	−2·70	26·13	19·35	+6·78	1·16	Colombo.		
														63		·633		1·2		0			0	0·23	−0·23	2·47	0·97	+1·50	0	Meshed .	Persia.	
11		4	2	3	3	4	1		S 31° E	2·6**	3·4**			30		·329		0·9		0			0	0·04	−0·04	0·80	0·37	+0·43	0	Teheran.		
25						2	3		S 76° W	1·8	2·4			57		·524		0·2		0			0	0	0	0·31	0·11	+0·20	0	Ispahan .		
4	6	2		2	2		1	11	S 23° W	10·7	12·7	10·3	+18	66	+3·9	·837	+·052	0·1	−0·1	0			0	0	0	0	0	0	0	Bushire.		
	10	2			1	2	1	13	N 29° W					67		·907				0			0			0			0	Bahrein.		
2	1		12	4	3	1	4	2	S 65° E	10·8	9·0			73‖	+6·1	·984‖	+·047	0·4‖	−0·7	0			0	0·11	−0·11	0	0·11	−0·11	0	Jask. §		
				19				11	S 45° E	4·5	4·7			70	+2·1	·986	+·024	1·0	−0·5	0			0·03	0·36	−0·33	0·03	0·36	−0·33	0·03	Muscat.		
8	13	1		1			1	6	N 13° W	3·0	4·0			35	−4·9	·425	−·064	1·0	+0·9	0			0	0	0	0	0·24	−0·24	0	Baghdad .	Arabia.	
																				0			0			0·82			0	Bussrah.		
2		6	4	6	1	11			S 28° E	10·7	8·7	7·6	+14	74	+	·979	+·041	4·0	+1·0	0			0	0·01	−0·01	0	0·20	−0·20	0	Aden.		
		1		9		14	2	4	S 32° W	12·9	13·0			71	−1·7	·926	−·029	1·4	−2·1	0			0	0	0	0·47	0·37	+0·10	0	Perim.		
	1		1	12	7	5		4	S 11° E					36		·296		0·5	+0·1	2			0·40	0·21	+0·19	3·51	0·75	+2·76	0·28	Kabul .	Afghanistan.	
27					2				S	3·0	2·7			30		·243		0·6		0			0	0·31	−0·31	0	1·19	−1·19	0	Kashgar†† .	Central Asia.	
																								13·14			17·24			Amini Devi.	Arabian Sea Islands.	
	1		1		2	6	12	8	N 89° W	13·5	14·4			81		·912		6·8		20			8·36	8·60	−0·24	14·03	15·00	−0·97	1·56	Minicoy.		
				1	15	14			S 19° W	10·0	9·4			87		·806		5·2		3			0·87	1·07	−0·20	9·43	11·69	−2·26	0·46	Zanzibar .	Africa.	
18						12			S 45° W	6·1	6·0			93		·796		5·7		4			0·97			8·27			0·32	Do. Dunga		
6	3	4	3	7	3		1	3	E	4·0								0		9			8·31			16·13			2·28	Penang .	Straits Settlements.	
		1	5	10	5	3	3	3	S 26° E									6·6		9			5·48			10·11			1·61	Singapur .		

the data for that station are not utilized in calculating the provincial variations.

** Mean of 27 days. †† Wind observation of 29 days. ‖ Mean of 29 days.

Nos. 41, 43 and 45 are derived only from the data available.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 64 Stations in India, Burma, etc., in June, 1903.

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	29·779	29·698	·081	29·735	+·011	29·726	85·6	78·2‡	7·4	88·6	74·1	14·5	83·2	83·8	80·9‡	+0·1	75·9	79·8	79·6	78·4
	Rangoon	57	·771	·681	·090	·736	+·018	·731	85·7	76·1	9·6	89·3	74·3	15·0	81·5	82·7	79·4	0	74·8	78·4	78·4	77·2
	Diamond Island	41	·763	·685	·078	·720	0	·696	85·6	77·7	7·9	88·4	75·2	13·2	83·3	82·8	80·5	+1·0	74·8	79·3	78·9	77·7
	Cocos Island	119	·688	·614	·074	·647	P	·698	87·6	78·6	9·0	92·2	73·9	18·3	84·7	83·9	81·7	+1·0	75·1			
	Akyab	20	·728	·649	·079	·692	+·015	·654	85·3	78·6	7·7	91·9	75·4	16·5	83·1	83·2	81·4	+0·2		80·9	80·3	
Bengal and Orissa.	Chittagong	87	·612	·526	·086	·575	+·008	·609	87·7	76·9	10·8	91·6	71·3	20·3	84·4	83·7	81·0	+0·5	75·6	79·9	79·1	78·2
	Calcutta (Alipore)	21	·620	·523	·097	·578	+·031	·544	94·0	78·2	15·8	98·9	72·5	26·4	88·3	90·2	85·7	+1·2	75·2	81·2	80·8	79·1
	Saugor Island	25	·616	·527	·089	·578	+·028	·546	92·1	81·3	10·8	95·8	74·6	21·2	88·6	89·4	85·5	+0·8	77·6	82·8	83·0	81·1
	False Point	21	·633	·530	·103	·586	+·012	·548	91·0	79·6	11·4	100·3	72·1	28·2	87·8	88·3	84·1	+0·4	77·1	81·3	82·1	80·2
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·628	27·530	·098	27·588	+·010	·482	95·9	76·7	19·2	104·6	71·2	33·4	86·7	91·5	84·8	+2·9	71·2	74·1	73·9	73·1
	Darbhanga	166	29·473	29·352	·121	29·419	+·031	·536	89·4	77·4	12·0	95·5	69·7	25·8	84·2	87·9	82·1	-2·4	75·4	79·7	81·7	78·9
	Allahabad	309	·263	·144	·119	·206	+·002	·456	106·4	85·1	21·3	113·1	78·1	35·0	96·3	103·3	94·4	+3·8	74·2	79·5	79·1	77·6
Upper Sub-Himalayas.	Dehra Dun	2,233	27·404	27·296	·108	27·340	−·015	·447	98·6	76·1	22·5	104·6	66·9	37·7	89·2	94·3	86·5	+2·5	64·5	71·0	71·1	68·9
	Roorkee	899	28·680	28·550	·130	28·610	−·010	·439	104·6	81·1	23·5	110·7	68·2	42·5	94·3	102·6	92·6	+2·7	69·0	75·0	75·3	73·1
	Meerut	738	·824	·700	·124	·753	−·011	·425	105·0	83·5	21·5	109·7	74·3	35·4	95·6	102·5	93·9	+3·3	71·9	76·4	77·5	75·3
	Lahore	702	·832	·728	·104	·774	+·001	·468	110·1	82·7	27·4	116·9	75·9	41·0	99·6	107·9	95·4	+4·2	69·7	75·9	77·2	74·2
	Ludhiana	812	·734	·630	·104	·676	−·005	·416	108·9	84·3	24·6	113·9	73·2	40·7	98·6	107·0	95·9	+4·7	71·3	72·9	75·0	73·1
Indus Valley and N.-W. Rajputana.	Peshawar	1,110	·460	·356	·104	·402	+·015	·443	107·8	77·4	30·4	114·0	69·7	44·3	99·4	105·0	91·5	+1·6	63·5	71·8	72·0	69·1
	Jacobabad	186	29·357	29·243	·114	29·294	+·035	·427	116·3	85·6	30·7	123·6	83·6	40·0	103·1	113·8	99·9	+2·8	81·1	89·4	93·8	88·0
	Kurrachee	30	·606	·522	·084	·565	+·029	·545	95·6	85·0	10·6	98·4	82·8	15·6	91·4	91·6	89·0	+2·2	79·3	82·0	83·1	81·4
E. Rajputana, C. India and Gujarat.	Jaipur	1,431	28·205	28·095	·110	28·150	+·017	·473	109·4	84·9	24·5	115·2	75·5	39·7	98·9	106·6	96·3	+5·7	70·0	75·3	74·7	73·3
	Udaipur	1,925	27·770	27·679	·091	27·725		·531	101·8	81·0	20·8	109·6	77·6	32·0	93·5	96·7	90·2		71·7	74·4	74·5	73·5
	Deesa	466	29·212	29·084	·128	29·153	+·030	·556	105·7	81·8†	23·9	113·0	78·6	34·4	92·7	104·1	92·7†	+2·9	74·2	77·1	76·6	76·0
	Jamnagar	61	·623	·518	·105	·570		·578	98·1	80·0	18·1	105·4	76·6	28·8	92·1	93·8	88·0		74·8	79·4	80·3	78·2
Deccan.	Belgaum	2,539	27·280	27·199	·081	27·243	+·012	·679	82·8	68·1	14·7	95·9	65·6	30·3	76·7	79·5	74·2	+1·6	67·1	70·9	72·4	70·2
	Sholapur	1,590	28·174	28·041	·133	28·117	+·003	·613	97·5	75·1	22·4	107·0	71·6	35·4	86·4	94·1	84·4	+2·5	70·1	73·1	74·2	72·4
	Akola	930	·773	·628	·145	·705	+·016	·556	104·0	80·6	23·4	114·3	74·9	39·4	92·9	101·8	90·8	+5·2	72·0	77·1	77·2	75·4
	Buldana	2,132	27·611	27·493	·118	27·557	+·019	·562	97·0	75·5	21·5	106·7	69·7	37·0	86·7	95·0	84·8	+4·1	68·4	73·4	72·5	71·4
	Khandwa	1,044	28·656	28·525	·131	28·596	+·028	·560	103·0	81·7	21·3	114·5	71·6	42·9	91·4	101·9	91·9	+5·1	72·5	76·6	76·6	75·2
	Nagpur	1,025	·651	·528	·123	·595	+·032	·543	103·5	80·3	23·2	114·4	72·8	41·6	92·7	96·2	89·2	+3·2	71·2	76·8	76·2	74·7
	Do. (Sanitary Commr.'s Office)	1,013	·663	·530	·133	·602		·539	104·0	80·6	23·4	114·7	73·2	41·5	93·7	97·5	90·7		71·3	75·7	76·4	74·5
	Hyderabad (Deccan).	1,690	·062	27·942	·120	·009	+·018	·592	98·2	78·6	19·6	107·2	73·2	34·0	88·4	96·0	87·9	+4·7	72·7	75·5	77·9	75·4
West Coast.	Bombay	37	29·735	29·654	·081	29·694	+·025	·670	87·6	79·4	8·2	93·1	74·8	18·3	84·1	85·3	83·1	−0·1	76·6	79·3	79·9	78·6
	Karwar	44	·770	·700	·070	·734	−·010	·709	86·1	76·4	9·7	92·3	72·5	19·8	83·1	83·6	80·8	+0·7	74·6	78·7	78·7	77·3

† Mean of 29 days. ‡ Mean of 28 days. § Mean of 24 days.

II.

at 64 Stations in India, Burma, etc., for June, 1903.

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
																									%	%						
·864‡	·976	·958	·939	+·017	89‡	86	83	86	0	7·9	8·2	8·1	+0·6			1		5	7	25	20	2	S 53° W	S 43° W	72	79	231*	231	18·88	1·94	Port Blair .	Burma Coast and Bay Islands.
·847	·933	·916	·899	—·003	94	87	82	88	— 1	9·5	9·5	9·5	+0·8	1		1	14	11	14	10	8	1	S 14° E	S 23° W	47	71	40*	123	21·05	3·31	Rangoon .	
·819	·951	·943	·901	+·016	87	83	83	84	— 2	6·9	7·9	7·4	+—0·7	1				6	21	27	3	2	S 24° W	S 35° W	78	74	273*	216	19·87	2·53	Diamond Island	
·828					84					7·2	7·3	7·3	—0·9		2				27	29	2		S 26° W	S 34° W	85	90		P	9·43	1·60	Cocos Island .	
	1·028	·997				90	88			8·2	7·7	8·0	+0·5					20	16	24			S 3° W	S 3° E	78	57	97*	97	45·81	5·37	Akyab .	
·871	·964	·936	·924	+·055	94	81	81	85	— 1	6·6	6·3	6·5	—1·1			1	4	17	16	16	5	1	S 1° W	S 24° E	63	60	206*	160	18·40	4·34	Chittagong .	Bengal and Orissa.
·837	·971	·927	·912	—·045	87	73	66	75	— 8	7·3	7·0	7·2	+0·1	1		1	2	8	30	18			S 5° W	S 3° E	80	59	145	142	10·70	3·59	Calcutta (Alipore).	
·901	1·041	1·039	·994	—·025	84	77	76	79	— 4	7·1	7·6	7·4	—0·3				2	10	33	11	3	1	S 3° W	S 12° W	78	68	423†	372	10·22	3·95	Saugor Island .	
·902	·986	1·017	·968	—·001	89	75	76	80	— 3	7·9	7·2	7·6	+0·4		1				31	22	5	1	S 26° W	S 37° W	84	64	310*	303	11·69	4·33	False Point .	
·697	·690	·617	·668	—·024	76	55	44	58	— 8	6·8	9·2	8·0	+0·5	1	5	5	4	3	10	9	7	16	N 85° W	S 38° W	25	15	209*	225	3·40	1·09	Hazaribagh .	Gangetic Plain and Chota Nagpur.
·856	·958	1·003	·939	+·027	90	81	76	82	+ 6	6·1	2·8	4·5	—0·2	7	2	3	24	21	1	1	1		S 72° E	S 85° E	68	70	99	148	13·03	2·63	Darbhanga .	
·699	·785	·671	·718	—·051	58	46	33	46	—10	3·0	2·7	2·9	—1·8	12	4	10	11	2		2	10	9	N 7° E	N 9° W	25	15	172*	166	0·91	0·25	Allahabad .	
·437	·534	·476	·482	—·168	52	39	30	40	—23	4·1‖	4·7¶	4·4	0		4	3	3	6	6	7	19	12	S 88° W	S 53° W	38	16	54	40	0·98	0·64	Dehra Dun .	Upper Sub-Himalayas.
·552	·614	·512	·559	—·097	53	39	25	39	—13	0·4	0·3	0·4	—2·9	3	1	1	2	24	6	3	5	15	S 8° E	S 10° E	22	17	129	95	0·69	0·42	Roorkee .	
·633	·657	·614	·635	—·058	55	39	30	41	—11	5·4	7·4	6·4	+3·0	11	1	1	10	10		6	15	6	S 48° W	N 16° W	13	10	61*	64	0	0	Meerut .	
·559	·578	·521	·553	—·064	50	31	22	35	— 5	0·6	1·1	0·9	—2·1	7	11	5	6	7	5		14	5	N 21° W	N 19° E	15	6	81	88	0·23	0·27	Lahore .	
·597	·476	·448	·507	—·147	51	26	19	32	—17	0·6	0	0·3	—2·9	8	1	4		19	1	5	17	5	S 37° W	S 64° W	22	8	96*	64	0·05	0·04	Ludhiana .	
·419	·443	·379	·414	—·105	45	24	17	29	— 9	0·8	3·1	2·0	—0·2	21	7	8	10	2		2	4	6	N 28° E	N 41° E	27	31	71*	113	0·13	0·13	Peshawar .	N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.
1·007	1·200	1·314	1·173	P	82	58	47	62	P	0·2	0·3	0·3	—0·6	38			2	9	9		2		S 4° E	S 33° E	26	45	81*	125	0·13	0·13	Jacobabad .	
·924	·967	1·017	·969	+·010	77	66	68	70	— 5	2·9	2·3	2·6	—1·7					1	9	32	18		S 51° W	S 62° W	86	85	409*	423	0·05	0·05	Kurrachee .	
·551	·583	·455	·529	—·138	46	32	21	33	—17	0·7	3·8	2·3	—2·2				1			18	36	5	S 80° W	N 66° W	87	45	173	165	0·20	0·11	Jaipur .	E. Rajputana, C. India and Gujarat.
·660	·618	·581	·620		63	40	35	46		1·2	3·6	2·4		2	2		1	1	8	20	21	5	S 65° W		68		194*		0·33	0·08	Udaipur .	
·747†	·723	·545	·670	—·062	68†	47	26	47	— 7	2·7	2·2	2·5	—2·5					1	10	43	6		S 41° W	S 42° W	91	70	378	397	0·02	0·02	Deesa .	
·795	·832	·853	·827		78	55	54	62		3·0	2·4	2·7						2	8	26	20	2	S 56° W		78		636*		0·34	0·23	Jamnagar** .	
·655	·688	·710	·684	+·018	95	76	71	81	— 1	7·8	8·1	8·0	+0·1		1			1	4	23	26	3	S 68° W	S 62° W	81	78	405‡	556	5·68	1·28	Belgaum .	Deccan.
·674	·650	·603	·642	+·010	78	53	41	57	— 3	7·1	8·1	7·6	+0·4	1	1	6		1	2	13	13	23	N 74° W	S 86° W	57	70	357*	316	6·93	2·80	Sholapur .	
·672	·721	·598	·664	—·031	65	48	31	48	—10	4·4	6·3	5·4	—1·2	1	2			1	1	9	15	31	N 70° W	N 68° W	76	72	283*	223	2·02	0·75	Akola .	
·607	·656	·518	·594	—·070	70	53	33	52	—13	3·7	3·9	3·8	—2·5		9			2	5	5	16	23	N 58° W	N 73° W	49	66	261*	253	3·44	1·13	Buldana .	
·689	·730	·598	·672	—·042	65	51	32	49	—11	4·8	5·1	5·0	—1·0		4	1			1	6	10	38	N 57° W	N 79° W	80	72	241	234	2·72	1·82	Khandwa .	
·654	·724	·657	·678	—·040	66	50	43	53	— 7	4·9	8·2	6·6	—0·5	6	4	3	1		5	11	16	14	N 84° W	N 83° W	52	52	71§	240	7·01	1·50	Nagpur .	
·653	·665	·650	·656		64	45	40	50		4·2	6·8	5·5		8		3		8	2	28	2	9	S 47° W		47		69*		6·50	1·48	Do. (Sanitary Commr.'s Office)	
·732	·726	·732	·730	+·023	76	55	45	59	— 6	6·5	6·8	6·7	+0·8	8	4	2	1	3		1	31	10	N 75° W	N 84° W	60	70	183*	217	0·68	0·29	Hyderabad (Deccan),	
·877	·940	·950	·922	—·002	88	81	78	82	0	7·2	6·6	6·9	—0·9			1	2	4	15	11	20	7	S 54° W	S 64° W	57	65	264	376	18·64	4·90	Bombay .	West Coast.
·836	·926	·919	·894	+·044	92	82	80	84	+ 1	5·5	5·9	5·7	—1·4	5	6			2		21	14	12	S 88° W	S 73° W	60	74	92	128	32·16	4·65	Karwar .	

* Corrected. ‖ Mean of 16 days. ¶ Mean of 18 days. ** Wind variable 2.

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.						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	28·862	28·749	·113	28·818			95·9	73·2	22·7	101·7	68·3	33·4	88·3	90·3	82·8		69·3	74·8	74·9	72·8
	Salem	940	·881	·765	·116	·836	−·026	29·697	93·9	74·8	19·1	99·6	68·2	31·4	86·0	90·7	83·0	+0·3	71·9	76·9	78·4	75·7
	Chitaldroog	2,405	27·425	27·323	·102	27·383	+·009	·676	87·0	70·1	16·9	95·1	64·9	30·2	79·5	84·9	78·0	+1·8	67·4	71·9	72·4	70·6
	Bangalore	3,021	26·854	26·761	·093	26·819	−·003	·693	85·8	67·6	18·2	93·7	61·4	29·3	78·1	81·7	75·7	+1·5	65·7	70·8	70·6	69·0
	Hassan	3,091	·802	·720	·082	·772	+·004	·722	81·9	66·5	15·4	89·3	63·6	25·7	77·4	79·0	73·5	+2·2	65·3	70·1	70·8	68·7
	Mysore	2,518	27·319	27·261	·088	27·305	−·001	·713	86·0	66·1	17·9	94·1	63·8	30·3	79·2	81·4	75·9	+0·9	67·4	71·8	73·1	70·8
	Madras	22	29·739	29·635	·110	29·696	−·001	·645	96·8	79·8	17·0	103·1	74·3	28·8	90·5	90·3	86·2	−1·1		79·1	80·0	78·8
	Bellary	1,475	28·309	28·190	·119	28·259	−·010	·645	96·7	76·2	20·5	105·0	70·2	34·8	86·8	92·5	84·5	+1·6	68·9	75·9	77·5	74·1
	Waltair	226	29·459	29·362	·097	29·411		·574	91·4	80·2	11·2	99·7	70·9	28·8	87·9	87·6	84·8		76·1	79·3	80·6	78·7
Hill Station, Baluchistan.	Quetta	5,502	24·535	24·463	·072	24·492	+·055		90·6	58·5	32·1	94·1	51·3	42·8	84·6	87·7	73·8	−0·4	51·3	62·2	61·9	58·5
Hill Stations, Northern India.	Leh	11,503	19·714	19·625	·089	19·676	+·037		67·1	40·0	27·1	75·2	34·5	40·7	58·2	64·4	52·5	−3·4	35·9	44·2	47·6	42·6
	Srinagar	5,204	24·770	24·691	·079	24·724	+·035		83·0	55·2	27·8	89·7	49·2	40·5	71·7	79·7	68·3	−2·2	52·6	66·8	73·2	64·2
	Simla (Ridge)	7,224	23·054	22·998	·056	23·019	+·029		76·8	61·8	15·0	82·4	49·3	33·1	70·9	74·6	69·3	+1·4	52·7‡	57·5	59·3	56·5
	Chakrata	7,022	·208	23·160	·048	·177	+·021		75·7	60·9	14·8	83·1	47·3	35·8	71·2	72·7	68·1	+1·0	51·7	58·1‡	59·8§	56·6
	Ranikhet	6,069	·991	·923	·068	·945	+·008		81·8	62·9	18·9	87·0	49·9	37·1	75·1	77·0	71·7	+1·2	57·1	63·2	63·8	61·4
	Muktesar	7,600	22·778	22·722	·056	22·750			78·7	57·1	21·6	83·7	44·4	39·3	69·6	71·3	66·0		52·2	59·7	61·3	57·7
	Katmandu	4,388	25·552	25·473	·079	25·511	?		82·6	65·8	16·8	86·6	60·0	26·6	77·0	79·1	73·3	−1·4	64·1	68·9	69·8	67·6
	Darjeeling	7,376	22·942	22·894	·048	22·916	+·023		65·0	55·3	9·7	68·8	51·7	17·1	61·8	62·4	59·6	−0·2	54·9	60·0	60·5	58·5
Hill Stations, Central, India.	Mount Abu	3,945	25·915	25·847	·068	25·886	+·040		86·8	71·2	15·6	94·2	65·8	28·4	79·7	85·1	78·6	+3·4	62·5	68·1	69·2	66·6
	Pachmarhi	3,528	26·302	26·206	·096	26·260	+·028		93·0	75·4	17·6	101·2	69·0	32·2	84·9	90·9	83·5	+5·6	66·2	70·5	70·9	69·2
	Chikalda	3,612	·198	·104	·094	·156	+·028		89·4	71·5	17·9	98·0	65·5	32·5	80·4	88·0	79·9	+4·6	65·8	74·3	76·3	72·1
Hill Stations, South India.	Kodaikanal	7,688	22·801	22·737	·064	22·766			66·4	54·7	11·7	72·3	52·0	20·3	62·7	60·3	58·7		50·9	57·0	57·1	54·8
	Ootacamund		23·025	·966	·059	·995			66·0	52·6	13·4	71·7	47·3	24·4	63·1	60·5	57·9		51·2	57·6	57·4	55·4
	Dodabetta		22·021	21·972	·049	21·996			59·9	49·9	10·0	66·8	46·4	20·4	58·4	55·0	53·7		47·5**	53·9	52·3	51·2
Extra India.	Aden	94	29·675	29·562	·113	29·615	+·020	·638	94·6	83·5	11·1	98·1	81·0	17·1	91·1	92·9	88·9	+0·8	75·6	81·7	79·3	78·9
	Perim	201	·554	·451	·103	·499	+·022	·628	93·7	83·7	10·0	99·7	82·4	17·3	90·6	91·4	88·2	−1·0	77·7	80·6	80·4	79·6
	Minicoy	7	·878	·813	·065	·842		·774	86·8			89·4			84·4	83·6				79·5	78·7	
	Zanzibar	73	30·048	·942	·106	·995	−·040	·995	83·5	75·5	8·0	87·8	73·6	14·2	78·4	82·8	79·3	+1·8	70·6	74·6	75·3	73·5
	Port Victoria (Seychelles)	15	29·941	·864	·077	·903	−·044	·841	81·8	74·1	7·7	83·4	70·1	13·3	80·5	81·0	77·8	−0·9	72·5	75·3	75·3	74·4
	Mauritius (Pamplemousses)	181				·935	−·037	30·065				79·6	56·5	23·1			70·0	+1·1				65·4

‡ Mean of 28 days. § Mean of 27 days. ‖ Mean of 29 days.

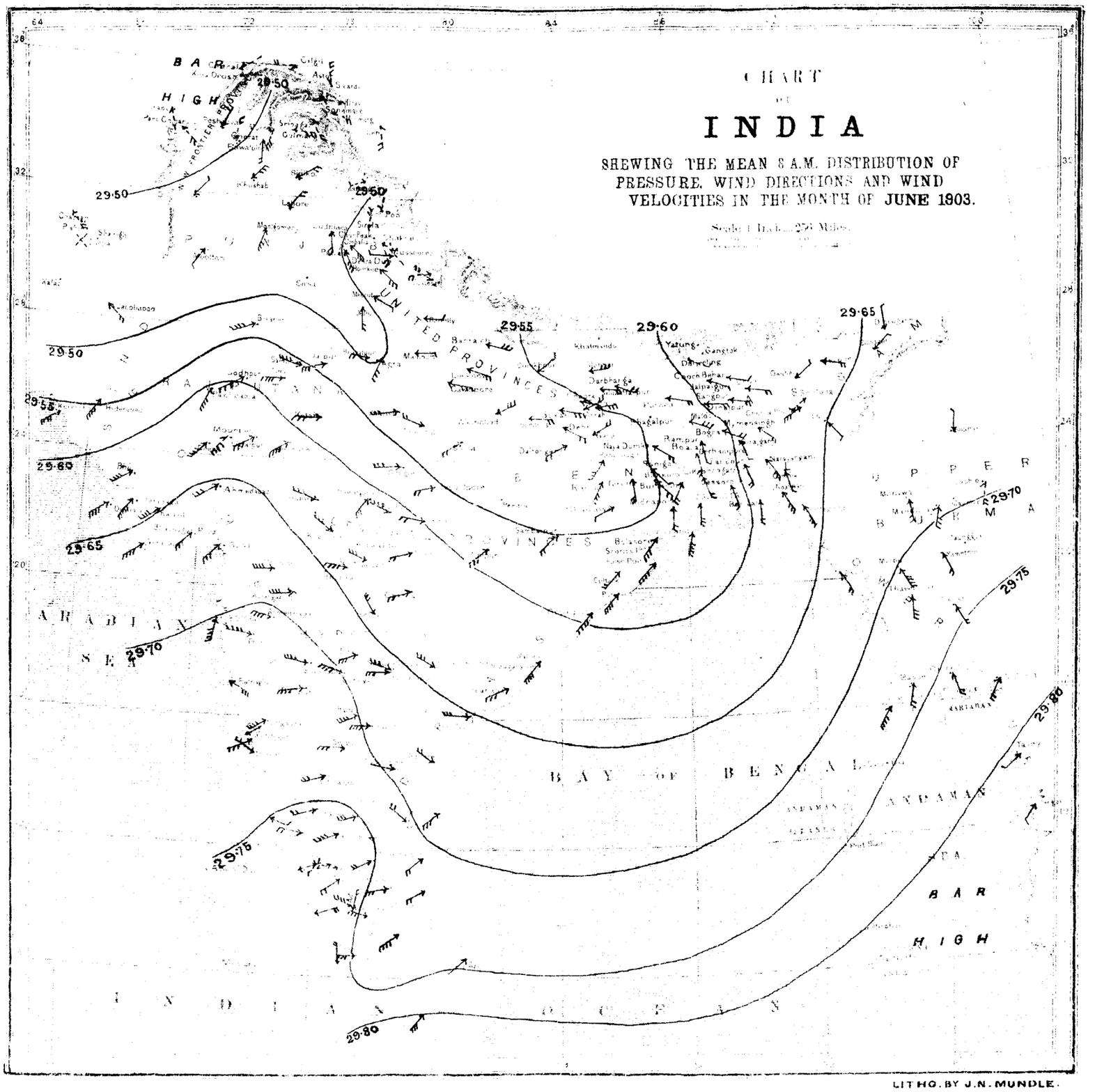
II—*concluded.*

in India, Burma, etc., for June, 1903—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
																									%	%						
·666	·684	·662	·673		81	51	47	60		5·2	7·6	6·4		4	13	2	5	3	12	11	6	3	S 54° W		15		68*		0·44	0·24	Periyakulam†.	South India.
·744	·810	·818	·791	+·030	87	65	57	70	+ 1	5·1	7·3	6·2	+0·2	18	3		1		2	13	22	1	S 76° W	S 54° W	53	76	81	113	7·25	1·88	Salem . .	
·642	·690	·645	·659	+·025	87	69	55	70	— 1	7·1	5·6	6·4	— 1·6	3	2		1		2	16	23	13	S 87° W	S 76° W	72	77	159*	261	4·12	1·35	Chitaldroog .	
·617	·673	·625	·638	+·019	91	70	59	73	0	6·1	7·9	7·0	+1·0	2	1	2		1	5	18	25	6	S 73° W	S 72° W	68	87	213*	209	4·30	1·11	Bangalore .	
·617	·554	·660	·644	+·036	94	70	68	77	— 2	7·7	8·6	8·2	—0·1		1	2	1	1	2	16	28	9	S 83° W	S 80° W	72	82	88*	125	6·93	1·53	Hassan . .	
·666	·690	·719	·692	+·064	96	69	68	78	+ 4	8·8	9·4	9·1	+1·3		1	1	1	1	1	26	27	2	S 69° W	S 75° W	80	77	282*	365	4·84	1·21	Mysore . .	
	·848	·886	·889	+·074		60	63	71	+ 6	5·1	5·7	5·4	—0·9		1	1		12	9	14	16	7	S 45° W	S 36° W	50	61	178	212	1·46	0·74	Madras . .	
·627	·762	·763	·717	+·067	69	60	51	60	+ 2	6·4	7·2	6·8	—0·8	1	4	1			2	9	25	18	N 78° W	S 86° W	73	78	227*	251	2·84	1·34	Bellary . .	
·848	·891	·955	·898		82	68	73	74		6·9	7·1	7·0				1	3	2	26	27		1	S 18° W		78		137		6·50	1·62	Waltair . .	
·310	·328	·283	·309	—·047	63	27	21	37	— 3	0·4	1·6	1·0	—0·1	19	3	1		3	4	3	19	8	N 87° W	N 75° W	40	39	36*	84	0·07	0·07	Quetta . .	Hill Station. Baluchistan.
·178	·173	·189	·180	+·008	71	36	31	46	+ 8	3·7	5·4	4·6	—0·2		3	5	5	3	12	14	12	6	S 49° W	S 81° W	33	31	73	57	0·35	0·16	Leh. . .	Hill Stations, Northern India.
·378	·610	·750	·578	+·021	84	79	73	79	+ 6	1·7	3·5	2·6	—1·2	5	7	3	2	8	8	5	7	15	N 78° W	S 69° E	20	5	132*	86	0·40	0·10	Srinagar .	
·3061	·337	·347	·328	—·080	57‡	45	41	48	—15	2·8	2·9	2·9	—3·0	4	26	9		4	9	4	1	3	N 9° E	N 12° W	33	18	98* ††	97	2·57	1·11	Simla (Ridge).	
·298	·361‡	·381§	·347	—·069	57	48‡	48§	51	—16	2·2‖	3·8‖	3·0	—2·1	1				15	44				S 11° E	S 73° W	94	52	292	153	2·37	0·60	Chakrata .	
·411	·457	·457	·442	—·030	72	53	50	58	— 8	1·9	3·6	2·8	—2·7	3		1	2	3		15	20	16	S 89° W	S 67° W	62	46	104*	84	1·97	0·87	Ranikhet .	
·345	·414	·410	·400		74	57	58	63		3·8	6·1	5·0		10	5	1	4	6	2	2	8	22	N 50° W		35		109*		2·02	0·44	Muktesar .	
·584	·621	·624	·610	—·020	91	67	63	74	— 1	6·0	6·5 **	6·3	+0·1				23		1		29	7	N 71° W	N 86° W	20	23	37	31	10·04	3·76	Katmandu .	
·427	·500	·510	·479	—·013	97	90	90	92	— 2	7·2‖	7·4	7·3	—1·5	13	1	5	8	12	2	6	9	4	S 29° E	S 9° W	13	8	59*	124	24·85	6·61	Darjeeling .	
·467	·557	·532	·518	—·055	64	58	45	55	—13	3·6	2·5	3·1	—2·1					4	11	30	11	4	S 45° W	S 49° W	76	67	303*	254	0·10	0·09	Mount Abu .	Hill Stations, Central India.
·536	·579	·522	·546	—·054	63	50	38	50	—16	4·9	6·0	5·5	—1·1	2	3	1				7	9	38	S 58° W	N 80° W	80	60	273*	206	2·46	0·87	Pachmarhi .	
·570	·778	·771	·707	+·108	75	77	61	71	— 1	3·8	5·5	4·7	—2·2	15	20	5				3		17	N 18° W	N 45° W	58	60	225*	234	4·59	1·61	Chikalda .	
·336	·411	·438	·393		78	73	83	79		7·1	8·2	7·7			5	1	1	7	10	2	8	19	N 80° W		27		334		5·29	1·53	Kodaikanal¶	Hill Stations, South India.
·363	·421	·442	·409		91 **	73	84	83		6·7	8·7	7·7		24	1	3	3	2		15	9	3	S 66° W		27		71*		5·59	0·84	Ootacamund .	
·303	·371	·368	·345		83	77	85	80		7·5	8·8	8·2		4	3	7	5	3	2	5	28	2	N 84° W		37		355		9·71	1·53	Dodabetta .	
·786	·960	·821	·856	+·010	68	66	53	62	+ 3	1·6	0·4	1·0	—0·3	1		2	8	15	9	22	2	1	S 3° E	S	55	55	207* ‖	216	0	0	Aden . .	Extra India.
·839	·914	·894	·882	+·038	76	64	61	67	+ 6	0·5	0·5	0·5	—1·3			3	1	16		16	11	13	S 56° W	N 39° W	33	42	311*	347	0	0	Perim . .	
	·342	·915				80	80			7·1	7·8	7·5			2		2		1	12	30	15	N 88° W		77		347*		8·36	1·56	Minicoy . .	
·686	·810	·783	·760	+·050	77	83	70	77	+ 1	5·0	5·0	5·0	+0·5					14	31	15			S 1° W	S 4° E	87	86	226*	216	0·87	0·46	Zanzibar . .	
·781	·810	·803	·800	+·050	92	78	76	82	+ 6	7·0	7·5	7·3	+0·2		2		2	27	25		1	3	S 24° E	S 21° E	73	79	272	278	20·06	4·00	Port Victoria (Seychelles.)	
			·552	+·019			75	— 1			5·1	+0·1											S 68° E	S 60° E			247	269	2·10	0·43	Mauritius (Pamplemonses).	

* Corrected. † Wind variable 1. ¶ Wind variable 7. ** Mean of 26 days. †† Mean of 29½ days.

G. I. C. P. O.—No. 455 Meteor.—11-11-03—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 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 „ „ „ „ „

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.

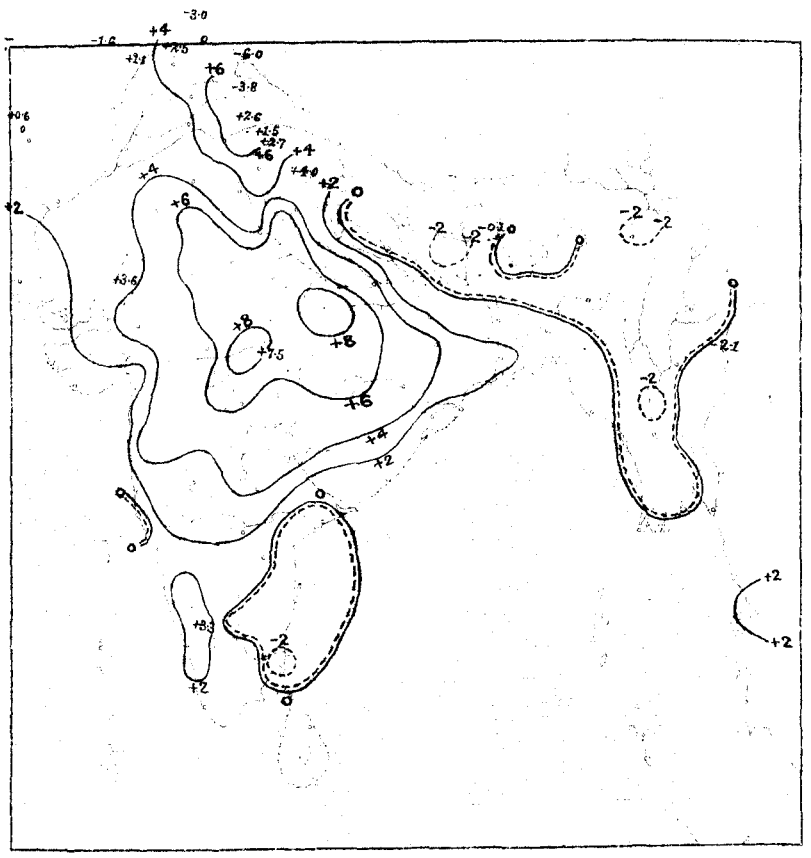
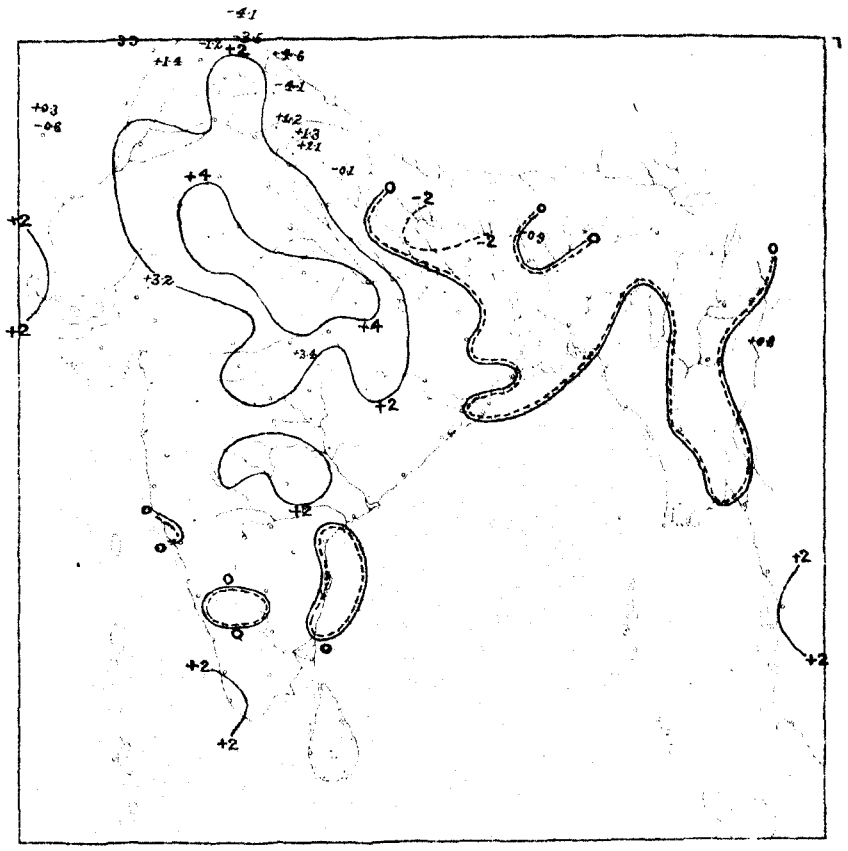


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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 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 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

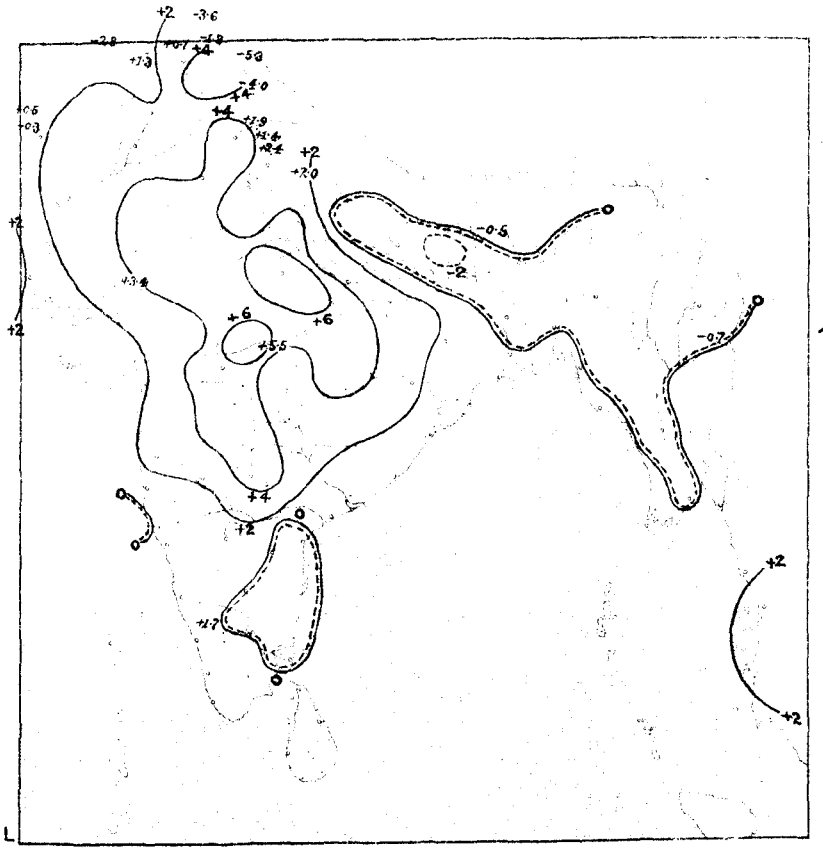
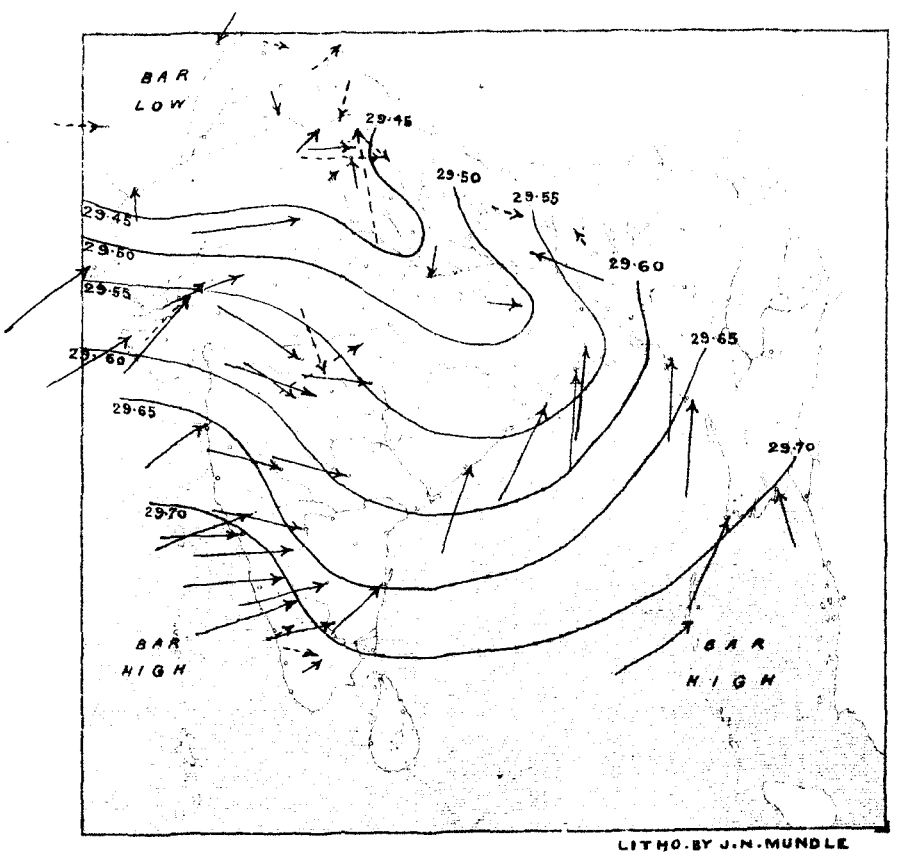


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JUNE 1903.



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 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 SHEWING THE VARIATION AT 8 A. M. OF THE MEAN ABSOLUTE HUMIDITY OF THE MONTH FROM THE NORMAL.

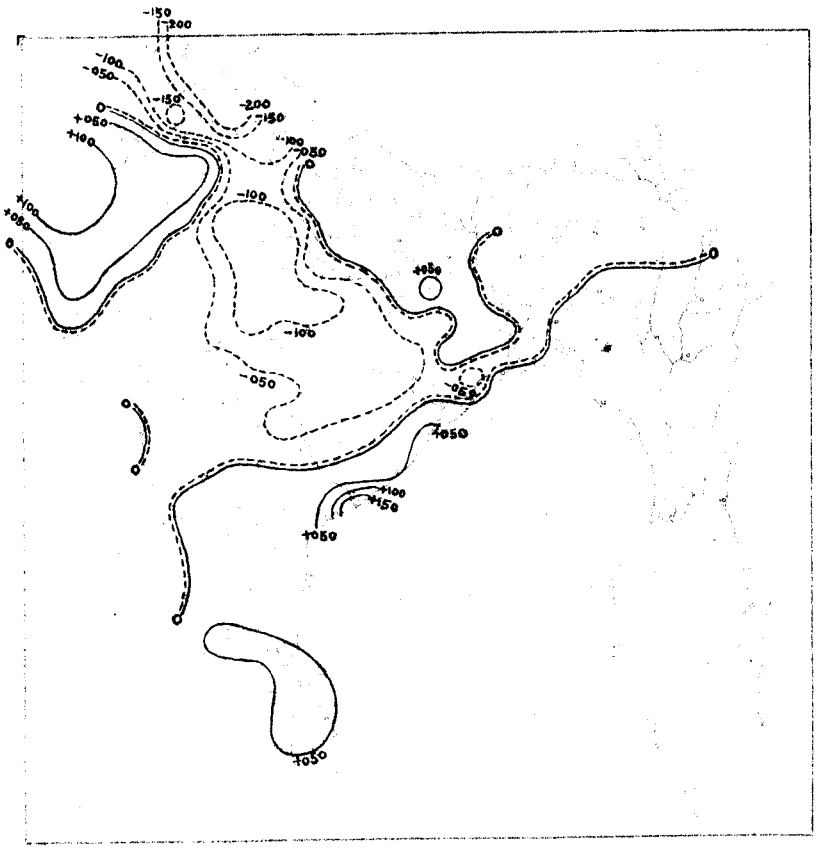
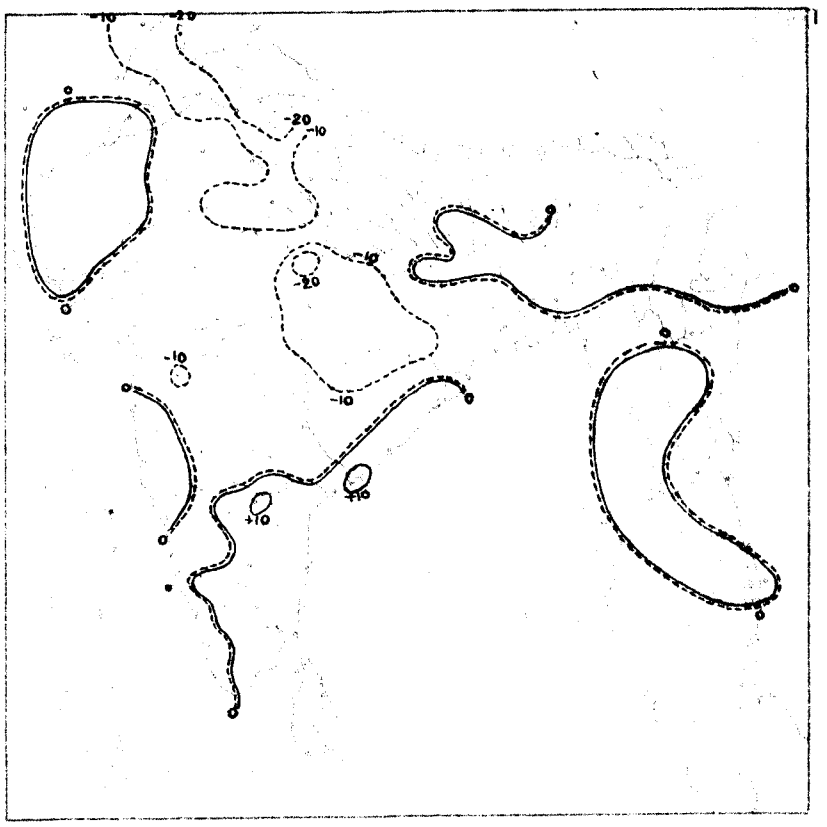


CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN RELATIVE HUMIDITY OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN CLOUD AMOUNT OF THE MONTH FROM THE NORMAL.

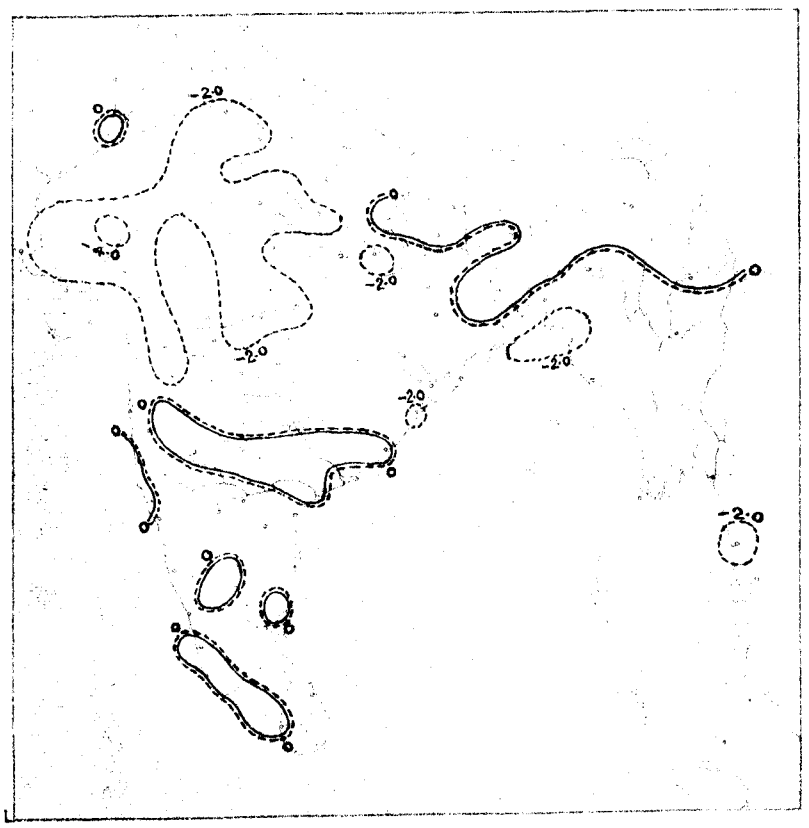
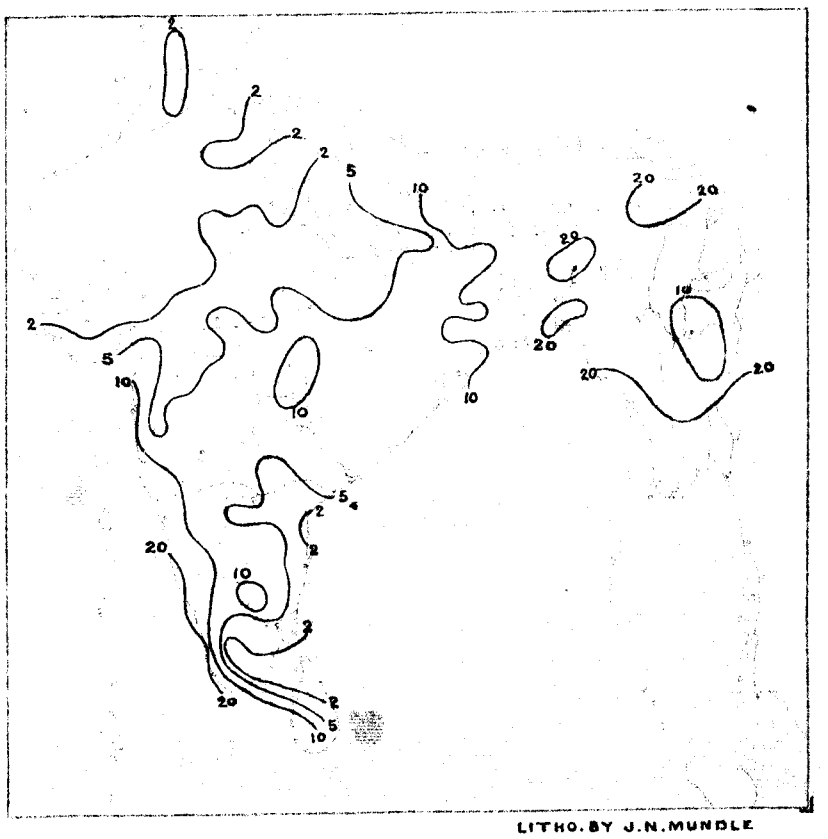


CHART SHEWING THE TOTAL NUMBER OF RAINY DAYS IN THE MONTH OF **JUNE 1903.**



LITHO. BY J.N.MUNDLE

Explanation.

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

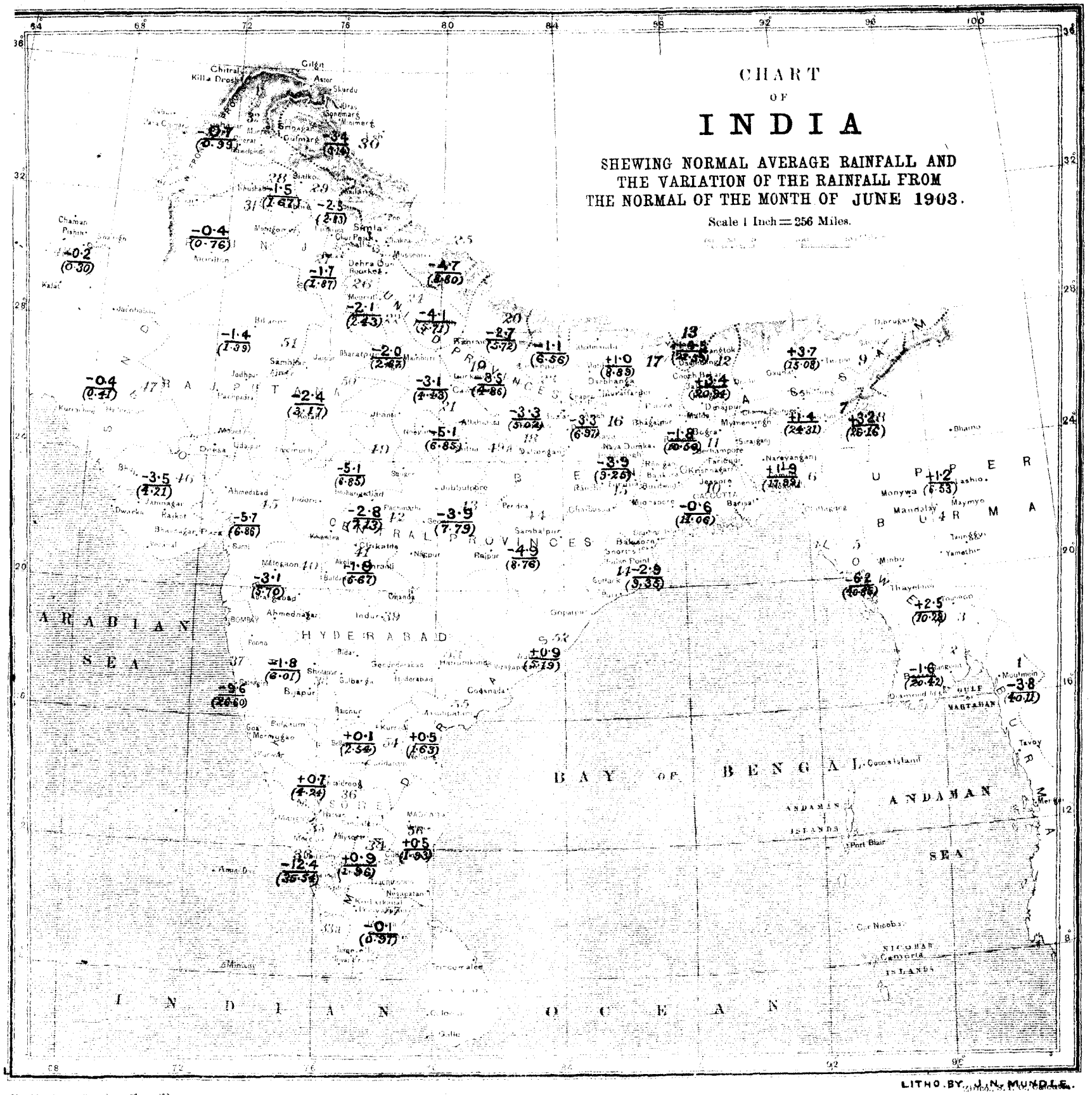
A rainy day is one on which 0·10 inch or more of rain is received within 24 hours.

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[illegible],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.

No. 261 Wm. India—June 03.—5,000.

Zinco. S. I. O., Calcutta



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. 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. West Punjab
32. North West Frontier Province
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 and Cutch
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
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, JULY, 1903.

INTRODUCTION.

THIS review of the weather in India during the month of July, 1903, is based on observations taken daily at 8 A.M. at 231 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 July, 1903.

There is comparatively little to be said about the weather of the month of July. Conditions were to a certain extent abnormal, more particularly as regards the excess of rain over the Peninsula and its deficiency over northern India, which resulted in large abnormal variations in other meteorological elements. These abnormal conditions were, however, more or less persistent throughout the month and there were no sudden or abrupt changes in the character of the weather which call for a detailed description.

During the first eleven days of the month the weather was generally quiet throughout the Indian region. Pressure was low in the extreme north-west and high in the extreme south and light monsoon winds prevailed generally. Scattered, but in places heavy, rainfall was received over the Peninsula, Burma coast and north-east India, while the rainfall was very scanty or altogether absent over central and north-west India. In consequence, while the mean temperature was unsteady, but generally low, over the Peninsula, the Burma coast and north-east India, a continuous large excess of temperature prevailed over central and north-west and part of northern India. The extent and increasing intensity of this excess are indicated in the following table which gives temperature variation data for te Punjab, the United Provinces, Rajputana, Central India, and the Central Provinces for each alternate day from the 1st to the 11th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	1st July.	3rd July.	5th July.	7th July.	9th July.	11th July.
	°	°	°	°	°	°
Punjab . . .	+1·8	+1·8	+0·7	+4·1	+10·2	+12·6
United Provinces . .	+6·5	+7·6	+8·9	+8·4	+12·5	+10·0
Rajputana . . .	+2·9	+4·4	+7·3	+9·3	+11·7	+9·2
Central India . .	+4·3	+6·9	+10·4	+8·2	+11·2	+7·9
Central Provinces .	+2·1	+2·7	+4·5	+7·4	+7·0	+6·6

The excess was more marked in the case of the day than in the case of the night temperatures, and on the following dates at the following places the maxima were more than 18° above the normal :—

Date.	Station.	Maximum temperature. Actual, of date.	Normal, of date.	Variation of actual from normal of date.
		°	°	°
5TH JULY	Sutna	108·1	89·2	+18·9
	Allahabad.	111·6	92·8	+18·8
6TH ,,	Allahabad.	111·6	92·7	+18·9
	Lucknow	111·8	93·4	+18.4
	Benares	110·6	92·3	+18·3
	Sutna	107·1	89·0	+18·1
8TH ,,	Mainpuri	112·2	93·7	+18·5
9TH ,,	Mainpuri	114·2	93·5	+20·7
	Sutna	109·1	88·4	+20·7
	Allahabad.	112·6	92·3	+20·3
	Umballa	113·9	93·6	+20·3
	Roorkee	111·7	92·3	+19·4
	Jhansi	111·2	92·5	+18·7
	Bareilly	110·5	92·1	+18·4
10TH ,,	Umballa	115·8	93·4	+22·4
	Lucknow	114·3	93·0	+21·3
	Roorkee	113·2	92·2	+21·0
	Bareilly	111·5	92·0	+19·5
	Sialkot	117·5	98·2	+19·3
	Benares	110·6	91·7	+18·9
	Dehra Dun	104·5	85·7	+18·8
	Allahabad.	110·7	92·2	+18·5
	Ludhiana	115·8	97·3	+18·5
11TH ,,	Roorkee	112·7	92·2	+20·5
	Umballa	112·4	93·3	+19·1
	Dehra Dun	104·5	85·6	+18·9

These excessive temperatures were directly due to the absence of rainfall, and the elements of cloud and humidity exhibited as marked a deficiency as temperature exhibited an excess. The following shows the mean humidity variations for the above provinces for each alternate day from the 1st to the 11th :—

Province or Division.	Variation from normal of mean relative humidity of 24 hours preceding 8 A.M. of 1st July.	3rd July.	5th July.	7th July.	9th July.	11th July.
Punjab	—22	—24	—17	—24	—33	—30
United Provinces	—21	—24	—29	—24	—29	—19
Rajputana	—16	—15	—26	—23	—18	—14
Central India	— 5	—11	—21	—19	—11	—14
Central Provinces	+ 2	+ 6	— 7	—14	— 5	— 8

On the 12th a change of weather commenced. A slight barometric depression appeared over the north-west of the Bay at the same time that disturbed weather was reported from Kashmir and the north-west Himalayas. More general rain was consequently experienced and temperature fell over northern India. On the 14th, a depression was formed off the north Bombay coast and rain became general, and in places heavy, over north Bombay and the north-west dry area. This change in the weather was maintained for about ten days from the 12th, and during that period light to heavy rain was received in most parts of the country. In consequence temperature fell steadily, and, on the 20th, 21st, and 22nd, the mean temperature was normal or below the normal in nearly all divisions. These three days were the coolest in the month and the following gives comparative temperature data for all divisions for those dates :—

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

During the latter half of the month there occurred a constant succession of small storms of feeble intensity passing from north-west of the Bay into the Central Provinces. These storms gave very little rain to Bengal, but, when they reached the Central Provinces and came into the influence of the Arabian Sea monsoon current, they occasioned heavy rain over the west Satpuras and the neighbouring areas.

The following gives some of the heavier falls (exceeding 5″ in 24 hours) recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ajmer Merwara	Dawer	23rd July	5·65
	Todgarh	,, ,,	5·15
Ellichpur	Chikalda	24th ,,	10·00
Chanda	Armori	,, ,,	5·70
Feudatory States	Rampur	,, ,,	5·27
Chanda	Warora	,, ,,	5·20
Ellichpur	Chikalda	25th ,,	5·22
Ahmedabad	Dholera	26th ,,	12·37
Broach	Broach	,, ,,	9·80
	Ankleshvar	,, ,,	7·20
Baroda	Baroda	,, ,,	6·16
Surat Agency	Bansda	27th ,,	8·60
Bhandara	Sakoli	,, ,,	5·18
Nagpur	Nagpur	,, ,,	5·03
Ellichpur	Dharni	28th ,,	8·89
Kaira	Thasra	,, ,,	8·12
	Mahudha	,, ,,	7·71
	Dakor	,,	6·25
Ratnagiri	Mandgad	29th ,,	7·56
Chanda	Brahmapuri	,, ,,	5·11
North Kanara	Kumta	30th ,,	6·59
	Honovar	,, ,,	6·02

During this week, as mentioned above, a succession of feeble storms passed from the north-west of the Bay into the Central Provinces, while the weather was frequently disturbed in Kashmir and the north-west Himalayas. Hence rain was fairly general over the Peninsula and over the extreme north-west of India, and temperature was relatively low, but for some reason, perhaps owing to the direction of the wind, due to the place of formation, or to the direction of movement of the storms, the rainfall was again exceedingly scanty over the Gangetic plain and the adjacent parts of Central India, the Central Provinces and Rajputana and the mean temperature was generally in excess of the normal over those areas. The following gives comparative temperature data for these divisions from the 23rd to the 31st:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of								
	23rd July.	24th July.	25th July.	26th July.	27th July.	28th July.	29th July.	30th July.	31st July.
	°	°	°	°	°	°	°	°	°
Bihar	+0·5	+2·2	+0·4	+1·2	+1·7	+1·9	+3·2	+4·1	+5·0
United Provinces	−0·5	+2·5	+3·3	+1·6	+1·4	+3·7	+3·4	+4·1	+5·3
Central India	+0·4	+1·5	+1·1	+2·9	+4·7	+3·9	+6·4	+4·9	+5·3
Central Provinces	−0·1	−2·0	−2·7	−1·8	+0·6	+2·5	+3·9	+2·8	+3·0
Rajputana	−5·2	−1·6	+1·6	+3·0	+4·6	+4·2	+8·3	+2·2	+3·4

It will be seen that the excess was less than during the first eleven days of the month, but was nevertheless very considerable and this relative dryness and excess of heat over northern India formed quite the most important abnormal feature of the weather over India during the month under review.

Pressure.—The mean pressure of the Indian land area was below the normal by amounts averaging 0·025″. Relatively to this general condition, pressure was in excess over nearly the whole of north-west India, over north-east India, and over Burma, and was in defect over the Peninsula and the central parts of the country. The excess was greatest over the central and west Punjab and the North-West Frontier Province, while the deficiency was greatest over and off the Bombay coast. The deficiency over the Peninsula apparently extended southward over the Indian Ocean, as far as the equatorial belt, where at the Seychelles (—·044″), at Zanzibar (—·032″), and at Mauritius (—·015″), pressure was also in defect.

The barometer marked above the normal at the hill stations in northern India and below at those in central and southern India, but over the whole country the vertical pressure anomalies were more or less positive.

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 July, 1903.	Pressure anomaly, July, 1903.
	″	″
Burma Coast and Bay Islands	−·018	+·007
Burma, Inland	−·008	+·017
Assam	−·008	+·017
Bengal and Orissa	−·013	+·012
Gangetic plain and Chota Nagpur	−·019	+·006
Upper Sub-Himalayas	−·007	+·018
Indus Valley and North-West Rajputana	+·008	+·033
East Rajputana, Central India, and Gujarat	−·031	−·006
Deccan	−·045	−·020
West Coast	−·043	−·018
South India	−·043	−·018

Temperature.—The mean maximum temperature of the month was in slight to large defect of the normal over Baluchistan and at the hill stations around the north-west frontier of India; in slight to moderate defect over the central, west, and south Punjab, and in slight to considerable defect over the Peninsula. In practically all other parts of the country the mean maximum temperature was in excess—more particularly over the Gangetic plain and the adjacent parts of the Central Provinces, Central India and Bihar, where the variations ranged between +5° and +10°. The day temperature was in slight local excess at Colombo and in the inland parts of Burma, where the excess ranged between 2°·1 and 3°·5.

At all the central and Himalayan hill stations (except those in the extreme north-west) the mean maximum temperature of the month was in excess, but at Wellington it was in some defect.

The mean minimum temperature of the month exhibited the same general distribution, relatively to the normal, as that in the case of the mean maximum temperature, but the variations were smaller. The mean minimum temperature was lower than usual at the hill stations of the north-west Himalayas, in Baluchistan, and in the west and south Punjab, and was in trifling defect over part of the east of the Peninsula. In practically all other places it was in excess, the variations having been greatest over the Gangetic plain.

The variations in the mean temperature of the month exhibited a deficiency in the extreme north-west of India and over the east and centre of the Peninsula and an excess in practically all other places. The deficiency was greater on the hills (Gilgit —9°·2 and Leh—6°·8) than on the plains (Montgomery—3°·3) of north-west India, and was only slight over the Peninsula where the largest variation was—2°·4 at Cocanada. The excess was greatest over the United Provinces (Allahabad +7°·2) and the adjacent parts of Central India (Sutna +7°·7).

The following table gives mean comparative data of temperature for the eleven meteorological provinces or divisions:—

Meteorological Province.	Variation of actual from normal of		
	Mean maximum temperature, July, 1903.	Mean minimum temperature, July 1903.	Mean daily temperature, July, 1903.
	°	°	°
Burma Coast and Bay Islands	+0·6	+0·6	+0·6
Burma Inland	+2·0	+0·7	+1·4
Assam	+0·6	+0·4	+0·5
Bengal and Orissa	+1·6	+0·6	+1·1
Gangetic plain and Chota Nagpur	+6·2	+2·5	+4·4
Upper Sub-Himalayas	+3·9	+1·8	+2·8
Indus Valley and North-West Rajputana	+0·8	+0·2	+0·5
East Rajputana, Central India and Gujarat.	+4·6	+2·4	+3·5
Deccan	+1·4	+1·1	+1·3
West Coast	—0·3	+0·6	+0·1
South India	—1·3	—0·1	—0·7

Winds.—The winds were, on the whole, lighter and less steady than usual over the Indian land area, but the variations of the mean wind direction from the normal were generally unimportant. At the head of the Bay the direction was unusually easterly, a deflection which was apparently not without importance in connexion with the weather over west Bengal and the Gangetic plain, but in other parts of northern India there were no important departures from the normal circulation, though in Kashmir and the west Kumaun Himalayas, the wind was unusually southerly, a direction which may have occasioned increased rainfall over the mountains. The wind was more southerly than usual also on the Bombay coast, but judging by the directions at Deesa and Jaipur, this variation was not maintained by the wind when passing through Rajputana.

In the south-east trades region the wind's direction was almost exactly normal. At Zanzibar and the Seychelles the force of the wind was above, and at Mauritius below, the average.

Humidity.—The air was drier than usual over the outer ranges of the Himalayas, the north of the North-West Frontier Province, the north and east Punjab, the Gangetic plain and adjacent districts. The deficiency of the relative humidity was very large at Allahabad (—17·7), Mainpuri (—19·5), Dehra Dun (—18·7), and Umballa (—19·0). The humidity was also very deficient at some of the hill stations, the variations amounting to —17·3 at Chakrata, to —18·4 at Simla, and to —17·2 at Murree. Over the western desert and Baluchistan, as well as over the Peninsula and the Bay area, the air was generally damper than usual and the mean relative humidity in excess of the normal. The largest excess was reported from Jacobabad (+7·9) and Kurnool (+14·0).

At the inner stations in Kashmir, *e.g.*, at Srinagar and Leh, the mean relative humidity was in excess by moderate to considerable amounts.

The following table gives variation data of the mean aqueous vapour pressure and of mean humidity of nine meteorological provinces for the month of July 1903:—

Meteorological Province.	Mean absolute humidity.		Mean relative humidity.	
	Average actual, July, 1903.	Variation of actual from normal, July, 1903.	Average actual, July, 1903.	Variation of actual from normal, July, 1903.
	"	"	%	
Burma Coast and Bay Islands	·906	+·019	86	— 1
Bengal and Orissa	·569	+·016	83	— 3
Gangetic plain and Chota Nagpur.	·851	—·059	70	—13
Upper Sub-Himalayas	·757	—·099	62	—11
Indus Valley and North-West Rajputana.	·825	—·003	62	— 4
East Rajputana, Central India and Gujarat.	·825	—·008	66	— 8
Deccan	·769	+·038	80	+ 3
West Coast	·890	+·021	88	+ 1
South India	·709	+·049	77	+ 4

Cloud.—The mean cloud amount of the month was in excess over the extreme north-west of India, both on the hills and plains, over the Peninsula and over the inland parts of Burma. The excess was generally small, but was moderate in the west Punjab (Khushab +1·0), the Deccan (Sholapur +1·4), the south-east of the Peninsula (Cuddalore +1·6), and central Burma (Yamethin +4·4?). Over the remainder of the Indian region the sky was unusually clear of cloud—more especially over Bihar (Gaya −3·8), the Gangetic plain (Lucknow −5·0), and the south-west of the United Provinces (Jhansi −4·5). Over west Bengal and the adjacent parts of the Gangetic plain the cloud proportion was remarkably low for the season. At the hill stations from Darjeeling to Simla the sky was also unusually clear of cloud.

The following table gives variation data of the mean cloud amount of nine meteorological provinces for the month of July 1903:—

Meteorological Province.	Mean cloud amount.	
	Average actual, July, 1903.	Variation of actual from normal, July, 1903.
Burma Coast and Bay Islands	8·3	−0·1
Bengal and Orissa	7·6	−0·6
Gangetic plain and Chota Nagpur	6·5	−1·3
Upper Sub-Himalayas	4·6	−1·6
Indus Valley and North-West Rajputana	3·4	−0·7
East Rajputana, Central India, and Gujarat	6·5	−1·3
Deccan	8·9	+0·6
West Coast	9·2	+0·7
South India	8·7	+0·7

Rainfall.—During the first eleven days of the month the monsoon currents were weak and the rainfall was confined to the Peninsula, the Burma coast, and north-east India. On the 12th a storm appeared over the north-west of the Bay and on the 14th a second storm was shown off the Bombay coast. These storms were accompanied with a marked increase of rainfall which became heavy along the west coast and extended inland over central and northern India. These conditions continued until the 22nd, when the rainfall area again contracted and the Gangetic plain, together with the adjacent parts of the Central Provinces and of Central India, was more or less rainless for the last week of the month. In consequence of this distribution the month's rainfall was about normal on the Burma coast, and short of the normal over inland Burma, and the greater part of northern India except the extreme north-west, while it was in excess over the Peninsula and the Deccan. In the south-east trades region the rainfall distribution was irregular.

The following table gives comparative rainfall data of the eleven meteorological provinces or divisions for July 1903:—

Meteorological Province.	Rainfall.			
	Mean actual for July, 1903.	Mean normal for July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	30·45	31·41	+1·43*	+5
Burma, Inland	3·28	6·67	−3·39	−51
Assam	12·65	16·03	−3·38	−21
Bengal and Orissa	9·42	14·56	−5·14	−35
Gangetic plain and Chota Nagpur	4·88	12·30	−7·42	−60
Upper Sub-Himalayas	8·36	10·73	−2·13*	−20
Indus Valley and North-West Rajputana.	3·95	3·02	+0·93	+31
East Rajputana, Central India, and Gujarat.	11·61	10·08	+1·17*	+12
Deccan	13·24	10·88	+1·84	+17
West Coast	36·79	28·58	+8·21	+29
South India	3·92	3·14	+0·78	+25

* 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 :—

As mentioned in the June review the most important feature in the meteorological conditions at the present time is the south-west monsoon. On the variations in the character of this current the weather over India, during at least four months of the year, primarily depends, and the causes and reasons for these variations form the most important subject for investigation during the months June to September. For the Indian land area there are available for this investigation a large number of observations of the variations of pressure, of wind, and of rainfall, affording materials for determining the strength and intensity of the current, but for the sea area the available information is much more scanty though this region is at least as important for the purpose as the Indian land area. The trades monsoon system forms, as mentioned last month, one continuous circulation, but the information available for different portions of the course of the circulation differs very much in amount. For the area which forms the goal of the current there are all the observations made in the Indian land area, for the sea area which forms the central part of the course there exists practically no information, while for the equatorial belt, which includes the initial part of the course, there exist the widely separated observatories of the Seychelles, Zanzibar and Mauritius. So far as can be judged, the general conditions prevailing in the initial area were fairly normal. This is shown by the following table which gives the actual and normal mear

wind direction and velocity and the rainfall variation for this region :—

July.	Seychelles.	Zanzibar.	Mauritius.
Actual mean wind direction . .	° S 28 E	° S 5 E	° S 67 E
Normal mean wind direction . .	° S 29 E	° S 5 E	° S 65 E
Actual mean wind velocity . . .	312	231	257
Normal mean wind velocity . .	287	207	283
Rainfall variation	+1·18	—1·49	—0·68

The preceding data show that the wind's direction was practically normal at all the three stations, that the velocity was greater than usual at Zanzibar and the Seychelles and less than usual at Mauritius, and that the rainfall was deficient at Zanzibar and Mauritius and was in excess at the Seychelles.

Conditions in this area were thus as nearly average as could reasonably be anticipated and do not account for the observed abnormal features of the Indian weather. Over the Indian seas no information is available as to the wind's direction but the force was very nearly normal. This is shown below :—

July.	Arabian Sea.	Bay of Bengal.
Mean force	4·5	4·2
Normal force	4·6	4·0

The wind was hence very slightly stronger than usual over the Bay and very slightly weaker than usual over the Arabian Sea. This is practically all the information available for the intermediate portion of the circulation and the following table forms part of an attempt to connect the changes occurring over the initial portion of the circulation with the variations of the weather over the final portion :—

Date of month.	Diurnal variation of pressure gradient from normal between Mauritius and Seychelles.	Diurnal variation of pressure gradient from normal between Seychelles and Bombay.	Easterly deflection of wind at Mauritius.	Easterly deflection of wind at Seychelles.	Variation of hourly wind velocity from normal at Mauritius.	Variation of daily wind velocity from normal at Seychelles.	Mean variation of rain over India.
1	2	3	4	5	6	7	8
1903.	"	"	°	°	Miles.	Miles.	Inch.
July 1 .	—·023	—·076	— 1	—53	—3·6	—103	—0·14
2 .	+·029	—·086	—49	— 5	—2·7	—173	—0·19
3 .	+·036	—·072	—26	—29	+1·2	+102	+0·01
4 .	+·040	—·081	—18	— 5	+4·3	+160	—0·11
5 .	+·040	—·058	— 6	—29	+1·9	+ 41	—0·13
6 .	+·044	—·021	0	+16	0	+ 89	—0·24
7 .	+·073	—·017	+ 4	—29	+2·7	— 7	—0·20
8 .	+·098	—·029	+ 2	+16	+0·9	— 42	—0·13
9 .	+·084	+·048	+ 9	+16	+2·3	+ 87	—0·09
10 .	+·061	+·023	+ 8	— 5	—1·1	— 29	+0·05
11 .	—·016	+·006	+12	+16	—4·9	+ 41	+0·02
12 .	—·046	+·067	+15	—29	—5·0	— 40	+0·09
13 .	—·018	+·145	+ 3	—29	—2·8	— 92	+0·20
14 .	—·006	+·224	+10	—29	—1·4	+ 85	+0·07
15 .	—·004	+·140	+ 9	— 5	—3·1	— 80	+0·07
16 .	—·008	+·066	+20	—29	—1·7	— 38	—0·11
17 .	—·040	+·034	+ 6	+16	—3·9	— 75	—0·10
18 .	—·037	—·011	+ 5	— 5	—5·9	— 65	—0·10
19 .	—·071	—·013	+15	—29	—6·1	— 36	+0·15
20 .	—·054	—·020	?	—29	—7·1	— 22	+0·04
21 .	—·005	+·012	—34	—29	+0·5	+ 53	+0·14
22 .	—·002	+·027	— 1	+16	—0·3	+ 42	+0·14
23 .	—·009	—·001	— 2	+16	—2·4	— 39	+0·12
24 .	+·035	+·039	— 1	—29	—1·3	—109	+0·13
25 .	+·112	+·050	+ 5	+16	+3·3	+134	—0·01
26 .	+·138	+·061	+14	+16	+5·9	+104	—0·08
27 .	+·115	+·078	+20	+16	+3·8	+256	—0·08
28 .	+·086	+·094	+17	+16	—1·7	+178	—0·12
29 .	+·090	+·077	— 1	+16	—2·0	+ 88	—0·05
30 .	+·078	+·061	— 1	+16	—2·2	+102	+0·07
31 .	+·063	+·028	+19	+16	—2·4	+176	—0·05

The last column shows the variation of rainfall from the normal day by day over India. Roughly speaking there was a daily deficiency of rain from the 1st to the 9th, an excess from the 10th to the 24th, with the exception of a brief period from the 16th to the 18th, and a daily deficiency from the 25th to the end of the month. What is now required is to determine whether any explanation of these anomalous conditions of rainfall is afforded by the conditions prevailing over the equatorial belt or the intermediate area. The first two columns of the preceding table deal with the pressure conditions (*a*) between Mauritius and the Seychelles and (*b*) between the Seychelles and Bombay. The first column shows that the pressure gradient was steeper than usual between Mauritius and the Seychelles from the 2nd to the 10th, slighter than usual between the 11th and the 23rd, and again steeper between

the 24th and 31st. There is thus a certain amount of agreement between the pressure and rainfall data though hardly of the character that might have been anticipated. Between the Seychelles and Bombay the barometric gradient was less than usual between the 1st and the 8th, and, with the exception of a brief interruption between the 18th and the 20th and on the 23rd, was greater than usual during the remainder of the month. There is consequently nothing of importance to be gathered from this column.

The columns 4 and 5 deal with the direction of the wind in the equatorial belt. At Mauritius the wind was more southerly than the normal, *i. e.*, was directed more towards India than the average from the 1st to the 5th, and during this period rain was light over India. From the 7th to the 19th the wind was unusually easterly or deflected towards Africa. During the same period the Indian rainfall was lighter than usual from the 7th to the 9th, heavier than usual from the 10th to the 15th, lighter than usual from the 16th to the 18th, and again heavier on the 19th. From the 21st to the 24th the wind's direction at Mauritius was slightly less easterly than usual and the Indian rainfall above the normal, and from the 25th to the 28th the wind was unusually easterly and the Indian rainfall unusually light. On the last three days the variations were irregular.

At the Seychelles the winds were less steady than at Mauritius. From the 1st to the 5th the wind at the Seychelles was, as at Mauritius, abnormally southerly and the Indian rainfall light. From the 6th to the 11th the variations were irregular. From the 12th to the 21st the wind at the Seychelles was less easterly than usual, while the Indian rainfall was in excess from the 12th to the 15th, in defect from the 16th to the 18th, and in excess from the 19th to the 21st. From the 22nd to the end of the month the Seychelles wind was fairly steadily more easterly than usual, while the Indian rainfall was in excess on the 23rd, 24th, and 30th, and in defect on the remaining dates.

Columns 6 and 7 deal with the daily velocity of the wind in the equatorial belt. During the first nine days the velocity was generally in excess and the Indian rainfall light. From the 10th to the 24th the velocity was generally lower than usual, while the Indian rainfall was on the whole in excess, though from the 16th to the 18th there was some deficiency. From the 25th to the end of the month the trades were stronger than usual at the Seychelles, but were variable at Mauritius, while the Indian rainfall was generally below the average.

The European charts show that over central Europe a large anticyclone held from the 1st to the 5th. This was broken down by a depression advancing from north-west on the 6th, and from that date to the 14th pressure was relatively low over central and south-east Europe. High pressures were re-established over south-east Europe on the 15th, but these conditions only lasted till the 18th, and from the 19th till the end of the month pressure was low and unsteady over south-east Europe and the Caspian area. In Egypt the weather during the month was remarkably free from disturbance. Between the 7th and 9th and again between the 18th and 21st cyclonic storms moving between the north Adriatic and Athens were reported, but their effect on the climate of Egypt was very slight. All over Egypt pressure was above, and temperature below, the average on the mean of the month.

The summer rains set in over the Soudan during the the month, but at Khartoum the rainfall was less and later than in the two preceding years. Very heavy rain, however, fell at Wad Medani on the 23rd and 28th July.

The total rainfall of July for the past three years was as follows at—

Stations	1901.	1902.	1903.
	Inches.	Inches.	Inches.
Khartoum	0·28	4·57	0·70
Wad Medani	...	5·32	4·88
Duem	...	5·00	3·15

A telegram from the Public Works Department, Alexandria, stated that at the end of July the flood in the Blue Nile was bad and very late and similar to that of last year.

Pressure was very unsteady during the month in the Caucasian region and western Siberia. The principal falls of the barometer in these regions occurred between the 2nd and 5th, on the 9th and 10th, the 17th to the 22nd and the 28th to the 31st. During the month the weather was exceptionally disturbed and the winds in some places more southerly than usual, over Kashmir and the Punjab and the conditions under which the rainfall occurred, were peculiar in that the weather was exceptionally dry over Bengal and the Gangetic plain, so that almost certainly the disturbed weather in the extreme north-west was not due to the advance of the monsoon current from the Bay side, along the hills. The following table shows the dates of the principal pressure changes in western Siberia, etc., and of the periods of disturbed weather in the extreme north-west of India :—

Large pressure changes in western Siberia.	Disturbed weather occurred in Kashmir	Disturbed weather occurred in N. W. F. P.	Disturbed weather occurred in Punjab.	Disturbed weather occurred in Baluchistan.
2nd to 5th .	1st to 6th . .	1st to 6th .	.....	.....
9th and 10th	12th to 23rd .	11th to 14th .	13th to 16th .	.....
17th to 22nd .		19th to 21st .	19th to 24th .	14th to 22nd .
28th to 31st .	.....	27th to 29th .	28th to 30th .	.....

It would appear from the above that the disturbed weather in the extreme north-west was connected with changes and disturbances which were more or less general over the whole of the extreme north-west of India, the mountain area to the northward, and western Siberia.

The following table gives the daily variations of pressure from the normal for certain selected stations in the monsoon area :—

Month of July 1903.

PRESSURE VARIATION FROM NORMAL OF

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	"	"	"	"	"	"	"	"	"
1 .	+·091	—·043		—·001	—·020	—·041	+·041	—·006	+·003
2 .	+·053	+·039		+·020	—·012	—·089	+·012	—·038	—·002
3 .	+·058	—·030		+·012	—·024	—·073	+·015	—·026	—·010
4 .	+·057	—·024		—·024	—·059	—·077	+·019	—·023	—·019
5 .	+·024	+·042	+·095	—·047	—·051	—·071	—·021	—·050	—·010
6 .	+·085	+·065	+·104	—·019	—·053	—·063	—·019	—·053	+·006
7 .	+·070	+·051	+·046	—·037	—·027	—·063	—·044	—·081	—·011
8 .	+·063	+·044	+·084	—·033	—·033	—·048	—·007	—·040	+·004
9 .	+·011	—·048	+·041	—·008	—·016	—·031	—·077	—·049	—·022
10 .	—·071	—·059	—·035	—·034	—·058	—·027	—·078	—·028	—·049
11 .	—·074	—·121	+·078	—·031	—·022	—·015	—·038	—·009	—·029
12 .	—·042	—·150	—·052	—·012	+·085	+·004	—·083	—·052	—·038
13 .	—·030	—·158		—·037	—·031	—·047	—·167	—·097	—·081
14 .	—·041	—·170		—·098	—·026	—·057	—·281	—·095	—·110
15 .	+·020	—·159	+·052	—·075	—·028	—·027	—·257	—·082	—·070
16 .	+·015	—·133	—·074	—·056	—·048	—·063	—·162	—·073	—·074

PRESSURE VARIATION FROM NORMAL OF

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	"	"	"	"	"	"	"	"	"
17 .	—·029	—·170	—·071	—·070	—·089	—·055	—·107	—·091	—·085
18 .	—·018	—·170	+·066	—·056	—·074	—·055	—·033	—·032	—·047
19 .	+·007	—·147	+·075	+·005	—·123	—·034	—·006	—·009	—·029
20 .	+·018	—·062	—·042	—·038	+·007	—·014	—·003	+·031	—·013
21 .	+·026	—·061	—·019	+·008	+·017	—·020	—·009	+·053	—·001
22 .	—·036	—·040	—·055	—·011	—·021	—·018	—·036	—·007	—·028
23 .	—·012	—·041	—·022	—·008	—·022	—·001	—·015	—·045	—·021
24 .	—·008	—·045	+·014	—·028	—·011	+·023	—·063	—·044	—·020
25 .	+·064	—·057	+·048	+·015	+·020	+·002	—·058	—·006	+·004
26 .	+·005	—·161	—·071	+·036	+·020	—·001	—·104	—·051	—·041
27 .	—·040	—·178	—·152	0	—·023	+·007	—·099	—·088	—·072
28 .	—·088	—·166	—·081	+·009	—·017	+·009	—·117	—·086	—·067
29 .	—·090	—·052	—·026	+·018	+·023	+·029	—·085	—·088	—·034
30 .	—·039	—·056	+·008	—·025	+·026	+·009	—·077	—·080	—·029
31 .	+·001	—·037	+·016	—·068	+·014	0	—·080	—·082	—·030

The above data show that from the 1st to the 8th pressure was steady over the monsoon area, it then fell during the 9th and 10th, rose on the 11th and then fell briskly to the 14th. Pressure was moderately steady from the 15th to the 17th and then increased unsteadily until the 25th. It fell again to the 27th and rose again to the 31st.

Magnetic and Solar Disturbances.

Kodaikanal.—The Director of the Kodaikanal Observatory telegraphed as follows during the month of July :—

July 1st.—Very large spot just come round east limb, spectrum normal, one slender high prominence at west limb.

" *9th.*—Considerable increase of spot activity last two days.

" *25th.*—Past six days of quiescence succeeded by sudden formation of large spot group with one large and four slightly smaller nuclei; sun only seen through rain clouds, no spectra.

The following gives full information about spots, faculæ and magnetic disturbances recorded at this observatory during July : —

SOLAR PHYSICS OBSERVATORY, KODAIKANAL.

Spots, Faculæ and Magnetic disturbances, July 1903.

Day of month.	Spots.		Faculæ (groups).	Magnetic disturbances.	Remarks.
	Large.	Small.			
1	1	5	...	Small.	
2	1	2	...	Do.	
3	1	1	...	Do.	
4	1	...	2	...	
5	1	...	2	...	
6	1	...	...	Moderate.	

Day of month.	Spots. Large.	Spots. Small.	Faculæ (groups).	Magnetic disturbances.	Remarks.
7	2	3	...	...	
8	5	9	...	...	
9	6	10	...	...	
10	6	11	...	...	
11	6	12	...	...	
12	Sun not visible.		...	...	
13	4		...	Small.	Weather bad. Spots not marked.
14	1	3	4	Do.	
15	1	1	...	...	Weather bad. Spots not projected.
16	1	6	3	Small.	
17	Sun not visible.		...	Do.	
18	1 group.		...	Moderate.	Ditto.
19	3 groups.		...	Moderate.	Ditto.
20	1	6	2	Small.	
21	...	7	1	Do.	
22	...	2	2	...	
23	1 group.		...	...	All except one were too faint to be projected.
24	Do.		...	...	Ditto
25	Do.		...	Small.	Weather bad. Spots not projected.
26	1	11	2	Moderate.	
27	2	8	2	Small	
28	1	11	2	Do.	
29	1	4	3	Do.	Another group of tiny spots too faint to be projected.
30	...	6	2	...	Ditto.
31	...	...	1	...	

Colaba.—The following has been supplied by the Director of the Colaba Observatory (Bombay) :—

The magnetic traces for the month do not show any unusually large disturbances. There were 11 calm days, 17 days of small, 2 days, namely, 27th and 28th, of moderate disturbances, and 1 day of great disturbance, the last being recorded on the 26th.

Small-period movements.—Four serrated movements (the oscillations continuing for some time) and 27 abrupt movements (appearing as if suddenly damped in their propagation) have been recorded.

The selected quiet days of the month were the 4th, 7th, 15th, 24th and 30th. The following gives the dates of the magnetic disturbances at Colaba during July 1903 :—

MAGNETIC DISTURBANCES.

July 1903.

July 1903.		July 1903.		July 1903.	
1	S.	12	S.	23	C.
2	S.	13	S.	24	C.
3	C.	14	S.	25	S.
4	C.	15	C.	26	G.
5	S.	16	S.	27	M.
6	S.	17	S.	28	
7	C.	18	S.	29	S.
8	S.	19	S.	30	C.
9	S.	20	C.	31	S.
10	S.	21	C.		
11	C.	22	C.		

The magnitudes of the disturbances are determined from Horizontal Force traces.

C.=Calm ; S.=Small ; M.=Moderate ; G=Great, V. G.=Very great. Days are reckoned from midnight to midnight.

The means of the observed absolute values of the several elements for July and for the past six months were as follows :—

Elements.	January 1903.	February 1903.	March 1903.
Declination	0° 18′ 17″ E.	0° 8′ 1″ E.	0° 17′ 58″ E.
Horizontal Force	C. G. S. units. 0·37430	C. G. S. units. 0·37436	C. G. S. units. 0·37442
Dip	21° 40′·7	21° 40′·3	21° 41′·3

Elements.	April 1903.	May 1903.
Declination	0° 16′ 29″ E.	0° 15′ 8″ E.
Horizontal Force	C. G. S. units. 0·37431	C. G. S. units. 0·37425
Dip	21° 40′·7	21° 41′·0

Elements.	June 1903.	July 1903.
Declination	0° 16′ 0″ E.	0° 16′ 36″ E.
Horizontal Force	C. G. S. units. 0·37437	C. G. S. units. 0·37439
Dip	21° 42′·0	21° 43′·7

No seismic disturbance was recorded during the month at Colaba.

The following table gives the ranges of the mean monthly diurnal inequalities of the Horizontal Force and Declination; and also ranges or sums without regard to sign of all 24 ordinates of the inequalities, from January to July, 1903:—

Month.	Horizontal Force.		Declination.	
	Range.	Range.	Range in arc.	Range in arc.
	C. G. S.	C. G. S.		
January 1903	·000275	·001646	1″·37	6″·40
February „	308	2038	1″·19	4″·82
March „	460	2952	2″·12	7″·59
April „	491	3232	3″·45	13″·38
May „	397	2797	3″·91	15″·53
June „	411	2710	4″·64	19″·62
July „	419	2868	4″·62	19″·11

Mauritius.—At the Royal Alfred Observatory, Mauritius, the sky was cloudy and the sun could not be observed on the 12th, 18th, 19th, 20th, 28th and 31st. On all other days spots and faculæ were recorded. On the 1st, 2nd, 3rd, 4th, 5th, 22nd and 23rd individual spots, from one to three in number, were recorded, while on the remaining dates groups of spots were observed.

Magnetic disturbances were recorded at this observatory on the following dates:—

From noon on the 10th to 16 hours of the 11th.
From 10 hours on the 19th to midnight of 19th.
From 10 hours on the 25th to midnight of 25th.

The Director General of Telegraphs in India reported that on the 9th a magnetic storm was experienced at Lahore, affecting all wires from Lahore to Kurrachee and Lahore to Umballa and Simla. The storm was felt at Rawalpindi on the 8th. On enquiring if the storm was felt at Bombay, the Director of the Colaba Observatory reported that the magnetic charts show not even moderately large disturbance on 8th, 9th and 10th. The disturbance would indeed be classed as small. There was no disturbance on the lines between Bombay and Agra, and the storm in north-west India was probably due to purely local earth currents if not to other causes.

Atmospheric Pressure.

The mean 8 A.M. pressure of the Indian land area was ·025″ below the normal. The deficiency was greater than in the corresponding month of previous years except in 1892, when the mean deficiency was 0·035″; 1891, when it was 0·031″, and 1876, when it was 0·030″.

Plate I shows the general distribution of pressure, on the mean of the month, over India. Pressure was lowest over the Sind desert, and the monsoon trough of low pressure occupied about its usual position over the Gangetic plain. There was, however, in addition, a slight area of low pressure over the north-west of the Bay and south-west Bengal, developed probably by the succession of slight cyclonic storms which formed over this area during the month under review. Pressure was high on the Malabar coast, over south Ceylon, the south of the Bay and Tenasserim, and the barometric gradient over the Indian region was slightly less than usual. The mean pressure was higher than usual over Baluchistan, upper Sind, the North-West Frontier Province, the west Punjab, on the north-west Himalayas and over north and part of east Bengal and south Tenasserim, but was lower than usual elsewhere. The excess in the extreme north-west appears to have been connected with a large area of relatively high pressure, extending from Egypt and the Mediterranean region eastward through Asiatic Turkey and Persia as far as the north-west frontier of India. At Alexandria and Abbassia the mean pressure of the month was more than 0·10″ higher than the average, and at Khartoum was as much as 0·087″ higher, while at Baghdad the excess was only 0·010″ and in the Indus valley about 0·016″.

The deficiency of pressure over central and southern India extended southward over the Arabian Sea and the north Indian Ocean. The amount of the deficiency was apparently fairly uniform over the whole of this large area, as the variations were —·040″ at Calicut; —·033″ at Colombo; —·021″ at Aden; —·044″ at the Seychelles; and —·022″ at Zanzibar. The mean monthly pressures have now been lower than usual over the south-east trades region for several months past, as is shown by the following data, which give the monthly variations for the Seychelles, Zanzibar and Mauritius from January 1903 to the present time:—

Station.	Variation of the mean monthly pressure fro · the normal.							
	Jan. 1903.	Feb. 1903.	Mar. 1903.	Apl. 1903.	May 1903.	June 1903.	July 1903.	Mean January to July 1903.
Seychelles	—·002	+·032	+·006	—·010	—·030	—·044	—·044	—·013
Zanzibar	+·019	+·048	—·002	—·026	—·029	—·043	—·022	—·008
Mauritius	—·023	—·015	—·059	—·015	+·003	—·037	—·015	—·023

Compared with the general condition over India *viz.*, a mean deficiency of 0·025″ the mean pressure was higher han usual over nearly the whole of north-west and north-east India and Burma. The excess was great on the one hand over upper Sind, the North-West Frontier Province and the west and central Punjab, and on the other over north and east Bengal and part of Assam, and exceeded

0·030″ at the stations for which comparative data are given below :—

Area.	Station.	Variation from normal of mean 8 A.M. pressure of July 1903.	Pressure anomaly, July 1903.
		″	″
North-West India	Peshawar	+·027	+·052
	Khushab	+·027	+·052
	Montgomery	+·021	+·046
	Dera Ismail Khan	+·018	+·043
	Rawalpindi	+·013	+·038
	Mooltan	+·011	+·036
	Jacobabad	+·009	+·034
North-East India	Bogra	+·013	+·038
	Dinajpur	+·010	+·035
	Mymensingh	+·008	+·033
	Jalpaiguri	+·006	+·031

In all other parts of the Indian land area the mean pressure of the month was lower than usual. The deficiency was greatest over the west, centre and part of the east of the Peninsula, but was likewise considerable over the north-west of the Bay and south-west Bengal. The deficiency was more than 0·020″ at the following stations :—

Area.	Station.	Variation from normal of mean 8 A.M. pressure of July 1903.	Pressure anomaly, July 1903.
		″	″
Peninsula	Bombay	—·066	—·041
	Sholapur	—·057	—·032
	Kurnool	—·057	—·032
	Bijapur	—·054	—·029
	Veraval	—·054	—·029
	Malegaon	—·053	—·028
	Poona	—·052	—·027
	Salem	—·052	—·027
	Secunderabad	—·051	—·026
	Surat	—·051	—·026
	Cuddapah	—·049	—·024
	Hyderabad (D)	—·048	—·023
	Raichur	—·048	—·023
	Mangalore	—·048	—·023
	Karwar	—·048	—·023
Peninsula	Madras	—·047	—·022
	Bangalore	—·046	—·021
	Mormugao	—·046	—·021
	Bellary	—·046	—·021
	Gulbarga	—·046	—·021
North-West of the Bay.	False Point	—·053	—·028
	Waltair	—·053	—·028
	Sambalpur	—·046	—·021

Pressure was in general excess at the hill stations in northern India. The amount of the excess varied considerably. It was large at Srinagar, moderate at Quetta, Leh, Simla and Chakrata, and slight at Murree and Darjeeling. The vertical pressure anomalies hence differed considerably in different localities, but on the whole they were positive and in some areas strongly so. The following data illustrate these conditions :—

Hill Station.	Variation from normal pressure, July 1903.	Plain Station.	Variation from normal pressure, July 1903.	Vertical pressure anomaly (Hill—Plain).
	″		″	″
Quetta	+·038	Jacobabad	+·009	+·029
Leh	+·025	Lahore	+·005	+·020
Murree	+·010	Peshawar	+·027	—·017
Simla	+·031	Ludhiana	—·010	+·041
Chakrata	+·029	Roorkee	—·010	+·039
Ranikhet	+·015	Bareilly	—·020	+·035
Darjeeling	+·010	Dhubri	0	+·010

In central and southern India pressure was generally in defect at the level of the hill stations, but the mean deficiency was generally less than at the stations on the neighbouring plains, so that over these regions also the vertical pressure anomalies were positive. The following gives data for three pairs of stations :—

Hill Station.	Variation from normal pressure, July 1903.	Plain Station.	Variation from normal pressure, July 1903.	Vertical pressure anomaly (Hill—plain).
	″		″	″
Pachmarhi	—·023	Hoshangabad	—·040	+·017
Mount Abu	—·013	Deesa	—·028	+·015
Wellington	—·033	Coimbatore	—·040	+·007

The following is a brief summary of the chief abnormal features of the pressure distribution during the month under review :—

(1) Pressure was in defect by amounts averaging 0·025″.

(2) Compared with this general condition pressure was in excess over north-west India, over north-east India and ver Burma.

(3) The relative excess was greatest over the central and west Punjab and the North-West Frontier Province.

(4) Pressure was in relative defect over the Peninsula and the central parts of India, the greatest deficiency having been reported from the Bombay coast.

(5) The vertical pressure anomalies were generally positive throughout the whole country.

Barometric depressions and cyclonic storms of the month.

The barometric depressions recorded during July, though numerous, were all of slight intensity and of little importance.

Slight cyclonic storm of the 11th to the 15th.—On the 11th the barometer was falling slightly to briskly over the north of the Bay. The following gives 8 A.M. data for the 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.	Remarks.
	″	″	″				Inches.	
Moulmein	29·682	—·012	—·071	Calm.	3	10	2·92	Raining.
Diamond Island.	·634	—·028	—·091	SW	11	8	1·63	Slight sea.
Bassein	·628	—·046	—·086	SW	5	10	0·68	
Akyab	·576	—·072	—·083	SE	3	10	0·08	Drizzling.
Chittagong	·554	—·065	—·064	SE	6	3	...	
Barisal	·533	—·063	—·037	SE	3	9	0·27	
Calcutta	·520	—·010	—·019	Calm.	5	9	0·38	Nor'wester with rain.
Saugor Island.	·502	—·037	—·036	SSE	17	8	0·32	Smooth sea.
Balasore	·522	—·016	—·005	SSW	6	6	1·18	
False Point	·510	—·039	—·043	W	10	9	0·47	Nor'wester.
Cuttack	·524	—·016	—·023	WSW	3	8	...	
Gopalpur	·518	—·030	—·036	SSE	12	5	0·05	
Waltair	·540	—·030	—·055	SW	14	8	0·17	Smooth sea.
Cocanada	·571	—·022	—·048	SW	8	6	...	Slight sea.
Masulipatam	.634	+·005	—·015	WNW	9	10	0·16	
Nellore	·674	+·004	—·002	WNW	11	10	...	
Madras	·707	+·019	—·009	SSW	8	10	0·47	Thunderstorm.
Cuddalore	·723	+·021	+·001?	Calm.	2	10	0·30	Showery.
Negapatam	·734	+·018	—·009	W	6	8		

The barometer had fallen all over the north of the Bay—most over Arakan and south-east Bengal—and the winds were backing at the head of the Bay where also light rain was falling.

The following are the marine observations 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. *Flamingo*	13 23	80 35	29·644	SSW	6	High head sea, and showery; 4 A.M heavy squalls with rain.
S.S. *Ula*	15 46	83 40	·589	WSW	6	High sea and squally.
S.S. *Goa*	16 05	93 49	·576	SW	4	Moderate sea and cloudy; 4 A.M continuous heavy rain.
S.S. *Fultala*	16 52	86 10	·485	SW by W	5	High sea and dull cloudy; 9-10 A.M. heavy rain squalls passed over.
S.S. *Bangala*	17 21	88 39	·536	SSW	6	Moderate sea and occasional hard squalls.
S.S. *Maharani*	17 39	92 05	·579	SW	3	Dull rainy, 8 P.M. violent rain squalls.
S.S. *Pasha*	Pilot	Ridge.	·585	Var.	2	Hazy; noon, dull, sultry.
S.S. *Bhundara*	20 20	86 48	·519	Var.	2	Overcast.
S.S. *Aparima*	21 12	88 10	·478	W	1	Dull, overcast.
S.S. *Patrician*	Hooghly River.		...	E	1	Fine.
F.L.V. *Torch*	Ridge.		·569	Var.	1	Cloudy and long south swell; noon, squally with occasional light showers.
F.L.V. *Planet*	Intermediate.		·555	Calm.	0	Cloudy.

The only important observations were those on the light vessels, which showed that calms prevailed over the extreme north of the Bay.

July 12th.—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.	REMARKS.
	"	"	"				Inches.	
Diamond Island.	29·572	—·062	—·153	SW	14	10	1·64	Sea slight.
Bassein .	·593	—·035	—·122	SW	5	10	0·40	Showery.
Akyab .	·505	—·071	—·153	SE	3	6	0·16	
Chittagong .	·489	—·065	—·127	ESE	5	3	...	
Barisal .	·487	—·046	—·081	ESE	2	5	0·06	
Jessore .	·487	—·040	—·070	E	2	5	...	
Calcutta .	·465	—·055	—·073	E	2	7	...	
Saugor Island.	·429	—·073	—·107	E	7	6	...	Wind variable.
Balasore .	·468	—·054	—·058?	NNE	3	4	...	
False Point.	·429	—·081	—·123	N	6	8	0·03	Wind variable.
Cuttack .	·438	—·086	—·108	Calm	2	6	0·37	
Gopalpur .	·435	—·083	—·118	NNW	10	2	2·60	Sea smooth.
Waltair .	·457	—·083	—·137	SW	9	10	0·79	Ditto.

The barometer was falling briskly over the Bay area and the winds exhibited a cyclonic circulation, but were light in force. The direction was south-easterly at Akyab, easterly over lower Bengal and northerly on the Orissa and Ganjam coasts. The only heavy rain was 2·6 inches at Gopalpur.

The following gives marine information 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. *Ula* . .	13 28	81 35	29·623	Wby S	6	Considerable sea and overcast; 4 A.M. light rain.
S.S. *Shahzada* .	15 25	94 39	·541	SSW	4	Rough sea and squally with heavy rain.
S.S. *Sirsa* . .	15 42	81 37*	·579	WSW	6	Heavy S. W. sea and overcast; 4 A.M. incessant heavy rain.
S.S. *Glenlogan* .	16 48	90 53	...	SW	6	High beam sea and passing rain squalls.
S.S. *Canara* .	17 22	92 10	·697	SW	...	Cloudy; 4 A.M. frequent rain squalls.
S.S. *Kilbride* .	18 24	86 43*	·430	NNW	2	Heavy head sea; noon, heavy rain.

* Noon position.

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. *Goa* . .	18 48	90 34	29·479	E	1	Following swell and fine; midnight, passing showers.
S.S. *Fultala* .	19 54	88 10	·414	NE	2	Smooth sea and fine.
S.S. *Bihara* .	Calcutta.		·464	...	...	Noon, rain squalls.
S.S. *Java* . .	Calcutta.		·500	...	...	Noon, overcast.
F.L.V. *Torch* .	Ridge.		·494	E	2	Cloudy and long south swell; 10 A.M. squally.
F.L.V. *Planet* .	Intermediate.		·487	E	2	Cloudy.

The winds were light and the cyclonic circulation was confined to the extreme north of the Bay, ordinary south-westerly winds extending as far north as Latitude 17°N.

July 13th.—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.	REMARKS.
	"	"	"				Inches.	
Akyab .	29·524	+·019	—·133	SE	3	10	1·60	Drizzling.
Chittagong.	·476	—·013	—·140	ESE	4	7	0·25	Showery.
Barisal .	·459	—·028	—·108	ENE	4	5		
Jessore .	·433	—·054	—·123	ESE	5	9		
Calcutta .	·397	—·068	—·140	NE	5	9	0·03	
Saugor Island.	·342	—·087	—·193	ENE	9	9	0·93	Sea slight.
Balasore .	·328	—·140	—·197	NE	5	8	0·57	
False Point.	·293	—·136	—·257	ENE	9	8	0·30	Showery.
Cuttack .	·309	—·129	—·234	NE	3	10	0·25	
Gopalpur .	·324	—·111	—·228	NW	9	10	0·39	Thunder.
Waltair .	·414	—·043	—·182	SW	14	10	2·56	Continuous rain.

Pressure had given way briskly to rapidly over the north and east of the Bay, while a recovery had commenced on the Burma coast. The barometric fall was greatest at Balasore and False Point, where the wind's direction was north-easterly, and the centre of the storm was probably close to the Orissa coast, where pressure was more than

0·25″ below the normal. The rainfall in the vicinity of the storm was nowhere heavy.

The following gives marine information 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. *Gwalior*	14 44	91 31	29·550	SW	9	High south-west sea, hard squalls and rain; noon, very hard squalls and dense rain.
S.S. *Kilbride*	16 47	86 00	·450	WSW	10	Heavy sea and hard squalls; 4 P.M. heavy rain squalls.
S.S. *Shahzada*	17 41	92 47	·497	SW	4	Heavy south-west swell and fierce squalls of rain.
S.S. *Bangala*	Bimlipatam.		·363	...	...	4 A.M. squally with drizzling rain.
S.S. *Bihara*	19 08	90 18	·393	SSW	6	High south-west sea and fine. 4 P.M. heavy rain.
S.S. *Highlander*	19 16	86 29*	·270	SE	5	Heavy head sea and squally. showery. Noon
S.S. *Canara*	20 15	89 12	·557	ESE	2	Heavy south-west swell, overcast. 4 P.M. frequent rain squalls.
S.S. *Glenlogan*	20 20	88 33	...	SE	4	Moderate following sea; noon passing showers.
S.S. *Nairung*	20 22	87 03*	·303	Var.	2 to 3	Cloudy; 4 P.M. occasional rain squalls.
S.S. *Java*	21 05	89 51	·340	SE by E	5	Cross swell and light rain squalls.
S.S. *Goa*	Kulpi.		·314	NE	4	Fine. Noon showery.
F.L.V. *Torch*	Ridge.		·378	E	5	Cloudy and high confused sea; noon, squall increasing in frequency and force.
F.L.V. *Planet*	Intermediate.		·383	ESE	4	Squally.

*Noon position.

The ships' observations show that south-easterly to east-south-easterly winds, light to fresh in force, prevailed over the north of the Bay with dull, rainy, squally weather, while to the south of the storm in Lat. 16°47′N and Long. 86° 0′E the *Kilbride* experienced a west-south-west wind of force 10 with hard squalls; on board the floating light vessel *Torch* the wind blew from east during the day with squalls of increasing frequency and force, but the highest recorded force was 6 to 7 at 4 P.M., and similar conditions were reported from the *Planet*, so that the storm was only of slight intensity.

July 14th.—The following gives 8 A.M. data for the Bay 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.	Remarks.
	″	″	″				Inches.	
Diamond Island.	29·645	+·050	—·080	SW	16	8	1·02	Sea rough.
Bassein	·657	+·062	—·056	SSE	4	10	2·18	Showery.
Rangoon	·689	+·052	—·047	SE	5	10	1·13	Do.
Akyab	·581	+·057	—·075	SE	4	8	0·87	
Chittagong	·523	+·047	—·092	SSE	11	3	...	
Barisal	·502	+·043	—·063?	SSW	6	4	0·09	
Jessore	·471	+·038	—·084	ESE	10	10	...	
Calcutta	·427	+·030	—·109	E	9	7	0·34	Showery.
Saugor Island.	·374	+·032	—·159	E	17	6	0·31	
Balasore	·345	+·017	—·179	ENE	10	8	1·08	Raining.
False Point	·283	—·010	—·266	SSE	10	9	0·09	Showery.
Cuttack	·285	—·024	—·258	NE	3	10	2·37	Do.
Gopalpur	·329	+·005	—·223	SW	10	5	1·29	Do.
Waltair	·417	+·003	—·177	SW	16	10	0·40	Sea smooth.
Cocanada	·491	+·025	—·126	WSW	14	10	0·28	Sea very rough.
Masulipatam	·529	+·002	—·120	WNW	13	10	0·21	
Nellore	·584	0	—·093	SSW	5	10	0·07	
Madras	·622	+·002	—·095	S	6	10	...	Sea slight.

Pressure had increased over the Bay, though it was still decreasing over Orissa. The storm had apparently crossed the Orissa coast in the early morning of this day and the centre was apparently between Cuttack and False Point where the barometer marked between ·266 and 0·258″ below the normal. Moderate rain had fallen over Orissa and was spreading inland.

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. *Zillah*	13 26	84 25	29·611	WSW	6	Heavy following sea and cloudy.
S.S. *Rothenfels*	13 27	80 34	·591	...	...	
S.S. *Westminister Bridge.*	14 06	84 46	·526	W	5	Rough sea and rainy. 1 A.M. threatening and terrific lightning to north-east.
S.S. *Kilbride*	14 59	85 45	·570	WSW	8	High rough sea and heavy rain squalls.
S.S. *Clan Menzies*	15 48	83 28	·487	W	8	High sea and overcast

NAME OF VESSEL.	8 A.M. POSITION.		Barometer as corrected by Calcutta Office.	WIND		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Bangala* .	Coca	nada	29·423	...	...	Midnight overcast.
S.S. *Highlander*.	17 44	85 13	·350	WSW	9	Very heavy head sea and strong gale; noon squally.
S.S. *Nairung* .	18 47	85 15	·309	WSW	5 to 6	Very heavy sea and overcast; 4 A.M. heavy rain squalls.
S.S. *Shahsada* .	21 18	91 51	·477	SSE	4	Heavy south-west swell and passing rain squalls.
S.S. *Malda* .	Calcutta.		·488	...	...	4 P.M. frequent rain squalls.
F.L.V. *Torch* .	Ridge.		·430	SE	4	Cloudy; 4 P.M. showery.
F.L.V. *Planet* .	Intermediate.		·432	SE	6	Squally and moderate east sea.

The wind had shifted to south and south-east at the head of the Bay and had decreased in force, but strong squally winds of forces 6 to 9 were reported by ships in the east of the Bay.

July 15th.—The following gives 8 A.M. data for the storm area:—

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	
Calcutta .	29·491	+·064	−·045	E	9	10	0·10	
Saugor Island.	·453	+·079	−·078	ENE	16	10	0·07	Sea slight.
Balasore .	·441	+·096	−·083	NNE	5	8	2·98	Drizzling.
False Point	·464	+·181	−·084	Calm	10	10	1·19	Showery.
Cuttack .	·464	+·179	−·077	WSW	3	8	1·36	Do.
Gopalpur .	·491	+·162	−·060	SW	24	9	0·04	
Sambalpur .	·480	+·147	·069	S	5	10	3·02	

The barometer had risen very rapidly over the north-west of the Bay and the north-east of the Peninsula, and the storm from the Bay had advanced west-north-westward and was central at 8 A.M. about 70 miles to the south of Sutna. The storm had almost filled up and the rainfall in its neighbourhood was light to moderate. During the day the storm practically disappeared.

Slight cyclonic storm of the 13th to 17th.—The following gives 8 A.M. data for the stations on the north Bombay coast:—

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.	
Karwar .	29·661	−·049	−·099	SSE	6	10	5·75	Continuous rain.
Mormugao .	·623	−·096	−·116	W	12	10	4·40	Sea very rough.
Goa . .	...	...	...	SW	...	10	4·52	Do.
Ratnagiri .	·603	−·064	−·108	WSW	13	10	6·77	Sea very rough.
Bombay .	·507	−·084	−·167	W	18	10	3·13	Showery.
Surat . .	·445	−·097	−·164	S	9	7	0·34	
Veraval .	·407	−·094	−·188	SE	16	10	3·06	Sea rough.
Dwarka .	·376	−·075	...	SW	14	9	2·58	Do.
Kurrachee .	·372	−·019	−·136	WSW	14	9	...	

On this day pressure was giving way briskly along the Bombay coast from Goa to Dwarka where also rain was falling heavily. At most stations the wind was blowing from normal westerly directions, but at Veraval it had shifted suddenly to south-east, though at 8 A.M. it was only light in force.

There were no marine observations in the neighbourhood of the disturbance on this day.

July 14th.—The following gives 8 A.M. data for the stations on the Bombay coast:—

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.	
Karwar .	29·588	−·073	−·172	SW	8	8	1·38	
Mormugao.	·565	−·058	−·175	W	15	10	1·84	Sea very rough.
Goa . .	...	...	...	WSW	...	10	1·80	Tremendous sea.
Ratnagiri .	·502	−·101	−·208	WSW	17	10	4·88	Do.
Bombay .	·393	−·114	−·281	SW	15	10	1·18	Showery.
Surat .	·356	−·089	−·253	E	9	3	0·14	
Veraval .	·305	−·102	−·090	NE	8	5	0·03	Sea rough.
Dwarka .	·352	−·024	...	NNE	13	9	0·76	Do.
Karachee .	·412	+·040	−·096	ESE	10	6	0·06	

Pressure was giving way rapidly from Ratnagiri to Veraval and was nearly 0·300″ below the normal over the north-east of the Arabian Sea. A storm had developed quickly over this area and at 8 A.M. was a well-defined disturbance with a well-marked cyclonic circulation of the winds around a centre, a little to the south of Veraval

The wind was strong on the Konkan and Kathiawar coasts, but very little rain had fallen over Gujarat.

The following gives marine information 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. *City of Manchester.*	10 50	62 11	29·627	SSW	6	Moderate sea.
S.S. *Dalmatia* .	11 51	64 21	·534	SW	5	High rough sea; noon, frequent squalls.
S.S. *Emma* . .	14 12	73 13	·635	SW	7	Heavy squalls with rain.
S.S. *Mosaffari* .	16 36	59 06	·535	SW	5	High sea; 4 A.M. cloudy.
S.S. *Wildenfels* .	17 25	69 17	·507	WSW	7	Rain squalls.
S.S. *Virawa* .	17 39	72 50	·353	SW	7	High sea and squally; 4 A.M., heavy rain squalls.
S.S. *Kenley* . .	18 24	72 52	...	WSW	6	Very high sea and frequent heavy squalls with heavy rain.

There were no ships in the immediate vicinity of the storm on this day, and the marine information available merely shows that south-westerly winds, strong to a moderate gale, prevailed to the south of the storm area.

July 15th.—The following gives 8 A.M. data for the stations in north Bombay:—

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.	REMARKS.
	″	″	″				Inches.	
Karwar .	29·638	+·050	—·122	SSW	9	9	1·85	
Mormugao.	·612	+·047	—·129	NW	17	10	2·02	Sea very rough.
Goa . .	...	...	...	WSW	...	10	1·36	Do.
Ratnagiri .	·559	+·057	—·153	SW	19	10	2·78	Showery.
Bombay .	·417	+·024	—·257	W	20	10	2·30	Do.
Surat .	·328	—·028	—·281	SE	9	10	0·24	
Rajkot .	·335	—·024	—·231	ENE	7	2	...	Thunder.
Veraval .	·349	+·044	—·246	NW	8	10	2·57	Sea rough.
Bhuj . .	·369	+·018	—·168	NE	11	10	0·24	Thunder.
Dwarka .	·352	0	...	NNE	19	9	5·45	Thunder-storm with hail.
Kurrachee .	·400	—·012	—·108	N	9	8	...	Dust haze.

Pressure had decreased slightly over part of Gujarat while it had recovered briskly to moderately over the Konkan. The storm had apparently moved in a northerly direction and was central between Rajkot and Surat, where the barometer marked about 0·28″ below the normal. The storm had consequently commenced to fill up. Moderate to heavy rain had fallen in its neighbourhood. The marine observations on this day were unimportant, but showed that monsoon gales and strong winds prevailed off the Bombay coast.

July 16th.—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.	REMARKS.
	″	″	″				Inches.	
Surat .	29·406	+·078	—·204	S	19	10	0·32	
Veraval .	·335	—·014	—·261	WNW	23	10	1·40	Sea very rough.
Dwarka .	·336	—·016	...	WNW	14	10	0·15	Sea rough.
Rajkot .	·305	—·030	—·265	S	10	10	0·20	Thunder.
Bhuj .	·338	—·031	—·201	NE	10	10	...	Drizzling.
Kurrachee	·410	+·010	—·099	NNE	8	8	...	Dust haze.
Ahmedabad.	·376	+·013	—·207	SE	9	10	0·07	

Pressure had continued to decrease slowly in Kathiawar but had increased in surrounding regions. The storm had moved a little to the west-north-westward and lay to the west of Rajkot, where the barometer marked 0·265″ below the normal. The storm had hence continued to fill up slowly. There was a well-marked circulation of the wind around the storm centre, and at Veraval, at 8 A.M., the west-north-west wind was blowing with a velocity at the rate of 32 miles per hour. Moderate rain had fallen around the storm area. There were no ships in the neighbourhood of the storm on this day, but off the Bombay coast fresh south-westerly gales were experienced.

July 17th.—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.	REMARKS.
	″	″	″				Inch.	
Ahmedabad.	29·446	+·070	—·137	SSW	7	10	0·14	
Rajkot .	·431	+·126	—·139	SW	18	9	...	
Dwarka .	·413	+·077	...	WSW	31	8	0·31	Sea very rough.
Bhuj .	·377	+·039	—·159	W	13	10	0·93	Thunder.
Kurrachee	·383	—·027	—·128	NNE	10	8	0·43	Showery.
Hyderabad (S).	·391	—·023	—·073	NE	16	8	0·30	

Pressure had increased briskly to rapidly in Kathiawar while it had decreased in Sind. The storm had continued to advance north-westward or west-north-westward, and the centre apparently lay over Cutch, where the barometer marked 0·159″ below the normal. The storm had hence filled up considerably, but strong westerly gales were still blowing on the Kathiawar coast, and rain and strong winds were reported from Sind and Cutch. The only vessel in the neighbourhood of the storm on this day was the *Patiala*, which in Lat. 23° 31′ N and Long. 65° 56′ E experienced a fresh northerly wind at 8 A.M. and heavy rain at 4 P.M.

July 18th.—The following gives 8 A.M. data for the storm area :—

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.			
	″	″	″				Inches.	
Bombay .	29·641	+·074	—·033	W	18	10	0·48	Showery.
Surat .	·584	+·082	—·027	S	11	10	1·07	
Ahmedabad	·522	+·076	—·062	SW	6	10	0·02	
Veraval .	·536	+·051	—·061	SW	32	10	0·20	Sea very rough.
Rajkot .	·507	+·076	—·068	SW	19	10	0·06	
Bhuj . .	·437	+·060	—·099	WSW	19	8	0·05	Showery.
Dwarka .	·475	+·062	...	WSW	30	10	0·48	Sea very rough.
Kurrachee .	·413	+·060	—·067	SE	7	5	1·94	Continuous rain.
Hyderabad (S).	·439	+·048	—·026	N	10	5	0·45	Showery.

Pressure had increased briskly over Bombay, and the cyclonic storm over north Bombay on the 17th had apparently passed away to the westward, though pressure was still in moderate defect in Sind and Cutch. The winds had returned to their normal directions except in lower Sind, where the directions were northerly and easterly and where steady, heavy rain was falling.

It may be noted here that cyclonic storms are exceedingly rare in the Arabian Sea in July, and that the only instances recorded in recent years were in 1883, when a storm passed from the Bay across the head of the Peninsula into the north of the Arabian Sea and in 1897 when a small storm formed off the Kathiawar Coast.

Slight cyclonic storm of the 17th to the 20th.—The following gives 8 A.M. data for the stations around the north of the Bay:—

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.	
Diamond Island.	29·645	—·018	—·078	WSW	5	10	0·66	Sea smooth.
Bassein .	·643	—·029	—·068?	Calm	20	10	0·46	Showery.
Akyab .	·614	—·026	—·036	SE	4	10	0·37	
Chittagong.	·583	—·031	—·029	ENE	8	9	...	
Barisal .	·570	—·018	+·009	ESE	5	6	0·03	
Jessore .	·562	+·004	+·011	E	4	9	0·03	Drizzling.
Calcutta .	·551	+·012	+·017	E	5	8	0·01	
Saugor Island.	·514	—·006	—·014	ESE	13	8	0·06	Sea slight.
Balasore .	·526	+·003	+·004	Calm	2	6	0·10	
False Point.	·494	—·013	—·051	E	7	9	0·18	Showery.
Cuttack .	·506	+·003	—·033	NE	2	8	...	
Gopalpur .	·472	—·045	—·077	N	7	6	0·91	Drizzling.
Waltair .	·509	—·038	—·083	SW	10	10	0·09	Sea smooth.
Cocanada .	·538	—·040	—·076	WSW	5	10	0·04	

On this day pressure was giving way slowly on the east coast of the Peninsula and a shallow depression had appeared off the Orissa and Ganjam coasts. At the stations in this area the wind varied between east and north, and the barometer was between 0·051″ and 0·083″ below the normal. Light rain was falling.

The following gives marine information 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. *Highlander.*	11	55	83	36	29·590	SW by S	6	Heavy head sea and fine.
S.S. *Kenmore* .	15	14	86	02	·420	SW	...	Rain abating. 4A.M. heavy rain.
S.S. *Aragonia* .	15	39	87	48	·594	WSW	5 to 6	Rainy.
S.S. *Langbank.*	16	52	85	47	·465	SW	6	High head sea, and hard squalls. 4 A.M. heavy rain.
S.S. *Bangala* .	17	47	88	34	·484	SE	2	Moderate S. W. swell and cloudy ; 4 A.M. squally, rainy.
S.S. *Goa* . .	Calcutta.				·532	...	...	4 P.M. cloudy.
S.S. *Arratoon Apcar.*	20	26	88	27	·506	SE	2	Moderate swell and fine.
S.S. *Dragoman* .	20	27	87	59	·543	E	2	Smooth sea and fine.
S.S. *Rothenfels*	20	30	87	58	·521	E	3	
S.S. *Zillah* .	Off Saugor.*				·551	SSE	4	Heavy following swell and fine.
S.S. *Manora* .	21	33	87	48	·776	SE	2	Fine ; 4 P.M. passing showers.
F.L.V. *Torch* .	Ridge.				·576	SE	2	Fine ; 4 P.M. squally.
F.L.V. *Planet* .	Intermediate.				·506	E	3	Cloudy.

* Noon position.

The winds were light from east and south-east at the head of the Bay with fairly fine weather, but across the centre of the Bay the monsoon was blowing strongly with rain squalls.

July 18th.—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.	REMARKS.
	"	"	"				Inches	
Diamond Island.	29·685	+·040	—·038	SSW	11	10	0·57	Sea smooth.
Bassein .	·700	+·057	—·011	SSE	11	7	0·15	
Akyab .	·598	—·016	—·051	SE	4	10	1·53	
Chittagong.	·574	—·009	—·037	ESE	5	3	0·13	Showery.
Barisal .	·562	—·008	+·003	SSE	3	6	0·25	
Jessore .	·562	0	+·012	NE	4	9	0·04	
Calcutta .	·536	—·015	+·003	ENE	4	7	...	
Saugor Island.	·492	—·022	—·035	NE	12	8	0·05	Sea smooth.
Balasore .	·476	—·050	—·047	NNE	4	5	0·09	
False Point.	·467	—·027	—·078	ENE	9	9	0·12	Showery.
Cuttack .	·476	—·030	—·063	NE	4	6	0·24	
Gopalpur	·465	—·007	—·083	N	8	1	0·25	Showery.
Waltair .	·494	—·015	—·098	SW	13	10	0·23	Sea smooth.
Cocanada	·554	+·016	—·060	WSW	8	10	0·53	Sea rough.

Pressure was decreasing, but the change was very slight and the storm was apparently unchanged. The winds at the coast stations were practically unaltered.

The following gives marine information 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. *Langbank* .	14 13	85 18	29·565	SW by W	6	High head sea.
S.S. *Politician* .	14 34	85 12	...	WSW	8	High quarterly sea and rainy; 4 P.M. rain squalls.
S.S. *Nairung* .	15 34	81 51*	·582	WSW	6 to 8	Dull, continuous rain and very rough sea.
S.S. *Bihara* .	17 42	88 50	·519	SW	4	Dull, cloudy; noon, occasional 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 Office.	WIND. Direction.	WIND. Force.	WEATHER.
	° ′	° ′	"			
S.S. *Kenmore* .	18 16	87 35	29·397	SW	5	Rainy.
S.S. *Shirley* .	18 44	86 59	·490	SW	4	Very heavy S. W. swell and fine; midnight, heavy rain squalls.
S.S. *Aragonia* .	19 39	87 53	·529	E	1 to 3	Cloudy; 4 P.M. squally with rain.
S.S. *Goa* . .	19 54	89 24	·451	SE	4	Swell and cloudy; midnight heavy squalls.
S.S. *Maharaja* .	Calcutta.		·476	...	...	4 P.M. heavy rain squalls.
F.L. V. *Torch* .	Ridge.		·534	E	3	Fine; 4 P.M. squally.
F.L. V. *Planet* .	Intermediate.		·552	ENE	5	Squally and moderate easterly sea.

The preceding data show apparently that the centre of the storm was near the *Shirley* in about Lat. 18° 44′ N and Long. 86° 59′ E. The winds remained south-easterly and easterly to the north of Lat. 20° N and south-westerly elsewhere, gales having been experienced on board the *Politician* and *Nairung*. Squally rainy weather prevailed in the region of south-westerly winds.

July 19th.—The following gives 8 A.M. data for the ports 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.	REMARKS.
	"	"	"				Inches	
Akyab .	29·685	+·087	+·037	S E	7	10	2·86	
Chittagong.	·633	+·059	+·023	S	11	7	0·26	Showery.
Barisal .	·590	+·028	+·033	ESE	6	7	0·21	
Jessore .	·560	—·002	+·011	SE	6	8	0·20	
Calcutta .	·526	—·010	—·006	ESE	6	9	0·45	Showery.
Saugor Island.	·484	—·008	—·042	ESE	13	7	0·25	Sea slight.
Balasore .	·473	—·003	—·050	SE	4	6	1·49	Showery.
False Point.	·431	—·036	—·113	SSE	10	9	...	Thunder.
Cuttack .	·449	—·027	—·089	NE	4	8	0·70	Showery.
Gopalpur.	·475	+·010	—·072	WSW	8	9	3·14	Sea slight.
Waltair .	·523	+·029	—·069	SW	10	10	0·51	Sea smooth.
Cocanada	·587	+·033	—·026	S W	12	10	0·94	Sea slight.

The barometer had fallen slightly over Orissa and south-west Bengal, while it had increased briskly in Arakan. The shallow depression in the north-west of the Bay had developed somewhat and was crossing the coast between Puri and False Point, where pressure was a little more than 0·10″ below the normal.

The following gives the marine information 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. *Sirdhana* .	14 45	80 50	29·658	SW	4	Moderate sea and overcast.
S.S. *Sardinia* .	15 27	85 51	·635	W	5	Heavy sea and swell and heavy rain squalls.
S.S. *Lombard* .	15 43	85 54	...	SW	6	High sea and passing heavy rain squalls.
S.S. *Shirley* .	16 51	86 23	·570	SW	6	High S.W. sea and clear. 8 P.M. frequent strong squalls.
S.S. *Goa* . .	18 04	91 45	·582	SW	5	Moderate rough sea and cloudy. 4 A.M. frequent heavy squalls with rain.
S.S. *Politician* .	18 09	87 09	...	WSW	6	Rough quarterly sea and frequent rain squalls.
S.S. *Madura* .	18 32	91 05	·566	SSW	4	Heavy S. W. sea and fine. 4 A.M. occasional rain.
S.S. *Lindula* .	18 57	90 30	·659	SSW	6	Moderate to rough sea and squally.
S.S. *Bihara* .	19 05	84 51*	·461	...	...	4 A.M. heavy rain and frequent hard squalls.
S.S. *Maharaja* .	21 05	89 26	·494	S by E	4	Heavy S. W. swell and squalls at intervals.
S.S. *Gregory Apcar.*	Eastern channel Lt.		·463	SE	6	Nasty swell and cloudy ; noon squally.
S.S. *Kenmore* .	Upper Gasper.		·462	SE	4	Showery.
F.L.V. *Torch* .	Ridge.		·529	SE	4	Unsettled and moderate S. swell.
F.L.V. *Planet* .	Intermediate.		·533	SE	6	Cloudy and moderate S E sea.

* Noon position.

The winds had veered to south and south-east at the head of the Bay, and south-westerly monsoon winds were spreading northwards into the north of the Bay. The force was only fresh to strong.

The light vessels off the Sunderbuns coast reported that cyclonic conditions and squalls prevailed during the 18th and 19th, but the weather was only slightly unsettled.

July 20th.—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.	REMARKS.
	″	″	″				Inches.	
Saugor Island.	29·547	+·063	+·023	SSE	22	10	0·67	Rainy.
Balasore .	·511	+·038	—·011	SSW	6	3	0·30	
Sambalpur .	·497	+·024	—·047	SSW	5	10	0·93	
Chaibassa .	·480	+·007	—·023	Calm	1	8	0·49	Showery.
Ranchi .	·489	—·022	—·031	SSE	11	10	1·50	Do.
Hazaribagh	·480	—·044	—·044	ES	11	10	0·24	Thunderstorm.
Gaya .	·491	—·035	—·021	NE	7	8	...	

The barometer had risen slightly to briskly over the Bay area and had fallen slightly over west Bengal and the east of the United Provinces. The depression which was crossing the Orissa coast on the 19th had advanced in a north-westerly direction into Chota Nagpur. The storm had partly filled up and pressure near the centre was only 0·044″ below the normal. The winds were light around the storm. Over the Bay south-westerly and southerly winds of the monsoon had extended right up to the Bengal coast.

The storm continued to fill up during the 20th, and by the morning of the 21st had practically disappeared.

Slight storm of the 22nd to the 25th.—On the 21st pressure was giving way again over the head of the Bay, and on the 22nd a small storm was shown near Saugor Island. 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.	REMARKS.
	″	″	″				Inches.	
Akyab .	29·606	—·078	—·039	S	4	10	1·47	
Chittagong .	·536	—·086	—·071	SSE	10	1	...	
Barisal .	·514	—·080	—·040	ESE	4	6	0·55	
Calcutta .	·482	—·057	—·049	E	4	8	0·05	
Saugor Island.	·447	—·088	—·075	NW	16	6	0·44	Sea slight.
Balasore .	·483	—·048	—·039	Calm	8	4	2·92	
False Point .	·487	—·056	—·057	W	10	10	0·50	
Cuttack .	·490	—·054	—·048	WSW	4	8	0·21	
Gopalpur .	·519	—·045	—·026	WSW	15	9	0·03	
Waltair .	·587	—·030	—·006	SW	17	10	0·06	Sea smooth.

The barometer had fallen about 0·08″ over deltaic Bengal, and a strong north-westerly wind was blowing at Saugor Island.

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. *Shahjehan*	12 32	83 47	29·818	SW	5	Fine.
S.S. *Tactician*	12 43	84 30	...	SW	5	Moderate sea and fine.
S.S. *Neeuenfels*	Madras		·687	...	...	.....
S.S. *Florican*	13 45	81 20	.664	WSW	4	Moderate sea and cloudy.
S.S. *Dalmatia*	15 37	86 02	·504	SW	4	Strong squalls and heavy rain.
S.S. *Okara*	16 00	86 06	·585	SW by S	6	High sea and overcast; noon, hard squalls of rain.
S.S. *Sirdhana*	17 40	83 15	.594	SW	5	Drizzling rain; 4 A.M. overcast with rain and frequent squalls.
S.S. *Bihara*	Vizagapatam		·571	...	...	4 A.M. occasional rain.
S.S. *Maharaja*	19 27	92 25	·580	S by W	4	Heavy beam sea and fine; noon, heavy rain squalls.
S.S. *Bangala*	19 31	89 56	·506	SW	2	Moderate SW swell and heavy showers.
S.S. *Maharani*	21 22	88 40	·465	WNW	4	Occasional squalls; noon, heavy rain squalls.
S.S. *City of Manchester*	Near Saugor*		·437	W	4	Showery.
F.L.V. *Torch*	Ridge		·537	NNW	4	Unsettled; 4 P.M., thunder with occasional showers.
F.L.V. *Planet*	Intermediate		·512	WNW	3	Cloudy and thunder to SW.

* Noon position.

There was very little information from the head of the Bay, but the following was the account of the weather experienced on board the F.L.V. *Torch*:—"Commenced with a moderate gale from south-south-west with heavy rain, worked gradually round to north at 8 A.M., with vivid lightning from west and south-west; cloudy from 10 hours to 16 hours and a gentle north-west wind with occasional rain showers; thunder from 16 hours to midnight." The above shows that the storm was of very slight intensity.

July 23rd.—The following gives 8 A.M. data for the stations at the head of the Bay:—

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.			
	″	″	″				Inches	
Akyab	29·600	—·006	—·044	S	9	10	2·26	Raining.
Chittagong	·554	+·018	—·052	SSE	9	2	...	
Barisal	516	+·002	—·037	ESE	5	5	0·24	
Jessore	·498	—·009	—·047	SE	8	?	0·09	
Calcutta	·450	—·032	—·081	ENE	6	5	0·74	Showery.
Saugor Island.	·388	—·059	—·133	E	11	10	0·85	Sea rough.
Balasore	·370	—·113	—·153	ENE	4	8	0·91	Raining.
False Point	·363	—·124	—·181	WSW	14	10	1·45	
Cuttack	·410	—·080	—·027	Calm	4	10	3·53	Continuous rain.
Gopalpur	·428	—·091	—·117	SSW	13	9	1·44	Sea rough.
Waltair	·501	—·086	—·091	SW	10	10	0·13	Sea slight.

Pressure had decreased more than 0·10″ on the Orissa coast and the barometer read 0·181″ below the normal at False Point where a strong west-south-west wind was blowing. At the same time an easterly wind, blowing at the rate of 20 miles per hour, was reported from Saugor Island. The storm crossed the coast during the day travelling westward.

The marine observations on this day were of no importance.

July 24th.—The following gives 8 A.M. data for the storm area:—

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.			
	″	″	″				Inches	
Raipur	29·317	—·154	—·229	ESE	9	9	1·05	Showery.
Sambalpur	·414	—·008	—·130	SSW	6	10	2·28	Continuous rain.
Pendra	...	—·103	...	NE	9	10	0·57	Showery.
Jubbulpore	·356	—·139	—·170	ENE	4	8	1·89	Showery.
Sutna	·400	—·075	—·109	ENE	7	10	0·56	Showery.
Hoshangabad	·459	—·065	—·126	SW	4	10	2·80	Raining.
Seoni	·372	—·144	—·175	NNE	7	8	1·40	Continuous rain.
Nagpur	·417	—·111	—·161	W	...	10	5·49	Gale.
Amraoti	·480	—·071	—·128	W	18	10	2·75	Continuous rain.
Chanda	·447	—·097	—·156	Calm	7	10	5·00	Raining.

The barometer had risen briskly to rapidly in Orissa and fallen in the Central Provinces and the storm lay near Raipur where pressure was 0·22″ in defect of the normal. Moderate to heavy rain had fallen in front of the advancing storm. The storm during the next two days advanced in a westerly direction and filled up.

Slight storms of the 27th to the 31st.—Two storms formed during this period, but they were both exceedingly slight and unimportant. The first appeared off the Orissa coast on the 27th, when the wind shifted to north-east over the north-west angle of the Bay and light rain fell over that area. The centre of this storm was crossing the Orissa coast at 8 A.M. on the 28th and light rain was falling over south-west Bengal. The depression subsequently moved in a north-westerly direction and became merged in a large low pressure area over the central parts of the country. On the following morning, the 30th, the second shallow depression appeared over the north-west of the Bay, but was even slighter and smaller than its predecessor. Like the former storm it advanced slowly north-westward and disappeared in the low pressure area over the central parts of the country.

The preceding account shows that from about the middle of the month, a constant succession of small storms formed over the head of the Bay, and thence advanced westward or north-westward into the more central parts of the country. They were all unimportant as regards intensity, but occasioned constant rain over the Peninsula, while on the contrary they drew the wind into east or east-north-east over the Gangetic plain to which was apparently due the dry hot weather which prevailed over that region.

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) *Killa Drosh.*—Snow fell on the hills around Chamarkand on the 10th and 11th July, the depth having been about 3″.

(2) *Chitral.*—At the end of July all the high hills to the east and north of Chitral were still covered with the snow, which fell during the six months between November 1902 and May 1903. Two falls occurred during July, *viz*; on the 11th and 12th on the high hills. The inhabitants state that the snowfall and rainfall have been much heavier in this than in the previous year.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Kashmir.*—The following reports of snow in July have been received:—

Sonemarg.—

	ft.	in.
July 4th	1.	0
„ 5th	0.	10
„ 7th	0.	9
„ 15th	1.	3
„ 16th	2.	0
„ 17th	1.	3
„ 24th	1.	6
Total	8.	7

Skardu.—There was no snow near observatory, but snow fell on the higher mountains on the 1st, 4th, 5th, 6th, 7th, 12th, 14th to the 18th, and the 20th to the 23rd July.

Dras.—Snow fell on the higher mountains on the 3rd, 4th, 11th to 17th, and the 21st to 23rd July.

Minimarg:—Moderate snow fell near the Zujila pass during July.

Srinagar.—Heavy snow fell on the higher mountains during July.

Gulmarg.—Heavy snow fell on Khelanmarg on the 1st, and moderate snow on the higher mountains on the 3rd. On the 13th fresh snow was visible on the top of Afferwata.

(2) *Simla.*—On the hills, in Bushahr, snow fell on the 17th, 18th, 27th and 28th of June, and on the 13th July. All the falls were light.

(3) *Chamba.*—The following falls of snow occurred on the Sach pass, 14,000 ft high during June and July, the snowline descending to about 11,000 ft. The weather was unusually cold.

	Snow. ft.	in.
June 11th	1.	9
July 1st	1.	3
„ 2nd	0.	7
„ 3rd	0.	3
„ 4th	0.	9
„ 6th	0.	10½
„ 12th	0.	1½
„ 13th	0.	3
„ 14th	0.	7
„ 15th	0.	10
„ 16th	0.	5
„ 17th	0.	8
Total	8.	4

III.—UNITED PROVINCES HIMALAYAS.

(1) *Almora.*—Snow fell as follows:—

Malla Johar.

	ft.	in.
July 2nd	0.	3
„ 15th and 16th	0.	6
Total	0.	9

No snow fell during July on Malla Danpur, Byans, Chandas and Darma.

Summary of Special Storm Reports.

The following accounts of local storms were received during the month :—

July, 1st.—A severe thunderstorm giving hail and rain on the lower hills and snow on the higher ranges passed over Gulmarg between 8A.M. and 4 P.M.

" *2nd.*—A heavy storm passed over Hoshangabad at 11 P.M. The storm lasted twenty minutes. Light rain fell.

" " A thunderstorm was experienced at Kalabagh between noon and 1 P.M. and a second between 5 P.M. and 6 P.M. Showers fell during both storms.

A slight thunderstorm occurred at Simla, commencing at 1-15 P.M. and lasting till 2 P.M. No rain fell.

" *3rd.*—A duststorm passed over Lahore between 8 P.M. and 11 P.M. No rain fell.

A duststorm was experienced at Skardu between 2 P.M. and 6 P.M. Light hail and drizzling rain were received.

Thunderstorms occurred at Srinagar between 4 P.M. and 11 P.M. followed by some rain.

" *5th.*—At 5 P.M. a very heavy duststorm passed over Hoshangabad from north-east to south-west, lasting twenty minutes. Few drops of rain fell.

" *6th.*—A duststorm commencing in the south-west, passed over Ludhiana between 6 A.M. and 6-45 A.M.

" A severe duststorm passed over Hoshangabad and lasted half an hour.

" A duststorm passed over Mainpuri between 1-2 and 2-16 P.M.

" A duststorm occurred at Simla between 8-20 and 8-45A.M. It came up quickly from south-west and though rainless occasioned brisk fall of temperature, the dry bulb marking 72° at 8-15 A.M. and 65° at 8-45 A.M.

" *7th.*—A thunderstorm with violent wind and rain occurred at Pachmarhi at 6 P.M. the storm lasting fifteen minutes.

" *8th.*—At Hoshangabad between 3-10 and 3-40 P M. there was a very heavy duststorm. Light rain fell.

" *9th.*—A moderate dust and thunder storm passed over Allahabad between 3-42 P.M. and 5 P.M. The wind shifted from west to north-north-east and light rain fell.

" " Between 8-20 and 8-35 P.M. there was a very heavy storm at Hoshangabad. It came up from south-west and travelled to north-east and was followed by a few drops of rain.

" *10th.*—Between 4-30 P.M. and 6-30 P.M. there was a duststorm at Srinagar.

July, 11th.—A thunder and duststorm occurred at Srinagar between 5 P.M. and 8-30 P.M. No rain fell.

" *11th* and *12th.*—A thunderstorm occurred at Gulmarg between 7 P.M. of the 11th and 8 A.M. of the 12th. The storm came up from west and gave 1·37″ of rain.

" *12th.*—A thunderstorm occurred at Simla between 6-30 P.M. and 9 P.M. It commenced from west. No rain fell.

A thunderstorm passed over Waltair (Vizagapatam) between 8 A.M. and 8 P.M. giving over 1″ of rain.

" *13th.*—A moderate duststorm occurred at Allahabad between 4 P.M. and 6 P.M. The storm came up from east-north-east. No rain fell.

A violent duststorm occurred at Jacobabad at 8-48 P.M. and lasted forty minutes. The storm came up from east-north-east.

A severe nor'-wester passed over Jodhpur between 3-32 P.M. and 3-53 P.M. The storm appeared to rise from north-east and a strong wind blew for 25 minutes.

A duststorm passed over Lahore between 5-40 P.M. and 8 P.M. No rain fell, but temperature dropped from 95.°0 to 79.°8.

A thunderstorm commenced from west at Simla at 5-50 P.M. and lasted one hour. A heavy shower (0 59″) of rain fell.

Between 8-40 P.M. and 9-20 P.M. a duststorm passed over Jacobabad. Strong winds were experienced and 0·60″ of rain fell.

" *14th.*—A duststorm passed over Jodhpur at 5-32 P.M. coming up from north-east. The storm only lasted seven minutes.

" *15th.*—A terrific thunderstorm passed over Saugor between 11-30 A.M. and 11-50 A.M. There was no rain.

A thunderstorm occurred at Simla between 7-20 P.M. and 8 P.M. followed by rain. The storm came up from west-south-west.

" *16th.*—Another thunderstorm occurred at Simla at 1 P.M. and continued till 2-30 P.M. with moderate rain.

" *18th* and *19th.*—A thunderstorm passed over Simla between 11-45 P.M. on the 18th and 2-48 A.M. on the 19th. Rain continued after the storm and 1·68″ fell.

" *19th* and *20th.*—A thunderstorm prevailed at Gulmarg from 10 P.M. on the 19th to 4 A.M. on the 20th. The wind was strong to a gale and light rain fell.

" *21st.*—A heavy storm passed over Hoshangabad at 6-50 P.M. lasting twenty minutes. Light rain fell.

July, 21st.—A violent gale with rain passed over Hyderabad (Sind) at 4-45 P.M. The storm came up from south-west and lasted twenty minutes.

„ *26th.*—A thunderstorm giving heavy rain (5.03") passed over Nagpur during the night.

„ *27th.*—A duststorm with gale of wind was experienced at Skardu between 3 P.M. and 6 P.M.

„ *28th.*—At 10 P.M. a thunderstorm passed over Pachmarhi giving heavy rain.

„ *30th.*—A thunderstorm occurred at Srinagar between 5-30 P.M. and 6-30 P.M.

Hail storms.—The following hail storms occurred in the Indore state:—

July, 2nd.—After 1 P.M. hail fell for about 4 minutes at Garoth in the Bhanpura district. The direction of the storm was from west. There was not much thunder. The stones were of the size of plums and the area covered by them was one square mile. No damage is reported.

„ *4th.*—At about 4 P.M. hail fell for about two minutes in the village of Bagurkhedi in Pargana Rajore of the Nimawar district. The direction of the storm was from east to west. There was not much thunder. The hail stones were of the size of plums. No damage is reported.

„ *7th.*—Hail fell in Thana Jamunia in Pargana Manasa (District Rampura) at 3 P.M. and lasted for one hour. There was much thunder. The hail stones varied in size from a grain of mucca to a lime and the area covered was one square mile. The roofs of houses were damaged and some persons injured.

The following notes are extracted from newspapers:—

The floods in Kashmir.—From the 11th to the 17th July rain fell at Srinagar almost without a break. The river broke through the canal near Pandrutton, flooding the whole country for ten miles. Three days and nights of anxiety prevailed, the river breaking through wherever a weak point was to be found. On the 18th it broke through the bund on the opposite side of the river. Then the weather cleared up for two or three days, but a tremendous rush of water, coming down from Islamabad and the snows, kept up the anxiety. The crops had all been destroyed, villages swept away and dead cattle were to be seen floating down the river. By the 22nd it was hoped the floods had reached their worst. The bund had given way on the left bank, but the right bank was intact. On the 23rd a native came round saying that another 24 feet of water was expected down from Islamabad. At once a hum of excitement went round the place and all the 23rd was spent in clearing houses, stables, etc. The water rose steadily all day, but no flood came down and at dawn on the 24th, the bund was still holding. About 8 A.M. on the 24th, however, the water rose rapidly and at 8-30 A.M. began to go over the bund opposite the Residency. The next two hours were the scene of the greatest excitement. The flood came down solid between the Residency and the Takt Hill and by 11 o'clock the polo ground was flooded with fifteen feet of water. The first house to be washed away was Dr. Dorothy Pratt's, which received the full force of the current. After that in quick succession fell Mr. Marrett's, General Percy Smith's, Mrs. Thomson's and Mrs. Nicholett's. For the whole of that day and night and the day following the water poured in through the bund filling up the polo ground, the Chenar Bagh and the city, till from 12 to 15 feet of water covered the ground. During all this time falls of houses were continually being heard. Mr. Cockburn's house, the Club and all Public Works offices and almost every out-house in the Munshi Bagh collapsed into a mass of ruins. Between 2,000 and 3,000 houses collapsed.

Earthquake Report:—At Killa Drosh on the 2nd July an earthquake occurred at 5-20 P.M. and continued for 15 seconds.

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

Arabian Sea:—From the 1st to the 6th ordinary monsoon winds blowing from south on the African coast, from south-west over the centre of the sea and from west and even north-west off the west coast of India were reported over the Arabian Sea. On the 6th south-easterly winds made their appearance along the Konkan coast and extended to the Kathiawar coast and strengthened during the 7th, 8th, and 9th. No storm, however, developed and on the 10th the observations showed that ordinary monsoon winds had been re-established over the whole of this area. These conditions continued until the 12th. On the 13th strong south-easterly winds appeared off the Kathiawar coast and on the 14th a small local storm was shown over the north-east of the Arabian Sea causing an increase in the strength of the monsoon winds all over the sea. This storm passed inland on the 15th and ordinary monsoon winds prevailed till the close of the month though in the west of the sea, so far as the observations show, the wind's direction was somewhat more southerly than the normal.

The mail steamers during their passage across the Arabian Sea experienced a strong monsoon over the centre of the sea and a moderate monsoon on the east side.

The monsoon current was, so far as can be determined from the available data, of about the normal strength in the Arabian Sea, on the mean of the month. It was generally stronger than usual on the 10th, the 13th to the 15th, the 21st and 22nd, the 24th, and from the 26th to the end of the month and was considerably lighter than usual

between the 3rd and the 7th, and on the 16th, the 20th and the 25th. The current was probably less steady than usual. It was strongest on the 26th when it averaged 5·3 in force and was feeblest on the 3rd when its average force deduced from the observations of 22 ships was only 3·4.

Bay of Bengal:—Between the 1st and the 10th ordinary southerly to south-westerly monsoon winds prevailed over the north and centre of the Bay, but in the extreme south the direction of the wind was apparently unusually westerly. On the 11th calms suddenly appeared at the head of the Bay and on the 12th a shallow storm was shown covering the north of the Bay. This storm drew the wind into east off the Sunderbuns coast and into north on the Orissa coast. During the 12th and 13th the storm intensified and a well-marked cyclonic circulation of the winds was shown over the north of the Bay, while strong monsoon winds prevailed elsewhere. During the 14th the storm passed inland and south-westerly and west-south-westerly winds were reported throughout the Bay until the 16th. On the latter date a fresh storm formed off the Orissa coast occasioning easterly winds over the extreme north of the Bay while south-westerly winds prevailed elsewhere. These conditions continued until the 19th, when the storm passed inland and ordinary south-westerly winds were re-established generally. On the 22nd another small storm appeared at the head of the Bay and the winds were again cyclonic in the north. These conditions lasted till the 23rd. On the 24th south-westerly monsoon winds were again general throughout the Bay and continued till the 26th, when the winds suddenly fell light again in the north. A fresh storm was shown of the Orissa coast on the morning of the 27th and south-easterly and easterly winds held in the north of the Bay until the end of the month.

On the mean of the whole month the monsoon current over the Bay of Bengal was 0·2 stronger than usual, the mean wind force having been 4·2 while the normal force is 4·0.

The wind was generally lighter than usual over the Bay from the 1st to the 12th. It ranged above the normal from the 13th to the 16th and generally from the 18th to the end of the month. The wind was strongest on the 14th with a mean force of 5·3 and was feeblest on the 6th with a mean force of 3·1. The current was, on the whole, steadier than over the Arabian Sea, having been generally weaker than usual during the first and stronger than usual during the second half of the month.

Equatorial Belt:—The south-east trade winds blew very steadily throughout this area during the month.

From the preceding account of the weather in the Indian seas it will be seen that all over the sea area the wind conditions were approximately normal, a point which is worth noting in face of the unusual rainfall conditions over India.

Temperature of the Air.

The temperature conditions of the month were, over the greater part of the country, directly related to the distribution of rainfall but in the extreme north-west abnormal snowfall on the north-west Himalayas introduced a local temperature irregularity.

The mean maximum or day temperature of the month was below the normal over the central, west and south Punjab as well as at the hill stations around the north-west Frontier and in Afghanistan and Baluchistan. The deficiency exceeded 1° at the stations for which comparative data are given below:—

Hill or Plain Station.	Mean maximum temperature.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	°	°	°
Montgomery	100·8	104·7	— 3·9
Lahore	99·4	100·6	— 1·2
Khushab	101·5	102·6	— 1·1
Gilgit	85·9	96·6	—10·7
Leh	69·0	78·2	— 9·2
Srinagar	78·4	85·0	— 6·6
Kailang	69·1	73·9	— 4·8
Kabul	90·1	92·3	— 2·2
Quetta	90·8	92·7	— 1·9
Chaman	100·3	101·5	— 1·2

The preceding data show that except at Montgomery the deficiency was small on the plains, but that on the hills the variation was much larger and that in further Kashmir it was very large.

The mean maximum temperature was also lower than usual over practically the whole of the Peninsula and the east of Ceylon. The deficiency was greatest and more than 2° over the north Deccan, and the north of the east coast. The following gives comparative data for the stations in this area:—

Station.	Mean maximum temperature.		
	Actual, July, 1903	Normal, July.	Variation of actual from normal, July, 1903.
	°	°	°
Gulbarga	85·6	89·8	—4·2
Masulipatam	89·0	92·7	—3·7
Cocanada	88·4	91·7	—3·3
Sholapur	86·4	89·5	—3·1
Hyderabad Deccan	84·3	87·1	—2·8
Raichur	87·4	90·1	—2·7

In all other parts of the country, with the local exceptions of Tavoy, Rangoon and Sibsagar, the mean day temperature exceeded the normal. The excess was greatest

and very large within the area of deficient rainfall over the Gangetic plain and the adjacent parts of Central India and of the Central Provinces, where the variations ranged between +5° and +10°. The following gives comparative data for the stations in this area:—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	°	°	°
Mainpuri	102·8	92·7	+10·1
Sutna	97·3	87·4	+9·9
Benares	101·0	91·2	+9·8
Allahabad	101·0	91·6	+9·4
Nowgong	99·0	89·9	+9·1
Lucknow	100·8	92·2	+8·6
Jhansi	99·3	91·2	+8·1
Hoshangabad	94·5	86·7	+7·8
Gaya	99·1	91·4	+7·7
Umballa	100·6	93·3	+7·3
Bareilly	98·5	91·6	+6·9
Patna	96·7	90·1	+6·6
Agra	99·8	93·3	+6·5
Roorkee	98·6	92·1	+6·5
Dehra Dun	91·6	85·5	+6·1
Saugor	91·3	85·2	+6·1
Neemuch	93·4	87·4	+6·0
Jubbulpore	91·6	85·9	+5·7
Meerut	98·4	92·8	+5·6
Hazaribagh	89·8	84·6	+5·2
Delhi	99·0	94·0	+5·0

In the interior of Burma, where also the rainfall was lighter and less frequent than usual, the day temperature was in considerable excess, the variation amounting to over +2° at the following stations:—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	°	°	°
Mandalay	97·7	94·2	+3·5
Toungoo	89·6	86·7	+2·9
Yamethin	92·4	90·0	+2·4
Bhamo	89·9	87·8	+2·1

At the hill stations, from Simla to Darjeeling, the mean maximum temperature was also in excess, but to a less marked extent than at the stations on the neighbouring plains. This is shown below:—

HILL STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	°	°	°
Simla	72·2	69·2	+3·0
Chakrata	72·9	69·9	+3·0
Mussooree	75·2	71·0	+4·2
Ranikhet	78·9	73·9	+5·0
Darjeeling	67·6	66·0	+1·6

The highest maximum temperatures of the month were generally recorded in Burma about the 17th; in Bengal and northern India between the 8th and the 12th; in the central parts of the country between the 7th and the 10th and in the Peninsula during the first week. The following gives the highest maximum temperatures (exceeding 110°) registered during the month:—

STATION.	Highest maximum temperature recorded in July, 1903.	Date on which recorded.	Highest maximum temperature recorded in July previous to 1903.	Year in which recorded.
	°		°	
Lucknow	114·3	10th July	113·8	1902
Mainpuri	114·2	9th ,,	112·7	1901
Cawnpore	113·5	10th ,,	112·6	1902
Roorkee	113·2	,, ,,	113·2	1876
Allahabad	112·6	9th ,,	114·2	1901
Dera Ismail Khan	117·7	10th ,,	120·5	1891 & 1892
Peshawar	117·5	,, ,,	118·0	1900
Sialkot	117·5	,, ,,	119·5	1878
Khushab	117·4	,, ,,	119·1	1891
Lahore	116·9	,, ,,	118·1	1901
Rawalpindi	116·0	11th ,,	117·0	1900
Umballa	115·8	10th ,,	111·9	1900 & 1901
Ludhiana	115·8	,, ,,	117·8	1881
Montgomery	114·8	9th ,,	120·4	1891
Mooltan	114·5	,, ,,	119·5	1901
Sirsa	113·3	,, ,,	118·4	1891
Patiala	112·9	10th ,,	112·6	1901
Delhi	112·2	9th ,,	111·2	1901
Jacobabad	117·6	9th & 10th	126·0	1901
Bikaner	112·9	9th ,,	116·9	1901

The preceding data show that in parts of the United Provinces and of east Punjab higher temperatures than any previously recorded in this month were registered during the month under review.

The variations of the mean minimum or night temperatures were smaller than in the case of the day temperatures, but the distribution of the variations was generally similar. There was some deficiency at the hill stations in the extreme north-west as well at the plains stations in the North-West Frontier Province and the west and south of the Punjab. The variations amounted to more than −2°·0 at the stations for which comparative data are given below :—

Hill or Plain Station.	Mean minimum temperature. Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	°	°	°
Montgomery	81·2	83·9	−2·7
Peshawar	77·1	79·4	−2·3
Gilgit	65·7	73·3	−7·6
Srinagar	59·6	64·6	−5·0
Kailang	46·6	51·1	−4·5
Murree	58·0	62·5	−4·5
Leh	46·2	50·6	−4·4
Kabul	57·1	61·6	−4·5
Chaman	72·4	75·1	−2·7

There was also a deficiency over parts of the east coast and of the Deccan, but in this area the variations were unimportant. With a few local exceptions the mean night temperature of the month was in excess in all other parts of the country. The excess, as in the case of the mean maximum temperature, was greatest over the Gangetic plain and neighbouring regions and amounted to 2°·5 or more at the stations for which comparative data are given below :—

Station.	Mean minimum temperature. Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	°	°	°
Sutna	82·4	77·0	+5·4
Allahabad	84·3	79·4	+4·9
Nowgong	82·7	78·1	+4·6
Jhansi	83·4	78·8	+4·6
Mainpuri	84·0	79·5	+4·5
Ajmer	81·5	77·3	+4·2
Agra	84·5	80·4	+4·1
Gaya	82·8	78·8	+4·0
Cawnpore	83·4	79·6	+3·8
Lucknow	82·8	79·3	+3·5
Delhi	83·9	80·7	+3·2
Benares	82·7	79·6	+3·1
Meerut	82·3	79·4	+2·9
Bareilly	81·5	78·7	+2·8
Hoshangabad	77·9	75·2	+2·7
Jaipur	80·7	78·2	+2·5

The variations of the mean temperature of the month from the normal were large over the Gangetic plain and adjacent regions and over the Kumaun Himalayas and were moderate or small elsewhere. The mean temperature was lower than usual over the east and centre of the Peninsula as well as over Baluchistan, Afghanistan, the North-West Frontier Province, the west and south of the Punjab and the north-west Himalayas. The deficiency exceeded 2° at the following places :—

Hill or Plain Station.	Mean daily temperature. Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	°	°	°
Montgomery	91·0	94·3	−3·3
Gilgit	75·9	85·1	−9·2
Leh	57·6	64·4	−6·8
Srinagar	69·0	74·8	−5·8
Kailang	57·9	62·6	−4·7
Murree	67·4	69·8	−2·4
Kabul	73·6	77·0	−3·4

Over the remainder of the country the mean temperature was in excess, the variations exceeding +4° at the following stations :—

Station.	Mean daily temperature. Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	°	°	°
Sutna	89·9	82·2	+7·7
Mainpuri	93·4	86·1	+7·3
Allahabad	92·7	85·5	+7·2
Nowgong	90·9	84·0	+6·9

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	°	°	°
Benares	91·9	85·4	+6·5
Cawnpore	92·5	86·1	+6·4
Jhansi	91·4	85·0	+6·4
Lucknow	91·8	85·7	+6·1
Gaya	91·0	85·1	+5·9
Hoshangabad	86·2	80·9	+5·3
Agra	92·2	86·9	+5·3
Bareilly	90·0	85·1	+4·9
Umballa	90·6	86·1	+4·5
Roorkee	89·5	85·1	+4·4
Meerut	90·4	86·1	+4·3
Saugor	83·8	79·5	+4·3
Patna	89·2	85·0	+4·2
Delhi	91·5	87·4	+4·1
Ajmer	88·4	84·3	+4·1
Neemuch	84·8	80·7	+4·1

The following gives temperature variation data for the extra Indian stations:—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	°	°	°
Trincomalee	84·1	84·6	−0·5
Colombo	82·5	81·5	+1·0
Kabul	73·6	77·0	−3·4
Kashgar	78·6	80·2	−1·6
Teheran	83·9	85·3	−1·4
Ispahan	79·1	82·3	−3·2
Bushire	88·6	89·9	−1·3
Jask	92·4	90·4	+2·0
Muscat	89·1	89·5	−0·4
Baghdad	96·1	93·4	+2·7
Aden	88·9	87·7	+1·2
Perim	90·5	89·9	+0·6
Zanzibar	77·9	76·5	+1·4
Seychelles	76·5	77·7	−1·2
Mauritius	68·3	67·8	+0·5

In Afghanistan and Persia, as in Baluchistan and on the north-west frontier, the mean temperature was generally lower than usual, while in Asiatic Turkey the heat was in marked excess. On the other hand, in Egypt the mean temperature was in defect. The mean temperature was lower than usual at the Seychelles, higher than usual at Zanzibar, but was fairly normal at Mauritius.

The following summarises the chief abnormal features of the temperature conditions of the month:—

(1) The mean day and night temperatures and consequently also the mean temperature were lower than usual around the north-west frontier of India and over a large part of the Punjab.

(2) The mean maximum temperature was below, the mean minimum temperature above, and the mean temperature about the normal over the west and south of the Peninsula.

(3) Both mean maximum and mean minimum temperatures and consequently also the mean temperature were lower than usual over the east of the Peninsula.

(4) In all other parts of India the mean maximum, the mean minimum and hence also the mean temperature were above the normal.

(5) The temperature excess was very large over the Gangetic plain and adjacent districts.

The following gives mean actual, mean normal and variation data for the 57 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	83·9	74·2	79·1	9·7	18·7	+0·3	+0·6	−0·3
	Lower Burma (Deltaic	85·2	76·9	81·1	8·3	14·3	+0·4	+1·2	−0·8
	Central do.	90·1	75·0	82·6	15·1	20·4	+2·3	−0·8	+3·1
	Upper do.	94·0	77·5	85·7	16·5	23·9	+2·1	+1·0	+1·1
	Arakan	85·1	78·2	81·7	6·9	12·6	+0·4	+0·7	−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
		°	°	°	°	°	°	°	°
Bengal and Assam	Eastern Bengal	88·6	78·5	83·6	10·1	16·9	+1·0	+0·7	+0·3
	Assam (Surma)	91·3	77·6	84·5	13·7	24·3	+1·1	+0·4	+0·7
	Do. (Hills)	75·3	64·8	70·1	10·5	20·5	...	...	...
	Do. (Brahmaputra)	89·3	77·8	83·6	11·5	21·1	+0·3	+0·4	−0·1
	Deltaic Bengal	91·0	79·8	85·4	11·2	18·9	+2·2	+0·8	+1·4
	Central do.	91·8	79·3	85·5	12·5	20·2	+2·0	+0·3	+1·7
	North do.	89·8	78·5	84·2	11·3	20·0	+1·4	+0·5	+0·9
	Bengal Hills	66·1	54·8	60·5	11·3	20·2	+1·6	+0·4	+1·2
	Orissa	89·5	79·5	84·5	10·0	18·8	+1·4	+0·6	+0·8
	Chota Nagpur	90·3	76·7	83·5	13·6	26·0	+3·4	+1·5	+1·9
	Bihar (South)	97·7	81·7	89·7	16·0	32·1	+7·2	+2·9	+4·3
	Do. (North)	93·5	80·0	86·8	13·5	24·2	+1·6	+0·4	+1·2
United Provincrs of Agra and Oudh.	United Provinces (East)	101·0	83·5	92·3	17·5	34·3	+9·6	+4·0	+5·6
	Oudh (South)	100·8	82·8	91·8	18·0	39·0	+8·6	+3·5	+5·1
	Do. (North)	96·1	81·1	88·6	15·0	32·1	+4·8	+2·3	+2·5
	United Provinces (Central)	101·2	83·6	92·4	17·6	36·6	+9·1	+4·3	+4·8
	Do. (West)	99·1	83·4	91·3	15·7	34·6	+6·1	+3·5	+2·6
	Do. (East Submontane).	93·8	79·4	86·6	14·4	31·6	+2·7	0	+2·7
	Do. (West Submontane).	96·2	79·1	87·7	17·2	36·8	+6·5	+2·1	+4·4
	Do. (Hills)	75·3	62·5	68·9	12·8	28·3	+4·1	+2·2	+1·9
Punjab	Punjab (South-East)	99·0	83·9	91·5	15·1	36·9	+5·0	+3·2	+1·8
	Do. (South)	99·2	81·5	90·4	17·8	39·8	−0·2	−0·1	−0·1
	Do. (Central)	99·4	81·3	90·4	18·1	43·0	−1·2	+1·9	−3·1
	Do. (Sub-montane)	99·8	80·2	90·0	19·6	43·8	+3·5	+1·4	+2·1
	Do. (Hills)	75·5	55·2	65·4	20·3	40·9	−4·8	−4·0	−0·8
	Do. (West)	101·9	81·9	91·9	20·0	43·4	−1·8	−1·4	−0·4
N.-W. F. Province	North-West Frontier Province	103·2	79·1	91·2	24·1	45·6	0	−1·9	+1·9
Bombay and Malabar Coast Districts (Madras).	Malabar	82·7	74·5	78·7	8·2	14·5	−0·1	+0·7	−0·8
	Madras (South Central)	88·7	72·7	80·7	16·1	24·2	−1·3	+0·8	−2·1
	Coorg	69·6	61·9	65·8	7·7	16·9	...	...	...
	Mysore	80·4	67·2	73·9	13·3	22·0	−0·6	+0·6	−1·2
	Konkan	82·9	76·6	79·8	6·4	13·4	−0·5	+0·5	−1·0
	Bombay Deccan	82·3	70·9	76·6	11·4	21·2	−1·2	+0·8	−2·0
	Hyderabad (North)	84·0	71·7	77·9	12·3	24·8	...	...	...
	Khandesh	85·8	72·8	79·3	13·1	21·5	−0·5	+0·9	−1·4
Central Provinces and Berar.	Berar	88·5	74·6	81·6	14·0	29·1	+0·4	+0·7	−0·3
	Central Provinces (West)	91·3	76·7	84·1	14·6	30·9	+4·0	+1·5	+2·5
	Do. (Central)	89·6	75·1	82·4	14·5	29·4	+3·7	+0·9	+2·8
	Do. (East)	89·6	76·2	83·0	13·4	28·2	+3·3	+1·2	+2·1
Bombay (North)	Gujarat	91·6	79·1	85·3	12·5	24·2	+2·2	+1·3	+0·9
	Kathiawar and Cutch	90·6	79·0	84·9	11·6	24·3	+2·5	+1·1	+1·4
	Sind	101·5	84·0	92·8	17·5	34·7	+2·4	+2·1	+0·3
	Baluchistan Hills	95·2	65·7	80·5	29·5	42·4	−1·6	−1·7	+0·1
Rajputana and Central India.	Central India (East)	94·5	78·8	86·7	15·7	31·4	+7·2	+3·4	+3·8
	Rajputana (East), Central India (West)	97·2	80·6	88·9	16·6	34·9	+4·6	+2·7	+1·9
	Do. (West)	101·6	82·8	92·2	18·9	37·1	+3·3	+2·0	+1·3
Madras	East Coast (North)	88·1	78·3	83·2	9·7	21·9	−1·2	−0·6	−0·6
	Hyderabad (South)	85·7	73·0	79·4	12·7	26·4	−3·2	+0·5	−3·7
	Madras (Central)	91·3	75·3	83·3	16·0	27·7	−1·2	−0·5	−0·7
	East Coast (Central)	92·4	78·3	85·4	14·1	25·4	−2·6	−0·6	−2·0
	Do. (South)	94·2	78·3	86·3	15·9	25·0	−1·7	0	−1·7
	Madras (South)	93·5	76·8	84·8	16·7	25·7	−0·9	−0·4	−0·5

The hottest areas, outlined by the isotherm of 92°, included parts of the east and centre of the United Provinces in the east, and of Sind and west Rajputana in the west, while the coolest areas were (73°·9) Mysore and (76°·6) the Bombay Deccan. The mean maximum temperature of the month exceeded 100° over the east and centre of the United Provinces, south Oudh, the west Punjab, the North-West Frontier Province, Sind and west Rajputana. The mean daily range of temperature was greater than usual over inland Burma, the greater part of Bengal, the United Provinces, the Central Provinces, Central India and Rajputana. The greatest excess was reported from the United Provinces, where the day temperature so largely exceeded the normal.

The following gives a brief account of the principal temperature changes during the month under review. The rains were very variable and irregularly distributed during July and the variations of temperature were hence considerable.

Showery weather due to thunderstorms occurred over the north-west Himalayas between the 1st and the 7th and the mean temperature was steadily low in the North-West Frontier Province and the west Punjab during this period. The following gives daily data for the North-West Frontier Province :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	1st July.	2nd July.	3rd July.	4th July.	5th July.	6th July.	7th July.
	°	°	°	°	°	°	°
North-West Frontier Province.	—5·2	—3·9	—1·9	—4·6	—4·8	—3·8	—2·1

The depression of temperature was more marked at the level of the hills than on the neighbouring plains and at Leh in Ladakh the deficiency was exceedingly large. The following gives comparative data for this station from the 1st to the 7th :—

Hill Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	1st July.	2nd July.	3rd July.	4th July.	5th July.	6th July.	7th July.
	°	°	°	°	°	°	°
Leh . .	—11·2	—12·2	—17·3	—13·9	—10·7	— 8·1	—12·2

One of the most marked features of the temperature conditions of the month was the persistent low temperature which prevailed over further Kashmir throughout the month, a result presumably due to the existence of much snow on the higher hills and to the falls of fresh snow which are shown in the snowfall section. The following gives for Leh the variation of the mean temperature from the normal for each fourth day during the month and exhibits the persistent temperature depression in this region :—

Hill Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of							
	4th July.	8th July.	12th July.	16th July.	20th July.	24th July.	28th July.	31st July.
	°	°	°	°	°	°	°	°
Leh	—13·9	—9·0	—4·0	—4·2	—4·1	—9·7	—1·2	—5·8

During the whole of the first week the weather was very showery over the Peninsula and the temperature there varied considerably from day to day. It was generally higher than usual over the western and lower than usual over the eastern half of the Peninsula, 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						
	1st July.	2nd July.	3rd July.	4th July.	5th July.	6th July.	7th July.
	°	°	°	°	°	°	°
West Coast .	+1·4	+1·0	—0·9	—0·3	+1·3	+0·4	+0·9
Bombay Deccan.	+1·6	+3·4	+1·5	+1·9	+2·5	+0·9	+2·4
Mysore . .	+2·9	+2·7	+0·8	+1·3	+2·4	+2·1	+0·7
Madras Coast.	—1·1	—2·3	—0·3	+1·0	+0·9	+0·1	+0·6
Madras Deccan	+1·5	—2·4	+1·1	+0·3	+0·8	—2·3	+0·6
South India .	+0·8	+1·6	—0·1	—0·2	+1·4	+1·1	+1·6

In Burma also the mean temperature was unsteady during this period, as the rainfall was very irregularly distributed, and on the last day of the week was in moderate to considerable excess. The following gives data for this province :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	1st July.	2nd July.	3rd July.	4th July.	5th July.	6th July.	7th July.
	°	°	°	°	°	°	°
Burma . .	+0·1	+1·1	+0·5	—0·6	+0·9	+0·9	+1·8

The most important feature in the temperature conditions of this period was, however, the very excessive temperatures which prevailed over west Bengal, the Gangetic plain and the adjacent districts of the Central Provinces, Central India, Rajputana and the Punjab. Over the whole of this large region there occurred very little rain during this period and the heat was very excessive. The following gives variation data of mean temperature for these divisions for these seven days :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	1st July.	2nd July.	3rd July.	4th July	5th July.	6th July.	7th July.
Bihar	+2·8	+3·7	+2·6	+4·3	+4·7	+3·6	+5·0
Chota Nagpur . . .	+3·0	+3·4	+2·1	+4·9	+5·5	+6·7	+5·5
United Provinces of Agra and Oudh.	+6·5	+8·2	+7·6	+8·2	+8·9	+11·5	+8·4
Punjab	+1·8	+2·1	+1·8	+2·5	+0·7	+3·5	+4·1
Rajputana	+2·9	+4·3	+4·4	+6·0	+7·3	+8·7	+9·3
Central India . . .	+4·3	+5·8	+6·9	+8·4	+10·4	+9·2	+8·2
Central Provinces . . .	+2·1	+2·1	+2·7	+4·2	+4·5	+6·0	+7·4
Berar	+3·0	—0·5	+2·2	+3·6	+2·2	+1·6	+6·1

The records for individual stations show that the mean temperature in the area of greatest excess was from 10° to 14° above the normal during this time. The excess was much more strongly marked in the day than in the night temperature and maximum temperatures more than 15° above the normal were recorded at the following places on the following dates:—

DATE.	STATION.	MAXIMUM TEMPERATURE. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
3RD JULY	Lucknow	110·8	93·7	+17·1
	Allahabad	109·6	93·2	+16·4
4TH ,,	Allahabad	108·1	93·0	+15·1
5TH ,,	Sutna	108·1	89·2	+18·9
	Allahabad	111·6	92·8	+18·8
	Nowgong	110·0	92·0	+18·0
	Lucknow	111·3	93·4	+17·9
	Benares	109·1	92·4	+16·7
	Jhansi	109·8	93·3	+16·5
	Cawnpore	110·5?	94·6	+15·9?
	Mainpuri	109·7	94·3	+15·4
6TH ,,	Allahabad	111·6	92·7	+18·9
	Lucknow	111·8	93·4	+18·4
	Benares	110·6	92·3	+18·3
	Sutna	107·1	89·0	+18·1
	Dehra Dun	103·5	86·0	+17·5
	Nowgong	109·0	91·8	+17·2
	Jhansi	109·8	93·1	+16·7
	Roorkee	109·2	92·5	+16·7
	Mainpuri	110·2	94·1	+16·1
	Saugor	102·4	87·0	+15·4
	Bareilly	107·5	92·4	+15·1
7TH ,,	Allahabad	110·1	92·6	+17·5
	Lucknow	110·3	93·3	+17·0
	Benares	109·1	92·1	+17·0
	Jhansi	108·3	92·9	+15·4
	Mainpuri	109·2	93·9	+15·3

The observations of the 8th showed that the only rainfall of importance received during the previous 24 hours was over the southern half of the Peninsula, Burma, the Assam valley and north Bengal, the whole of central and northern India having been, with the exception of a few local showers, practically rainless. Temperature had increased in the extreme north-west and the heat was greater than usual over the whole country, except the Madras coast and a small area in north Bengal. The following gives comparative data for all divisions for this day:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF: Mean maximum temperature, 8th July.	Mean minimum temperature, 8th July.	Mean daily temperature, 8th July.
	°	°	°
Burma	+2·9	+1·5	+2·2
Assam	+0·6	+1·2	+0·9
Bengal	+2·2	+1·3	+1·8
Orissa	+4·3	+2·6	+3·5
Bihar	+7·9	+2·9	+5·4
Chota Nagpur	+8·7	+3·3	+6·0
United Provinces of Agra and Oudh	+14·6	+5·4	+10·0
Punjab	+10·2	+3·8	+7·0
North-West Frontier Province	+5·0	+3·3	+4·2
Sind	+4·7	+3·7	+4·2
Rajputana	+13·1	+7·6	+10·4
Gujarat	+7·4	+2·9	+5·2
Central India	+14·5	+7·3	+10·9
Central Provinces	+12·3	+5·3	+8·8
Berar	+8·2	+2·0	+5·1
West Coast	+1·2	+0·3	+0·8
Bombay Deccan	+4·2	+1·3	+2·8
Mysore	+5·3	+1·3	+3·3
Madras Coast	0	—2·1	—1·1
Madras Deccan	+2·2	0	+1·1
South India	+2·3	—1·1	+0·6

The day temperatures were exceedingly high over the Gangetic plain and the west sub-Himalayas on this day and exceeded 15° at the following stations:—

STATION.	MAXIMUM TEMPERATURE. Actual, 8th July.	Normal, 8th July.	Variation of actual from normal, 8th July.
	°	°	°
Mainpuri	112·2	93·7	+18·5
Umballa	110·9	93·7	+17·2
Allahabad	109·1	92·5	+16·6
Lucknow	109·8	93·2	+16·6
Roorkee	108·7	92·4	+16·3
Agra	110·0	94·4	+15·6
Cawnpore	109·5?	94·0	+15·5?
Delhi	110·2	95·0	+15·2

These conditions continued generally until the 12th, the only important change having been the slow advance of the area of greatest excess of temperature from the neighbourhood of Allahabad north-westward to the north Punjab. The following gives comparative data for the two stations which on each day, from the 8th to the 12th, exhibited the largest variation of temperature and illustrates the advance north-westward of the area of greatest excess :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
8TH JULY	Sutna	+15·5
	Nowgong	+14·4
9TH ,,	Allahabad	+16·3
	Sutna	+15·9
10TH ,,	Roorkee	+18·0
	Ludhiana	+16·6
11TH ,,	Umballa	+17·2
	Sialkot	+16·8
12TH ,,	Sialkot	+15·4
	Umballa	+13·6

During these five days rain continued steadily over the south of the Peninsula and in the Brahmaputra valley and the mean temperature of the Madras divisions and of Assam was general in defect of the normal. This is shown below :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	8th July.	9th July.	10th July.	11th July.	12th July.
	°	°	°	°	
Madras Coast	−1·1	−3·1	+0·9	+1·3	−1·8
Madras Deccan	+1·1	−0·7	+1·9	+2·3	+1·8
South India	+0·6	−3·9	−0·6	−0·1	−0·6
Assam	+0·9	−1·0	−2·9	−3·2	−0·9

On the 13th conditions became unsettled over the Arabian Sea, over the Bay of Bengal and over the north-west Himalayas and sub-Himalayas and rain was received over a large part of the country, except over the Gangetic plain, Central India and Rajputana. As a consequence of this irregular distribution of rain a very irregular distribution of temperature was produced. From Sind eastward through Rajputana, Central India and the Gangetic plain to Bengal and Burma the mean temperature, from the 13th to the 18th, was steadily more or less excessive. The following gives comparative data for this band of relatively high temperature :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	13th July.	14th July.	15th July.	16th July.	17th July.	18th July.
	°	°	°	°	°	°
Sind	+4·7	+1·7	+1·1	+4·0	−4·3	−1·0
Rajputana	+4·7	+2·2	−0·5	−0·4	0	+1·1
Central India	+5·2	+5·0	+5·1	+3·7	+5·1	+5·0
United Provinces	−1·2	+3·7	+5·3	+5·8	+6·6	+6·9
Chota Nagpur	+2·3	+1·1	−0·1	−1·2	+1·4	+1·4
Bihar	+0·2	+3·3	+2·4	+3·4	+3·5	+4·5
Orissa	+2·0	+0·8	−0·9	−2·2	+1·8	+1·6
Bengal	+2·2	+2·1	+1·8	+2·1	+2·1	+1·8
Assam	+1·9	+3·2	+3·4	+2·2	+0·8	−0·2
Burma	+0·9	+0·1	+0·9	+1·7	+2·9	+1·6

On the other hand, the mean temperature was lower than usual over the Punjab. This is shown below :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	13th July.	14th July.	15th July.	16th July.	17th July.	18th July.
	°	°	°	°	°	°
Punjab	+4·0	−1·8	−3·0	−4·4	−2·2	−1·3

The preceding data show that the coolest days were the 15th to 17th, when maximum temperatures of more than 10° below the normal were recorded at the following stations :—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
16th July	Montgomery	81·8	104·5	−22·7
	Lahore	82·8	100·4	−17·6
	Sialkot	80·5	97·3	−16·8
	Rawalpindi	84·4	97·1	−12·7
	Khushab	90·3	102·6	−12·3
17th ,,	Jacobabad	90·0	107·6	−17·6
	Montgomery	88·3	104·4	−16·1
	Lahore	85·9	100·3	−14·4
	Mooltan	89·3	103·6	−14·3
	Khushab	90·3	102·5	−12·2
	Sialkot	86·6	97·2	−10·6

Temperature was also low, though to a less extent than over the Punjab, over the Peninsula. The following gives comparative data for the Peninsular divisions from the 13th to the 18th:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	13th July.	14th July.	15th July.	16th July.	17th July.	18th July.
	°	°	°	°	°	°
Central Provinces .	+1·3	+1·1	−0·4	+1·2	+1·1	+2·0
Berar	+0·1	−1·0	−2·0	+1·8	+2·3	−1·7
West Coast . . .	−2·5	−1·0	−1·1	+0·7	+0·4	−0·1
Bombay Deccan . .	−0·5	−1·8	−2·0	−2·1	−0·3	−0·3
Mysore . . .	−3·1	−3·4	−2·1	−1·1	−0·5	−0·4
Madras Coast . .	−5·0	−4·3	−2·2	−2·2	−0·7	−2·5
Madras Deccan . .	−3·8	−6·0	−3·6	−1·6	+0·5	−1·6
South India . .	−2·8	−2·6	−1·4	−1·1	−2·3	−2·1

In this region the coolest days were the 13th and 14th, when maximum temperatures more than 10° below the normal were recorded at the following places:—

DATE.	STATION.	MAXIMUM TEMPERATURE.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
13th July .	Masulipatam . .	81·0	92·7	−11·7
	Cuddalore . .	85·1	96·2	−11·1
	Salem . . .	82·2	93·1	−10·9
	Hyderabad (Deccan)	76·3	86·8	−10·5
	Cocanada . .	81·0	91·5	−10·5
14th „ .	Raichur . .	76·6	90·3	−13·7
	Salem . . .	81·2	93·1	−11·9
	Cocanada . .	80·5	91·3	−10·8
	Hyderabad (Deccan)	76·4	86·7	−10·3
	Masulipatam .	82·5	92·6	−10·1

On the 19th, under the influence of a slight storm over Orissa, rain commenced to fall generally over the United Provinces and the very high temperature, which had prevailed over the Gangetic plain practically since the commencement of the month, began to give way, while, under the influence of the same storm, rain continued over the Peninsula, keeping temperature low over that area. At about the same date rain extended well into the Punjab and Rajputana, so that a very marked change occurred in the temperature conditions over nearly the whole country. From the 20th to the 22nd or 23rd temperature fell fairly generally and on the above two dates was below the normal over nearly the whole country. On the 24th and 25th temperature began to rise again and, under the influence of light rainfall, higher temperatures than usual re-appeared over the Gangetic plain. The following gives comparative data for all divisions for each day from the 20th to the 25th and shows the progress of these changes:—

PROVINCE OR DIVISION.	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.
	°	°	°	°	°	°
Burma . . .	+1·1	+0·9	−0·3	−1·2	+0·6	+0·4
Assam . . .	−1·1	+0·4	+1·0	+1·8	+2·0	+0·6
Bengal . . .	+0·8	+0·5	+1·6	+1·5	+1·0	−0·2
Orissa . . .	+1·1	+0·9	+0·5	−2·2	−2·3	−1·4
Bihar . . .	+2·3	+2·5	+0·8	+0·5	+2·2	+0·4
Chota Nagpur . .	+1·2	+0·9	+2·1	−0·4	−0·7	−0·7
United Provinces of Agra and Oudh.	−1·5	−0·6	−3·5	−0·5	+2·5	+3·3
Punjab . . .	−2·1	−5·2	−5·5	−7·6	−6·9	−1·9
North-West Frontier Province.	+1·5	−5·3	−7·6	−5·5	−3·2	−2·2
Sind	+1·3	+0·3	−1·2	−2·1	+1·4	+3·9
Rajputana . . .	−3·3	−2·6	−4·4	−5·2	−1·6	+1·6
Gujarat . . .	+1·1	−3·2	−3·3	−0·6	+1·8	+0·7
Central India . .	+1·4	+0·6	−0·1	+0·4	+1·5	+1·1
Central Provinces .	−0·8	−0·6	+0·4	−0·1	−2·0	−2·7
Berar . . .	−2·6	−1·5	−0·6	−1·0	−3·6	−5·9
West Coast . .	+1·6	+0·8	+1·1	+1·3	+0·8	+0·3
Bombay Deccan .	−1·6	−1·6	+0·1	+0·7	+0·2	−1·3
Mysore . . .	+0·1	+0·9	+1·3	+0·7	+0·4	−0·1
Madras Coast . .	−2·2	−0·1	+1·2	−1·1	−0·9	−0·6
Madras Deccan . .	−4·6	−0·5	+0·5	+0·5	−1·1	−2·2
South India . . .	−0·8	+0·3	+1·6	+1·0	+0·4	+1·1

The largest departures of temperature from the normal were shown in the Punjab, and at the following stations

on the following dates the day temperature was more than 10° below the normal:—

Date.	Station.	Maximum temperature. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
20th July	Delhi	82·7	93·4	−10·7
21st ,,	Umballa	82·0	92·8	−10·8
22nd ,,	Mooltan	90·8	103·2	−12·4
	Khushab	90·3	102·1	−11·8
	Sirsa	89·3	99·8	−10·5
23rd ,,	Lahore	80·3	99·8	−19·5
	Sialkot	79·5	96·5	−17·0
	Sirsa	85·3	99·7	−14·4
	Ludhiana	83·1	96·3	−13·2
	Montgomery	91·3	104·0	−12·7
	Khushab	90·3	102·0	−11·7
24th ,,	Lahore	80·8	99·8	−19·0
	Sialkot	78·0	96·4	−18·4
	Sirsa	85·3	99·6	−14·3
	Rawalpindi	81·9	96·1	−14·2
	Montgomery	91·8	103·9	−12·1
	Khushab	91·3	102·0	−10·7

On the 26th the distribution of temperature, relatively to the normal, was peculiar, a broad band of low temperature lying across the head of the Peninsula with higher temperatures than usual both to the north and south. From the 27th to the end of the month the rainfall was again light and sporadic over northern India, except in the extreme north-west, and the temperature distribution, which prevailed over India from the 1st to the 18th, was re-established, *viz.*, "relatively low temperatures over the Punjab, the North-West Frontier Province and the Peninsula, and high temperatures in the intervening region, more particularly over the Gangetic plain. The following gives comparative data for all divisions from the 27th to the 31st and illustrates these conditions:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 27th July.	28th July.	29th July.	30th July.	31st July.
	°	°	°	°	°
Burma	+1·4	+0·9	+1·3	+0·7	+1·1
Assam	+0·2	+1·6	+1·2	+1·9	+1·6
Bengal	+1·1	+1·7	+1·5	+1·8	+2·4
Orissa	+0·5	+1·3	+1·3	+1·9	+1·8
Bihar	+1·7	+1·9	+3·2	+4·1	+5·0
Chota Nagpur	−0·4	+0·8	+0·5	+1·6	+2·1
United Provinces of Agra and Oudh.	+1·4	+3·7	+3·4	+4·1	+5·3
Punjab	+1·5	−2·2	−4·1	−2·0	−0·3
North-West Frontier Province.	+4·8	+1·5	−4·2	−3·0	−0·6
Sind	+3·3	+4·4	+3·4	+2·4	+2·8
Rajputana	+4·6	+4·2	+8·3	+2·2	+3·4
Gujarat	−2·5	+0·8	+1·8	+0·1	+0·3
Central India	+4·7	+3·9	+6·4	+4·9	+5·5
Central Provinces	+0·6	+2·5	+3·9	+2·8	+3·0
Berar	−2·1	−2·7	0	−0·8	−0·1
West Coast	+0·2	−0·3	−0·2	−1·3	−0·7
Bombay Deccan	−1·8	−3·3	−1·1	−0·6	0
Mysore	−0·3	−1·1	−1·0	−1·3	−1·8
Madras Coast	−0·3	−2·7	−1·4	−1·4	+0·5
Madras Deccan	−1·5	−4·6	−2·9	−0·9	+1·1
South India	+0·3	−1·8	−0·9	−1·0	−0·4

It will be seen from the preceding statement that the principal abnormal feature of the temperature conditions was the excessive heat in the Gangetic plain and Central India. This excess was less than in the first fortnight of the month, but was nevertheless considerable, and at the following stations on the following dates the day temperature was more than 10° above the normal:—

Date.	Station.	Maximum temperature. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
29th July	Sutna	97·0	85·4	+11·6
	Jhansi	99·8	88·8	+11·0
	Nowgong	98·0	87·8	+10·2
	Mainpuri	101·3	91·2	+10·1
30th ,,	Sutna	97·5	85·4	+12·1
	Jhansi	100·3	88·7	+11·6
	Cawnpore	101·4	90·4	+11·0
	Benares	100·6	89·8	+10·8
	Allahabad	100·6	90·2	+10·4
	Nowgong	98·0	87·8	+10·2
31st ,,	Cawnpore	104·4	90·3	+14·1
	Benares	102·6	89·8	+12·8
	Nowgong	99·5	87·6	+11·9
	Sutna	97·0	85·4	+11·6
	Allahabad	101·6	90·1	+11·5
	Jhansi	99·8	88·7	+11·1
	Gaya	100·9	90·1	+10·8
	Lucknow	100·8	90·4	+10·4
	Mainpuri	101·3	91·0	+10·3

Winds.

The monsoon over the Bay varied irregularly from the average. At Port Blair the mean wind direction was S. 65° W. instead of S. 47° W., while the velocity was 298 instead of 268. At Rangoon both the steadiness and velocity of the wind were, on the mean of the month, below the average, while, on the contrary, at Diamond Island and Akyab both were above. The variations in the mean direction of the wind were unimportant.

At the head of the Bay the wind was slightly stronger and steadier than usual, but the principal abnormal feature in this area was the increased amount of easting shown in the winds at Calcutta and Saugor Island. This is shown below:—

Station.	Mean wind direction.		
	Actual, July, 1903.	Normal, July.	Easterly deflection.
Calcutta	S 36° E	S 8° E	+ 28
Saugor Island	S 30 E	S 21 W	+ 51

In the Gangetic plain, beyond the increased steadiness of the wind in that area, the variations from the normal were unimportant and in the upper sub-Himalayas the wind conditions were also practically normal. In the Indus valley the winds were lighter and less steady than usual, but the mean direction was very nearly normal. At the Rajputana stations the wind was lighter and less steady than the average, but the directions were approximately normal.

The following gives mean comparative data of air movement for the different divisions of northern India and for Burma and the Bay Islands:—

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, July, 1903.	Normal percentage, July.	Variation of actual from normal, July, 1903.	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
Bay Islands	87	89	− 2	298	268	+30
Burma	76	74	+ 2	135	156	−21
Bengal	67	63	+ 4	243	215	+28
Bihar	87	56	+31	100	121	−21
Chota Nagpur	39	14	+25	229	210	+19
Orissa	40	63	−23	256	277	−21
United Provinces of Agra and Oudh.	31	19	+12	91	76	+15
North-West Frontier Province.	45	47	− 2	49	107	−58
Punjab	20	27	− 7	87	66	+21
Rajputana	40	51	−11	204	242	−38
Sind	57	72	−15	212	274	−62

The preceding data show that in all divisions, except the Bay Islands, Bengal, Chota Nagpur, United Provinces and the Punjab, the wind was lighter than usual, and that in all, except Burma, Bengal, Bihar, Chota Nagpur and the United Provinces, the steadiness was below the average.

The wind was somewhat less westerly than usual over the Bombay Deccan and the Central Provinces and more westerly over Berar. The variations were, however, comparatively unimportant, while the steadiness and velocity were approximately normal.

On the Bombay coast the wind was more southerly than usual. This is shown below:—

Station.	Mean wind direction.		
	Actual, July, 1903.	Normal, July.	Southerly deflection.
Bombay	S 63° W	S 74° W	+11
Karwar	S 44 W	S 73 W	+29

The mean velocity and steadiness were less than usual at Bombay and greater than usual at Karwar. The following gives data:—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, July, 1903.	Normal percentage, July.	Variation of actual from normal, July, 1903.	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
Bombay	76	85	−9	383	450	−67
Karwar	82	75	+7	145	123	+22

In south India as in the Deccan the wind conditions of the month were approximately normal.

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

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, July, 1903.	Normal percentage, July.	Variation of actual from normal, July, 1903.	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
Central Provinces	62	76	−14	183	217	−34
Berar	70	74	− 4	217	215	+ 2
Bombay Deccan	86	85	+ 1	526	492	+34
Madras Deccan	88	89	− 1	270	266	+ 4
West Coast	79	80	− 1	264	287	−23
Mysore	88	90	− 2	263	250	+13
Madras Coast	74	67	+ 7	166	191	−25
South India	64	78	−14	97	108	−11

The preceding data show that the air movement, on the mean of the month, varied irregularly from the normal over the Peninsula.

The wind blew from the normal direction, but was very light at Quetta. The following gives data for this station :—

Hill Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, July, 1903.	Normal percentage, July.	Variation of actual from normal, July, 1903.	Actual, July, 1903.	Normal, July.	Actual, July 1903.	Normal, July.	Variation of actual from normal, July 1903.
				°	°			
Quetta . . .	29	30	—1	S 88 W	S 85 W	49	91	—42

In Kashmir and at the stations of Simla and Chakrata the wind was somewhat more southerly than usual and was on the whole somewhat stronger than the average. This is shown below:—

Hill Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, July, 1903.	Normal, July.	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	°				
Leh	S 46 W	S 73 W	49	47	+ 2
Srinagar . . .	S 4 E	N 20 W	113	93	+ 20
Simla . . .	S 18 E	N 5 E	74	86	— 12
Chakrata . . .	S 18 E	S 75 W	278	131	+147

In the eastern Himalayas the variations from the normal were very irregular. At Mount Abu the wind was light and unsteady, but blew from about the normal direction, while on the hills in the Central Provinces the wind's direction was more northerly than usual. This is shown below :—

Hill Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, July, 1903.	Normal percentage, July.	Variation of actual from normal, July, 1903.	Actual, July, 1903.	Normal, July.	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
				°	°			
Katmandu . .	21	10	+11	N 74 W	S 67 W	33	21	+12
Darjeeling . .	19	32	—13	S 13 W	S 75 E	68	91	—23
Mount Abu . .	33	67	—34	S 58 W	S 54 W	215	278	—63
Pachmarhi . .	63	76	—13	N 55 W	N 87 W	235	252	—17
Chikalda . .	53	68	—15	N 27 W	N 55 W	209	239	—30

At Aden the wind was more easterly and lighter and less steady than usual. This is shown below :—

Station.	Mean steadiness.			Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual percentage, July, 1903.	Normal percentage, July.	Variation of actual from normal, July, 1903.	Actual, July, 1903.	Normal, July.	Easterly deflection.	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
				°	°				
Aden .	55	73	—18	S 24 E	S 1 E	+23	213	261	—48

In the south-east trades region the mean direction of the wind was practically normal, while the velocity was higher than usual at Zanzibar and the Seychelles and slightly below the normal at Mauritius. The following gives data :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, July, 1903.	Normal percentage, July.	Variation of actual from normal, July, 1903.	Actual, July, 1903.	Normal, July.	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
				°	°			
Zanzibar . .	83	83	0	S 5 E	S 5 E	231	207	+24
Seychelles . .	90	86	+4	S 28 E	S 29 E	312	287	+25
Mauritius . .	...	...	...	S 67 E	S 65 E	257	283	—26

Humidity and Cloud.

The variations of vapour tension, relative humidity and cloud from the normal in the month of July were similar in many respects with those reported in June, showing that the conditions initiated in the latter month were maintained during the month under review.

The mean vapour tension of the month was in defect of the normal over the north of the North-West Frontier Province, the north and east of the Punjab and a large part of the Gangetic plain. The deficiency was small in the last-named area and increased in amount north-westward and was more than 0·100″ at the stations for which comparative data are given below:—

Station.	Absolute Humidity.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	″	″	″
Rawalpindi	·651	·808	—·157
Sialkot	·754	·885	—·131
Ludhiana	·762	·893	—·131
Dehra Dun	·685	·807	—·122
Roorkee	·777	·879	—·102
Umballa	·835	·937	—·102
Peshawar	·697	·798	—·101

Over the whole of the remainder of the country the vapour tension was in excess of the average, but the variation was small, except over the Sind desert, the Madras Deccan and locally at Jhansi, Neemuch, Colombo, Bhamo and Bahraich. The following gives comparative data for these areas and stations:—

Area.	Station.	Absolute Humidity.		
		Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
		″	″	″
Sind Desert	Jacobabad	1·039	·903	+·136
	Bhuj	·952	·876	+·076
	Hyderabad (Sind)	·870	·815	+·055
Madras Deccan	Kurnool	·832	·720	+·112
	Bellary	·750	·647	+·103
	Jhansi	·924	·870	+·054
	Neemuch	·878	·800	+·078
	Colombo	·908	·852	+·056
	Bhamo	·954	·896	+·058
	Bahraich	1·034	·957	+·077

The mean relative humidity of the month exhibited variations of a similar character. The mean relative humidity was in excess of the normal over the western desert, more especially over the upper Indus valley. The following gives comparative data for the stations in this area:—

Station.	Relative Humidity.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	%	%	
Jacobabad	73·0	65·1	+7·9
Dera Ismail Khan	75·0	68·7	+6·3
Mooltan	67·0	62·2	+4·8
Montgomery	64·0	60·4	+3·6
Sirsa	71·0	67·3	+3·7
Bhuj	85·0	80·1	+4·9
Rajkot	86·0	83·3	+2·7
Hyderabad (Sind)	68·0	67·3	+0·7
Pachpadra	80·0	79·5	+0·5

Relative humidity was also in excess of the normal over practically the whole of the Peninsula, the Bay area, Ceylon and the upper Assam valley, but the variations were small, except over parts of the Deccan and of the east coast and of Ceylon, where, at the following stations, they exceeded +5:—

Station.	Relative Humidity.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	%	%	
Kurnool	86·0	72·0	+14·0
Bellary	76·0	65·3?	+10·7?
Cocanada	87·0	77·1	+ 9·9
Gulbarga	88·0	79·3	+ 8·7
Hyderabad (Deccan)	85·0	78·4	+ 6·6
Chanda	84·0	77·6	+ 6·4
Masulipatam	85·0	78·8	+ 6·2
Cuddapah	73·0	67·5?	+ 5·5?
Colombo	85·0	78·5	+ 6·5

Elsewhere the air was drier than usual and over the Gangetic plain, part of the sub-Himalayas and the east and north Punjab the deficiency was considerable, amounting

to more than 10 at the stations for which comparative data are given below :—

Area.	Station.	Relative Humidity. Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
		%	%	
Gangetic Plain and Sub-Himalayas.	Mainpuri	62·0	81·5	—19·5
	Dehra Dun	69·0	87·7	—18·7
	Allahabad	66·0	83·7	—17·7
	Roorkee	65·0	81·5	—16·5
	Benares	71·0	85·9	—14·9
	Lucknow	69·0	83·7	—14·7
	Nowgong	69·0	83·1	—14·1
	Sutna	69·0	82·5	—13·5
	Agra	66·0	78·8	—12·8
	Meerut	66·0	78·6	—12·6
	Cawnpore	71·0	82·4	—11·4
	Gaya	73·0	84·3	—11·3
East Punjab	Umballa	67·0	86·0	—19·0
	Ludhiana	62·0	75·5	—13·5
	Delhi	63·0	74·6	—11·6
North Punjab	Rawalpindi	57·0	71·9	—14·9
	Sialkot	62·0	73·5	—11·5

The driest area was thus shown over the Gangetic plain and the east Punjab and within these areas the following low humidities were recorded during the month :—

Station.	Date.	Hour.	Lowest humidity recorded during July, 1903.
			%
Dehra Dun	3rd July	4 P.M.	17
Roorkee	7th ,,	Do.	17
Dehra Dun	10th ,,	Do.	17
Ludhiana	3rd ,,	Do.	16
Roorkee	9th ,,	Do.	16
Do.	1st ,,	Do.	15
Allahabad	4th ,,	Do.	15
Do.	5th ,,	Do.	15
Dehra Dun	8th ,,	Do.	15
Meerut	,, ,,	Do.	15
Ludhiana	10th ,,	Do.	15
Allahabad	8th ,,	Do.	14
Ludhiana	9th ,,	Do.	14
Roorkee	3rd ,,	Do.	13
Ludhiana	8th ,,	Do.	13
Roorkee	,, ,,	Do.	13

The mean humidity of the month was below 65 per cent. at the following places :—

Station.	Relative Humidity. Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	%	%	
Montgomery	64·0	60·4	+ 3·6
Sambhar	64·0	73·4	— 9·4
Bikaner	64·0	65·5	— 1·5
Delhi	63·0	74·6	—11·6
Madura	63·0	63·5	— 0·5
Trichinopoly	63·0	62·3	+ 0·7
Mainpuri	62·0	81·5	—19·5
Ludhiana	62·0	75·5	—13·5
Sialkot	62·0	73·5	—11·5
Khushab	60·0	64·7	— 4·7
Tinnevelly	60·0	58·6	+ 1·4
Rawalpindi	57·0	71·9	—14·9
Peshawar	55·0	63·1	— 8·1

At the stations on the outer Himalayas the mean relative humidity of the month was below the normal, but at the stations on the inner ranges and also in Baluchistan the dampness was greater than usual due in part to the prevailing low temperature. The following gives data :—

Area.	Hill Station.	Relative Humidity. Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
		%	%	
	Simla	70·0	88·4	—18·4
Outer Himalayas	Chakrata	74·0	91·3	—17·3
	Mussooree	78·0	93·7	—15·7
	Ranikhet	72·0	87·5	—15·5
	Darjeeling	94·0	96·5	— 2·5
	Murree	60·0	77·2	—17·2
	Cherat	55·0	71·7	—16·7
Inner ranges of the Himalayas.	Leh	62·0	52·4	+ 9·6
	Srinagar	88·0	84·8	+ 3·2
Baluchistan	Chaman	43·0	34·1	+ 8·9
	Quetta	58·0	56·7	+ 1·3

At Aden the mean absolute humidity was in excess of the normal and the mean relative humidity slightly above the normal. At Perim both the absolute and relative humidities were below the normal.

The following gives data for Aden and Perim :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	"	"	"	%	%	
Aden . . .	·933	·878	+·055	71·0	70·7	+0.3
Perim . . .	·876	·886	−·010	63·0	65·4	−2·4

At Zanzibar the vapour tension was in slight excess, but, though the mean temperature was above the normal, the mean relative humidity was in excess. At the Seychelles also the mean absolute humidity was excessive, but in the case of this station the mean temperature was lower than usual and the relative humidity in excess. At Mauritius both the absolute and relative humidities were lower than usual. The following gives comparative data for these three stations :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
	"	"	"	%	%	
Zanzibar . .	·753	·716	+·037	86·0	85·1	+0·9
Seychelles . .	·745	·705	+·040	80·0	74·0	+6·0
Mauritius . .	·494	·514	−·020	71·0	76·0	−5·0

The mean cloud amount of the month was in excess of the average over the greater part of the Peninsula, the interior of Burma and the extreme north-west of India. The variations were generally small, but amounted to 1·0 or more at the stations for which comparative data are given below :—

Area.	Station.	Mean cloud amount.		
		Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
Peninsula . .	Cuddalore . . .	8·1	6·5	+1·6
	Salem	7·8	6·4	+1·4
	Masulipatam . .	9·5	8·0	+1·5
	Sholapur . . .	9·5	8·1	+1·4
	Hyderabad (Deccan) .	8·8	7·5	+1·3
	Gulbarga . . .	9·3	8·2	+1·1
	Ahmednagar . .	8·9	7·8	+1·1
	Trivandrum . .	9·5	8·5	+1·0
Burma . . .	Yamethin . . .	9·4	5·0	+4·4
North-west India .	Khushab . . .	3·7	2·7	+1·0

Over the remainder of India, including north Bombay, part of the mid-west coast, Rajputana, the east Punjab, the Gangetic plain and the sub-Himalayas, the Central Provinces, Orissa, the north Circars coast and Bengal, the sky was unusually clear during the month of July and at the stations for which comparative data are given below the deficiency amounted to more than 2·0:—

Province or Division.	Station.	Mean cloud amount.		
		Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
Mid-West Coast .	Karwar . . .	5·6	8·0	−2·4
North Bombay .	Hyderabad (Sind) .	3·7	6·0	−2·3
	Kurrachee . . .	5·2	7·3	−2·1
East Punjab .	Ludhiana . . .	3·5	6·4	−2·9
	Sirsa	3·2	5·9	−2·7
Gangetic Plain and Sub-Himalayas.	Lucknow . . .	2·9	7·9	−5·0
	Jhansi . . .	2·0	6·5	−4·5
	Bahraich . . .	2·9	6·7	−3·8
	Gaya	5·2	9·0	−3·8
	Patna	5·0	8·6	−3·6
	Dehra Dun . . .	4·8	8·0	−3·2
	Roorkee . . .	3·9	6·4	−2·5
	Benares . . .	4·9	8·0	−3·1
	Allahabad . . .	5·3	8·2	−2·9
	Bareilly . . .	3·9	6·6	−2·7
	Mainpuri . . .	4·6	7·0	−2·4
	Agra	4·7	7·0	−2·3
	Cawnpore . . .	5·1	7·4	−2·3
	Purnea . . .	5·1	7·2	−2·1
Circars Coast .	Gopalpur . . .	5·1	8·3	−3·2
Bengal . .	Jalpaiguri . . .	4·8	8·5	−3·7
	Chittagong . . .	4·8	8·3	−3·5
	Barisal . . .	5·9	8·9	−3·0
	Saugor Island . .	7·5	9·3	−1·8

At the hill stations the variations in the mean cloud amount were irregular. From Darjeeling westward to Simla as well as in Baluchistan and at Mount Abu the mean cloud amount was less than the normal, but

around the north-west frontier and in Afghanistan the sky was more cloudy than usual. This is shown below :—

HILL STATION.	MEAN CLOUD AMOUNT.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
Darjeeling	7·9	9·6	—1·7
Ranikhet	5·2	8·2	—3·0
Mussooree	2·8	8·0	—5·2
Chakrata	2·2	5·9	—3·7
Simla	5·8	8·4	—2·6
Chaman	0·4	0·6	—0·2
Quetta	0·9	1·1	—0·2
Mount Abu	6·8	9·0	—2·2
Srinagar	6·5	4·6	+1·9
Leh	6·0	4·2	+1·8
Murree	4·9	4·7	+0·2
Kabul	0·6	0·1	+0·5

The skies were remarkably free from cloud, *i.e.*, the cloud amount was less than 3 at the following stations :—

STATION.	MEAN CLOUD AMOUNT.
	Actual, July, 1903.
Lucknow	2·9
Bahraich	2·9
Mooltan	2·8
Jacobabad	2·6
Arrah	2·5
Muzaffarpur	2·2
Jhansi	2·0
Pachpadra	1·8

The clearest areas were thus Bihar and Oudh and parts of Sind and of south-west Rajputana.

Skies were, on the other hand, overcast (*i.e.*, the mean cloud amount of the month was over 9·0) at the following stations in the west and south-west of the Peninsula :—

STATION.	MEAN CLOUD AMOUNT.
	Actual, July, 1903.
Goa	9·8
Poona	9·5
Calicut	9·5
Trivandrum	9·5
Hassan	9·4
Ratnagiri	9·4
Belgaum	9·4
Bombay	9·3
Gulbarga	9·3
Mysore	9·1
Mormugao	9·1

At Aden and Perim the mean cloud amount was slightly less than usual, while, on the contrary, in the south-east trades region the skies were generally more cloudy than the normal. The following gives data for the stations in the trades region :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, July, 1903.	Normal, July.	Variation of actual from normal, July, 1903.
Zanzibar	5·7	6·0	—0·3
Seychelles	5·9	5·6	+0·3
Mauritius	5·3	5·1	+0·2

Rainfall.

For the first eleven days of the month the monsoon was light on both sides of India and on some days, as, for example, the 7th, 9th and 10th, the rainfall was practically confined to the west coast stations, the Burma coast and the Assam valley. On the remaining days showers were received over the Peninsula, Burma and north-east India, but throughout the whole period from the 1st to the 11th little or no rain fell over northern India and the north of the Central Provinces.

On the 12th a depression appeared over the north-west of the Bay, the weather at the same time becoming unsettled

in the extreme north-west and an extension of rain occurred. On the 14th another depression appeared off the Bombay coast and a further extension of rain resulted, so that from the 15th to the 24th fairly general, though on the whole not heavy, rain was received throughout the country. On the 24th rain to a great extent ceased over northern India and from that date to the close of the month the rainfall was generally confined to the Peninsula, Burma north-east India and the extreme north-west, leaving the Gangetic plain and the adjacent parts of Central India, the Central Provinces and west Bengal practically rainless.

The distribution of rain during the month was mainly determined by the following features:—

(1) The feebleness of the monsoon currents during the first eleven days of the month;

(2) The apparent diversion of the Bombay current in part to Rajputana and the Punjab and in part to the Peninsula at the expense of the Gangetic plain;

(3) The apparent diversion of the Bay current to the Burma coast; and

(4) The increased easting of the winds over Bengal.

The total rainfall of the month was more or less below the normal:—

(1) Over the greater part of Burma.

(2) Over Bengal, Assam and the United Provinces.

(3) Over parts of the Central Provinces and of Central India.

The deficiency was greatest over a large area which extended from central Bengal westward through Chota-Nagpur and Bihar as far as the west of the United Provinces, but was also large in upper Burma. The deficiency amounted to over 40% in the following large number of divisions, *viz.*, upper Burma (−51%), eastern Bengal (−46%), deltaic Bengal (−43%), central Bengal (−55%), south Bihar (−77%), north Bihar (−65%), United Provinces east (−72%), south Oudh (−48%), north Oudh (−62%), United Provinces central (−61%), United Provinces west (−43%), United Provinces east-submontane (−52%) and United Provinces hills (−53%).

The rainfall of the month was, on the other hand, in excess over the greater part of the Punjab, the Peninsula, Berar, north Bombay and Rajputana and was more than 40% in excess of the normal in the following divisions, *viz.*, south Punjab (+41%), west Punjab (+56%), Malabar (+50%), Mysore (+44%), Berar (+57%), west Rajputana (+78%), East Coast north (+66%), Madras central (+62%) and East Coast central (+41%).

The following table gives the mean actual, mean normal and variation rainfall data of the 57 meteorological divisions for July, 1903:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, July, 1903.	Average normal, July.	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.
				Inches.	Inches.	Inches.
Burma	Tenasserim	28·6	27·7	47·13	45·26	+1·87
	Lower Burma (Deltaic)	26·3	25·9	21·25	24·11	−2·86
	Central do.	19·5	19·5	12·35	12·44	−0·09
	Upper do.	5·8	9·3	3·28	6·66	−3·38
	Arakan	25·9	27·3	33·73	48·40	−14·67
Bengal and Assam	Eastern Bengal	14·1	19·2	9·84	18·38	−8·54
	Assam (Surma)	19·4	22·5	19·51	20·89	−1·38
	Do. (Hills)	20·1	22·1	22·55	27·77	−5·22
	Do. (Brahmaputra)	15·8	18·0	13·60	17·20	−3·60
	Deltaic Bengal	12·6	16·2	6·80	12·00	−5·20
	Central do.	9·5	15·7	5·53	12·37	−6·84
	North do.	14·5	17·4	18·21	21·58	−3·37
	Bengal Hills	20·1	24·6	18·00	28·70	−10·70
	Orissa	15·9	14·6	14·10	11·89	+2·21
	Chota Nagpur	13·7	16·9	8·74	14·32	−5·58
	Bihar (South)	5·2	14·2	2·87	12·74	−9·87
	Do. (North)	7·4	14·7	4·41	12·64	−8·23
United Provinces of Agra and Oudh.	United Provinces (East)	5·1	13·5	3·30	11·80	−8·50
	Oudh (South)	4·4	12·2	4·68	10·96	−6·28
	Do. (North)	5·5	12·5	4·69	12·27	−7·58
	United Provinces (Central)	6·1	12·0	4·28	11·00	−6·72
	Do. do. (West)	6·7	9·5	4·82	8·51	−3·69
	Do. do. (East Submontane)	6·7	13·4	6·18	12·95	−6·77
	Do. do. (West do.)	8·1	13·1	8·88	14·90	−6·02
	Do. do. (Hills)	12·0	18·0	8·32	17·75	−9·43
Punjab	Punjab (South-East)	7·5	7·4	6·01	6·41	−0·40
	Do. (South)	7·1	5·4	6·70	4·74	+1·96
	Do. (Central)	8·2	5·2	6·27	5·13	+1·14
	Do. (Submontane)	8·7	8·1	9·60	8·21	+1·39
	Do. (Hills)	13·3	14·1	9·59	15·46	−5·87
	Do. (West)	5·7	3·1	3·92	2·50	+1·42
North-West Frontier Province.	North-West Frontier Province.	4·3	4·6	2·15	3·46	−1·31

Province.	Division.	Number of rainy days. Average actual, July, 1903.	Number of rainy days. Average normal, July.	Rainfall. Average actual, July, 1903.	Rainfall. Average normal, July.	Rainfall. Variation of actual from normal, July, 1903.
				Inches.	Inches.	Inches.
Bombay and Malabar Coast Districts (Madras).	Malabar	30·0	26·8	53·06	35·45	+17·61
	Travancore	22·2	...	21·00	...	...
	Madras (South Central)	4·8	3·8	2·44	1·87	+0·57
	Coorg	25·9	...	47·53	...	...
	Mysore	11·7	9·3	9·25	6·44	+2·81
	Konkan	27·8	26·6	51·35	40·57	+10·78
	Bombay Deccan	14·0	11·7	11·06	8·80	+2·26
	Khandesh	14·8	11·9	9·65	8·71	+0·94
Central Provinces and Berar.	Berar	18·2	12·2	14·69	9·35	+5·34
	Central Provinces (West)	17·4	14·6	14·40	13·38	+1·02
	Do. (Central)	16·3	16·7	15·77	16·62	−0·85
	Do. (East)	15·0	16·3	14·53	16·21	−1·68
Bombay (North)	Gujarat	16·4	15·1	20·24	16·46	+3·78
	Kathiawar and Cutch	13·1	10·8	14·55	10·68	+3·87
	Sind	4·3	2·7	3·01	2·40	+0·61
	Baluchistan Hills	1·4	1·5	0·81	0·86	−0·05
Rajputana and Central India.	Central India (East)	12·2	13·1	9·47	10·99	−1·52
	Rajputana (East), Central India (West)	9·9	9·5	7·38	8·08	−0·70
	Do. (West)	5·5	4·7	6·89	3·88	+3·01
Madras	East Coast (North)	14·8	10·6	12·00	7·25	+4·75
	Madras (Central)	8·3	5·7	4·61	2·85	+1·76
	East Coast (Central)	8·0	4·7	3·24	2·29	+0·95
	Do. (South)	5·2	4·5	2·87	2·65	+0·22
	Madras (South)	2·4	1·8	1·08	0·86	+0·22

The preceding data show that rain was received in all divisions of India and in Baluchistan during the month under review, the average actual fall ranging from 0·81″ in the Baluchistan hills, 1·08″ in south Madras, 2·15″ in the North-West Frontier Province 2·44″ in south central Madras and 2·87″ in south Bihar to 53·06″ in Malabar, 51·35″ in the Konkan and 47·13″ in Tenasserim. In thirty-one of the rainfall divisions the month's rainfall was less and in twenty-three it was more than the normal, while from the fifth figure column of the above table the total variation for the whole country (excepting the hill districts) was −1·10″.

The coast districts of Tenasserim, lower Burma and Arakan and the division of central Burma received daily rainfall throughout the month and the total rainfall was about the normal, except in Arakan, where only 70 % of the normal amount was received. There were no exceptionally heavy falls during the month, but the following amounts, exceeding 6″ in 24 hours, were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tavoy	Tavoy	11th July	7·71
Tavoy	Yebyu	12th ,,	7·46
Tavoy	Yebyu	21st ,,	8·21
Sandoway	Gwa	22nd ,,	6·09
Sandoway	Gwa	23rd ,,	8·20
Tavoy	Thayetchaung	29th ,,	7·10
Tavoy	Laungton	31st ,,	6·84

In upper Burma the rainfall was much lighter and less continuous than in other parts of the province and much lighter and more scattered than usual. Only about half the normal fall was received, as is shown by the following comparative data for the districts in this division:—

District.	Rainfall. Average actual, July, 1903.	Rainfall. Average normal, July.	Rainfall. Variation of actual from normal, July, 1903.	Rainfall. Percentage variation from normal.
	Inches.	Inches.	Inches.	
Yamethin	2·63	5·38	−2·75	−51
Meiktila	1·68	3·35	−1·67	−50
Magwe	3·49	4·34	−0·85	−20
Minbu	2·06	3·59	−1·53	−43
Pakokku	1·83	4·77	−2·94	−62
Myingyan	1·50	2·61	−1·11	−43
Lower Chindwin	1·60	3·19	−1·59	−50
Upper Chindwin	7·20	14·47	−7·27	−50
Kyaukse	0·78	3·61	−2·83	−78
Sagaing	1·54	2·99	−1·45	−48
Mandalay	1·96	5·15	−3·19	−62
Ruby Mines	8·36	11·52	−3·16	−27
Shwebo	1·95	5·07	−3·12	−61
Katha	3·56	11·29	−7·73	−68
Bhamo	6·34	15·84	−9·50	−60
Myitkyina	15·68	20·45	−4·77	−23

In Assam the rainfall of the month was practically normal, though in nearly all divisions it was slightly lighter than usual. In the Surma valley there was general rain up to the 10th, a showery period from the 11th up to the 26th and general rain again from the 27th to the 30th. In the hill districts a very similar distribution of rain obtained, but in the Brahmaputra valley rain fell principally between the 9th and the 11th, the 19th and the 22nd and the 27th to the 31st.

The following gives comparative data for the eight plains districts of the province:—

District.	Rainfall.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	15·97	19·82	—3·85	—19
Sylhet	22·73	21·87	+0·86	+ 4
Goalpara	17·05	24·37	—7·32	—30
Kamrup	8·45	15·23	—6·78	—45
Darrang	16·83	15·74	+1·09	+ 7
Nowgong	11·36	14·32	—2·96	—21
Sibsagar	11·59	15·02	—3·43	—23
Lakhimpur	17·93	21·30	—3·37	—16

There were several heavy downpours during the month, the largest amounts, exceeding 6″ in 24 hours, having been as follows:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Khasi and Jaintia Hills.	Wahmaulien	3rd July	6·60
	„	7th „	6·63
	Laitlyngkot	8th „	8·58
	Upper Shillong	„ „	6·70
	Mauphlang	„ „	6·57
	Wahmaulien	9th „	14·02
	Laitlyngkot	„ „	8·79
Sylhet	Sunamganj	„ „	8·52
Goalpara	Goalpara	„ „	7·00
Khasi and Jaintia Hills	Mauphlang	„ „	6·89
	Jowai	„ „	6·06
Sylhet	Sunamganj	10th „	21·22
Khasi and Jaintia Hills.	Wahmaulien	„ „	19·33
Sylhet	Lalakhal	„ „	12·00
Khasi and Jaintia Hills.	Laitlyngkot	„ „	8·45
	Mauphlang	„ „	6·95
Darrang	Kerkeriya	„ „	6·07

At Cherrapoonjee (Police Station) the total rainfall for the month was 93·31″, the average for the month being 113·42″, and the heaviest falls in 24 hours were 11·40″ on the 8th, 24·23″ on the 9th and 20·07″ on the 10th.

Bengal, with the exception of the division of Orissa, obtained less rain than usual during the month.

In south-west Bengal general or fairly general rain was reported on the 11th, from the 14th to the 17th, from the 19th to the 25th and from the 28th to the 30th. At other times fine to showery weather prevailed. Most of the heavier falls were registered during the first half of the month, as is shown by the following statement of the falls exceeding 3″ in 24 hours:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Howrah	Howrah	1st July	5·06
Jessore	Magura	„ „	3·93
Bankura	Sonamukhi	„ „	3·56
Howrah	Mohesreka	4th „	3·27
Murshidabad	Lalbagh	6th „	3·50
Bankura	Raipur	„ „	3·32
Hooghly	Hooghly	8th „	4·12
Nadia	Ranaghat	„ „	3·20
24-Parganas	Barasat	11th „	4·93
Burdwan	Budwan	„ „	3·95
24-Parganas	Budge Budge	23rd „	4·50

The following gives comparative data for the districts in this division and shows that the month's rainfall was only about half the normal, except in Howrah:—

District.	Rainfall.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burdwan	6·11	12·25	—6·14	—50
Birbhum	3·79	13·49	—9·70	—72
Bankura	7·26	12·22	—4·96	—41
Midnapore	6·85	12·51	—5·66	—45
Hooghly	7·09	12·05	—4·96	—41
Howrah	11·59	11·53	+0·06	+ 1
Calcutta	6·35	12·31	—5·96	—48
24-Parganas	7·22	13·00	—5·78	—44
Nadia	5·34	10·36	—5·02	—48
Murshidabad	4·17	10·93	—6·76	—62
Jessore	5·76	10·64	—4·88	—46
Khulna	5·28	13·10	—7·82	—60

North Bengal had two rainy periods, *viz.*, from the 1st to the 12th, and from the 18th to the 31st, only showers having been received at other times. The rainfall was frequently fairly heavy, more particularly near the hills, and the following amounts, exceeding 5″ in 24 hours, were recorded at the following places on the following dates:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jalpaiguri	Bhagatpur	1st July	5·80
	Buxa	4th ,,	6·35
		6th ,,	6·30
		9th ,,	7·20
Dinajpur	Dinajpur	10th ,,	5·67
Darjeeling	Kurseong	18th ,,	6·84
	Siliguri	,, ,,	5·65
	Mongpoo	,, ,,	5·50
Cooch Behar	Matabhanga	22nd ,,	5·16

The rainfall of this division was irregularly distributed, as is shown by the following comparative data for the contained districts:—

District.	Rainfall.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rajshahi	3·86	11·81	—7·95	—67
Dinajpur	9·27	16·17	—6·90	—43
Jalpaiguri	28·80	33·22	—4·42	—13
Cooch Behar	19·52	23·85	—4·33	—18
Rangpur	15·05	14·81	+0·24	+ 2
Bogra	8·79	13·26	—4·47	—34
Pabna	5·34	11·06	—5·72	—52

East Bengal received fairly general daily rainfall from the 1st to the 11th, showery weather then prevailed till the 17th, when another moderate burst of rain occurred which continued till the 25th, after which the weather again became showery. The incidence of rainfall was thus similar over east Bengal, Assam, and north Bengal. Owing presumably to the absence of severe storms the rainfall was lighter than usual over this division, and the only falls, exceeding 4″ in 24 hours, were as follows:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Chittagong	Fenoa	2nd July	4·37
	Chittagong	3rd ,,	7·00
	Cox's Bazar	,, ,,	5·85
Mymensingh	Mymensingh	10th ,,	4·66

The following gives comparative data for the different districts of the division and shows that the total rainfall was only about half the average:—

District.	Rainfall.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	Inches.
Dacca	6·85	12·95	—6·10	—47
Mymensingh	12·99	16·47	—3·48	—21
Faridpur	7·47	11·72	—4·25	—36
Backergunge	9·33	17·45	—8·12	—47
Tippera	6·92	13·39	—6·47	—48
Noakhali	7·17	24·01	—16·84	—70
Chittagong	13·24	26·16	—12·92	—49

Bihar had very light rain for the time of year. Moderately general showers occurred between the 1st and the 3rd, the 11th and the 13th, and the 20th to the 25th. At other times the weather was fine. The heaviest rainfall were generally reported about the 11th and 22nd, when thunderstorms prevailed and the following amounts, exceeding 3″ in 24 hours, were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Purnea	Kishanganj	2nd July	3·05
Sonthal Parganas	Pakaur	10th ,,	3·55
Bhagalpur	Madhipura	11th ,,	3·61
Darbhanga	Bahera	,, ,,	3·29
Purnea	Barsoe	,, ,,	3·20
Champaran	Bagaha	18th ,,	5·08
	Ramnagar	,, ,,	4·50
Gaya	Sherghati	22nd ,,	4·32
Purnea	Purnea	,, ,,	3·03

The following gives comparative data for the districts in Bihar and shows that only about one-third of the normal rainfall was received :—

DISTRICT.	RAINFALL.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Patna	2·68	12·40	—9·72	—78
Gaya	3·10	12·40	—9·30	—75
Shahabad	3·01	12·69	—9·68	—76
Saran	2·90	11·77	—8·87	—75
Champaran	6·77	13·72	—6·95	—58
Muzaffarpur	3·09	12·03	—8·94	—74
Darbhanga	4·65	12·59	—7·94	—63
Monghyr	2·69	13·33	—10·64	—80
Bhagalpur	4·46	12·72	—8·26	—65
Purnea	8·15	18·16	—10·01	—55
Malda	4·06	12·91	—8·85	—69
Sonthal Parganas	5·56	12·68	—7·12	— 56

In Orissa the first ten days of the month were fair with passing showers, but the succession of slight storms, which formed over the north-west of the Bay, gave very unsettled weather to this province during the remainder of the month. As each of these storms passed over, it gave moderately heavy rain, and the following amounts, exceeding 5″ in 24 hours, were recorded:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
PURI	Satpara	14th July	10·15
	Puri	,, ,,	5·09
	Pipli	19th ,,	5·31
CUTTACK	Dharmsala	22nd ,,	5·43
	Jajpur	23rd ,,	5·62

The comparative data for all districts show that the month's rainfall was normal or in slight to considerable excess. These data are given below :—

DISTRICT.	RAINFALL.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuttack	13·08	11·89	+1·19	+10
Balasore	13·48	12·01	+1·47	+12
Angul	12·73	12·17	+0·56	+ 5
Orissa Tributary Mahals	14·49	12·73	+1·76	+14
Puri	15·92	10·26	+5·66	+55

Chota Nagpur received fairly general rain between the 13th and the 16th, and between the 20th and 25th, and only showers at other times. Thunderstorms occasioned some heavy local falls of rain, of which, the principal (exceeding 4″ in 24 hours) were as follows:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
PALAMAU	Ranka	13th July	4·58
CHOTA NAGPUR TRIBUTARY STATES.	Sirguja	20th ,,	6·50
SINGHBHUM	Monaharpur	,, ,,	4·12
	Baharagura	22nd ,,	4·29

The totall rainfal was only about two-thirds of the normal, as is shown by the following comparative data for the districts contained :—

DISTRICT.	RAINFALL.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hazaribagh	6·17	14·33	—8·16	—57
Ranchi	10·42	14·38	—3·96	—28
Palamau	5·23	13·85	—8·62	—62
Manbhum	6·92	12·81	—5·89	—46
Singhbhum	13·25	15·08	—1·83	—12

The weather was much finer than usual over the United Provinces. There occurred moderate, but fairly general, bursts of rain between the 11th and 15th, the 19th and 23rd, and in places between the 28th and 30th. In the montane and submontane districts these periods of

rainfall were of course extended and in the districts of Dehra Dun, Almora, Garhwal and Naini Tal the weather was generally unsettled and rainy from the 13th to the end of the month. The following statement gives the most noteworthy falls (exceeding 5″ in 24 hours), and indicates the dates and areas of greatest precipitation :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Dehra Dun	Ambari	19th July	7·05
Saharanpur	Hardwar	,, ,,	5·22
Hardoi	Sandila	21st ,,	7·12
Saharanpur	Chakrata Tahsil	,, ,,	6·59
	,, Observatory	,, ,,	6·16
	Jarauda	,, ,,	5·60
Lucknow	Mohanlalganj	,, ,,	5·33
	Lucknow	,, ,,	5·32
Banda	Banda	,, ,,	5·10
Shahjahanpur	Tilhar	22nd ,,	5·41
Saharanpur	Kalsia	,, ,,	5·32
Dehra Dun	Rajpur	26th ,,	5·80
Moradabad	Amroha	29th ,,	5·48

The following gives comparative data of all the divisions in the United Provinces and illustrates the general and fairly uniform character of the rainfall deficiency :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.	Average actual, July, 1903.	Average normal, July.
	Inches.	Inches.	Inches.			
United Provinces, East.	3·30	11·80	—8·50	— 72	5·1	13·5
South Oudh	4·68	10·96	—6·28	— 57	4·4	12·2
North ,,	4·69	12·27	—7·58	— 62	5·5	12·5
United Provinces, Central.	4·28	11·00	—6·72	— 61	6·1	12·0
United Provinces, West.	4·82	8·51	—3·69	— 43	6·7	9·5
United Provinces, East Submontane.	6·18	12·95	—6·77	— 52	6·7	13·4
United Provinces, West Submontane.	8·88	14·90	—6·02	— 40	8·1	13·1
United Provinces, Hills.	8·32	17·75	—9·43	— 53	12·0	18·0

In the Punjab the weather was generally fine until the 11th, after which date periods of moderately general rain were reported between the 13th and 16th, the 19th and 24th and the 28th and 30th, the weather at other times having been fine to showery. The heaviest rainfall was generally recorded during the second rainy period, when a shallow depression advanced into the province from the southward and several heavy local downpours were registered. The following is a record of the amounts exceeding 5″ in 24 hours registered during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Gurdaspur	Shakargarh	23rd July	7·71
	Batala	,, ,,	7·63
Amritsar	Tarn Taran	,, ,,	7·38
	Amritsar Jail Hospital	,, ,,	7·12
Ferozepore	Ferozepore City	,, ,,	7·10
	,, Sadr	,, ,,	6·51
Sialkot	Sialkot	,, ,,	5·80
	Zafarwal	,, ,,	5·21
Kangra	Dharmsala	27th ,,	5·84

The total rainfall of the month was about normal over the south-east of the Punjab and was lighter than usual on the hills, but was more or less excessive elsewhere. The following gives comparative data for the different districts of the province :—

District.	Rainfall.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hissar	6·05	4·31	+1·74	+ 40
Ferozepore	8·28	4·11	+4·17	+101
Montgomery	5·56	2·53	+3·03	+120
Gurgaon	5·40	6·55	—1·15	— 18
Rohtak	5·52	5·91	—0·39	— 7
Delhi	4·42	6·18	—1·76	— 28
Karnal	8·70	6·62	+2·08	+ 31
Lahore	5·55	5·01	+0·54	+ 11
Umballa	10·02	9·77	+0·25	+ 3
Ludhiana	8·16	7·30	+0·86	+ 12
Jullundur	7·95	7·24	+0·71	+ 10
Hoshiarpur	10·40	9·29	+1·11	+ 12
Gurdaspur	15·70	11·38	+4·32	+ 38
Amritsar	9·16	5·98	+3·18	+ 53
Simla	7·33	10·85	—3·52	— 32
Kangra	10·85	18·06	—7·21	— 40

DISTRICT.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Gujranwala	8·55	5·16	+3·39	+ 66
Sialkot	10·28	7·64	+2·64	+ 35
Gujarat	7·56	6·15	+1·41	+ 23
Jhelum	3·67	4·60	−0·93	− 20
Rawalpindi	4·33	7·24	−2·91	− 40
Mianwali	3·02	2·31	+0·71	+ 31
Shahpur	4·42	3·52	+0·90	+ 26
Jhang	6·01	2·85	+3·16	+111
Dera Ghazi Khan	2·57	1·76	+0·81	+ 46
Muzaffargarh	2·48	1·83	+0·65	+ 36
Mooltan	2·88	1·45	+1·43	+ 99

There were four rainy periods in the North-West Frontier Province during the month, *viz.*, between the 1st and the 6th, the 11th and the 14th, the 19th and 21st and the 27th to the 29th. At Dunga Galli there occurred a fall of 2·65″ on the 3rd and of 2·95″ on the 13th, but with these exceptions the daily amounts were not heavy, and the total fall of the month for the whole province was only about two-thirds of the average. This is shown below :—

PROVINCE.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North-West Frontier Province	2·15	3·46	−1·31	−38

In Baluchistan there was a slight showery period between the 14th and the 22nd, when falls of 2·00″ in 24 hours were registered at Nuttal (Kachhi), of about 1·50″ at Jhatput (Kachhi), Mach (Bolan), and 1·07″ at Harnai (Thal Chotiali). The general fall of the whole province for the month was about normal, as is shown below :—

PROVINCE.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Baluchistan Hills	0·81	0·86	−0·05	−6

Kashmir experienced a feebly showery period between the 1st and the 6th. The weather then became fine for four days, but from the 12th to the 23rd there were general daily showers. After the latter date the weather improved somewhat, but remained more or less showery until the close of the month. The days reporting the heaviest and most general rainfall were the 15th, 16th, 17th, 20th, 21st, 22nd and 23rd, and on these occasions the rainfall was heavy in Jummoo and moderately heavy in Kashmir. The following amounts, exceeding 3″ in 24 hours, were registered :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
JUMMOO	Ramban	15th July	4·00
	Golabgarh	" "	4·00
	Ramnagar	" "	3·37
	Golabgarh	16th "	3·87
	Ramban	" "	3·80
KASHMIR	Gulmarg	" "	3·29
JUMMOO	Ramnagar	17th "	3·08
	Sambha	20th "	7·35
	Ramban	" "	4·80
	Ramnagar	" "	3·34
	Golabgarh	21st "	10·30
	Sambha	" "	7·85
	Sri Ranbir Singh Pora	" "	6·65
	Riasi	22nd "	9·46
	Akhnur	" "	9·40
	Ramban	" "	6·70
	Jummoo	" "	5·49
	Ramnagar	" "	5·08
	Golabgarh	" "	4·00
KASHMIR	Anantnag	" "	4·00
JUMMOO	Kathua	" "	3·78
	Rampore Rajauri	" "	3·32
KASHMIR	Vantipore	" "	3·30
	Kalgam	" "	3·24
JUMMOO	Jasmairgarh	23rd "	6·00
	Riasi	" "	5·04
	Manawar	" "	4·43
	Ramban	" "	3·74
KASHMIR	Sonemarg	" "	3·45
	Anantnag	" "	3·35
JUMMOO	Ramnagar	" "	3·25

So far as can be ascertained, the rainfall over a large part of Kashmir was heavier than usual and this increased rainfall, together with the rapid meeting of the snow on the higher peaks, resulted in the extensive floods described in another section.

Two rainy periods occurred over western Rajputana, the first lasting from the 14th to the 23rd, the second from the 28th to the 31st. At other times the weather was fine. During the first rainy period the following amounts, exceeding 3″ in 24 hours, were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jodhpur	Jaswantpura	14th July	6·02
	Sojat	19th „	3·35
	Parbatsar	„ „	3·05
	Shergarh	20th „	5·25
	Merta	„ „	3·25
	Sankra	21st „	3·16
	Sojat	22nd „	6·00
	Bali	„ „	3·06
	Desuri	23rd „	5·00
	Nagaur	„ „	4·90
	Bilara	„ „	4·28

The total rainfall of the month was much heavier than usual over this region, as is shown by the following comparative data for some of the larger states :—

State.	Rainfall.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jaisalmer	3·62	2·03	+1·59	+78
Jodhpur	7·30	4·09	+3·21	+78
Bikaner	4·83	3·28	+1·55	+47

In eastern Rajputana the rainfall was more continuous than in the west, three rainy periods having been reported, *viz.*, from the 11th to the 16th, from the 19th to the 24th, and from the 28th to the 31st. The daily rainfall was not heavier than in the western States, as is shown by the following statement, which gives the falls exceeding 3″ in 24 hours :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Dholpur	Mania	13th July	3·70
Kotah	Sangod	14th „	3·40
Deoli	Bundi	19th „	4·63
Alwar	Ramgarh	„ „	3·85
	Tehla	20th „	5·11
Dholpur	Sanka Gurja	„ „	3·75
Udaipur	Kotra	„ „	3·64
Alwar	Lachmangarh	„ „	3·60
Jaipur	Bandikui	„ „	3·55
Kotah	Atroo	„ „	3·50
Alwar	Rajgarh	„ „	3·40
Ajmer-Merwara	Dawer	23rd „	5·65
	Todgarh	„ „	5·15
Sirohi	Erinpura	„ „	4·25
	Mount Abu	„ „	4·24
Ajmer-Merwara	Jassakhera	„ „	3·60
Udaipur	Kotra	„ „	3·14
Banswara	Banswara	24th „	3·70
Jhalawar	Dug	„ „	3·64
Ajmer-Merwara	Dawer	„ „	3·30
	Sawar	„ „	3·01
Kotah	Antah	28th „	3·87
Dholpur	Tajpur	„ „	3·30
Kotah	Antah	31st „	3·86

The month's rainfall was irregularly distributed, as is shown by the following comparative data for the larger states :—

State.	Rainfall.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jaipur	6·60	7·20	−0·60	− 8
Alwar	5·16	6·39	−1·23	−19
Bharatpur	3·81	7·63	−3·82	−50
Dholpur	5·91	8·03	−2·12	−26
Karauli	6·00	8·27	−2·27	−27
Kotah	9·45	10·40	−0·95	− 9
Ajmer-Merwara	10·34	7·10	+3·24	+46
Udaipur	15·35	9·31	+6·04	+65

Central India experienced showery weather up to the 13th, after which rain set in and continued in some places

ill the close of the month. The rainfall was not, however, evenly distributed, and in Bundelkhand the weather was only showery during the greater part of the month. The following gives data for the larger states :—

STATE.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Bhopal Agency	13·53	11·04	+2·49	+23
Gwalior	10·72	9·09	+1·63	+18
Rewah	4·97	14·50	—9·53	—66
Bundelkhand	5·67	12·71	—7·04	—55

Rain fell fairly steadily during the month in Berar. The rain was generally light during the first fifteen days, but grew heavier in the second half of the month 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.
BULDANA	Donegaon	18th July	4·96
BASIM	Sirpur	" "	4·39
ELLICHPUR	Chikalda	24th "	10·00
	Ellichpur City	" "	4·73
	Dharni	" "	4·35
	Anjangaon	" "	4·09
	Chikalda	25th "	5·22
	Dharni	28th "	8·89
	Ellichpur Cant.	" "	4·65
	Dharni	29th "	4·40

The following gives comparative data for the different districts of this province and shows that the month's rainfall was in excess of the normal :—

DISTRICT.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Amraoti	15·13	9·28	+5·85	+63
Ellichpur	18·30	10·32	+7·98	+77
Akola	14·32	8·43	+5·89	+70
Buldana	11·97	7·91	+4·06	+51
Wun	15·78	11·16	+4·62	+41
Basim	13·47	9·85	+3·62	+37

In the east of the Central Provinces the weather was fine with occasional showers from the 1st to the 11th. Subsequently rain fell moderately heavily and continued, more or less steadily, till the end of the month. The heaviest rainfall occurred on the 12th, 13th, 14th, 23rd and 24th, 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.
RAIPUR	Drug	14th July	5·77
FEUDATORY STATES.	Kanker	" "	4·20
	Sonepur	23rd "	5·10
	Rampur	" "	4·36
	Ditto	24th "	5·27

In most parts of the central division of the Central Provinces the rainfall was light and scattered up to the 23rd, but in Chanda, Balaghat, and Bhandara heavy rain commenced on the 12th. From the 24th onward rain was general over the whole of this division. During the month the following amounts, exceeding 4·00″ in 24 hours, were registered :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
BHANDARA	Bhandara	15th July	4·06
MANDLA	Mandla	21st "	4·20
CHANDA	Armori	24th "	5·70
	Warora	" "	5·20
	Chanda	" "	5·00
BHANDARA	Tirora	" "	4·80
CHANDA	Chimur	" "	4·70
	Brahmapuri	" "	4·50
SEONI	Lakhnadon	" "	4·50
NARSINGHPUR	Gadarwara	" "	4·02
BHANDARA	Sakoli	27th "	5·18
CHANDA	Brahmapuri	29th "	5·11
	Warora	" "	4·70

In the west division the rainfall was generally light and scattered up to the 11th, after which it increased and the following falls of over 4″ in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Nagpur	Umrer	24th July	6·52
	Nagpur	,, ,,	5·49
Chhindwara	Harrai	,, ,,	4·74
Nagpur	Nagpur	27th ,,	5·03

The following gives comparative data for all the districts in the Central Provinces and shows that in the west the rainfall was about normal, but that in parts of the central division it was short of the average :—

District.	Rainfall.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Raipur	15·92	14·72	+1·20	+ 8
Bilaspur	12·23	15·78	−3·55	−22
Sambalpur	12·59	18·21	−5·62	−31
Saugor	9·39	15·08	−5·69	−38
Damoh	8·40	15·61	−7·21	−46
Jubbulpore	9·78	16·34	−6·56	−40
Mandla	14·12	17·26	−3·14	−18
Seoni	14·76	15·85	−1·09	− 7
Narsinghpur	12·63	16·57	−3·94	−24
Chanda	24·66	16·10	+8·56	+53
Bhandara	20·73	16·95	+3·78	+22
Balaghat	22·38	20·72	+1·66	+ 8
Hoshangabad	11·26	16·86	−5·60	−33
Nimar	9·35	9·22	+0·13	+ 1
Betul	15·15	12·42	+2·73	+22
Chhindwara	11·91	11·43	+0·48	+ 4
Wardha	15·12	12·58	+2·54	+20
Nagpur	20·83	13·64	+7·19	+53

In the north Kanara and Ratnagiri districts of the Konkan division of Bombay rain fell daily during the month, but in the more northern districts of Kolaba and Thana the first nine days were moderately fine, and it was not till the 10th that daily steady rain set in. Most of the heaviest falls of rain occurred during this general burst of rain which commenced on the 10th and lasted till the 14th or 15th. This is shown in the following statement which gives amounts, exceeding 6″ in 24 hours, registered during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
North Kanara	Karwar	10th July	9·32
Savantvadi	Savantvadi	11th ,,	7·70
Kolaba	Roha	13th ,,	9·97
Ratnagiri	Mandangad	,, ,,	9·43
Kolaba	Mangaon	,, ,,	8·99
	Matheran	,, ,,	7·18
Thana	Thana	,, ,,	6·95
Ratnagiri	Khed	,, ,,	6·85
Thana	Kuria	,, ,,	6·44
Ratnagiri	Ratnagiri	,, ,,	6·20
	Dapoli	,, ,,	6·18
Thana	Murbad	,, ,,	6·16
Savantvadi	Kudal	14th ,,	8·60
Ratnagiri	Khed	,, ,,	6·70
Savantvadi	Savantvadi	,, ,,	6·39
Kolaba	Matheran	15th ,,	6·70
	Roha	16th ,,	9·36
	Matheran	17th ,,	7·90
Thana	Bhiwndi	,, ,,	6·10
Ratnagiri	Khed	18th ,,	6·05
Thana	Umbargaon	21st ,,	6·83
	Dahanu	,, ,,	6·05
Ratnagiri	Mandangad	29th ,,	7·56
North Kanara	Kumta	30th ,,	6·59
	Honavar	,, ,,	6·02

The general rainfall of this division exceeded the normal, as is shown by the following comparative data for the four districts :—

District.	Rainfall.			
	Average actual, July, 1903	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North Kanara	50·04	35·26	+14·78	+42
Ratnagiri	53·80	44·08	+ 9·72	+22
Kolaba	59·92	48·12	+11·80	+25
Thana	40·44	34·01	+ 6·43	+

In the Karnatak the rainfall was irregularly distributed. In Dharwar and Belgaum during the first ten days only showery weather was experienced, after which general rain set in and continued more or less steadily until the close of the month. In Bijapur, on the other hand, only showery weather was reported throughout the month. At Chandgad in Belgaum a fall of 7·60″ was reported in the 24 hours ending at 8 A.M. on the 24th, but with this exception there were no heavy falls during the month in this division, though the total rainfall of the month exceeded the normal. The following gives comparative data for the contained districts :—

District.	Rainfall.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dharwar	5·59	4·53	+1·06	+23
Bijapur	3·80	2·51	+1·29	+51
Belgaum	15·64	11·25	+4·39	+39

In the south Deccan the weather was fine with passing, more or less heavy, showers from the 1st to the 11th. On the 12th or 13th general rain commenced and continued, more or less steadily, till the close of the month. The rainfall was generally heavier than in the Karnatak and the following falls, exceeding 6″ in 24 hours, were registered :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Satara	Satara	14th July	6·18
Poona	Lanoli	15th ,,	6·53

At the hill stations in Satara the burst of rain between the 10th and the 15th was very well marked and a second burst of rain was registered towards the close of the month. The following gives the daily records for Malcolmpeth from the 13th to the 16th and from the 22nd to the 29th :—

Hill Station.	Rainfall during 24 hours preceding 8 A. M. of										
	13th July.	14th July.	15th July.	16th July.	22nd July.	23rd July.	24th July.	25th July.	26th July.	27th July.	28th July.	29th July.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
Malcolmpeth	5·62	10·16	8·95	6·50	8·76	9·32	5·21	9·29	8·37	8·40	5·11	7·18

The rainfall of the whole division was in excess of the normal, as is shown by the following comparative data for the districts :—

District.	Rainfall.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Yatara	12·13	10·16	+1·97	+19
Sholapur	5·92	3·38	+2·54	+75
Poona	12·67	11·57	+1·10	+10

The month was throughout showery in Khandesh, the periods of most general rain having been from the 2nd to the 8th, from the 15th to the 20th and from the 25th to the 28th. There were no very heavy falls recorded, but the total rainfall of the month was much heavier than usual in Ahmednagar. The following gives data for the districts :—

District.	Rainfall.			
	Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ahmednagar	6·96	3·63	+3·33	+92
Nasik	12·20	13·62	—1·42	—10
Khandesh	9·37	8·09	+1·28	+16

In Gujarat there occurred a slight burst of rain on the 1st followed by fairly fine weather. In Surat steady rain commenced on the 12th and in the remaining districts on the 17th. From these dates till the close of the month more or less rain was received daily. The rainfall was very heavy during the last week and the following amounts, exceeding 6″ in 24 hours were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
Ahmedabad	Dholera	26th July	12·37
Broach	Broach	,, ,,	9·80
	Ankleshvar	,, ,,	7·20
Surat	Chikhli	,, ,,	6·45
Surat Agency	Bansda	27th ,,	8·60
Kaira	Thasra	28th ,,	8·12
	Mahudha	,, ,,	7·71
	Dakar	,, ,,	6·25

The following gives comparative data for the districts in this division :—

DISTRICT.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Surat	28·98	22·49	+6·49	+ 29
Broach	19·75	14·50	+5·25	+ 36
Kaira	17·42	12·99	+4·43	+ 34
Panch Mahals	14·93	14·07	+0·86	+ 6
Ahmedabad	14·00	12·07	+1·93	+16

In Kathiawar there were two bursts of fairly general rain,—one between the 11th and 22nd, the other between the 25th and the 31st. Heavy local falls were reported, as is shown by the following statement giving the amounts exceeding 6″ in 24 hours :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
KATHIAWAR	Manikvada	21st July	10·16
	Dhoraji	,, ,,	9·06
	Morvi	22nd ,,	6·24
BARODA	Baroda	26th ,,	6·16

The total rainfall of the division was heavier than usual, as is shown below :—

DISTRICT.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Baroda	23·31	13·80	+9·51	+ 69
Rewa Kantha	16·99	14·19	+2·80	+ 20
Mahi Kantha	15·27	12·43	+2·84	+ 23
Palanpur	11·07	8·41	+2·66	+ 32
Kathiawar	14·68	10·19	+4·49	+ 44
Kutch	11·25	8·12	+3·13	+ 39

Sind received a slight burst of showery weather about the middle of the month and the total rainfall exceeded the normal ; the following gives data :—

PROVINCE.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percent variation from normal.
	Inches.	Inches.	Inch.	
Sind	3·01	2·40	+0·61	+ 25

In the Bangalore, Kolar and Tumkur districts of Mysore there occurred slight bursts of rainfall about the commencement and close of the month, while the middle of the month was relatively fine. In the remaining districts rain commenced generally about the 12th and continued fairly steadily till the close of the month. The total rainfall was generally a good deal heavier than usual, as is shown by the following district data :—

DISTRICT.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Bangalore	3·66	2·99	+0·67	+ 22
Kolar	3·28	2·60	+0·68	+ 26
Tumkur	2·54	2·61	−0·07	− 3
Mysore	3·64	1·71	+1·93	+113
Hassan	14·72	7·10	+7·62	+107
Shimoga	26·50	22·00	+4·50	+ 20
Kadur	37·87	17·25	+20·62	+ 120
Chitaldroog	2·61	2·11	+0·50	+ 24

In the Malabar coast districts daily rain occurred throughout the month. Two bursts of heavy rainfall were recorded, *viz.*, between the 10th and the 17th, and between the 28th and 31st, on which dates the average actual rainfall in the three districts forming this division was as follows :—

DISTRICT.	RAIN FALL DURING 24 HOURS PRECEDING 8 A. M. OF											
	10th July.	11th July.	12th July.	13th July	14th July.	15th July.	16th July.	17th July.	28th July.	29th July.	30th July.	31st July.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
Travancore	0·53	0·38	0·52	0·75	1·03	1·17	1·15	1·18	0·86	1·07	1·27	1·09
Malabar	2·59	1·63	2·43	2·50	1·88	2·58	2·44	2·88	2·08	2·81	2·48	2·05
South Canara	4·50	3·28	3·76	3·19	2·05	2·54	1·06	1·38	2·41	4.02	3·47	3·24

The following amounts, exceeding 7″ in 24 hours, were recorded during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Malabar	Badagara	2nd July	7·53
Malabar	Vayittiri	14th ,,	8·03
Malabar	Ditto	15th ,,	10·47
Travancore State	Karunagapally	,, ,,	7·08
Malabar	Vayittiri	16th ,,	7·65
Malabar	Ditto	17th ,,	7·03
Malabar	Ditto	27th ,,	12·35
Malabar	Ditto	28th ,,	8·31
Malabar	Ditto	29th ,,	7·43
Travancore State	Peermade	31st ,,	7·45

The preceding data show that there were no very exceptional falls of rain, but the total fall was considerably in excess of the normal, as is shown by the following district data:—

District.	Rainfall. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Malabar	47·31	30·29	+17·02	+56
South Canara	61·19	44·62	+16·57	+37

In Madras south only a few light scattered showers were received during the month, but the total rainfall was on the whole heavier than usual though very unevenly distributed. The following gives data for the districts:—

District.	Rainfall. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Madura	0·85	1·07	—0·22	—21
Tinnevelly	1·11	0·61	+0·50	+82

South central Madras received somewhat about the same amount of rain as the more southern division, but only scattered showers were reported which, except on the 2nd, were not heavy. The following gives data for the districts:—

District.	Rainfall. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inch.	Inches.	Inches.	
Salem	0·83	2·46	—1·63	—66
Coimbatore	0·90	1·78	—0·88	—49

In Madras central the weather was very showery throughout the month and the total rainfall considerably exceeded the normal. The following gives data for the different districts:—

District.	Rainfall. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah	5·07	2·74	+2·33	+85
Anantapur	3·54	2·02	+1·52	+75
Bellary	2·68	2·52	+0·16	+ 6
Kurnool	7·17	4·05	+3·12	+77

In the north division of the east coast the first eleven days were only showery, but on the 12th general rain set in and continued more or less steadily till the close of the month. There were no very heavy falls, but in Ganjam, which district lay close to the path of the various storms of the month, the following falls, exceeding 4″ in 24 hours, were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ganjam	Narasannapeta	13th July	4·15
Ganjam	Parlakimedi	,, ,,	4·08
Ganjam	Russell konda	14th ,,	4·99
Ganjam	Chatrapur	19th ,,	4·53
Ganjam	Purushottapuram	,, ,,	4·48
Ganjam	Balliguda	23rd ,,	4·92

The total rainfall was largely in excess of the normal, as is shown by the following district data :—

DISTRICT.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	13·41	7·81	+5·60	+72
Vizagapatam	19·43	14·33	+5·10	+36
Godavari	11·47	6·51	+4·96	+76
Kistna	9·42	5·36	+4·06	+76

The central division of the east coast received showers during the month, the days of most general rain having been the 13th, 14th and 18th. The total fall was heavier than usual, as is shown below :—

DISTRICT.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Nellore	3·24	2·29	+0·95	+41

The south division also experienced showery weather, the only days of general rain having been the 8th and the 29th to 31st. The total rainfall was about normal, as is shown by the following district data:—

DISTRICT.	RAINFALL. Average actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Madras	3·80	4·68	−0·88	−19
Chingleput	4·21	3·60	+0·61	+17
North Arcot	3·73	2·99	+0·74	+25
South Arcot	3·55	2·92	+0·63	+22
Tanjore	1·71	1·98	−0·27	−14
Trichinopoly	1·61	1·61	0	0

The rainfall of the month was somewhat irregularly distributed at the extra-Indian stations. The following gives data for these places :—

STATION.	RAINFALL. Average, actual, July, 1903.	Average normal, July.	Variation of actual from normal, July, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee	1·59	1·97	−0·38	− 19
Colombo	5·02	4·83	+0·19	+ 4
Minicoy	10·31	6·66	+3·65	+ 55
Kashgar	0	0·29	−0·29	−100
Kabul	0·14	0·20	−0·06	− 30
Meshed	1·26	0·01	+1·25	?
Teheran	0	0·41	−0·41	−100
Ispahan	0	0·06	−0·06	−100
Bushire	0	0	0	0
Jask	0	0·02	−0·02	−100
Muscat	0	0·04	−0·04	−100
Baghdad	0	0	0	0
Aden	0	0·03	−0·03	−100
Perim	0	0·03	−0·03	−100
Zanzibar	1·25	2·74	−1·49	− 55
Seychelles	3·79	2·61	+1·18	+ 45
Mauritius	1·60	2·28	−0·68	− 30

Colombo and Minicoy, like the stations of the Indian Peninsula, had more rain than usual during the month. In the south-east trades region the distribution was very irregular, thus the Seychelles received nearly fifty per cent. more rain than usual, while both at Zanzibar and Mauritius the fall was considerably lighter than usual. In Kashgar, Persia, Asiatic Turkey and Arabia the month was practically rainless, but at Meshed there had occurred an unusual fall of 1·26″, the normal fall being 0·01″, while at Kabul there had been a shower of 0·14″ on the 11th.

Crop Report.

Madras.—The rainfall was generally heavy during the month on the west coast and on the hills, good in the Circars and only light to fair elsewhere. Water for irrigation was sufficient, except in parts of the Deccan, Salem and Madura, and the condition of the standing crops at the end of the month was fair. Pasture was sufficient, fodder procurable and the condition of cattle good.

Bombay.—At the close of the month the only districts in which more rain was needed were parts of Nasik, Sholapur and the Carnatic. Sowings of autumn crops were

almost completed in Sholapur and were generally in progress, except in part of Ahmedabad, Broach, Surat and Khandesh, where they were retarded owing to excessive rain, and in parts o Bijapur and Belgaum, where they were retarded for want of sufficient moisture. Fodder was sufficient and agricultural stock in good condition.

Bengal.—The rainfall during the month was uncertain and unevenly distributed. At the close of the month more rain was urgently wanted in the Burdwan, Presidency, Rajshahi, Patna and Bhagalpur divisions and in parts of the Chittagong and Chota Nagpur divisions. Standing crops were suffering in eight districts and in six districts the seedlings of winter rice were withering. Prospects were unfavourable in the Patna and Bhagalpur divisions.

United Provinces.—At the commencement of the month rain was urgently required for sugarcane and extra crops which were suffering, and for sowings of autumn crops which were stopped in parts for want of rain. During the second and third weeks of the month rain fell in all districts, but in places the rainfall was insufficient and at the end of the month good rain was urgently needed in the Lucknow, Fyzabad, Gorakhpur and Benares divisions and in most districts of the Allahabad division. The prospects of the rice and maize crops were, at the end of the month, generally poor. Fodder was scarce.

Punjab.—At the commencement of the month rain was urgently wanted throughout the province. Rain fell during the second and third weeks and the crops were greatly benefited. The cotton crop was badly damaged by locusts in Mianwali district. Good rain fell throughout the province in the last week, and at the close of the month the condition and prospects of the standing crops were good. Fodder was sufficient throughout the province.

North-West Frontier Province.—The rainfall was uncertain and unevenly distributed throughout the province till the last week, when good rain fell in all districts, except Bannu, where more rain was required. At the close of the month the condition of the standing crops was satisfactory. Fodder was abundant.

Burma.—The rainfall was heavy during the month along the coast, fair in the lower and uppermost districts, but scanty in the dry zone. At the end of the month rain was badly wanted in Thayetmyo, Katha, Shwebo, Sagaing and lower Chindwin and was also required in Pakokku, Mandalay, Yamethin and Myingyan, in most of which districts the standing crops were withering for want of rain. Crop prospects were bad in Sagaing, where both cotton and sesamum plants were fading.

Central Provinces.—Moderate to heavy rain fell throughout the province during the early part of the month and autumn sowings were immediately in rapid progress. The crops were put in unusually late, but germination was good and they were everywhere thriving. Towards the close of the month the rainfall was heavy and damage to cotton occurred in the Nagpur country.

Assam.—Rain fell in all districts during the month, but the amount was deficient in most plains districts and in the Naga hills and Manipur. At the close of the month ploughing for late rice, harvesting of early rice, plucking and manufacture of tea and cutting of jute were in progress. The prospects of tea and sugarcane were poor in Kamrup, while elsewhere they were fair to good. Prospects of jute were bad in the Garo hills, but good in Sylhet and Goalpara.

Mysore.—The general prospects at the close of the month were good, but more rain was wanted in parts of Chitaldroog.

Coorg.—Water and fodder were ample.

Berar.—The sowings of autumn crops were completed during the early part of the month and at the close the crops were in good condition, except in parts of five talukas, where they had been damaged by excessive moisture.

Hyderabad.—The prospects of autumn crops and early rice were good.

Rajputana.—Ploughings and sowings for the autumn crops were in progress during the month and at the close of the month crops were in good condition in nine states and fair in Jaipur.

Central India.—The rainfall was partial until the close of the month, when it became general. At the close of the month crops were fair in Bhopal and Bhaghelkhand and good in Malwa, Bhopawar and Indore, but had been damaged by locusts in parts of Dhar and Indore. In parts of Dhar rinderpest and in parts of Indore cattle plague were reported.

Kashmir.—Heavy rain fell. The condition of the standing crops in Jummoo was good, but in Kashmir there were heavy floods and the river-side crops were damaged.

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 231 Stations in India, Burma, etc., in July, 1903.

Table

Abstract of Observations taken at 8 A.M. at 231

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.				−·018								85·3	+0·6	76·1	+0·6	80·7	+0·6	9·2					16·4
1	Tenasserim and Bay Islands.	Car Nicobar *	25	29·778		29·730	29·848	21st	29·717	13th	·131	80·6	85·7		77·3		81·5		8·4	88·4	28th	73·9	16th	14·5
		Port Blair	61	29·738	−·029	29·730	29·821	20th	29·667	12th	·154	80·5	85·4	0	77·6†	+0·2	81·5†	+0·1	7·8	89·0	7th	72·7	27th	16·3
		Mergui	96	29·772	+·005	29·800	29·836	2 th	29·682	16th	·154	77·1	85·7	+1·2	74·2	+1·7	80·0	+1·5	11·5	91·1	8th	70·4	14th	20·7
		Tavoy	26	29·820	−·019	29·777	29·902	20th	29·735	16th	·167	76·8	82·7	−0·6	74·0	−0·1	78·4	−0·4	8·7	89·2	7th	72·0	23rd & 25th	17·2
		Moulmein	94	29·696	−·022	29·728	29·795	20th	29·624	26th	·171	76·5	83·2	+0·2	74·4	+0·2	78·8	+0·2	8·8	90·5	17th	72·3	23rd & 24th.	18·2
2	Lower Burma	~~Rangoon~~	67	29·718	−·021	29·713	29·799	20th	29·624	12th	·175	79·3	85·0	−0·3	76·3	+0·5	80·7	+0·1	8·7	88·1	17th	72·4	31st	15·7
		Bassein	27	29·733	−·014	29·695	29·816	20th	29·630	12th	·186	79·8	85·7	+1·0	77·0	+1·2	81·4	+1·1	8·7	89·7	8th	74·6	26th	15
		Diamond Island	41	29·713	−·033	29·689	29·809	1st	29·596	12th	·213	81·5	84·8	+0·5	77·4	+1·8	81·2	+1·2	7·4	86·9	5th	74·7	25th	12·2
5	Arakan	Akyab	20	29·670	−·019	29·633	29·769	1st	29·542	12th	·227	80·2	85·1	+0·4	78·2	+0·7	81·7	+0·6	6·9	88·9	17th	76·3	24th	12·6
3	Central Burma	Toungoo	183	29·581	−·008	29·707	29·673	19th	29·476	12th	·197	80·2	89·6	+2·9	71·3	−0·8	82·0	+1·1	15·3	93·9	17th	72·1	4th	21·8
	II.—Burma Inland				−·008								93·4	+2·0	77·2	+0·7	85·3	+1·4	16·2					23·1
3	Central Burma	Thayetmyo	130	29·601	−·009	29·673	29·693	20th	29·491	12th	·202	80·6	90·5	+1·6	75·6	−0·7	83·1	+0·5	14·9	93·0	17th	74·0	2 days	19·0
4	Upper Burma	Minbu	165	29·561	−·003	29·659	29·631	20th	29·451	13th	·180	81·5	91·8	+0·5	78·1	+0·9	85·0	+0·7	13·7	97·7	8th	76·1	25th	21·6
		Yamethin	657	29·675	−·011	29·680	29·164	19th	28·975	13th	·189	80·2	92·4	+2·4	75·5	+0·9	84·0	+1·7	16·9	96·8	17th	72·7	4th	24·1
		Monywa		29·419		29·638	29·495	20th	29·346	13th	·149	83·9	98·0		78·0		88·0		20·0	102·3	18th	72·8	22nd	29·5
		Mandalay	250	29·453	−·006	29·649	29·540	19th	29·376	13th	·164	84·9	97·7	+3·5	79·4	+1·0	88·6	+2·3	18·3	101·6	11th	76·6	19th	25·0
		Bhamo‡	381	29·295	−·013	29·632	29·373	19th	29·228	26th	·145	80·0	89·9	+2·1	76·3	+1·2	83·1	+1·7	13·6	91·5	2 days	75·1	4 days	19·4
4(a)	Burma Hill Stations.	Maymyo		26·278§			26·321	3rd	26·217	12th	·104	72·9	80·7		66·9		73·8		13·8	83·0	3 days	61·8	2 days	18·2
		Lashio		26·557	−·022		27·028	19th	26·901	12th	·127	75·6	85·8	+2·2	71·4	+2·1	78·6	+2·2	14·4	88·5	2 days	68·0	2 days	20·5
	III.—Assam				−·008								89·6	+0·6	77·7	+0·4	83·7	+0·5	11·9					21·6
7	Surma	Silchar	104	29·559	−·009	29·615	29·644	1st	29·437	13th	·207	82·0	91·3	+1·1	77·6	+0·4	84·5	+0·8	13·7	98·6	15th	74·3	10th	24·3
9	Brahmaputra	Sibsagar	333	29·316	−·016	29·603	29·386	19th	29·243	9th	·143	81·3	89·1	−0·9	78·6	+0·7	83·9	−0·1	10·5	93·2	15th & 24th.	75·0	10th	18·2
		Dhubri	115	29·569	0	29·580	29·582	20th	29·417	13th	·165	81·1	87·4	+1·5	78·3	0	82·9	+0·8	9·1	91·2	31st	73·7	4th & 5th.	17·5
		Gauhati	195	29·446	P	29·594	29·516	20th	29·372	9th & 13th.	·144	82·7	91·4		78·3		84·9		13·1	96·5	24th	74·0	10th	22·5
		Tezpur	252	29·392		29·601	29·464	19th	29·317	13th	·147	80·3	90·0		77·7		83·9		12·3	96·7	21st	73·7	10th & 11th.	23·0
		Dibrugarh	353	29·298		29·609	29·366	16th	29·230	9th	·136	79·5	88·5		75·9		82·2		12·6	96·2	15th & 16th.	72·0	10th	24·2
	IV.—Bengal and Orissa				−·013								90·2	+1·6	79·1	+0·6	84·7	+1·1	11·1					19·0
6	East Bengal	Chittagong	87	29·555	−·023	29·590	29·651	1st	29·442	13th	·209	82·0	88·8	+3·1P	77·8	+1·2	83·3	+2·2P	11·0	92·0	2 days	73·6	3rd	17·4
		Noakhali	43	29·589		29·579	29·684	1st	29·486	13th	·198	82·5	87·1		78·5		82·8		8·6	89·2	12th & 16th.	74·9	10th	14·3
		Comilla	36	29·607		29·591	29·701	1st	29·509	13th	·192	81·3	89·5		77·5		83·5		12·0	93·3	13th & 16th.	73·8	10th	19·5
		Sirajganj	49	29·580		29·579	29·670	1st	29·494	13th	·176	81·8	89·6		79·1		84·4		10·5	91·8	16th	73·7	11th	18·1
		Narayanganj	26	29·589	+·001	29·573	29·692	1st	29·502	12th	·190	82·2	89·2	+0·9	P	P	P	P	P	92·1	4th	P	P	P
		Barisal	13	29·604	−·001	29·562	29·700	1st	29·501	13th	·199	83·4	87·7	+0·4	79·4	+0·8	83·6	+0·6	8·3	90·3	5 days	76·1	10th	14·2
		Mymensingh	59	29·577	+·008	29·587	29·666	1st	29·477	13th	·189	82·6	88·7	+1·6	78·8	+0·5	83·8	+1·1	9·9	92·2	2 days	74·6	2 days	17·6
		Faridpur	46	29·575		29·569	29·677	1st	29·485	13th	·192	82·6	88·8		78·7		83·8		10·1	90·8	8th	73·4	10th	17·4
10	Deltaic Bengal	Jessore	33	29·560	−·012	29·539	29·658	1st	29·453	13th	·205	83·8	90·4	+1·2	79·6	+0·6	85·0	+0·9	10·8	94·0	2 days	76·7	11th	17·3
		Calcutta	21	29·555	−·014	29·522	29·675	1st	29·430	13th	·245	83·4	90·6	+2·6	79·5	+1·0	85·1	+1·8	11·1	93·9	6th	75·4	11th	18·5
		Sangor Island	25	29·531	−·032	29·500	29·666	1st	29·373	13th	·293	84·6	90·6	+2·8	81·5	+0·9	86·1	+1·9	9·1	92·4	2 days	77·6	11th	14·8
		Krishnagar	47	29·541		29·536	29·647	1st	29·436	13th	·211	83·4	91·9		79·3		85·6		12·6	97·8	1st	74·5	11th	23·3
		Midnapore	149	29·412		29·506	29·534	1st	29·298	13th	·236	83·0	91·7		79·1		85·4		12·6	97·3	9th, 10th & 11th.	76·7	11th & 22nd.	20·6

Note 1.—When a query is inserted against any reading or in the variation returns of any station, the

Note 2.—The divisional means of the figure columns Nos. 41, 43, and 45 are derived only

* Observation of 30 days. ‡ Observations of 27 days. † Mean of 29 days. § Uncorrected.

I.

Stations in India, Burma, etc., in July, 1903.

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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 July 1903.	Normal rainfall for period, 1st May to 31st July.	Variation from normal of period, 1st May to 31st July 1903.	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	56	57	58
														91	−0·7	·915	+·015	8·4	−0·2				30·45	31·41	+1·43					I.—Burma Coast and Bay Islands.		
3				1	2	16	3		S 45° W	4·6†	4·6†			90		·936		8·5		16			8·85			26·45			1·97	Car Nicobar	Tenasserim and Bay Islands.	1
2					2	14	12	1	S 64° W	11·0	12·4	11·0	+13	90		·939		8·5		26			28·68	15·68	+13·00	56·82	51·42	+ 5·40	3·84	Port Blair		
23					4	3	1		S 27° W	2·2	2·0	1·8	+11	96	+3·8	·876	+·001	6·5	−1·0	29	25·60	+3·40	33·93	31·50	+ 2·43	66·86	81·05	−14·19	2·85	Mergui.		
23		1			2	4	1		S 37° W	1·9				94	+1·6	·868	−·001	6·7	−1·5	28	28·00	0	56·19	46·83	+ 9·36	93·30	112·76	−19·46	5·42	Tavoy.		
25				1	2	2		1	S 13° W	2·7	3·0	3·8	−21	90	−3·4	·833	?	8·3	+0·3	28	28·20	−0·20	54·40	45·96	+ 8·44	103·43	101·74	+ 1·69	4·44	Moulmein.		
5	1		2	10	7	5		1	S 17° E	4·3	3·6	5·5	−35	91	−2·8	·914	+·001	9·6	+0·6	23	25·70	−2·70	16·82	20·98	− 4·16	41·98	49·72	− 7·74	1·73	Rangoon .	Lower Burma .	2
7				5	10	6	2	1	S 11° W	5·1		4·0	+28	92	−1·5	·943	+·024	8·7	−0·1	25	26·80	−1·80	26·35	25·46	+ 0·89	52·28	59·18	− 6·90	3·35	Bassein.		
				3	24	4			S 47° W	10·4	17·1	8·9	+17	87	+1·2?	·941	+·044	8·2	−0·6	28	24·00	+4·00	20·70	25·80	− 5·10	54·27	59·40	− 5·13	2·63	Diamond Island.		
				24	7				S 35° E	4·8	4·6	3·8	+21	95	+1·3	·984	+·024	9·0	+0·7	30	27·80	+2·20	45·15	52·62	− 6·47	101·79	109·29	− 7·50	3·88	Akyab .	Arakan .	5
				17	13	1			S 24° E	5·1	5·0	4·8	+ 4	88	−4·1	·919	+·015	9·3		20	25·00	−5·00	12·40	17·89	− 5·49	38·67	38·32	+ 0·35	3·59	Toungoo .	Central Burma.	3
														84	−0·7	·911	+·024	6·5	+0·7				3·28	6·67	−3·39					II.—Burma Inland.		
				11	19	1			S 15° E	4·0		6·7	−40	88	+3·5	·926	?	7·2	−0·9	19	15·20	+3·30	8·97	6·87	+ 2·10	21·60	17·34	+ 4·26	1·50	Thayetmyo .	Central Burma.	3
			1	26	4				S 41° E	9·6	11·4			83	−0·4	·898	+·025	6·6	+0·2	4	8·80	−4·80	2·39	4·34	− 1·95	14·16	14·89	− 0·73	1·21	Minbu .	Upper Burma .	4
8				11	12				S 21° E	7·9	8·3			81	−3·1	·843	+·009	9·4	+4·4	8	9·60	−1·60	3·14	4·12	− 0·98	11·47	15·14	− 3·67	1·30	Yamethin.		
				12	19				S 17° E	6·4	6·7			86		·998		6·8		4	3·60	+0·40	0·92	2·61	− 1·69	8·35	11·41	− 3·06	0·31	Monywa.		
				4	22	5			S 1° W	11·4	11·5			71	−4·2	·848	+·005	1·5	?	3	6·20	−3·20	0·78	3·05	− 2·27	9·36	14·39	− 5·03	0·23	Mandalay.		
21					1	3	1	1	S 57° W	1·7	2·0			93	+0·9	·954	+·058	7·6	−1·1	10	21·50	−11·50	3·48	19·01	−15·53	23·94	39·19	−15·25	1·13	Bhamo.		
30						1			S 45° W	2·3				85		·686		7·2		9	12·10	− 3·10	3·68	7·97	− 4·29	29·67	25·56	+ 4·11	1·21	Maymyo.	Burma Hill Stations.	4(a)
	2	5	1	3	6	14	2		S 19° W	4·5				84	−5·8	·745	+·021	8·4	−0·5	12			8·98	14·71	− 5·73	27·46	31·54	− 4·08	2·16	Lashio.		
														90	−0·3	·964	+·031	8·4	−0·1				12·65	16·03	−3·38					III.—Assam.		
30			1						E	1·6	2·8	3·1	−10	90	−0·2	·986	+·039	9·0	−0·2	17	22·50	−5·50	13·41	18·43	− 5·02	41·23	57·66	−16·43	3·15	Silchar .	Surma.	
12		4	1	5		7		2	S 13° E	2·3	2·1	2·8	−25	93	+0·2	·987	+·012	9·5	+0·6	23	19·20	+3·80	14·10	17·12	− 3·02	54·23	43·33	+10·90	1·36	Sibsagar .	Brahmaputra .	9
3		9	3	2	6	6	1	1	S 46° E	3·1	3·7	3·9	− 5	90	−0·9	·985	+·041	7·7	−0·7	12	15·80	−3·80	17·10	15·49	+ 1·61	60·14	54·09	+ 6·05	3·72	Dhubri.		
16	2	4		1	1	5	2		S 79° W	1·7	1·9			86		·967		7·1		10	14·80	−4·80	5·99	10·83	− 4·84	30·59	31·81	− 1·22	1·24	Gauhati.		
3		5	8	3	6	5	1		S 49° E	2·3	3·0			89		·927		8·9		18	17·20	+0·80	11·29	13·33	− 2·04	30·23	35·32	− 5·09	4·01	Tezpur.		
6	5	2	2	1	6	6	2	1	S 37° W	1·0	1·0			93		·929		8·0		22	20·40	+1·60	13·99	21·00	− 7·01	43·59	54·63	−11·04	1·70	Dibrugarh.		
														87	−1·8	·978	+·018	6·6	−1·5				9·42	14·56	−5·14					IV.—Bengal and Orissa.		
			6	17	8				S 42° E	9·1	9·0	7·2	+25	83	?	·908	?	4·8	−3·5	13	19·45	−6·45	11·59	19·94	− 8·35	34·03	52·01	−17·98	6·43	Chittagong .	East Bengal .	6
		2	7	12	8	2			S 43° E	7·9	8·5			86		·961		5·6		16	22·81	−6·81	7·62	22·10	−14·48	38·37	55·45	−17·08	1·08	Noakhali.		
			8	17	5	1			S 47° E	6·9	5·8			87		·931		5·8		10	19·07	−9·07	8·31	17·05	− 8·74	46·93	45·97	+ 0·96	2·26	Comilla.		
7		1	7	9	6	1			S 47° E	3·2	3·3			91		·995		7·6		4	14·26	−10·26	4·75	11·30	− 6·55	20·69	30·82	−10·13	2·55	Sirajganj.		
		1	12	9	7	2			S 52° E	9·0	7·6	7·3	+ 4	91	?	·997	+·016	7·1	−1·6	12	17·78	−5·78	4·70	12·31	− 7·61	26·61	34·39	− 7·78	0·68	Narayanganj.		
		2	5	14	7	2		1	S 41° E	5·2				86	−2·0	·990	+·011	5·9	−3·0	13	20·58	−7·58	8·29	15·02	− 6·73	28·13	39·23	−11·10	1·84	Barisal.		
			12	10	8	1			S 48° E	4·0	3·6			87	−3·5	·974	+·014	7·2	−0·7	18	19·65	−1·65	18·09	15·33	+ 2·76	65·64	45·63	+20·01	4·06	Mymensingh.		
			8	16	7				S 47° E	6·0	5·1			90		1·007		5·5		10	17·13	−7·13	7·21	12·47	− 5·26	25·35	33·52	− 8·17	2·10	Faridpur.		
2		1	8	14	5	1			S 50° E	5·4	5·3	4·6	+15	88	−2·0	1·029	+·026	7·7‖	−0·7	9	17·52	−8·52	4·32	12·02	− 7·70	27·58	32·52	− 4·94	1·42	Jessore .	Deltaic Bengal.	10
2		3	10	4	6	6			S 45° E	5·5		5·3	+ 4	86	−2·5	·992	+·025	7·8	−0·6	15	18·96	−3·96	6·35	12·27	− 5·92	18·58	29·30	−10·72	1·60	Calcutta.		
		2	8	5	7	7	1	1	S 25° E	16·0		14·2	+13	85	−2·5	1·008	+·012	7·5	−1·8	13	16·74	−3·74	7·40	15·95	− 8·55	20·44	31·06	−10·62	1·94	Saugor Island.		
		1	7	13	9	1			S 42° E	4·9	5·4			88		1·013		6·5		11	15·87	−4·87	5·86	10·36	− 4·50	19·94	26·79	− 6·85	2·33	Krishnagar.		
5	4	7		3	12				S 54° E	3·6	3·2			87		·985		4·7		18	15·95	+2·05	10·06	12·56	− 2·50	20·07	28·76	− 8·69	1·67	Midnapore.		

data for that station are not utilized in calculating the provincial variations.
from the data available.

‖ Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 231

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	29·358	1st	29·154	14th	·204	82·4	92·4		79·0		85·7		13·4	98·1	6th & 11th	76·4	6th	21·7
		Raniganj	334	29·239		29·519	29·361	1st	29·161	13th	·200	81·9	?		79·0		?		?	?	?	77·3	6th & 26th.	?
		Burdwan	99	29·471	—·018	29·517	29·586	1st	29·364	13th	·222	83·1	92·0	+1·8	79·4	0	85·7	+0·9	12·6	95·4	4 days	76·3	11th	19·1
		Naya Dumka	489	29·085		29·528	29·193	1st	29·020	13th	·173	82·3	92·5		78·6		85·6		13·9	97·5	6th	74·4	2nd	23·1
		Berhampore	67	29·521	—·008	29·536	29·622	1st	29·431	13th	·191	83·3	92·5	+3·1	79·5	+0·7	86·0	+1·9	13·0	95·8	6th	76·8	2 days	19·0
		Rampur Boalia.	70	29·526		29·545	29·619	1st	29·439	13th	·180	84·0	91·2		79·6		85·5		11·6	94·1	6th	73·1	10th	21·0
		Malda	72	29·499		29·522	29·583	1st	29·406	9th	·177	83·3	91·6		80·0		85·8		11·6	93·6	4th, 6th & 8th.	77·0	3rd & 11th.	16·6
		Bogra	61	29·547	+·013	29·560	29·633	1st	29·456	13th	·177	82·5	90·3	+1·2	78·7	+0·2	84·5	+0·7	11·6	93·2	2 days	72·2	11th	21·0
12	North Bengal	Dinajpur	123	29·486	+·010	29·562	29·559	1st	29·396	9th	·163	82·5	90·2	+1·1	79·1	+0·2	84·6	+0·7	11·1	92·8	16th	72·5	10th	20·3
		Rangpur	123	29·505		29·582	29·570	20th	29·408	13th	·162	82·5	90·1		78·5		84·3		11·6	93·7	14th & 16th.	73·8	5th & 11th	19·9
		Jalpaiguri	284	29·336	+·006	29·577	29·403	1st	29·240	13th	·163	81·1	89·8	+1·6	77·5	+0·7	83·7	+1·2	12·3	93·9	14th	72·6	5th	21·3
		Cooch Behar	156	29·475		29·584	29·547	20th	29·384	13th	·163	81·7	89·2		78·9		84·0		10·3	93·4	14th	75·1	11th	18·3
17	North Bihar	Purnea	125	29·470	+·001	29·549	29·546	1st	29·366	9th	·180	82·9	91·4	+1·4	79·3	+0·6	85·4	+1·0	12·1	96·7	10th	75·7	2 days	21·0
14	Orissa	Balasore	50	29·507	—·033	29·498	29·636	1st	29·351	14th	·285	83·0	90·2	+1·7	78·5	+0·1	84·4	+0·9	11·7	96·4	11th	74·3	23rd	22·1
		False Point	21	29·534	—·053	29·496	29·688	1st	29·320	14th	·368	83·9	88·0	+0·4	79·7	+1·1	83·9	+0·8	8·3	91·5	11th	76·1	23rd	15·4
		Cuttack	80	29·476	—·045	29·497	29·637	1st	29·262	14th	·375	83·1	91·8	+2·0	79·2	+0·6	85·5	+1·3	12·6	98·4	11th	75·7	23rd	22·7
		Puri	24	29·535		29·498	29·695	1st	29·327	13th	·368	83·4	88·0		80·6		84·3		7·4	91·7	12th	76·6	23rd & 24th.	15·1
	V.—Gangetic Plain and Chota Nagpur.				—·019								96·1	+6·2	80·7	+2·5	88·4	+4·4	15·4					30·4
15	Chota Nagpur	Hazaribagh.	2,007	27·568	—·026	29·500	27·682	1st	27·493	14th	·189	78·8	89·8	+5·2	75·7	+2·0	82·8	+3·6	14·1	97·2	9th & 11th	71·3	26th	25·9
		Ranchi	2,128	27·450	—·022	29·501	27·574	1st	27·361	14th	·213	77·3	87·3	+3·3	74·6	+1·7	81·0	+2·5	12·7	96·7	6th	69·9	26th	26·8
16	South Bihar	Daltonganj	730?	28·809		29·484	28·925	1st	28·734	12th	·191	84·2	97·3		80·6		89·0		16·7	107·1	31st	72·5	4th	34·6
15	Chota Nagpur	Purulia		28·738		29·493	28·854	1st	28·657	14th	·197	81·7	92·7		77·9		85·4		14·8	100·6	11th	75·4	24th, 25th & 26th.	25·2
		Chaibassa	760	28·787	—·024	29·490	28·925	1st	28·670	14th	·255	81·6	91·3	+1·7	78·4	+0·9	84·8	+1·3	12·9	100·7	6th	74·5	25th	26·2
16	South Bihar	Gaya	375	29·172	—·022	29·495	29·264	1st	29·110	13th	·154	87·2	99·1	+7·7	82·8	+4·0	91·0	+5·9	16·3	108·3	16th	78·3	25th	30·0
		Dehri	351	29·151		29·482	29·270	1st	29·114	9th	·156	86·0	98·5		81·6*		90·0*		16·9	109·9	10th	70·0	16th.	39·9
		Patna	183	29·380	—·010	29·513	29·467	1st	29·286	9th	·181	86·4	96·7	+6·6	81·6	+1·8	89·2	+4·2	15·1	107·0	10th	78·2	2 days	28·8
		Arrah	190	29·366		29·505	29·444	1st	29·273	9th	·171	86·2	97·0		82·1		89·6		14·9	106·9	10th	78·1	13th	28·8
		Buxar	239	29·299		29·489	29·383	1st	29·205	9th	·178	86·2	97·5		81·3		89·4		16·2	107·0	10th	74·1	23rd	32·9
17	North Bihar	Bhagalpur	160	29·412*		29·523*	29·501	1st	29·311	9th	·190	85·3*	95·4†		80·1†		87·8†		15·3	104·3	10th	74·6	11th	29·7
		Darbhanga	166	29·417	+·001	29·535	29·498	1st	29·314	9th	·184	83·1	91·3	+1·8	80·0	+0·2	85·7	+1·0	11·3	96·8	10th	75·5	11th	21·3
		Muzaffarpur	178	29·392		29·521	29·457	1st	29·292	9th	·165	84·0	92·7		79·9		86·3		12·8	97·2	10th	74·7	2nd & 3rd.	22·5
		Motihari	224	29·351		29·531	29·426	1st	29·249	9th	·177	83·7	92·5		79·3		85·9		13·2	96·4	10th	73·0	2nd	23·4
		Chapra	181	29·371		29·502	29·462	1st	29·275	9th	·187	85·8	97·6		81·2		89·4		16·4	105·9	10th	78·6	13th	27·3
18	United Provinces (East).	Benares	267	29·255	—·032	29·472	29·354	1st	29·184	9th	·170	88·4	101·0	+9·8	82·7	+3·1	91·9	+6·5	18·3	111·1	9th	77·1	22nd	34·0
		Allahabad	309	29·211	—·034	29·469	29·323	1st	29·126	9th	·197	89·4	101·0	+9·4	84·3	+4·9	92·7	+7·2	16·7	112·6	9th	78·0	22nd	34·6
23	United Provinces (East Sub-montane).	Gorakhpur	257	29·296	—·008	29·507	29·375	19th	29·197	9th	·178	84·5	93·8	+2·7	79·4	0	86·6	+1·4	14·4	101·6	10th	70·0	3rd	31·6
19	South Oudh	Lucknow	368	29·156	—·027	29·476	29·237	1st	29·044	9th	·193	87·8	100·8	+8·6	82·8	+3·5	91·8	+6·1	18·0	114·3	10th	75·3	19th	39·0
20	North Oudh	Bahraich	401	29·150	—·006	29·506	29·233	19th	29·049	9th	·184	85·3	96·1	+4·8	81·1	+2·3	88·6	+3·6	15·0	106·1	5th, 6th & 7th	74·0	12th	32·1
21	United Provinces (Central).	Cawnpore	416	29·104	?	29·466	29·158	1st	28·994	9th	·204	88·9	101·5	+9·0	83·4	+3·8	92·5	+6·4	18·1	113·5	10th	77·0	22nd	36·5
		Mainpuri	516	29·007	?	29·469	29·100	1st	28·904	9th	·196	89·6	102·8	+10·1	84·0	+4·5	93·4	+7·3	18·8	114·2	9th	76·0	22nd	38·2

* Mean of 30 days.

† Mean of 29 days.

Note 1.—When a query is inserted against any reading

Note 2.—The divisional means of the figure columns

I—*continued.*

Stations in India, Burma, etc., in July, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean amount.	Variation from normal.	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 July 1903.	Normal rainfall for period, 1st May to 31st July.	Variation from normal of period, 1st May to 31st July 1903.	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	56	57	58
10		6	8	5	1	1			S 86° E	4·5	5·2			85		·946		5·4		12	16·46	—4·46	4·78	12·87	—8·09	15·81	27·08	—11·27	0·75	Bankura .	Central Bengal.	11
13		9	6	1	1	1			S 63° E	2·8				87		·948		5·9		13	16·39	—3·39	4·79	14·15	—9·36	14·86	27·85	—12·99	0·86	Raniganj.		
1		3	14	3	5	5			S 59° E	4·7	4·7	4·3	+ 9	87	+1·5	·986	+ ·044	7·3	—0·9	14	16·10	—2·10	9·81	12·48	—2·67	22·73	28·75	— 6·02	3·95	Burdwan.		
4		1	12	9	3	2			S 61° E	5·1	5·7			86		·942		8·6		12	18·72	—6·72	6·04	14·14	—8·10	15·05	27·70	—12·65	1·33	Naya Dumka		
1	1		11	10	4	4			S 49° E	5·2	4·8	5·0	— 4	87	—4·8	·999	+ ·006	7·8	—1·0	6	15·71	—9·71	4·63	10·51	—5·88	16·08	25·46	— 9·38	2·43	Berhampore.		
19			1	8	2	1			S 37° E	2·7	2·7			85		·996		5·1		8	15·15	—7·15	4·20	11·46	—7·26	18·88	27·70	— 8·82	1·16	Rampur Boalia.		
		1	9	16	5				S 53° E	8·6	7·9			86		·974		6·0		8	15·45	—7·45	4·01	11·07	—7·06	18·74	24·81	— 6·07	1·06	Malda.		
12			15	2	2				S 79° E	5·0	4·2			88	—0·8	·985	+ ·006	7·4	—0·8	12	15·91	—3·91	9·11	12·64	—3·53	34·36	33·58	+ 0·78	2·58	Bogra.		
		5	12	10	4				S 71° E	3·5	3·3			88	—2·0	·974	+ ·004	8·3	—0·1	12	16·36	—4·36	13·94	14·38	—0·44	34·12	36·00	— 1·88	5·67	Dinajpur .	North Bengal .	12
																				13	15·42	—2·42	17·16	16·01	+1·15	45·55	46·33	— 0·78	3·53	Rangpur.		
1	1	2	11	6	9	1			S 53° E	2·9	3·1			87		·974		6·3														
	4	11	7	6	2	1			N 74° E	0·9	1·2			90	—1·8	·956	+ ·007	4·8	—3·7	17	20·16	—3·16	16·59	33·38	—16·79	51·77	68·28	—16·51	2·69	Jalpaiguri.		
			6	4	4				S 52° E	1·5	1·5			91		·988		8·6		18	18·79	—0·79	22·54	25·58	—3·04	72·69	72·99	— 0·30	3·00	Cooch Behar.		
17									S 83° E	3·7	3·3	2·9	+14	88	—0·8	·997	+ ·016	5·1	—2·1	10	17·13	—7·13	10·32	14·56	—4·24	24·54	29·35	— 4·81	3·03	Purnea .	North Bihar .	17
1		8	10	12					S 83° E	5·6				84	—3·6	·954	?	5·0	—3·2	18	14·94	+3·06	15·69	11·68	+4·01	24·48	28·97	— 4·49	2·98	Balasore .	Orissa . .	14
8	1	6	1	1	3	10	1		S 18° W	10·1	10·5	10·5	0	85	—2·0	·990	+ ·024	8·2	—0·2	16	14·90	+1·10	8·09	11·89	—3·80	21·44	25·42	— 3·98	1·45	False Point.		
2	1	2	4	2	2	8	9	1	S 56° W	3·2		3·2	0	82	+1·2	·938	+ ·047	6·9	—0·6	19	16·13	+2·87	14·10	11·46	+2·64	24·99	26·52	— 1·53	3·53	Cuttack.		
6		9	1			11	4		S 76° W	16·2	15·2			88		1·010		6·5		13	11·74	+1·26	12·12	9·96	+2·16	18·15	20·84	— 2·69	5·09	Puri.		
9	3	1				15	2	1	S 65° W																							
														78	—8·6	·929	— ·001	5·0	—3·1				4·88	12·30	—7·42					V.—Gangetic Plain and Chota Nagpur.		
1			9	6	3	5	3	4	S 27° E	9·6	8·5	8·4	+ 1	78	—9·0	·709	— ·031	9·1	—0·3?	13	18·74	—5·74	7·40	14·41	—7·01	13·51	25·85	—12·34	2·34	Hazaribagh	Chota Nagpur .	15
1		4	7	3	5	8	2	1	S 24° E	9·1	10·7			87	—0·8	·817	+ ·021	7·6	—0·4?	19	19·10	—5·10	11·60	15·81	—4·21	20·05	28·25	— 8·20	1·94	Ranchi.		
15		5	7		1	3			N 87° E	5·5	4·5			74		·871		4·2		8	16·16	—8·16	4·42	12·51	—8·09	7·93	19·65	—11·72	1·17	Daltonganj.	South Bihar .	16
2		5	10	2	6	4	1	1	S 59° E	4·5	5·5			85		·921		6·3		14	17·42	—3·42	5·17	12·23	—7·06	13·89	25·22	—11·33	0·76	Purulia.	Chota Nagpur .	15
22		3	2	1	1	1	1		S 85° E	1·3	1·2			85	+0·1	·921	+ ·023	5·2	—2·5	14	16·18	—2·68	6·72	12·34	—5·62	17·94	25·19	— 7·25	1·35	Chaibassa.		
2	1	10	3	7		4	4		N 88° E	4·4	3·5	2·9	+21	73*	—11·3	·937*	+ ·008	5·2	—3·8	7	15·68	—8·68	4·45	13·67	—9·22	7·91	22·08	—14·17	1·49	Gaya.	South Bihar .	16
5		3	16	3	1	2		1	S 84° E	9·6	8·6			75		·934		5·6		6	14·72	—8·72	2·17	11·64	—9·47	6·27	18·99	—12·72	0·88	Dehri.		
		5	18	5	2			1	S 88° E	8·9	10·1	3·6	+181	80	—6·1	1·000	+ ·031	5·0	—3·6	8	14·16	—6·16	3·74	12·66	—8·92	6·21	23·13	—16·92	1·54	Patna.		
5	1	8	4	10	1	1		1	S 86° E	4·5	4·5			76		·943		2·5		6	15·13	—9·13	2·85	13·35	—10·50	5·98	21·77	—15·79	1·21	Arrah.		
			23	3		3	2		S 79° E	6·2	5·8			74		·920		4·8		4	14·39	—10·39	3·17	11·78	—8·61	8·40	18·04	— 9·64	1·57	Buxar.		
?	?	?	?	?	?	?	?	?	?	?				80*		·968*		4·9*		9	15·39	—6·39	3·89	12·22	—8·33	12·23	23·29	—11·06	0·96	Bhagalpur .	North Bihar .	17
	1	3	14	13					S 76° E	4·1		5·0	—18	87	—0·7	·989	+ ·020	5·9	—1·2	10	14·37	—4·37	5·02	11·81	—6·79	18·37	23·02	— 4·65	1·75	Darbhanga.		
8		2	12	9					S 76° E	5·5				85		·997		2·2		7	14·39	—7·39	2·68	11·90	—9·22	13·88	21·55	— 7·67	0·81	Muzaffarpur.		
			5	25	1				N 84° E	6·2	5·9			84		·971		4·0		10	12·48	—2·48	5·51	12·49	—6·98	17·76	24·04	— 6·28	1·36	Motihari.		
2		2	20	7					S 81° E	6·0	5·4			77		·945		3·9		5	14·23	—9·23	1·47	11·29	—9·82	6·23	19·04	—12·81	0·87	Chapra.		
2	1	1	15	6		5	1		S 68° E	4·5	5·1	4·8	+ 6	71	—14·9	·946	— ·016	4·9	—3·1	6	14·60	—8·60	2·79	11·45	—8·66	4·46	18·32	—13·86	0·74	Benares .	United Provinces (East).	18
		7	15	1	1	2	4	1	N 80° E	7·6‡	6·3‡	6·3	0	66	—17·7	·892	— ·049	5·3	—2·9	6	13·30	—7·30	4·18	12·15	—7·97	5·13	18·86	—13·73	2·00	Allahabad.		
	3	8	8	6	2	1		3	N 75° E	2·3		2·8	—18	82	—4·1	·973	+ ·022	7·1	?	10	14·70	—4·70	10·10	13·75	—3·65	17·12	24·18	— 7·06	4·06	Gorakhpur .	United Provinces (East Submontane).	23
4	1	1	15	5	1	2	2		S 76° E	3·6	3·9	3·9	0	69	—14·7	·900	— ·041	2·9	—5·0	4	14·10	—10·10	9·24	11·53	—2·29	10·45	18·25	— 7·80	5·32	Lucknow .	South Oudh .	19
		1	18	11	1				S 73° E	6·1	5·7			84	—1·4	1·034	+ ·077	2·9	—3·8	7	12·80	—5·80	5·83	11·86	—5·97	16·61	20·34	— 3·73	2·30	Bahraich .	North Oudh .	20
4		1	10	8		4	3	1	S 55° E	5·7				71	—11·4	·947	+ ·006	5·1	—2·3	3	12·10	—9·10	2·08	10·96	—8·88	4·15	15·36	—11·21	1·31	Cawnpore .	United Provinces (Central).	21
31									Calm					62	—19·5	·838	— ·090	4·6	—2·4	3	10·20	—7·20	2·86	8·75	—5·89	5·62	13·91	— 8·29	2·10	Mainpuri.		

‡ Mean of 24 days.

or in the variation returns of any station, the data for that station are not utilized in calculating the provincial variations.
Nos. 41, 43 and 45 are derived only from the data available.

Table

Abstract of Observations taken at 8 A.M. at 231

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				-·007								98·6	+3·9	80·7	+1·8	89·7	+2·8	17·9					40·1
24	United Provinces (West Submontane).	Bareilly	568	28·95	-·020	29·482	29·029	20th	28·828	9th	·201	85·4	98·5	+6·9	81·5	+2·8	90·0	+4·9	17·0	111·5	10th	75·6	13th	35·9
		Dehra Dun	2,233	27·367	-·009	29·512	27·436	20th	27·252	9th	·184	80·2	91·6	+6·1	75·3	+1·2	83·5	+3·7	16·3	104·5	10th & 11th.	70·0	21st	34·5
		Roorkee	899	28·643	-·010	29·493	28·726	20th	28·513	9th	·213	86·2	98·6	+6·5	80·4	+2·2	89·5	+4·4	18·2	113·2	10th	73·1	29th	40·1
22	United Provinces (West).	Meerut	738	28·785	-·018	29·474	28·871	1st	28·663	9th	·208	85·9	98·4	+5·6	82·3	+2·9	90·4	+4·3	16·1	111·3	9th	75·3	3rd	36·0
26	South-East Punjab.	Delhi	718	28·802	-·020	29·469	28·900	1st	28·685	9th	·215	87·8	99·0	+5·0	83·9	+3·2	91·5	+4·1	15·1	112·2	9th	75·3	20th	36·9
28	Central Punjab.	Lahore	702	28·813	+·005	29·472	28·920	1st & 15th.	28·653	9th	·267	87·2	99·4	-1·2	81·3	+1·9	90·4	+0·4	18·1	116·9	10th	73·9	24th	43·0
27	South Punjab	Sirsa	682	28·848	-·009	29·464	28·977	1st	28·739	9th	·238	87·1	100·3	-0·2	81·7	-0·1	91·0	-0·2	18·6	113·3	9th	73·6	29th	39·7
		Patiala	818	28·704		29·474	28·803	1st	28·568	9th	·235	87·0	98·1		81·2		89·7		16·9	112·9	10th	73·1	19th	39·8
29	Punjab (Submontane).	Ludhiana	812	28·709	-·010	29·476	28·821	1st	28·561	9th	·257	86·5	99·9	+2·9	82·4	+2·1	91·2	+2·5	17·5	115·8	10th	76·1	15th	39·7
		Sialkot	830	28·693	+·004	29·479	28·815	15th	28·514	12th	·301	86·1	99·5	+1·9	81·9	+2·4	90·7	+2·2	17·6	117·5	10th	74·6	23rd	42·9
		Umballa	892	28·639	-·005	29·481	28·723	4th & 20th.	28·500	9th	·223	86·9	100·6	+7·3	80·5	+1·7	90·6	+4·5	20·1	115·8	10th	71·2	19th	44·6
		Rawalpindi	1,674	27·881	+·013	29·501	28·003	16th	27·721	9th	·282	84·4	99·1	+1·8	75·9	-0·8	87·5	+0·5	23·2	116·0	11th	68·1	6th	47·9
	VII.—Indus Valley and North-West Rajputana.				+·008								101·9	+0·8	82·2	+0·2	92·1	+0·5	19·7					39·7
32	North-West Frontier Province.	Peshawar	1,110	28·441	+·027	29·511	28·580	1st	28·251	9th	·329	87·2	103·5	+0·6	77·1	-2·3	90·3	-0·9	26·4	117·5	10th	70·9	4th	46·6
		D. I. Khan	590	28·930	+·018	29·461	29·050	1st	28·728	10th	·322	86·8	102·8	-0·6	81·1	-1·4	92·0	-1·0	21·7	117·7	10th	73·1	21st	44·6
31	West Punjab	Khushab	612	28·804	+·027	29·472	29·037	16th	28·717	9th	·320	88·0	101·5	-1·1	80·9	-1·2	91·2	-1·2	20·6	117·4	10th	70·4	21st & 28th.	47·0
		Montgomery	558	28·944	+·021	29·459	29·058	1st	28·810	9th	·248	87·0	100·8	-3·9	81·2	-2·7	91·0	-3·3	19·6	114·8	9th	72·0	4th	42·8
		Mooltan	420	29·071	+·011	29·451	29·205	1st	28·922	9th	·283	88·5	103·3	-0·5	83·5	-0·2	93·4	-0·4	19·8	114·5	9th	74·0	2nd	40·5
47	Sind	Jacobabad	186	29·297	+·009	29·440	29·402	1st	29·177	12th	·225	90·8	108·2	+0·4	85·3	+1·0	96·8	+0·7	22·9	117·6	9th & 10th.	77·2	14th	40·4
		Hyderabad	96	29·408	-·007	29·454	29·521	1st	29·286	12th	·235	87·3	101·6	+2·7	82·1	+1·3	91·9	+2·0	19·5	107·2	14th	72·5	22nd	34·7
		Kurrachee	30	29·514	-·017	29·491	29·645	1st	29·392	13th	·253	87·4	94·6	+4·0	84·5	+3·9	89·6	+4·0	10·1	105·4	16th	76·3	23rd	29·1
51	West Rajputana	Bikaner	771	28·743	-·013	29·465	28·872	1st	28·641	13th	·231	89·6	102·5	+2·1	84·7	+1·9	93·6	+2·0	17·8	112·9	9th	76·0	23rd	36·9
		Pachpadra	380	29·172	?	29·501	29·302	1st	29·078	17th	·221	86·7	102·1	+4·4	81·7	+2·0	91·9	+3·2	20·4	110·5	9th	76·0	22nd	34·5
		Jodhpur	782	28·765		29·515	28·890	1st	28·661	15th	·229	86·2	100·3		81·9		91·1		18·4	110·2	9th	70·3	23rd	39·9
	VIII.—East Rajputana, Central India and Gujarat.				-·031								94·3	+4·6	79·9	+2·4	87·2	+3·5	14·5					30·0
	East Rajputana	Jaipur	1,431	28·138	-·012	29·504	28·254	1st	28·058	22nd	·196	85·9	98·3	+4·8	80·7	+2·5	89·5	+3·7	17·6	110·2	8th & 10th.	75·1	20th & 23rd.	35·1
		Bharatpur	585	28·946		29·476	29·047	1st	28·855	9th	·192	86·8	99·9		82·6		91·3		17·3	111·3	10th	75·2	13th & 14th.	36·1
		Kotah	819	28·705		29·512	28·839	4th	28·613	26th	·226	86·0	98·0		81·3		89·7		16·7	108·6	8th	72·1	23rd	36·5
		Sambhar	1,254	28·314	-·004	29·498	28·413	4th	28·221	22nd	·192	86·2	99·1	+4·8	81·2	+2·0	90·2	+3·4	17·9	110·0	9th	73·4	15th & 30th.	36·6
		Ajmer	1,611	27·962	-·020	29·507	28·077	1st	27·871	22nd	·206	84·8	95·2	+3·9	81·5	+4·2	88·4	+4·1	13·7	107·4	9th	73·6	23rd	33·8
		Udaipur	1,925	27·675		29·525	27·789	1st	27·574	15th	·215	82·3	93·2		77·2		85·2		16·0	104·0	7th & 9th.	71·8	24th	32·2
		Deesa	466	29·108	-·028	29·525	29·256	1st	28·961	15th	·295	83·2	96·6	+4·9	79·8*	+2·2*	88·3*	+3·6*	16·8*	107·6	7th & 8th.	73·5	23rd	34·1
46	Kathiawar and Cutch.	Bhuj	395	29·168	-·029	29·512	29·335	1st	28·993	16th	·342	83·1	92·8	+2·8	78·6	+0·5	85·7	+1·7	14·2	102·3	11th	72·4	14th	29·9
		Jamnagar	61	29·512		29·519	29·673	1st	29·297	16th	·376	83·5	91·1		78·5		84·8		12·6	101·1	8th	74·2	22nd	26·9
		Rajkot	429	29·155	-·043	29·534	29·316	1st	28·927	16th	·389	81·3	93·8	+3·2	77·0	+1·2	85·4	+2·2	16·8	103·9	6th	72·8	22nd	31·1
		Veraval	18	29·584	-·054	29·544	29·742	1st	29·345	14th	·397	82·7	85·3	+1·6	80·7	+1·5	83·1	+1·6	4·6	89·1	1st, 2nd & 15th.	77·3	26th	11·8
		Dwarka	37	29·539		29·521	29·707	1st	29·354	16th	·353	84·2	87·6		80·5		84·1		7·1	92·4	8th & 11th.	72·7	14th	19·7
		Bhavnagar Para.	55	29·545	?	29·544	29·704	1st	29·336	15th	·368	83·8	93·0	P	78·9	+0·1	86·4	P	14·1	100·6	7th & 10th.	74·0	2nd	26·6
49	Central India	Nowgong	757	28·775	-·036	29·474	28·888	1st	28·700	26th	·188	86·7	99·0	+9·1	82·7	+4·6	90·9	+6·9	16·3	110·0	5th	75·5	19th	34·5
		Indore	1,823	27·792	-·027	29·552	27·914	1st	27·676	15th	·238	77·6	88·4	+3·9	73·9	+1·3	81·2	+2·6	14·5	97·3	8th	71·1	24th & 25th.	26·2
		Neemuch	1,630	27·964	-·023	29·536	28·088	1st	27·864	15th	·224	79·8	93·4	+6·0	76·2	+2·1	84·8	+4·1	17·2	103·0	7th	70·7	7th	32·3

* Mean of 30 days.

NOTE 1.—When a query is inserted against any reading or

NOTE 2.—The divisional means of the figure columns

I—*continued.*

Stations in India, Burma, etc., in July, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 July 1903.	Normal rainfall for period, 1st May to 31st July.	Variation from normal of period, 1st May to 31st July 1903.	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	56	57	58
														66	−11·2	·799	−·080	4·2	−1·7				8·36	10·73	−2·13					VI.—Upper Sub-Himalayas.		
12		1	14	4					S 83° E	2·4	2·3	4·1	− 44	78	−6·9	·937	+·095	3·9	−2·7	8	13·45	− 5·45	6·02	15·47	−9·45	7·44	22·19	−14·75	2·49	Bareilly .	United Provinces (West Submontane).	24
15		1		1	5	3	3	3	S 50° W	1·6		1·2	+ 33	69	−18·7	·685	−·122	4·8	−3·2	14	21·20	− 7·20	16·20	28·58	−12·38	17·57	10·53	−22·96	2·25	Dehra Dun,		
6		1		20	2			2	S 43° E	5·4		2·9	+ 86	65	−16·5	·777	−·102	3·9	−2·5	10	11·90	− 1·90	14·21	12·61	+1·60	14·95	18·74	− 3·79	4·89	Roorkee,		
6			11	6	1	4	3		S 48° E	2·0	2·0	2·3	− 13	66	−12·6	·802	−·084	5·6	−1·0	8	9·40	− 1·40	7·78	9·35	−1·57	8·81	13·44	− 4·63	3·10	Meerut, .	United Provinces (West).	22
4	1		2	13	1	1	6	3	S 17° E	4·3	3·9	4·5	− 13	63	−11·6	·795	−·075	5·2	−1·1	7	9·20	− 2·20	5·46	8·48	−3·02	5·83	12·61	− 6·78	1·57	Delhi . .	South-East Punjab.	26
4	3	3	6	6	2		5	2	N 87° E	3·9		3·3	+ 18	69	− 1·5	·874	−·003	3·3	−1·0	6	3·30	+ 2·70	4·36	5·96	−1·60	5·51	8·87	− 3·36	1·78	Lahore .	Central Punjab	28
3	1	2	5	9	2	7	1	1	S 31° E	7·5	6·8	4·8	+ 42	71	+ 3·7	·877	+·020	3·2	−2·7	8	5·00	+ 3·00	9·13	4·14	+4·99	9·85	6·64	+ 3·21	3·20	Sirsa .	South Punjab .	27
3	1		3	14	3		4	3	S 35° E	6·8	6·9			68		·843		4·7		10			5·70			5·94			0·96	Patiala,		
4		3	2	16		1	3	2	S 55° E	3·8	3·4	2·0	+ 70	62	−13·5	·762	−·131	3·5	−2·9	11	7·60	+ 3·40	5·99	9·27	−3·28	6·74	12·90	− 6·16	1·84	Ludhiana .	Punjab (Submontane).	29
1	2	10	6	3	2	1	4	2	N 58° E	4·0		2·5	+ 60	62	−11·5	·754	−·131	3·8	−0·1	8	9·00	− 1·00	13·22	8·01	+5·21	17·40	12·12	+ 5·28	5·80	Sialkot,		
14		1	5	7				4	S 80° E	8·5				67	−19·0	·835	−·102	3·8	−1·9	6	9·80	− 3·80	8·20	7·65	+0·55	10·00	14·67	− 4·67	2·30	Umballa,		
20	2	6	1					2	N 27° E	3·0	2·8	2·1	+ 33	57	−14·9	·651	−·157	4·7	+0·5	5	9·10	− 4·10	4·04	8·53	−4·49	7·47	12·01	− 4·54	3·06	Rawalpindi .		
														6	+0·5	·890	+·018	3·5	−0·2				3·95	3·02	+0·3					VII.—Indus Valley and North-West Rajputana.		
18	4	3					1	5	N 14° W	1·8	2·0	4·4	− 55	55	−8·1	·697	−·101	3·5	+0·3	1	2·10	− 1·10	0·45	1·66	−1·21	2·68	2·71	− 0·03	0·40	Peshawar .	North-West Frontier Province.	32
19	1	5		5		1			N 63° E	2·1	2·2	2·4	− 8	75	+6·3	·952	+·040	3·1	+0·7	4	3·10	+ 0·90	2·95	2·38	+0·57	3·68	3·37	+ 0·31	1·10	D. I. Khan,		
2	2	12	8	3	1	1	2		N 67° E	8·5	7·2			60	−4·7	·797	−·050	3·7	+1·0	4	3·50	+ 0·50	4·31	4·52	−0·21	5·27	7·02	− 1·75	1·70	Khushab .	West Punjab .	31
2	4	7	7	2	2	5	2		N 76° E	9·9	8·5			64	+3·6	·820	−·018	3·7	+0·8	9	3·20	+ 5·80	4·41	2·48	+1·93	6·03	3·89	+ 2·14	1·48	Montgomery,		
12	1	7	1	5		4		1	N 87° E	2·5	3·1	3·4	− 9	67	+4·8	·883	+·033	2·8	+0·7	4	2·50	+ 1·50	3·70	2·41	+1·29	4·23	3·33	+ 0·90	2·07	Mooltan,		
18	1	1	1	5	3			2	S 48° E	3·3	3·4	5·3	− 36	73	+7·9	1·039	+·136	2·6	0	3	1·60	+ 1·40	2·29	1·22	+1·07	2·77	1·47	+ 1·30	1·41	Jacobabad .	Sind . .	47
1	1	1				26		2	S 50° W	11·7	12·2	13·9	− 12	68	+0·7	·870	+·055	3·7	−2·3	9	3·30	+ 5·70	4·86	2·70	+2·16	4·94	3·26	+ 1·68	1·96	Hyderabad,		
	2	1		2		12	13	1	S 73° W	11·8	14·8	17·8	− 17	77	−4·5	·989	+·032	5·2	−2·1	3	3·00	0	3·51	3·66	−0·15	3·56	4·37	− 0·81	1·94	Kurrachee.		
1	1	3	2	1	3	10	8	2	S 63° W	9·4		6·7	+ 40	64	−1·5	·879	+·035	3·4	−1·0	9	4·90	+ 4·10	4·83	3·39	+1·44	5·26	5·97	− 0·71	1·26	Bikaner .	West Rajputana	51
			2		13	11	5		S 28° W	13·7	11·9	9·8	+ 21	80	+0·5	1·018	P	1·8	P	7	5·40	+ 1·60	3·22	4·63	−1·31	3·32	6·75	− 3·43	1·28	Pachpadra,		
2			1	1	3	15	8	1	S 52° W	7·5	6·8			68		·845		5·5		7	5·30	+ 1·70	8·82	4·19	+4·63	9·70	5·95	+ 3·75	3·77	Jodhpur,		
														78	−3·4	·893	+·022	6·4	−0·8				11·61	10·08	+1·17					VIII.—East Rajputana, Central India and Gujarat		
3		5	4	1	2	6	7	3	S 76° W	4·4		6·2	− 29	69	−6·9	·826	−·012	5·5	−1·3	10	10·90	− 0·90	5·62	8·66	−3·04	6·31	11·81	− 5·50	1·54	Jaipur .	East Rajputana.	50
7		1	6	7	2	3	3	2	S 36° E	5·1	4·6			79		1·001		4·7		8			4·65			6·45			0·81	Bharatpur .		
2	1	2	3	1	1	8	4	9	N 83° W	6·6	5·3			69		·836		5·1		12	10·90	+ 1·10	10·58	9·85	+0·73	12·64	14·53	− 1·89	2·82	Kotah,		
13	2		3			1	6	6	N 55° W	6·5		9·1	− 29	64†	−9·4	·795†	−·026	4·6	−1·6	8	8·80	− 0·80	10·30	7·23	+3·07	12·16	9·57	+2·59	2·09	Sambhar,		
3		2	1	3		7	13	2	S 74° W	7·3	6·5	6·9	− 6	74	−6·2	·861	+·023	5·7	+0·1	11	9·50	+ 1·50	8·70	7·42	+1·28	9·15	10·51	− 1·36	2·80	Ajmer,		
5	1	1	1	2	3	5	8	5	S 77° W	5·9	5·2			72		·797		5·6		15	9·50	+ 5·50	11·25			12·69			2·11	Udaipur.		
		1	1	2	7	7	11	2	S 52° W	13·0		14·5	− 10	80	−2·5	·900	+·034	6·8	−1·7	15	10·73	+ 4·27	12·39	10·16	+2·23	12·51	12·68	− 0·17	3·55	Deesa,		
		3				7	17	4	W	15·5	13·0	16·6	− 22	85	+4·9	·952	+·076	7·9	+0·2	10	6·20	+ 3·80	9·58	7·47	+2·11	9·60	9·59	+ 0·01	4·00	Bhuj . .	Kathiawar and Cutch.	46
	3	2		1	9	12	4		S 37° W	18·1	21·9			80		·953		5·5		15			15·75			16·09			5·32	Jamnagar .		
		1	1	1	3	11	12	2	S 64° W	11·9	11·8	14·5	− 19	86	+2·7	·911	+·038	7·8	−0·2	12	11·20	+ 0·80	10·63	13·31	− 2·68	11·20	18·65	− 7·45	2·59	Rajkot,		
		1		2	3	8	15	2	S 68° W	21·2	21·2	14·8	+ 43	87	−0·8	·972	+·040	7·7	−0·9	15	10·90	+ 4·10	15·99	7·24	+8·75	17·82	12·49	+ 5·33	3·66	Veraval,		
		2		1	1	11	13	3	S 75° W	18·7				83		·978		7·2		16			20·67			21·07			5·45	Dwarka,		
	1			2	3	18	4	3	S 52° W	9·5	8·9			77	−3·4	·894	P	8·1	+0·5	12	10·20	+ 1·80	11·36	4·73	+6·63	13·54	9·85	+ 3·69	4·18	Bhavnagar Para,		
1	1		11	1		6	11		S 42° W	3·8	3·8	4·2	− 10	69	−14·1	·859	−·026	7·3	+0·3	7	14·80	− 7·80	4·47	14·20	−9·73	4·97	22·68	−17·71	1·73	Nowgong .	Central India .	49
4						3	6	18	N 63° W	6·5	5·3	6·8	− 22	87	+0·5	·830	+·048	8·7	0	14	12·50	+ 1·50	18·40	9·00	+9·40	24·72	15·94	+ 8·78	7·42	Indore,		
		1		1	1	10	15	3	S 76° W	10·8	9·7	12·2	− 20	86	+3·6	·878	+·078	6·8	0	14	10·10	+ 3·90	15·22	8·96	+6·26	15·91	14·36	+ 1·55	4·25	Neemuch,		

† Mean of 27 days.

in the variation returns of any station, the data for that station are not utilized in calculating the provincial variations.
Nos. 41, 43 and 45 are derived only from the data available.

Table

Abstract of Observations taken at 8 A.M. at 231

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
45	Gujarat	Surat	39	29·582	−·051	29·561	29·733	1st	29·347	15th	·386	81·9	88·0	+0·7	78·2	+0·9	83·1	+0·8	9·8	95·2	11th	75·5	22nd, 26th & 27th.	19·7
		Ahmedabad	163	29·429	−·045	29·538	29·578	1st	29·257	15th	·321	83·9	95·1	+3·7	79·9	+1·7	87·5	+2·7	15·2	104·3	6th & 7th.	75·6	19th & 22nd.	28·7
22	United Provinces (West).	Agra	555	28·964	−·035	29·468	29·063	1st	28·861	9th	·202	88·2	99·8	+6·5	84·5	+4·1	92·2	+5·3	15·3	111·0	9th	77·9	13th & 14th.	33·1
1	United Provinces (Central).	Jhansi	858	28·686	−·027	29·485	28·801	1st	28·616	26th	·185	86·8	99·3	+8·1	83·4	+4·6	91·4	+6·4	15·9	111·2	9th	76·1	12th & 13th.	35·1
	IX.—Deccan				−·045								87·3	+1·4	74·1	+1·1	80·7	1·3	13·2					26·5
38	Bombay (Deccan)	Belgaum	2,539	27·215	?	29·687	27·288	1st	27·079	14th	·209	70·5	75·4	−0·3	67·5	+0·6	71·5	+0·2	7·9	83·3	7th	61·8	13th	18·5
		Sholapur	1,590	28·104	−·057	29·641	28·201	1st	27·980	14th	·221	76·3	86·4	−3·1	72·9	+1·2	79·7	−1·0	13·5	98·2	8th	71·0	22nd	22·2
		Poona	1,840	27·849	−·052	29·629	27·949	1st	27·674	14th	·275	75·0	82·6	+0·3	72·1	+1·3	77·4	+0·8	10·5	91·0	1st	70·4	26th	20·6
		Bijapur	1,918	27·767	−·054	29·654	27·846	1st	27·645	14th	·201	74·6	84·7	−1·5	71·0	+0·2	77·8	−0·7	13·7	91·4	1st, 5th & 8th.	67·8	28th	23·6
40	Khandesh	Malegaon	1,430	28·201	−·053	29·576	28·307	1st	28·040	15th	·267	78·9	88·0	+0·6	74·3	+1·0	81·2	+0·8	13·7	93·4	5th & 8th	71·0	25th	22·4
		Ahmednagar	2,152	27·545	−·038	29·629	27·654	1st	27·405	15th	·249	74·9	83·6	−1·6	71·2	+0·7	77·4	−0·5	12·4	89·9	1st, 2nd & 4th.	69·4	16th	20·5
41	Berar	Akola	930	28·692	−·045	29·568	28·804	1st	28·585	15th	·219	79·4	89·2	+0·2	74·6	+0·3	81·9	+0·3	14·6	100·8	7th	71·3	25th	29·5
		Amraoti	1,215	28·402	−·039	29·567	28·514	1st	28·295	14th	·219	77·4	87·8	+0·5	74·5	+1·0	81·2	+0·8	13·3	99·2	7th	70·5	25th	28·7
42	Central Provinces (West).	Khandwa	1,044	28·558	−·044	29·553	28·687	1st	28·436	14th	·251	80·1	90·3	+2·7	76·6	+1·3	83·5	+2·0	13·7	100·7	9th	70·1	25th	30·6
		Hoshangabad	1,006	28·582	−·040	29·539	28·712	1st	28·478	25th	·234	81·2	94·5	+7·8	77·9	+2·7	86·2	+5·3	16·6	105·9	10th	73·2	25th	32·7
		Nagpur	1,025	28·572	−·036	29·549	28·693	1st	28·439	24th	·254	78·6	89·2	+1·4	75·7	+0·6	82·5	+1·0	13·5	100·1	9th	71·1	25th	29·0
43	Central Provinces (Central)	Chanda	634	28·985	−·038	29·563	29·103	1st	28·866	24th	·237	78·9	88·0	−0·6	74·5	−1·4	81·3	−1·0	13·5	99·7	8th	70·5	13th	29·2
		Seoni	2,033	27·567	−·040	29·522	27·698	1st	27·425	24th	·273	77·6	87·5	+3·7	73·2	+0·6	80·4	+2·2	14·3	98·8	7th	70·5	2nd	28·3
		Jubbulpore	1,327	28·231	−·040	29·502	28·365	1st	28·093	24th	·272	80·3	91·6	+5·7	76·5	+1·9	84·1	+3·8	15·1	102·0	8th	72·1	2nd	29·9
		Saugor*	1,807	27·780	?	29·517	27·912	1st	27·688	24th & 26th.	·224	80·2	91·3	+6·1	76·3	+2·4	83·8	+4·3	15·0	102·4	6th	72·1	12th	30·3
49	Central India	Sutna	1,040	28·491	−·034	29·474	28·619	1st	28·412	14th	·207	85·8	97·3	+9·9	82·4	+5·4	89·9	+7·7	14·9	109·1	9th	76·6	21st	32·5
44	Central Provinces (East).	Raipur	970	28·597	−·045	29·514	28·731	1st	28·406	24th	·325	80·0	89·5	+3·0	76·0	+1·1	82·8	+2·1	13·5	100·7	8th	69·4	25th	31·3
		Pendra	2,123?	27·541			27·678	1st	27·412	24th	·266	78·6	88·3		74·2		81·3		14·1	94·8	10th	70·6	25th	24·2
		Sambalpur	486	29·074	−·046	29·506	29·208	1st	28·907	14th	·301	82·1	91·0	+3·5	78·5	+1·2	84·8	+2·4	12·5	100·1	9th & 11th.	71·1	25th	29·0
39	Hyderabad (North).	Aurangabad	1,905	27·760		29·597	27·861	1st	27·630	15th	·231	75·4	84·9		71·1		78·0		13·8	91·8	8th	68·7	27th	23·1
		Indur	...	28·335			28·447	11th	28·293	1st & 3rd,	·154	76·4	85·3		73·9		79·6		11·4	95·8	8th	70·2	25th	25·6
		Bidar	2,165	27·524		29·625	27·645	1st	27·393	14th	·252	73·1	81·9		70·2		76·1		11·7	90·8	7th	65·0	15th	25·8
53	Hyderabad (South).	Gulbarga	1,503	28·203	−·046	29·656	28·291	2nd	28·099	14th	·192	75·2	85·6	−4·2	72·2	+0·4	78·9	−1·9	13·4	94·3	1st	70·3	20th	24·0
		Raichur	1,326	28·390	−·043	29·668	28·465	1st & 21st.	28·280	14th	·185	76·6	87·4	−2·7	73·1	0	80·3	−1·4	14·3	97·1	1st	71·1	14th & 26th.	26·0
		Hyderabad (Dn.)	1,690	27·994	−·048	29·633	28·088	4th	27·885	14th	·203	75·2	84·1	−3·0	72·8	+1·1	78·5	−1·0	11·3	92·4	8th	69·7	20th & 27th.	22·7
		Secunderabad	1,787	27·903	−·051	29·636	28·005	1st	27·794	14th	·211	74·7	85·3	−0·9?	71·9	+0·8	78·6	−0·1?	13·4	96·2	8th	67·1	24th	29·1
		Hanumkonda	871	28·778		29·594	28·914	1st	28·652	14th	·262	78·1	86·0		75·1		80·6		10·9	96·4	7th	70·8	12th	25·6
	X.—West Coast				−·043								82·8	−0·3	75·7	+0·6	79·3	+0·1	7·2					13·9
37	Konkan	Bombay	37	29·636	−·066	29·613	29·741	1st	29·416	14th	·325	80·4	84·3	−0·1	78·0	+0·5	81·2	+0·2	6·3	88·0	8th & 10th.	75·0	17th	13·0
		Ratnagiri	110	29·622	−·045	29·670	29·700	1st	29·455	14th	·245	79·2	83·6	−0·3	76·2	+0·5	79·9	+0·1	7·4	86·8	2nd, 6th & 8th.	72·9	13th	13·9
		Mormugao	60	29·705	−·046	29·700	29·784	21st	29·570	15th	·214	79·6	83·2	−0·5	76·2	0	79·7	−0·3	7·0	87·0	1st & 9th	73·4	26th	13·6
		Goa	199									78·9	80·9	−1·5	77·1	+1·1	79·0	−0·2	3·8	84·0	1st & 2nd	75·0	13th & 15th.	9·0
		Karwar	44	29·738	−·048	29·714	29·816	21st	29·612	14th	·204	79·7	82·7	−0·3	75·4	+0·3	79·1	0	7·3	88·8	5th	71·5	13th	17·3
23	Malabar	Cochin	10	29·867	−·028	29·805	29·926	21st	29·810	7th	·116	77·6	84·2	+0·7	74·0	−0·1	79·1	+0·3	10·2	86·3	6 days	70·7	16th	15·6
		Calicut	27	29·825	−·040	29·781	29·905	21st	29·757	13th	·148	76·9	81·7	−0·8	74·5	+0·6	78·1	−0·1	7·2	85·3	8th & 22nd.	72·2	11th	13·1
		Mangalore	65	29·759	−·018	29·756	29·842	21st	29·674	14th	·168	78·1	82·7	−0·3	74·8	+0·6	78·9	+0·2	7·9	87·2	21st	71·9	28th	15·3
		Trivandrum	198	29·673	−·021	29·803	29·743	25th	29·612	14th	·131	76·1	82·2	+0·1	74·7	+1·7	78·5	+0·9	7·5	84·0	17th	70·0	13th	14·0

* Observation of 30 days.

Note 1.—When a query is inserted against any reading or in the variation

Note 2.—The divisional means of the figure columns Nos. 41, 43 and 45 are

I—*continued.*

Stations in India, Burma, etc., in July, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 July, 1903.	Normal rainfall for period, 1st May to 31st July.	Variation from normal of period, 1st May to 31st July, 1903.	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	56	57	58
	1		1	3	10	9	5	2	S 32° W	9·3	8·7	15·7	−45	86	+0·5	·937	+·024	8·0	0	17	16·10	+0·90	19·57	17·68	+1·89	21·60	27·43	−5·83	4·93	Surat . .	Gujarat . .	45
	2			5	2	11	2	9	S 68° W	4·6	6·5			79	−3·7	·909	+·019	8·2	−0·6	12	13·50	−1·50	16·88	12·59	+4·29	17·27	19·36	−2·09	3·18	Ahmedabad.		
		2		10	1	11		7	S 24° W	7·2	8·5	5·0	+70	66	−12·8	·856	−·066	4·7	−2·3	8	10·80	−2·80	4·07	10·60	−6·53	4·26	14·06	−9·80	1·25	Agra . .	United Provinces (West).	22
5		2	4	4	1	10	3	2	S 22° W	4·7	5·2	4·1	+27	74	−4·0	·924	+·054	2·0	−4·5	7	13·10	−6·10	6·16	12·12	−5·96	7·66	18·59	−10·93	1·48	Jhansi, .	United Provinces (Central).	21
														83	+0·8	·790	+·025	7·9	0				13 24	10·88	+1·84					IX.—Deccan.		
					2	19	10		S 57° W	26·6†		27·9	− 5	91	+1·5	·703	+·021	9·4	+0·1	23	21·80	+1·20	21·70	15·46	+6·24	31·27	26·39	+ 4·88	4·00	Belgaum .	Bombay Deccan.	38
						18	11	2	S 66° W	13·4	16·2	12·3	+32	80	+7·6	·729	+·048	9·5	+1·4	12	7·60	+4·40	7·70	4·19	+3·51	17·48	9·55	+ 7·93	1·96	Sholapur.		
				1	5	24	1		S 82° W	15·7		16·9	− 7	84	+2·½	·727	+·018	9·1	+0·3	18	12·50	+5·50	7·42	7·05	+0·37	12·66	13·11	− 0·51	0·97	Poona.		
				2	12	16	1		S 69° W	13·7	13·4			84	+3·9	·724	+·026	8·8	+0·7	8	5·10	+2·90	5·94	2·02	+3·92	10·69	7·36	+3·33	3·39	Bijapur.		
	1		1		2	9	13	5	S 80° W	9·8	11·3	11·8	− 4	79	+1·4	·781	+·029	6·4	−1·3	11	7·30	+3·70	5·98	5·00	+0·98	15·44	10·17	+ 5·27	3·13	Malegaon .	Khandesh . .	40
				1	1	11	11	3	S 70° W	10·1	12·3			83	+0·8	·727	+·011	8·9	+1·1	16	6·40	+9·60	10·72	2·84	+7·88	19·84	8·86	+10·98	3·48	Ahmednagar.		
4						9	13	8	S 88° W	8·6	8·4	8·4	0	83	+3·8	·825	+·043	8·7	+0·8	16	12·30	+3·70	16·03	10·57	+5·46	19·73	16·20	+ 3·53	2·73	Akola . .	Berar . .	41
1					1	9	19	2	S 78° W	11·7	10·4	7·6	+37	87	+1·3	·825	+·031	8·3	+0·5	19	12·30	+6·70	15·23	9·88	+6·35	21·93	17·33	+ 4·60	2·75	Amraoti.		
					1	6	7	17	N 74° W	7·6		8·4	−10	79	−2·2	·800	+·014	7·9	+0·4	10	11·10	−1·10	8·08	8·89	−0·81	12·73	15·05	− 2·32	1·54	Khandwa .	Central Provinces (West).	42
						31			S 45° W	5·2	5·3	4·5	+18	84	−4·5	·897	+·045	7·3	−1·1	11	16·10	−5·10	9·57	16·82	−7·25	12·90	24·15	−11·25	3·03	Hoshangabad		
9			1		1	7	11	2	S 75° W			10·1		86	+2·6	·847	+·022	8·3	−0·1	16	15·80	+0·20	23·49	14·66	+8·83	32·59	23·90	+ 8·69	5·49	Nagpur.		
23						4	4		S 66° W	3·5	3·1	6·2	−50	84	+6·4	·829	+·033	8·2	+0·2	17	16·80	+0·20	22·26	18·08	+4·18	31·95	26·50	+ 5·45	5·00	Chanda .	Central Provinces (Central).	43
	4	3	1		1	5	9	8	N 64° W	6·5	5·5	6·2	−11	86	−1·2	·812	+·023	6·6	−1·6	19	18·60	+0·40	16·79	17·09	−0·30	28·01	27·72	+ 0·29	2·73	Seoni.		
	1	1	1	1	4	5	12	6	S 82° W	3·8	3·3	5·0	−34	84	−2·5	·863	+·035	7·2	−0·9	12	18·40	−6·40	12·16	20·15	−7·99	17·76	30·20	−12·44	2·30	Jubbulpore.		
		3	3		3	5	14	2	S 78° W	8·4	7·5	5·1	+47	78	−8·6	·802	−·004	6·1	−1·1	14	16·56	−2·50	9·92	15·27	−5·35	14·27	24·56	−10·29	1·29	Saugor.		
1		1	6	3	1	8	9	2	S 48° W	6·0	5·4	9·4	−43	69	−13·5	·832	−·026	7·5	+0·4	9	15·00	−6·00	6·97	14·28	−7·31	8·13	21·98	−13·85	2·02	Sutna . .	Central India.	49
2				1	1	21	6		S 51° W	9·4	8·6	11·6	−26	87	+0·9	·882	+·041	8·2	−0·4	17	15·80	+1·20	12·78	15·89	−3·11	16·39	25·71	− 9·32	2·38	Raipur .	Central Provinces (East).	44
	5	4	3	6	8	1	4		S 71° E	7·0	6·0			83		·818		6·9		8			12·39			16 51‡			4·55	Pendra .		
		3	1	1	7	14	5		S 35° W	5·1	5·0	3·6	+39	82	−3·9	·909	+·019	7·0	−1·2	17	19·50	−2·50	15·68	22 82	−7·14	19·51	35·79	−16·28	3·02	Sambalpu		
1						12	18		S 72° W	12·2	12·1			84		·742		7·5		19	11·60	+7·40	9·88	6·82	+3·06	14·16	13·81	+ 0·35	1·57	Aurangabad,	Hyderabad (North).	39
3		2				1	3	22	N 48° W	7·3	6·2			84		·760		7·4		20	15·70	+4·30	15·32	11·11	+4·21	18·25	16·15	+ 2·10	2·84	Indur.		
	1				4	17	8	1	S 53° W	12·0	9·6			90		·737		7·5		17	12·60	+4·40	15·98	8·80	+7·18	19·79	15·54	+ 4·25	3·52	Bidar.		
	1					7	20	3	S 86° W	13·6	13·1			88	+8·7	·773	?	9·3	+1·1	15	9·10	+5·90	12·57	5·31	+7·26	17·97	12·18	+ 5·79	2·73	Gulbarga .	Hyderabad (South).	53
						30	1		S 46° W	15·6	14·8			81	+5·7	·738	+·025	6·6	0	14	9·20	+4·80	7·97	5·53	+2·44	12·58	9·37	+ 3·21	2·30	Raichur.		
1							30		W	9·7	9·4			85	+6·6	·745	+·037	8·8	+1·3	17			13·84	6·73	+7·11	16·47	12·09	+ 4·38	2·15	Hyderabad (Dn.).		
						5	22	9	S 88° W	13·0		13·3	− 2	86		·736		8·2		17	11·00	+6·06	12·93	6·73	+6·20	16·90	12·09	+ 4·81	2·06	Secunderabad		
1	2			1	4	16	4	3	S 47° W	11·0	9·4			79		·762		8·9		17	12·50	+4·50	27·20			34·26			8·97	Hanumkonda		
														89	+	·872	+·008	8·9	+0·4				36 79	28·58	+8·21					X.—West Coast.		
			1	4	4	7	14	1	S 56° W	15·8		19·1	−17	89	+2·8	·928	+·017	9·3	+0·3	25	23·00	+2·00	24·20	25·05	−1·85	50·63	46·39	+ 4·24	3·13	Bombay .	Konkan . .	37
1			1	6		12	10	1	N 49° W	13·2	13·1	13·7	− 4	91	+3·4	·899	+ 008	9·4	+0·7	30	25·90	+4·10	42·76	35·68	+7·08	69·01	67·33	+ 1·68	6·77	Ratnagiri.		
	1		1	2	1	3	4	19	N 60° W	14·1				91	+2·0	·926	+·020	9·1	+1·5	30			37·67	31·88	+5·79	71·53	58·08	+13·45	4·40	Mormugao.		
1		3	4		3	7	12	1	S 66° W					90	+1·6	·888	+·001	9·8	+0·7	30			41·56	32·68	+8·88	74·16	63·73	+10·43	4·52	Goa.		
6			1	9	12	2	1		S 32° W	6·0				86	−0·2	·863	+·021	5·6	−2·4	30	27·40	+2·60	55·35	37·78	+17·57	96·40	77·04	+19·36	9·24	Karwar.		
5	1	7	4		2	1	7	4	N 14° W	7·7				88	−0·2	·840	+·005	8·8	+0·5	31	23·40	+7·60	28·87	21·21	+7·66	73·27	62·59	+10·68	2·97	Cochin .	Malabar .	33
6	1	2	3	1	1	3	7	7	N 69° W	6·6	6·3			91	−0·1	·844	+·012	9·5	+0·9	30	26·20	+3·80	40·03	29·05	+10·98	74 97	72·44	+ 2·53	3·62	Calicut.		
11	1			3			6	9	N 63° E	3·8		3·2	+19	90	−1·1	·862	+·001	9·0	0	29	27·80	+1·20	50·27	36·03	+14·24	86·09	78·01	+ 7·18	5·86	Mangalore.§		
	16						3	12	N 25° W	8·6				88	+0·4	·800	−·011	9·5	+1·0	20	13·10	+6·90	10·41	6·86	+3·55	31·69	28·36	+ 3·33	1·19	Trivandrum.		

† Mean of 30 days.

‡ Rainfall since 23rd June 1903.

§ Wind observation of 30 days.

returns of any station, the data for that station are not utilized in calculating the provincial variations. derived only from the data available.

Table

Abstract of Observations taken at 8 A.M. at 231

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
					-·043								89·9	-1·3	75·2	-0·1	82·5	-0·7	14·6					24·5
	XI.—South India.																							
57	Madras (South)	Pamban	37	29·768		29·732	29·853	21st	29·707	7th	·146	83·2	89·8		79·5		81·7		10·3	93·8	5th	76·7	8th	17·1
		Tinnevelly	168	29·650	-·021	29·747	29·731	21st	29·597	6th	·134	84·3	95·3	-0·5	78·7	-0·7	87·0	-0·6	16·6	99·8	1st	74·9	14th	24·9
		Madura	447	29·340	-·034	29·719	29·426	21st	29·281	14th	·145	83·8	95·9	-1·3	76·4	0	86·2	-0·7	19·5	102·0	5th	70·0	17th	32·0
		Periyakulam	945	28·852			28·926	21st	28·794	14th	·132	80·3	92·9		72·7		81·4		20·2	93·2	2nd	69·4	21st	23·8
34	Madras (South-Central).	Salem	940	28·864	-·052	29·745	28·949	21st	28·797	14th	·152	78·3	90·7	-2·4?	73·8	+0·8	82·2	-0·8?	16·9	95·7	22nd	72·0	3rd	23·7
		Coimbatore	1,348	28·451	-·040	29·745	28·523	21st	28·393	14th	·130	76·8	86·7	-1·8	71·5	+0·8	79·1	-0·3	15·2	92·9	2nd	68·8	10th	24·1
35	Coorg	Mercara	3,781	26·139	-·028		26·223	21st	26·074	14th	·149	65·1	69·6	+0·7?	61·9	-0·3	65·8	+0·2?	7·7	77·0	1st	60·1	5 days	16·9
36	Mysore	Chitaldroog	2,405	27·377	-·045	29·705	27·449	21st	27·276	14th	·173	72·3	81·8	-0·1	69·1	+0·7	75·5	+0·3	12·7	90·1	8th	67·4	13th & 15th.	22·7
		Bangalore	3,021	26·816	-·046	29·733	26·894	21st	26·742	14th	·152	70·4	82·0	+0·1?	66·5	+0·7	74·3	+0·4?	15·5	87·8	2nd	64·8	19th, 20th & 21st.	23·0
		Hassan	3,091	26·761	-·041	29·758	26·840	21st	26·663	14th	·177	70·4	76·2	-0·6	65·6	+0·7	71·0	+0·1	10·6	85·4	2nd	64·7	4 days	20·7
		Mysore	2,518	27·322	-·043	29·760	27·407	21st	27·229	14th	·178	72·2	81·7	-1·0	67·4	+0·5	74·6	-0·3	14·3	87·1	1st, 2nd & 8th.	65·5	19th	21·6
56	Madras, East Coast, South.	Negapatam	31	29·747	-·039	29·707	29·820	21st	29·693	7th	·127	84·7	93·4	-2·5?	79·5	+1·3	86·5	-0·6?	13·8	101·1	6th	76·0	2nd & 8th	25·1
		Cuddalore	12	29·755	?	29·696	29·841	21st	29·689	14th	·152	82·6	94·1	-1·8	78·1	+0·4	86·1	-0·7	16·0	99·2	5th	73·7	8th	25·5
		Trichinopoly	255	29·534	-·035	29·721	29·619	21st	29·470	14th	·149	83·4	97·0	-0·5?	78·6	+0·7	87·8	+0·1?	18·4	101·6	2nd, 7th & 8th.	74·4	8th	27·2
		Madras	22	29·719	-·047	29·672	29·818	21st	29·667	13th	·151	83·1	94·1	-1·6	78·3	-0·4	86·2	-1·0	15·8	99·0	4th & 11th	74·5	8th	24·5
		Vellore	707	29·044		29·687	29·135	21st	28·976	13th	·159	81·7	92·6		77·1		84·8		15·5	96·9	26th	74·0	2nd & 8th	22·9
55	Madras, East Coast, Central.	Nellore	71	29·645	?	29·649	29·738	20th	29·579	13th & 14th.	·159	83·4	95·8	-1·5	79·0	-0·6	87·4	-1·1	16·8	101·8	8th	75·1	20th	26·7
		Masulipatam	15	29·666	-·036	29·616	29·771	1st	29·577	13th	·194	81·2	89·0	-3·7	77·6	-0·5	83·3	-2·1	11·4	97·7	5th & 7th.	73·6	13th	24·1
54	Madras, Central	Cuddapah	433	29·297	-·049	29·668	29·386	21st	29·212	14th	·174	81·7	94·1	-1·2	76·6	-1·4	85·4	-1·3	17·5	101·2	1st	71·7	6th	29·5
		Kurnool	945	28·763	-·057	29·650	28·844	1st	28·665	14th	·179	78·3	89·8	-1·6	74·0	-0·7	81·9	-1·2	15·8	98·7	1st	68·9	28th	29·8
		Bellary	1,475	28·262	-·046	29·677	28·345	21st	28·157	14th	·188	78·8	90·1	-0·8	75·3	+0·7	82·7	-0·1	14·8	97·0	3rd	73·2	13th & 18th.	23·8
52	Madras, East Coast, North.	Cocanada	26	29·619	-·038	29·580	29·732	1st	29·505	13th	·227	80·9	88·4	-3·3	77·8	-1·5	83·1	-2·4	10·6	97·6	3rd	74·0	12th & 27th.	23·6
		Waltair (Vizag.)	226	29·376	-·053	29·542	29·499	1st	29·247	13th	·252	81·2	87·6	?	77·7	?	82·7	?	9·9	95·9	11th	72·9	12th	23·0
		Gopalpur	21	29·547	-·043	29·506	29·695	1st	29·364	13th	·331	83·4	88·2	+0·8	79·5	+0·3	83·9	+0·6	8·7	94·7	12th	75·5	12th & 23rd.	19·2
	XII.—Hill Stations.																							
													94·6		60·7		77·7		33·9	99·4	10th & 11th.	54·1	25th & 26th.	45·3
48	Baluchistan	Pishin					24·545	7th	24·393	22nd	·152	75·7	90·8	-1·9	64·0	-0·7	77·4	-1·3	26·8	95·6	10th & 11th.	54·9	13th & 26th.	40·7
		Quetta	5,502	24·461	+·038		25·528	8th	25·368	10th	·160	85·5	100·3	-1·2	72·4	-2·7	86·3	-2·0	27·9	106·2	10th	65·1	13th	41·1
		Chaman	4,311	25·417	+·008		19·752	8th	19·604	27th	·148	53·3	69·0	-9·2	46·2	-4·4	57·6	-6·8	22·8	78·6	27th	37·4	3rd	41·2
30	Punjab	Leh	11,503	19·668	+·025		24·821	16th	24·627	22nd	·194	64·5	78·4	-6·6	59·6	-5·0	69·0	-5·8	18·8	92·8	11th	52·7	3rd & 4th.	40·1
		Srinagar†	5,204	24·729	+·061		21·870	16th	21·706	22nd	·164	55·4	61·7		47·2		54·5		14·5	74·1	11th	38·3	2nd	35·8
		Gulmarg		21·783			21·893	7th	21·605	22nd	·288	50·1	66·4		44·6		55·5		21·8	77·4	12th	36·1	2nd	41·3
		Sonemarg		21·730			22·908	16th	22·630	27th	·278	60·9	73·0		55·0		64·0		18·0	90·1	10th	48·7	1st	41·4
		Skardu		22·765			20·822	16th	20·656	27th	·166	55·7	69·9		46·1		58·0		23·8	81·9	11th	38·1	2nd, 5th & 24th.	43·8
		Dras		20·736			25·152	16th	24·792	27th	·360	70·6	85·9	-10·7	65·7	-7·6	75·9	-9·2	20·2	101·7	10th	58·9	25th	42·8
		Gilgit	4,890	24·972			24·580*	26th	24·560*	6 days	·020	75·0	91·4		62·5		77·0		28·9	101·2	20th	56·0	3rd	45·2
		Chitral		24·568*								74·3	90·8		67·0		78·9		23·8	101·2	10th	52·6	4th	48·6
		Killa Drosh																						

* Aneroid corrected.

† Observation of 26 days.

Note 1.—When a query is inserted against any reading or in the variation

Note 2.—The divisional means of the figure columns Nos. 41, 43 and 45 are

I—*continued.*

Stations in India, Burma, etc., in July, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 July, 1903.	Normal rainfall for period, 1st May to 31st July.	Variation from normal of period, 1st May to 31st July, 1903.	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	56	57	58
														77	+3·1	·781	+·037	7·4	+0·1				3·92	3·14	+0·78					**XI.—South India.**		
						15	9	1	S 63° W	14·0	14·9			75		·855		4·1		0	0·60	−0·60	0·11	0·17	−0·06	1·50	0·84	+0·66	0·09	Pamban	Madras (South)	57
6																																
	1	1				9	15	5	S 88° W	9·7	9·3			60	+1·4	·718	+·021	7·5	+0·7	1	0·60	+0·40	0·16	0·27	−0·11	1·51	2·20	−0·69	0·10	Tinnevelly.		
3	6					12	1	9	N 75° W	4·7	5·4	4·6	+17	63	−0·5	·733	+·008	5·7	+0·5	4	3·00	+1·00	1·47	2·06	−0·59	6·99	5·96	+1·03	0·57	Madura.		
														67		·676		6·4		1	1·90	−0·90	0·31	0·69	−0·38	3·60	4·47	−0·87	0·10	Periyakulam.		
14	1	2	3		1	2	2	6	N 37° W	3·8	4·1																					
7	1				5	11	7		S 51° W	4·4	4·0	4·7	−15	80	+2·1	·786	+·020	7·8	+1·4	9	7·00	+2·00	1·64	3·48	−1·84	16·88	11·46	+5·42	0·33	Salem	Madras (South Central).	34
						6		25	N 58° W	8·3	7·4	8·2	−10	85	+1·3	·795	+·047	5·1	−1·4	11	3·70	+7·30	2·61	1·23	+1·38	7·66	5·16	+2·50	0·47	Coimbatore.		
						1	29	1	W	7·4	6·9	11·3	−39	97	+1·5	·613	+·026	5·7	+0·9	28	29·10	−1·10	59·65	40·35	+19·30	79·93	73·48	+6·45	5·78	Mercara	Coorg	35
						13	16	2	S 74° W	12·3	10·7			85	+2·6	·641	−·018	8·8	−0·5	10	8·60	+1·40	3·18	2·79	+0·39	12·84	10·33	+2·51	0·73	Chitaldroog	Mysore	36
						17	13	1	S 66° W	14·7	12·8	8·6	+49	65	+1·1	·633	+·014	9·0	+0·8	5	8·20	−3·20	1·10	4·06	−2·96	7·91	11·33	−3·62	0·18	Bangalore.		
						4	18	9	N 82° W	5·9	5·2			88	+3·0	·651	+·028	9·4	+0·9	20	12·60	+7·40	9·18	3·85	+5·33	25·05	14·03	+11·02	1·17	Hassan.		
						20	11		S 61° W	13·6	14·7			84	+2·1	·656	+·024	9·1	+0·6	10	7·30	+2·70	2·70	2·32	+0·38	16·22	9·50	+6·72	0·61	Mysore.		
						8	19		S 77° W	5·9	5·2	7·1	−27	67	+0·3	·801	+·024	5·5	−0·3	4	3·50	+0·50	1·50	1·88	−0·38	7·83	4·99	+2·84	0·73	Negapatam	Madras, East Coast, South.	56
4						2	2		S 67° W	2·3	2·9			84	+7·2?	·941	+·069?	8·1	+1·6	4	5·50	−1·50	2·53	3·53	−1·00	7·18	5·81	+1·37	1·61	Cuddalore		
27					1	13	12	1	S 68° W	11·0		9·9	+11	63	+0·7	·725	+·027	5·3	−1·8	2	1·90	+0·10	0·66	1·31	−0·65	9·81	5·75	+4·06	0·55	Trichinopoly.		
4					5	14	12		S 56° W	6·7		8·3	−19	72	+3·3	·817	+·025	7·3	−0·1	6	12·70	−6·70	3·80	4·02	−0·22	10·58	7·13	+3·45	0·85	Madras.		
		5	1	3	1	6	3	12	N 61° W	5·5	5·5			68		·738		6·6		5	6·30	−1·30	2·61	3·58	−0·97	8·78	9·22	−0·44	1·29	Vellore.		
					1	1	12	14	N 70° W	6·9				69	+1·3	·789	?	7·7	+0·1	4	4·80	−0·80	1·10	2·84	−1·74	9·57	4·43	+5·14	0·22	Nellore	Madras, East Coast, Central.	55
3						4	15	11	N 79° W	9·6	9·2	9·7	− 5	85	+6·2	·909	+·037	9·5	+1·5	14	9·40	+4·60	12·58	5·65	+6·93	20·44	11·75	+8·69	2·10	Masulipatam.		
1						4	18	9	N 83° W					73	+5·5?	·787	+·034	7·9	+0·1	9	6·20	+2·80	8·03	3·72	+4·31	13·31	8·87	+4·44	2·28	Cuddapah	Madras, Central	54
														83	+14·0	·832	+·112	8·3	+0·2	15	9·30	+5·70	7·32	4·95	+2·37	9·70	9·26	+0·44	1·22	Kurnool.		
	1				1	14	10	4	S 73° W	13·8																						
1		1			1	4	19	5	N 89° W	11·7	12·4	11·6	+ 7	76	+10·7?	·750	+·103	8·3	+0·1	8	3·70	+4·30	2·80	1·68	+1·12	7·18	5·44	+1·74	0·95	Bellary.		
1						17	8		S 59° W	8·1	6·8			97	+9·9	·922	+·088	8·6	+0·6	13	9·90	+4·10	8·50	5·94	+2·86	16·92	11·63	+5·29	1·36	Cocanada	Madras, East Coast, North.	52
6						31			S 45° W	14·9				79	+2·7	·847	?	8·4	+0·1	10	7·70	+2·30	5·48	4·53	+0·95	12·38	10·83	+1·55	2·56	Waltair (Vizag.).		
2	4				8	12	2	3	S 50° W	13·9	13·6	11·3	+20	86	+1·4	·969	+·039	5·1	−3·2	10	9·40	+0·60	10·78	7·75	+3·03	15·34	15·99	−0·65	3·14	Gopalpur		
																														XII.—Hill Stations.		
																				0	0·20	−0·20	0	0·08	−0·08	0·62	·30	+0·32	0	Pishin	Baluchistan	48
			1		1		1		S	2·0	2·1	5·1	−59	58	+1·3	·513	−·024	0·9	−0·2	0	0·60	−0·60	0	0·98	−0·98	1·04	1·57	−0·53	0	Quetta.		
28			1	10		6	11	2	S 5° E	8·7	9·2			43	+8·9	·516	+·088	0·1	−0·2	0	0·30	−0·30	0	0·14	−0·14	0·55	0·28	+0·27	0	Chaman.		
			8	6	2	7	4	4	S 48° E	2·1				62	+9·6	·255	0	6·0	+1·8	1	1·20	−0·20	0·32	0·49	−0·08	0·83	0·79	+0·04	0·11	Leh	Punjab	30
	1	4		3	2	3	1	4	N 38° W	5·0	4·7			88	+3·2	·540	−·102	6·5	+1·9	9	5·30	+3·70	7·63	2·97	+4·66	10·58	7·36	+3·22	1·80	Srinagar†		
7		1	7	4		1	2	2	S 78° E	3·4	3·9			86		·387		7·1		16			16·19			18·87			3·29	Gulmarg		
14																							10·94			19·71			3·45	Sonemarg.		
12	2	5	6	3	2	1	2		N 72° E	3·2	2·9			91		·333		6·7		11												
14	1	7	1				6	2	N 12° W	3·9	3·9			67		·349		6·7		6	0·70	+5·30	4·58	0·32	+4·26	4·85	1·76	+3·09	1·25	Skardu.		
17	1	1		1	1	5	4	1	S 66° W	6·8	5·2			70		·307		5·4		8	0·90	+7·10	2·34	0·48	+2·46	5·13	4·01	+1·12	1·21	Dras.		
29						1	1		S 63° W	2·7	2·4			59		·432		6·4		4	2·00	+2·00	1·46	0·84	+0·62	1·78	1·76	+0·02	0·51	Gilgit.		
31									Calm					50		·433		1·4		4			1·75			7·39			1·20	Chitral.		
30							1		W					57		·481		1·7		6			2·44			7·75			0·70	Killa Drosh.		

returns of any station, the data for that station are not utilized in calculating the provincial variations.
derived only from the data available.

Table

Abstract of Observations taken at 8 A.M. at 231

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	23·719	+·010		23·774	16th	23·621	12th	·153	69·0	76·7	−0·3	58·0	−4·5	67·4	−2·4	18·7	90·9	11th	45·9	4th	45·0
		Kailang	10,087	20·895			20·988	24th	20·809	22nd	·179	54·1	69·1	−4·8	46·6	−4·5	57·9	−4·7	22·5	77·0	27th	35·0	3rd	42·0
		Poo											76·8		56·7		66·8		20·1	84·1	18th	44·5	3rd	39·6
		Simla	7,224	23·005	+·031		23·078	1st	22·924	22nd	·154	66·1	72·2	+3·0	62·3	+2·2	67·3	+2·6	9·9	83·4	11th	58·8	21st	24·6
	North-West Frontier Province.	Para Chinar	6,000	24·309			24·427	30th	24·209	12th	·218	74·6	85·1		63·8		71·5		21·3	97·1	10th	53·4	14th	43·7
		Cherat	...	25·506	+·024		25·602	1st	25·395	9th	·207	77·0	90·9	+2·3	70·8	+0·1	80·9	+1·2	20·1	105·4	12th	62·0	12th	43·4
25	United Provinces.	Chakrata	7,022	23·171	+·029		23·244	1st	23·096	12th	·148	65·5	72·9	+3·0	62·0	+1·8	67·5	+2·4	10·9	83·6	10th	57·3	21st & 22nd.	26·3
		Mussooree	6,705	23·426	+·021		23·502	1st	23·354	12th	·148	67·0	75·2	+4·2	63·1	+2·5	69·2	+3·4	12·1	87·3	10th	57·9	21st	29·4
		Ranikhet	6,069	23·958	+·015		24·030	1st	23·877	12th	·153	70·1	78·9	+5·0	65·3	+2·3	72·1	+3·7	13·6	89·1	10th	61·0	3rd & 27th.	28·1
		Muktesar	7,600	22·741			22·813	1st	22·671	12th	·142	65·1	74·1		59·5		66·8		14·6	85·8	11th	56·3	20th	29·5
13	Bengal	Yatung	10,480										64·5		51·5		58·0		13·0	73·1	13th	47·9	3rd & 5th	25·2
		Darjeeling	7,376	22·923	+·010		22·980	16th	22·834	9th	·146	61·8	67·6	+1·6	58·1	+0·4	62·9	+1·0	9·5	71·2	2 days	56·1	19th	15·1
8	Assam Hill Tracts	Shillong	4,920	24·984			25·042	16th	24·930	13th	·112	69·8	76·6		64·1		70·4		12·5	82·7	16th	60·5	11th	22·2
		CherraPoonjee	4,309	25·529			25·593	19th	25·463	9th	·130	68·0	73·9		65·5		69·7		8·4	80·8	13th	62·0	10th	18·8
	Central India	Mount Abu	3,945	25·803	−·013		25·935	1st	25·687	15th	·248	72·0	79·7	+5·1	68·2	+2·5	74·0	+3·8	11·5	87·7	7th	64·3	23rd	23·4
		Pachmarhi	3,528	26·196	−·023		26·317	1st	26·096	24th	·221	73·2	81·9	+6·1	70·5	+2·5	76·2	+4·3	11·4	91·2	7th	67·2	21st & 22nd.	27·0
	South India	Wellington	6,200	24·151	−·033		24·211	21st	24·090	14th	·121	63·2	69·6	−1·5	56·6	−1·3	63·1	−1·4	13·0	74·7	8th	49·2	18th	25·5
		Kodai Kanal	7,688	22·748			22·807	21st	22·690	14th	·117	56·8	62·0		53·2		56·2		8·8	67·1	5th	51·7	25th	15·4
		Ootacamund		22·974			23·055	21st	22·883	14th	·172	56·2	61·1		52·8		57·0		8·3	67·0	8th	49·3	1st	17·7
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·804	?	29·742	29·871	21st	29·734	7th	·137	81·2	90·1	−1·5	78·1	+0·5	84·1	−0·5	12·0	94·0	26th	74·0	8th	20·0
		Colombo	40	29·842	−·033	29·808	29·909	21st	29·762	5th	·147	80·9	87·5	+2·1	77·4	−0·2	82·5	+1·0	10·1	89·5	9th	73·5	13th	16·0
	Persia	Meshed	3,104									80·7			65·1	−0·4						59·0	6th	
		Teheran		25·678†			25·830	21st	25·550	7th	·280	82·6	97·6	−0·7	70·1	−2·6	83·9	−1·4	27·5	103·4	29th	63·9	9th & 11th	39·5
		Ispahan‡		24·189†			24·310	19th	24·120	3rd	·190	78·0	95·1	−3·3	63·1	−3·1	79·1	−3·2	32·0	101·8	2nd	60·0	18th	41·8
		Bushire	14	29·483§	+·002	29·456	29·592	1st	29·389	28th & 29th.	·203	88·7‖	94·5¶	−0·8	82·6¶	−1·7	88·6	−1·3	11·9	103·0	20th	75·0	7th	28·0
		Bahrein	30	29·506			29·618	1st	29·416	27th	·202	90·1	97·8		84·5		91·2		13·3	105·7	25th	76·8	8th	28·9
		Jask**		29·535	+·001		29·619	6th	29·395	27th	·224	91·5	98·1	+2·2	86·7	+1·7	92·1	+2·0	11·4	104·2	17th, 21st & 27th.	83·2	9th	21·0
		Muscat	20	29·443	−·073	29·410	29·575	6th	29·345	14th & 27th.	·230	89·2	91·0	−0·4	87·2††	−0·3	89·1††	−0·4	3·8	98·3	27th	80·1	31st	18·2
	Arabia	Baghdad	220	29·456	+·010	29·643	29·622	8th	29·314	12th	·308	90·4	111·9	+4·6	80·2	+0·8	96·1	+2·7	31·7	117·4	27th	71·6	2nd	45·8
		Busrah		29·518			29·650	1st	29·361	23rd	·289		105·4		80·3		92·8		25·1	114·4	25th	76·9	4 days	37·5
		Aden	94	29·599	−·021	29·623	29·656	26th	29·518	14th	·138	84·1	94·7	+1·6	83·1	+0·8	88·9	+1·2	11·6	97·8	6th	80·8	13th	17·0
		Perim	201	29·499	−·026	29·638	29·538	1st	29·433	14th	·105	89·9	95·4	−1·0	85·5	+2·1	90·5	+0·6	9·9	101·3	15th	82·8	13th	18·5
	Afghanistan	Kabul										74·3	90·1	−2·2	57·1	−4·5	73·6	−3·4	33·0	97·1	26th	51·8	4th	45·3
	Central Asia	Kashgar	4,255	25·406¶			25·530	8th	25·280	14th & 26th.	·250	77·7	90·5	−1·0	66·6	−2·1	78·6	−1·6	23·9	99·1	6th	58·8	7th	40·3
	Arabian Sea Islands.	Amini Devi	13	29·830	−·039	29·771	29·917	21st	29·746	14th	·171	81·8	85·5	+0·4	77·1	−0·4	81·3	0	8·4	89·4	20th	74·0	1st	15·4
		Minicoy	7	29·879		29·811	29·951	21st	29·812	7th	·139	81·6	85·9	+0·7						88·1	24th			
	Africa	Zanzibar	73	30·076‖	−·022	30·076	30·186	12th	29·974	19th	·212	75·1	82·0	+1·8	73·7	+1·0	77·9	+1·4	8·3	83·6	10th & 27th.	72·0	16th	11·6
		Do. Dunga		29·999			30·079	31st	29·886	17th	·193	73·5	83·9		70·4		77·2		13·5	92·5	25th	65·4	3 days	27·1
	Straits Settlements	Penang(*a*)	20	29·877		29·822	29·936	20th	29·819	5th	·117	81·9	88·7		73·8		81·3		14·9	91·0	5 days	72·0	6 days	19·0
		Singapore(*a*)	10	29·882		29·813	29·941	20th & 21st.	29·808	13th	·133	83·8	86·5		75·3		80·9		11·2	89·9	11th	72·3	17th	17·6

NOTE.—When a query is inserted against any reading or in the variation returns of any

* Mean of 17 days. † Aneroid uncorrected. ‡ Observation of 30 days. § Mean of 26 days. ‖ Mean of 25 days. ¶ Aneroid corrected.

(*a*) 9 hours observations.

I—*concluded.*

Stations in India, Burma, etc., in July, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 July, 1903.	Normal rainfall for period, 1st May to 31st July.	Variation from normal of period, 1st May to 31st July, 1903.	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	56	57	58
16	1	1	2	4	3			4	S 64° E	6·8	7·3	5·7	+28	60	−17·2	·419	−·098	4·9	+0·2	15	16·20	−1·20	9·08	11·85	−2·77	14·60	18·34	− 3·74	2·00	Murree	Punjab—*concld.*	30
	2				6	7	9	6	S 74° W	1·6				80		·341		6·6		6			1·50	1·30	+0·20	4·32	5·22	− 0·90	0·37	Kallang.		
23		1	2			2	3		S 63° W									5·2		2			0·53	1·14	−0·61	1·86	2·12	− 0·26	0·35	Poo.		
11	5	5		1	9				S 74° E	3·3	3·2	1·6	+100	70	−18·4	·438	−·074	5·8	−2·6	16	18·90	−2·90	10·92	16·84	−5·92	17·81	27·75	− 9·94	1·68	Simla.		
15	2	1		3	6	2	1	1	S 3° W	5·7	5·2			52		·445		1·9		5	7·80	−2·80	3·99	3·81	+0·18	10·09	7·26	+ 2·83	2·42	Para Chinar.	North-West Frontier Province.	
12	7			3	3	1	1	4	N 31° W	3·0	2·8			55	−16·7	·495	−·138	3·6	−0·6	3			2·99	4·88	−1·89	6·26	6·82	− 0·56	2·35	Cherat.		
12	6	1		7	4			1	S 72° E	9·6	11·5	4·6	+150	74	−17·3	·459	−·078	2·2	−3·7	17	19·80	−2·80	22·87	20·07	+2·80	28·20	31·27	− 3·07	6·16	Chakrata .	United Provinces.	25
1		5	11	2	1	2	6	3	N 75° E					78	−15·7	·591	−·068	2·8	−5·2	18	22·00	−4·00	21·48	29·36	−7·88	24·72	42·41	−17·69	4·17	Mussooree.		
8		3	2	1		8	5	4	S 81° W	2·8	3·2	2·1	+52	72	−15·5	·519	−·058	5·2	−3·0	13	18·30	−5·30	8·95	13·86	−4·91	11·99	22·61	−10·62	3·42	Ranikhet.		
7	2		4	9	3		2	4	S 50° E	7·1	6·5			76		·462		5·9		17			7·32			10·66			0·92	Muktesar.		
																				19	23·86	−4·86	6·85	9·47	−2·62	25·11	21·52	+ 3·59	0·63	Yatung .	Bengal .	13
16		5	3	2		2	2	11	N 76° E	3·0	2·8	2·6	+ 8	94	− 2·5	·520	−·001	7·9*	−1·7	20	22·94	−2·94	15·50	33·50	−18·00	50·36	66·05	−15·69	2·63	Darjeeling.		
9	5	6	3	4		4			N 63° E	2·8	3·2			83		·650		6·6		16	18·00	−2·00	21·00	13·19	+7·81	52·41	39·21	+13·20	5·90	Shillong.	Assam Hill Tracts	8
	3	8	3		6	5	5	1	S 72° W	6·4	7·4			95		·646		8·5		24	27·30	−3·30	94·19	96·70	−2·51	225·29	248·19	−22·90	24·20	Cherra Poonjee		
1	3	3	2	3	1	13	4	1	S 50° W	8·9	9·0	10·5	−14	86	− 9·5	·667	+·022	6·8	−2·2	16	17·60	−1·60	23·72	23·23	+0·49	24·59	30·43	− 5·84	4·24	Mount Abu .	Central India.	
1		1				5	5	19	N 64° W	8·8	9·1	9·5	− 4	86	− 4·2	·635	+·030	8·9	+0·1	18	22·00	−4·00	16·16	25·11	−8·95	22·72	36·53	−13·81	3·97	Pachmarhi.		
7	1			2	1	20			S 39° W	5·3		5·8	− 9	81	+10·5	·470	+·047	8·4	+0·6	20	7·90	+12·10	7·60	3·38	+4·22	15·44	10·75	+ 4·69	0·87	Wellington .	South India.	
						2	11	18	N 66° W	21·2				85		·393		7·6		16	8·40	+7·60	5·42	3·89	+1·53	16·71	14·37	+ 2·34	0·87	Kodai Kanal.		
6						9	16		S 75° W	8·2	7·7			91		·412		8·6		24	12·30	+11·70	25·08	5·94	+19·14	42·23	18·05	+24·18	2·60	Ootacamund.		
																														XIII.—Extra India.		
						31			S 45° W					82	+ 4·2	·880	+·013	2·8	−0·4	3			1·59	1·97	−0·38	10·48	5·94	+ 4·54	1·26	Trincomalee	Ceylon.	
				1	3	16	10	1	S 56° W	8·5		9·0	− 6	85	+ 6·5	·908	+·056	7·1	+0·9	9			5·02	4·83	+0·19	31·15	24·18	+ 6·97	1·43	Colombo.		
														59		·621		0·6		1			1·26	0·01	+1·25	3·73	0·98	+ 2·75	1·26	Meshed .	Persia.	
19		2	1	1	1	7			S 22° W	1·3	1·8			34		·373		0·9		0			0	0·41	−0·41	0·80	0·78	+ 0·02	0	Teheran.		
23			2	2			3		S 13° E	2·2	2·8			55		·535		0·7		0			0	0·06	−0·06	0·31	0·17	+ 0·14	0	Ispahan.		
7	7	3		3	1			10	N 3° W	7·3	8·7	9·2	− 5	65	+ 1·1	·884	−·032	0·6	−1·3	0			0	0	0	0	0	0	0	Bushire.		
2	6			2			4	12	N 40° W					76		1·068				0			0			0			0	Bahrein.§§		
4	1		16	2			1	1	N 89° E	12·3	10·2			72	− 0·4	1·066	+·037	1·5	−0·2	0			0	0·02	−0·02	0	0·13	− 0·13	0	Jask.		
				28				3	S 45° E	3·5	3·6			77	+ 0·6	1·054	+·023	1·8	−0·7	0			0	0·04	−0·04	0·03	0·40	− 0·37	0	Muscat.		
16	9					1	5		N 21° W	2·6	3·5			39		·582		0·1		0			0	0	0	0	0·24	−0·24	0	Baghdad .	Arabia.	
																				0			0			0·82			0	Busrah.		
5		4	3	3	3	12		1	S 5° W	10·5	8·5	9·4	−10	71	+ 0·3	·933	+·055	2·3	−1·4	0			0	0·03	−0·03	0	0·23	− 0·23	0	Aden.		
						20	1	10	S 72° W	15·7	15·9			63		·876		1·1		0			0	0·03	−0·03	0·47	0·40	+ 0·07	0	Perim.		
	1		2	12	3	10			S 4° E					36		·309		0·6	+0·5	1			0·14	0·20	−0·06	3·65	0·95	+ 2·70	0·14	Kabul .	Afghanistan.	
27					1		1		S 45° W	1·9	1·7			39		·371		1·7		0			0	0·29	−0·29	0	1·48	− 1·48	0	Kashgar‡‡ .	Central Asia.	
						10	18	3	S 80° W					82		·899		9·4		21			17·93	9·91	+8·02	35·36	27·15	+ 8·21	3·81	Amini Devi.	Arabian Sea Islands.	
	1					4	18	8	N 82° W	14·9	16·0			83		·895		6·2		17			10·31	6·66	+3·65	24·31	21·66	+ 2·68	2·14	Minicoy.		
				2	14	15			S 19° W	10·2	9·6			86		·753		5·7		4			1·25	2·74	−1·49	10·68	14·43	− 3·75	0·49	Zanzibar .	Africa.	
14				1	1	13			S 39° W	6·7	6·5			89		·739		5·3		7			2·92			11·19			1·30	Do. Dunga.		
10	2	7	1	1	9			1	S 70° E	5·5								2·3		8			10·27			26·40			2·42	Penang .	Straits Settlements.	
				16	9		2	4	S 20° E									5·8		10			6·99			17·10			2·47	Singapore .		

station, the data for that station are not utilized in calculating the provincial variations.

** Observation of 25 days. †† Mean of 30 days. §§ Wind observation of 26 days. ‡‡ Wind observation of 29 days. ||| Observation of 29 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 July, 1903.

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	29·749	29·672	·077	29·718	—·025	29·709	85·3	77·6	7·7	89·0	72·7	16·3	82·9	83·3	80·5	+0·2	75·2	79·6	79·2	78·0
	Rangoon	57	·728†	·646‡	·082	·693	—·023	·687‡	84·9	76·3	8·6	88·0	72·5	15·5	81·8†	81·4‡	79·4‡	+1·1	74·6	78·2†	78·2‡	77·0
	Diamond Island	41	·726	·649	·077	·695	—·037	·671	84·7	77·4	7·3	86·9	74·6	12·3	82·2	81·4	79·8	+1·3	74·5	78·8	78·5	77·3
	Cocos Island	119	·654	·577	·077	·623	?	·673	85·8	77·0	8·8	91·4	73·1	18·3	82·6	81·6	79·9	—0·6	74·1			
	Akyab	20	·677	·594	·083	·639	—·030	·662	85·2	78·2	7·0	88·9	76·3	12·6	82·0	83·0	80·8	+0·8		80·2	80·3	
Bengal and Orissa.	Chittagong	87	·561	·463	·098	·519	—·037	·553	89·0	77·8	11·2	92·1	74·5	17·6	84·7	84·7	81·9	+1·9	76·3	79·6	79·9	78·6
	Calcutta (Alipore)	21	·562	·470	·092	·522	—·015	·488	90·7	79·4	11·3	94·1	75·6	18·5	86·5	86·4	84·6	+1·5	77·6	81·2	81·3	80·0
	Saugor Island	25	·541	·454	·087	·574	—·032	·472	90·7	81·5	9·2	92·8	77·6	15·2	87·4	88·3	85·0	+2·2	78·6	82·4	82·7	81·2
	False Point	21	·541	·454	·087	·503	—·061	·465	88·0	79·7	8·3	91·5	76·1	15·4	85·8	85·8	82·8	+1·0	77·4	81·0	80·7	79·7
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·579	27·492	·087	27·544	—·024	·455	89·6	75·7	13·9	97·4	71·3	26·1	82·8	84·8	81·2	+3·1	72·7	75·0	75·1	74·3
	Darbhanga	166	29·432	29·312	·120	29·378	0	·494	91·4	80·0	11·4	96·8	75·4	21·4	87·1	90·2	84·7	+1·0	77·6	81·6	82·7	80·6
	Allahabad	309	·216	·098	·118	·159	—·048	·411	101·0	84·4	16·6	112·6	78·1	34·5	93·9	93·2	91·7	+7·0	76·4	80·2	79·8	78·8
Upper Sub-Himalayas.	Dehra Dun	2,233	27·370	27·287	·083	27·322	—·024	·451	91·2	74·5	16·7	104·5	70·0	34·5	83·5	88·0	81·4	+2·8	69·3	72·9	73·9	72·0
	Roorkee	899	28·650	28·543	·107	28·594	—·025	·431	98·1	80·5	17·6	113·1	73·1	40·0	90·6	96·3	88·6	+4·0	72·9	76·8	77·3	75·7
	Meerut	738	·798	·690	·108	·741	—·024	·421	98·2	81·9	16·3	111·1	75·3	35·8	91·2	95·1	89·3	+3·8	75·5	78·2	78·7	77·5
	Lahore	702	·822	·730	·092	·775	+·004	·422	99·1	81·4	17·7	117·0	74·0	43·0	92·2	97·3	89·4	+1·1	75·8	80·3	81·7	79·3
	Ludhiana	812	·721	·627	·097	·674	—·005	·428	99·7	82·3	17·4	115·8	76·1	39·7	90·4	96·8	89·9	+3·2	75·2	76·8	78·1	76·7
Indus Valley and N.-W. Rajputana.	Peshawar	1,110	·444	·329	·115	·386	+·025	·435	103·6	77·0	26·6	117·5	70·9	46·6	93·6	101·1	89·3	—0·3	68·9	75·9	77·4	74·1
	Jacobabad	186	29·300	29·196	·104	29·247	+·013	·382	108·3	85·1	23·2	117·7	77·1	40·6	97·9	105·9	95·7	+1·0	80·2	86·1	89·0	85·1
	Kurrachee	30	·518	·443	·075	·475	—·029	·465	94·7	84·2	10·5	105·6	76·4	29·2	90·6	90·5	87·9	+3·9	79·5	82·8	83·2	81·8
E. Rajputana, Central India, and Gujarat.	Jaipur	1,431	28·142	28·044	·098	28·094	—·023	·440	98·0	80·7	17·3	110·2	75·1	35·1	90·4	94·5	87·9	+4·0	74·8	78·8	78·9	77·4
	Udaipur	1,925	27·678	27·593	·085	27·636		·464	93·0	77·2	15·8	104·3	71·6	32·7	86·3	87·9	83·8		72·9	76·6	76·2	75·2
	Deesa	466	29·109	28·997	·112	29·055	—·040	·463	96·1	79·7§	16·4	107·2	73·5	34·3	87·4	93·5	87·3§	+3·5	75·7	78·9	79·7	78·1
	Jamnagar	61	·520	29·423	·092	·474		·481	90·9	78·4	12·5	101·3	73·8	27·5	86·5	87·3	83·8		75·6	80·0	80·6	78·7
Deccan.	Belgaum	2,539	27·226	27·159	·067	27·192	—·042	·652	75·2	67·6	7·6	83·3	64·8	18·5	72·5	72·2	70·4	+0·3	67·2	70·3	69·8	69·1
	Sholapur	1,590	28·108	28·009	·099	28·067	—·051	·585	86·3	72·9	13·4	93·2	70·8	22·4	80·0	83·7	78·0	—0·2	70·7	73·2	73·5	72·4
	Akola	930	·693	·590	·103	·641	—·048	·513	88·6	74·6	14·0	100·8	71·1	29·7	83·0	85·5	80·8	+0·3	72·8	76·9	77·5	75·7
	Buldana	2,132	27·525	27·431	·094	27·478	—·049	·520	83·8	71·2	12·6	91·6	68·2	23·4	78·4	81·6	76·9	+0·6	69·5	72·9	73·8	72·1
	Khandwa	1,044	28·564	28·447	·117	28·506	—·054	·488	90·2	76·7	13·5	100·6	70·1	30·5	83·5	88·0	82·4	+2·5	72·9	76·6	77·8	75·8
	Nagpur	1,025	·579	·478	·101	·529	—·032	·495	88·9	75·7	13·2	100·2	71·1	29·1	82·1	84·8	81·3	+1·1	73·7	76·8	77·0	75·8
	Do. (Sanitary Commr's. Office)	1,013	·588	·480	·108	·534		·491	89·1	75·7	13·4	99·3	71·2	28·1	82·7	85·3	81·5		73·3	77·1	77·7	76·0
	Hyderabad (Deccan)	1,690	·063	27·904	·099	27·959	—·041	·577	83·9	72·8	11·1	92·6	69·7	22·9	78·4	81·6	77·8	—1·7	71·2§	73·7	75·6	73·5
West Coast.	Bombay	37	29·646	29·577	·069	29·610	—·059	·586	84·2	77·7	6·5	88·0	75·1	12·9	81·8	81·9	80·9	0	76·2	78·8	78·4	77·8
	Karwar	44	·747	·694	·053	·718	—·046	·694	82·7	75·4	7·3	89·5	71·5	18·0	80·7	80·6	79·0	+0·3	73·8	77·4	77·2	76·0

† Mean of 25 days. ‡ Mean of 24 days. § Mean of 30 days.

II.

64 Stations in India, Burma, etc., in July, 1903.

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
¶					¶																				%	%						
·844	970	·954	·923	+·025	89	86	83	86	+ 1	8·0	8·1	8·1	+0·5					1	3	28	29	1	S 65° W	S 47° W	87	87	298*	268	28·68	3·84	Port Blair.	Burma Coast and Bay Islands.
·839	·922†	·924‡	·895	+·009	92	81†	86‡	86	− 4	8·8†	8·9‡	8·9	−0·1	1			6	5	19	9	8	2	S 13° W	S 34° W	55	74	‡43*	129	16·82	1·73	Rangoon.	
·813	·946	·940	·900	+·023	87	86	88	87	0	7·8	8·6	8·2	0	2					11	40	9		S 44° W	S 42° W	87	80	250*	240	20·70	2·63	Diamond Island.	
·809					87					8·2	8·7	8·5	+0·1						15	40	5	2	S 40° W	S 34° W	87	91		?	24·63	3·01	Cocos Island.	
	1·010	·998				92	88			7·9	7·3	7·6	−1·1					6	28	28			S 17° W	S 1° E	87	67	112*	98	46·15	3·88	Akyab.	
·888	·944	·957	·930	+·016	93	79	80	84	− 3	5·9	7·3	6·6	−1·3	1			3	22	16	16	3	1	S 5°E	S 30° E	68	66	210*	165	11·59	6·43	Chittagong.	Bengal and Orissa.
·926	·995	1·002	·974	+·012	92	79	79	83	− 4	7·4	8·1	7·8	−0·5			4	13	21	15	9			S 36° E	S 8° E	67	63	131	122	6·35	1·60	Calcutta (Alipore).	
·943	1·043	1·046	1·011	+·014	87	80	78	82	− 4	7·8	7·7	7·8	−0·4		1	2	14	16	20	9			S 30° E	S 21° W	66	60	387	357	7·40	1·91	Saugor Island.	
·905	·997	·981	·961	+·023	90	81	79	83	− 2	8·0	8·1	8·1	−0·1	1	2	4	8	5	13	17	11	1	S 22° W	S 53° W	40	63	256*	277	8·09	1·45	False Point.	
·768	·773	·750	·764	−·047	87	70	64	74	−11	8·6	10·0	9·3	0		2		14	11	16	7	7	5	S 15° E	S 9° E	39	14	229	210	7·40	2·34	Hazaribagh.	Gangetic Plain and Chota Nagpur.
·920	1·008	1·022	·983	+·015	90	78	72	80	− 3	5·1	3·3	4·2	−2·1	3		1	30	27	1				S 69° E	S 77° E	87	56	100	121	5·02	1·75	Darbhanga.	
·805	·847	·771	·807	−·141	69	55	46	57	−24	5·8	6·0	5·9	−1·9	2	5	12	20	3	2	2	9	7	N 50° E	N 71° E	32	7	168*	151	4·18	2·00	Allahabad.	
·655	·681	·667	·669	−·134	78	64	56	66	−18	5·6	6·1	5·9	−1·8	2		3	4	4	18	8	12	11	S 4 5° W	S 12° W	37	13	37	26	16·20	2·25	Dehra Dun.	
·714	·743	·683	·713	−·159	70	55	46	57	−19	4·2	3·7	4·0	−2·4	5	1	1	2	37		1	3	12	S 45° E	S 37° E	37	33	112	70	14·21	4·89	Roorkee.	Upper Sub-Himalayas.
·803	·799	·771	·791	−·096	75	58	51	61	−13	5·3	5·5	5·4	−1·3	6	1	3	18	12	2	3	11	6	S 65° E	S 69° E	19	21	48*	57	7·78	3·10	Meerut.	
·824	·881	·875	·860	+·006	78	62	55	65	+ 4	3·6	3·1	3·4	−0·9	6	9	5	12	10	5	1	9	5	N 70° E	S 77° E	16	30	94	80	4·36	1·78	Lahore.	
·786	·754	·721	·754	−·113	73	56	47	60	− 9	4·3	4·3	4·3	−1·7	2	1	8	3	28	1		14	5	S 45° E	S 40° E	24	23	80*	52	5·99	1·84	Ludhiana.	
·612	·683	·651	·649	−·078	66	44	34	48	− 5	3·0	4·1	3·6	+0·7	18	20	12	6		2	2	1	1	N 24° E	N 49° E	45	47	49*	107	0·45	0·40	Peshawar.	
·966	1·091	1·146	1·068	?	80	61	51	64	?	2·7	2·3	2·5	+0·2	27		2	1	22	5	2	1	2	S 36° E	S 44° E	38	59	74*	133	2·29	1·41	Jacobabad.	Indus Valley and N.W. Rajputana.
·548	1·018	1·037	1·001	+·072	81	71	73	75	− 3	4·1	3·8	4·0	−2·9	1	1	3	1		3	32	21		S 61° W	S 68° W	75	85	350*	415	3·51	1·94	Kurrachee.	
·788	·837	·793	·806	−·032	76	60	52	63	−11	5·6	7·0	6·3	−1·1	4	5	12	7	4	2	9	14	5	N 44° W	N 72° W	13	28	103	133	5·62	1·54	Jaipur.	
·754	·799	·762	·772		81	65	62	69		5·6	6·7	6·2		8	2	1	4	6	7	16	13	5	S 49° W		40		125*		11·25	2·11	Udaipur.	E. Rajputana, C. India and Gujarat.
·837§	·875	·827	·844	+·016	83§	69	57	69	− 5	6·6	6·6	6·6	−1·5		2	1	2	4	9	29	14	1	S 46° W	S 42° W	67	73	305	351	12·39	3·55	Deesa.	
·848	·938	·954	·913		87	75	75	79		5·8	5·6	5·7			1	2	2	1	7	20	15	2	S 53° W		52		528*		15·75	5·32	Jamnagar‖	
·661	·717	·698	·693	+·024	98	90	89	92	+ 2	9·7	9·6	9·7	+0·6						5	35	19	1	S 58° W	S 68° W	88	87	662¶	647	21·70	4·00	Belgaum.	Deccan.
·723	·733	·703	·719	+·055	89	72	62	74	+ 6	9·5	9·5	9·5	+1·0	2		1				38	16	3	S 62° W	S 76° W	84	83	390*	336	7·70	1·96	Sholapur.	
·786	·845	·837	·824	+·056	92	77	70	80	+ 5	8·8	9·3	9·1	+0·6	2	1			2		18	21	18	S 89° W	N 74° W	73	73	201*	210	16·03	2·73	Akola.	
·702	·745	·738	·728	+·019	92	77	69	79	0	8·4	9·2	8·8	+0·7		4	1			6	15	19	17	N 89° W	N 79° W	66	74	232*	219	11·73	2·38	Buldana.	
·766	·828	·826	·807	+·026	84	73	64	74	− 3	8·1	7·8	8·0	+0·1		5	1		1	2	12	11	30	N 67° W	N 85° W	68	82	183	217	8·08	1·54	Khandwa.	
·807	·861	·834	·834	+·021	91	79	72	81	+ 1	8·1	8·6	8·4	−0·3	15	1		2		2	13	23	6	S 80° W	S 88° W	56	69		243	23·49	5·49	Nagpur.	
·795	·863	·860	·839		89	77	72	79		7·7	7·6	7·7		15		2		5	2	32	1	5	S 44° W		52		54*		25·47	4·60	Do. (Sanitary Commr.'s Office).	
·751§	·776	·816	·781	+·068	93§	80	77	83	+10	8·5	8·6	8·6	+1·2	3						1	57	1	W	N 86° W	94	90	242*	249	13·81	2·15	Hyderabad (Deccan).	
·879	·950	·928	·919	+·012	93	87	85	88	+ 1	9·1	9·4	9·3	+0·2					4	8	16	33	1	S 63° W	S 74° W	76	85	383	450	24·20	3·13	Bombay.	West Coast.
·783	·900	·890	·861	+·029	90	86	85	87	+ 1	8·7	9·2	9·0	+1·2	1				5	4	41	10	1	S 44° W	S 73° W	82	75	145	123	55·35	9·24	Karwar.	

‖ Wind variable 12.

¶ Mean of 29 days.

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.	Peryakulam	945	28·850	28·745	·105	28·811			92·6	72·7	19·9	98·2	69·4	28·8	86·0	87·4	81·3		68·9	73·6	73·4	71·8
	Salem	940	·866	·757	·109	·824	−·053	29·691	90·8	73·8	17·0	95·6	72·2	23·4	82·4	87·2	80·6	−0·1	71·4	75·8	77·5	74·9
	Chitaldroog	2,405	27·384	27·308	·076	27·355	−·047	·672	81·6	69·2	12·4	90·1	67·5	22·6	75·4	77·3	74·3	+0·8	67·4	70·0	70·6	69·3
	Bangalore	3,021	26·820	26·739	·081	26·791	−·043	·682	81·8	66·5	15·3	87·9	64·6	23·3	75·2	77·9	73·2	+0·9	65·3	68·6	69·4	67·8
	Hassan	3,091	·770	·708	·062	·750	−·044	·729	76·0	65·6	10·4	85·4	64·7	20·7	73·8	72·1	69·9	+0·4	64·7	68·8	68·4	67·3
	Mysore	2,518	27·328	27·255	·073	27·292	−·043	·716	81·5	67·4	14·1	87·1	65·4	21·7	76·7	76·4	73·2	−0·1	66·2	69·8	70·1	68·7
	Madras	22	29·720	29·608	·119	29·675	−·044	·624	94·0	78·2	15·8	99·1	74·4	24·7	87·4	89·7	84·5	−0·7		77·4	78·8	77·4
	Bellary	1,475	28·268	28·172	·096	28·229	−·053	·629	89·8	75·3	14·5	96·8	73·2	23·6	82·0	85·5	80·5	0	70·3	75·3	76·7	74·1
	Waltair	226	29·281	29·235	·086	29·338		·503	87·3	77·7	9·6	96·1	73·1	23·0	83·7	84·1	81·7		74·6	77·4	77·8	76·6
Hill Station, Baluchistan.	Quetta	5,502	24·467	24·387	·080	24·425	+·039		90·9	64·0	26·9	95·7	54·7	41·0	83·9	88·4	76·9	−0·9	55·9	63·9	63·1	61·0
Hill Stations, Northern India.	Leh	11,503	19·667	19·580	·087	19·633	+·037		69·3	46·1	23·2	78·4	37·4	41·0	60·6	67·0	56·0	−5·6	42·7	50·4	53·6	48·9
	Srinagar	5,204	24·739‡	24·675†	·064	24·705†	+·074		78·6†	59·5‡	19·1	92·8	52·5	40·3	68·3‡	76·2†	68·5†	−5·7	57·0‡	64·8‡	70·8†	64·2
	Simla (Ridge)	7,224	23·016	22·965	·051	22·989	+·023		72·1	62·3	9·8	83·4	59·1	24·3	68·1	69·4	66·7	+1·8	57·5	61·1	62·3	60·3
	Chakrata	7,022	·180	23·132	·048	23·154	+·026		72·8	62·0	10·8	83·6	57·3	26·3	68·4	70·0	66·9	+2·3	57·7	61·5	62·7	60·6
	Ranikhet	6,069	·967	·905	·062	·928	+·006		78·6	65·3	13·3	88·9	61·0	27·9	73·4	75·0	71·3	+3·1	60·8	64·5	65·9	63·7
	Muktesar	7,600	22·752	22·700	·052	22·726			73·7	59·5	14·2	85·8	56·3	29·5	68·3	68·7	65·3		56·5	61·4	62·8	60·2
	Katmandu	4,388	25·513	25·446	·067	25·482	P		84·2	69·1	15·1	87·2	66·7	20·5	77·8	80·3	75·7	+0·2	67·4	71·4	72·7	70·5
	Darjeeling	7,376	22·929	22·885	·044	22·909	+·017		67·6	58·1	9·5	71·1	56·1	15·0	64·5	65·3	62·3	+1·2	57·8	62·8	63·8	61·5
Hill Stations, Central India.	Mount Abu	3,945	25·815	25·747	·068	25·783	−·025		79·6	68·2	11·4	87·8	64·5	23·3	74·2	77·2	73·3	+3·9	66·3	69·8	70·6	68·9
	Pachmarhi	3,528	26·209	26·133	·076	26·171	−·027		81·6	70·5	11·1	94·4	67·2	27·2	75·9	79·0	75·9	+4·1	68·6	71·4	72·3	70·8
	Chikalda	3,642	·096	·017	·079	·056	−·044		76·8	67·5	9·3	87·2	63·2	24·0	72·4	75·6	72·3	+2·3	66·2	71·6	74·1	70·6
Hill Stations, S. India.	Kodaikanal	7,688	22·762	22·704	·058	22·726			61·7	53·2	8·5	67·1	51·7	15·4	58·7	57·4	56·1		50·6	55·6	55·1	53·5
	Ootacamund		·982	·925	·057	·954			61·0	52·8	8·2	66·8	49·5	17·3	58·4	57·6	56·0		52·0	56·1	55·9	54·7
	Dodabetta		21·970	21·935	·035	21·952			54·6	48·2	6·4	61·8	45·2	16·6	53·8	51·6	50·6		48·3	51·5	49·9	49·9
Extra India.	Aden	94	29·615	29·540	·135	29·545	−·015	·568	94·6	83·1	11·5	96·5	80·8	15·7	90·3	93·1	88·7	+2·1	75·1	80·7	78·3	78·0
	Perim	201	·505	·399	·106	·449	−·020	·578	95·5	85·5	10·0	101·3	82·8	18·5	92·6	92·6	89·8	−0·2	75·8	81·5	81·1	79·5
	Minicoy	7	·894	·839	·055	·874		·806	85·9			88·1			83·0	82·5				78·3	77·9	
	Zanzibar	73	30·089‖	·988	·101	30·039	−·031	30·038‖	82·0	73·7	8·3	83·6	72·0	11·6	77·0‖	80·9	77·6	+1·4	68·5	73·2‖	72·9	71·5
	Port Victoria (Seychelles)	15	29·987	·911	·076	29·949	−·044	29·888	80·3	72·9	7·4	81·8	70·6	11·2	78·8	79·8	76·5	−1·2	70·8	73·2	73·7	72·6
	Mauritius (Pamplemouses)	181				30·002	−·015	30·132				79·4	55·1	24·3			68·3	+0·5				62·9

† Mean of 25 days. ‡ Mean of 26 days. ‖ Mean of 30 days. ¶ Mean of 23 days.

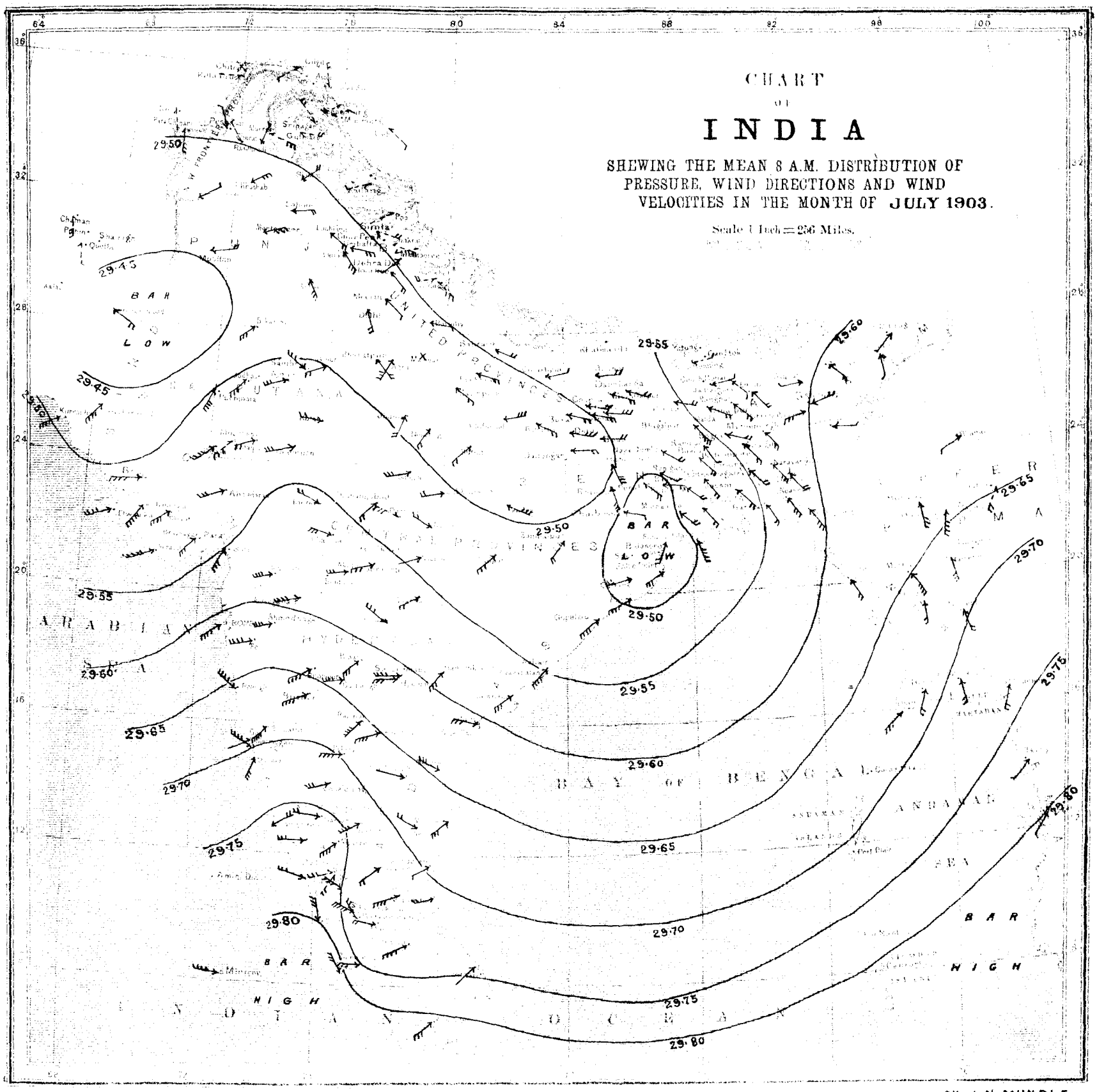
II—*concluded.*

64 Stations in India, Burma, etc., in July, 1903—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
																									%							
·657	·663	·645	·655		79	55	49	61		7·2	8·5	7·9		10	8	2	8	1	7	16	4	5	S 55° W		18		95*		0·31	0·10	Peryakulam§§.	South India.
·738	·810	·827	·792	+·046	88	73	64	75	+ 4	7·5	8·5	8·0	+1·6	13					11	17	21		S 55° W	S 55° W	64	78	97*	108	1·64	0·33	Salem . .	
·650	·666	·668	·661	+·038	91	76	72	80	+ 4	9·2	9·2	9·2	+0·1							24	32	6	S 77° W	S 78° W	89	87	261*	291	3·18	0·73	Chitaldroog .	
·610	·624	·621	·618	+·009	94	72	66	77	0	8·9	8·7	8·8	+2·0			1			2	29	28	2	S 68° W	S 73° W	85	91	310*	217	1·10	0·18	Bangalore .	
·603	·647	·654	·635	+·046	95	78	83	85	+ 4	9·0	9·3	9·2	0							16	36	10	S 85° W	S 89° W	89	90	125*	125	9·18	1·17	Hassan . .	
·632	·647	·661	·647	+·039	94	70	73	79	+ 4	9·6	9·2	9·4	+0·5		1					31	30		S 68° W	S 77° W	90	91	356*	368	2·70	0·64	Mysore . .	
	·807	·841	·817	+·054		62	61	72	+ 5	7·3	7·8	7·6	+0·4		1		1	3	3	24	25	5	S. 68° W	S 48° W	74	67	166	191	3·30	0·85	Madras . .	
·68½	·796	·817	·766	+·108	78	73	67	73	+10	8·5	9·2	8·9	+0·6	2	1	1				12	31	15	N 86° W	S 87° W	81	88	297*	282	2·80	0·95	Bellary . .	
·819	·857	·872	·849		86	75	74	78		8·5	8·6	8·6							15	46		1	S 55° W		92		158		5·18	2·56	Waltair . .	
·372	·391	·315	·359	−·080	61	33	24	39	− 8	0·5	1·9	1·2	−0·4	18	6	1	2	4	3	8	14	6	S 88° W	S 85° W	29	30	49*	91	0	0	Quetta . .	Hill Stations, Baluchistan.
·251	·286	·303	·280	+·024	79	53	45	59	+14	5·7	5·9	5·8	+0·7		1	4	4	1	13	22	14	3	S 46° W	S 73° W	55	38	49 †	47	0·32	0·11	Leh . .	Hill Stations, Northern India.
·452‡	·583‡	·707†	·581	−·077	87‡	83‡	78†	83	+ 5	5·9‡	5·0‡	5·5	+1·5	5	4	6	1	12	6	4	5	8	S 4° E	N 20° W	5	11	113*	93	7·63	1·80	Srinagar .	
·426	·468	·492	·462	−·071	77	70	71	73	−15	7·3	7·6	7·5	−1·3	14	12	5	1	4	20	1	3	2	S 18° E	N 5° E	11	26	74*	86	10·92	1·68	Simla (Ridge)	
·440	·477	·496	·471	−·075	81	72	71	75	−16	5·4	6·2	5·8	−2·6	5	5	2		17	32	1			S 18° E	S 75° W	64	45	278*	131	22·87	6·16	Chakrata .	
·490	·514	·543	·516	−·065	79	66	65	70	−16	6·1	6·5	6·3	−2·2	16	6	2	3	2	1	11	13	8	N 82° W	S 62° W	34	25	76*	59	8·95	3·42	Ranikhet .	
·430	·474	·518	·474		85	70	75	77		6·2	7·5	6·9		11	3	7	2	22	5	4	2	6	S 49° E		27		155*		7·32	0·92	Muktesar .	
·658	·701	·720	·693	+·005	92	74	70	79	− 1	6·5	6·6	6·6	−0·2			1	23			1	32	5	N 74° W	S 67° W	21	10	33	21	8·99	1·76	Katmandu .	
·480	·555	·577	·537	+·018	98	91	93	94	− 1	6·5‖	7·0‖	6·8	−2·1	16		5	6	8	5	10	8	4	S 13° W	S 75° E	19	32	68*	91	15·50	2·63	Darjeeling .	
·626	·681	·673	·660	+·024	91	81	75	82	− 7	7·3	7·9	7·6	−1·0	3	5	7	1	7	3	22	10	4	S 58° W	S 51° W	33	67	215*	278	23·72	4·24	Mount Abu .	Hill Stations, Central India.
·677	·717	·714	·703	+·032	91	82	75	83	− 5	8·5	9·0	8·8	0	7	1	4	1	1		7	7	34	N 55° W	N 87° W	63	76	235*	252	16·16	3·97	Pachmarhi .	
·633	770	·832	·745	+·090	94	96	94	95	+ 3	7·7	7·6	7·7	−1·3	25	17					1		19	N 27° W	N 55° W.	53	68	209*	239	34·41	10·00	Chikalda .	
																											**					
·343	·414	·413	·387		84	84	87	86		8·2	9·5	8·9			3					1	16	33	N 58° W		76		491		5·42	0·87	Kodaikanal‡‡ .	Hill Stations, S. India.
·381	·430	·434	·415		95	87	91	91		8·4	9·1	8·8		10						18	27	7	S. 80° W		72		175*		25·08	2·60	Ootacamund .	
·334	·359	·343	·345		96	87	90	91		9·1	9·8	9·5								18	40	4	S 80° W		92		581 ††		29·28	2·99	Dodabetta .	
·768	·923	·775	·822	+·019	67	65	50	61	− 4	1·9	1·5	1·7	−0·4	3		2	13	18	8	16	2		S 24° E	S 1° E	55	73	213*	261	0	0	Aden . .	Extra India.
·760	·929	·910	·866	+·079	62	61	60	61	+ 5	0·4	1·1	0·8	−1·7							25	3	34	N 82° W	N 56° W	72	60	383*	386	0	0	Perim . .	
	·905	·894				81	81			6·7	7·3	7·0			1					6	34	21	N 76° W		87		383*		10·31	2·14	Minicoy. .	
·630	·771‖	·708	·703	+·013	76	83‖	67	75	− 3	5·4‖	5·0	5·2	+0·6					20	27	14			S 5° E	S 5° E	83	83	231*	207	1·25	0·49	Zanzibar .	
·734	·748	·754	·745	+·040	90	76	74	80	+ 6	5·8	6·0	5·9	+0·3				1	38	21	2			S 28° E	S 29° E	90	86	312	287	3·79	0·90	Port Victoria (Seychelles).	
			·494	−·020				71	− 5			5·3	+0·2										S 67° E	S 65° E			257	283	1·60	·040	Mauritius (Pamplemouses)	

** Mean of 24 days. †† Mean of 28⅔ days. ‡‡ Wind variable 9. §§ Wind variable 1. * Corrected.

G. I. C. P. O.—No. 366 Meteor.—10-12-1903—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.

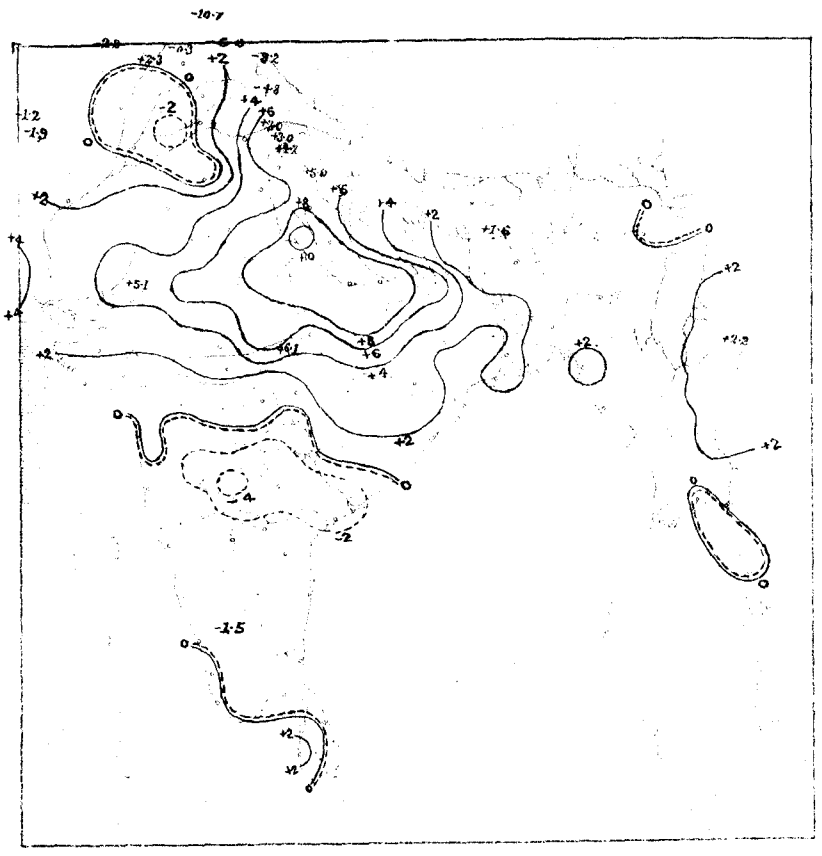
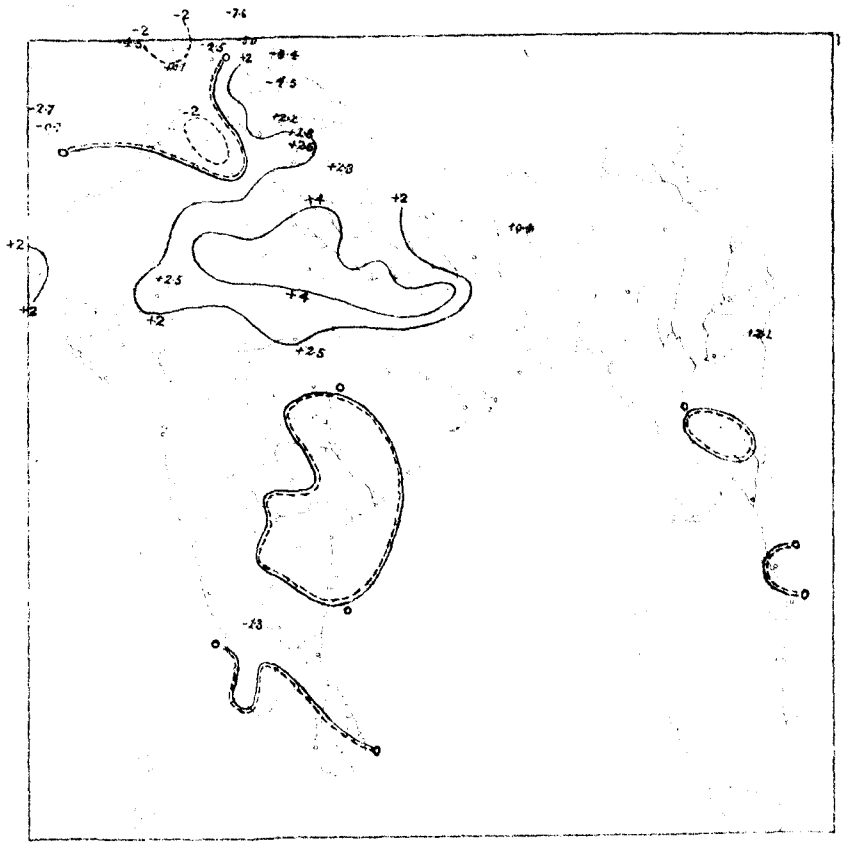


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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 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 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.

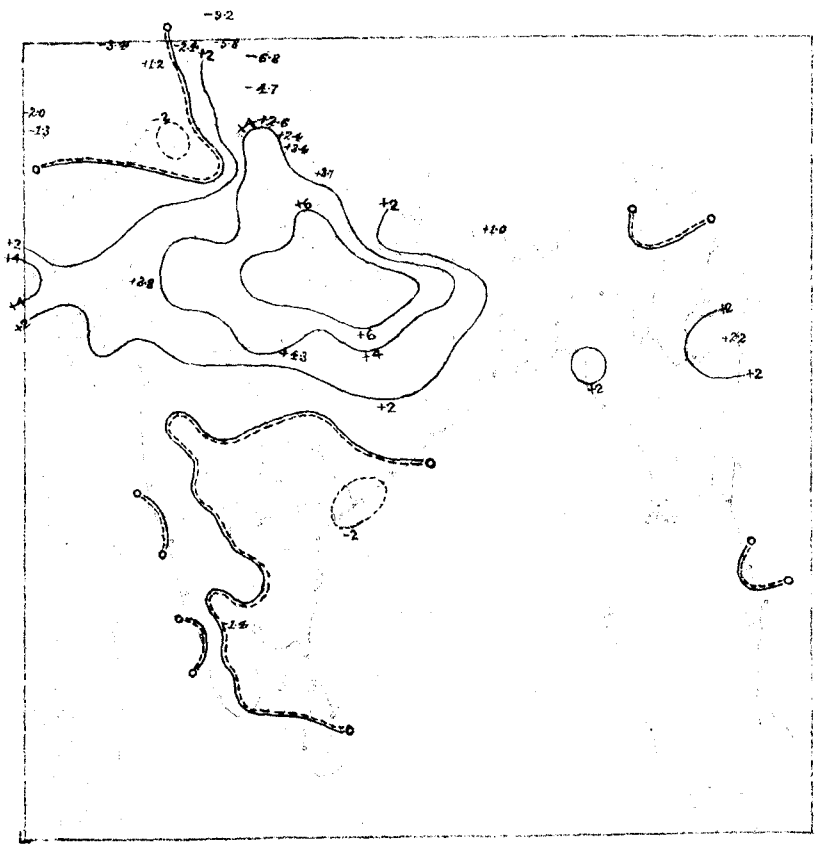
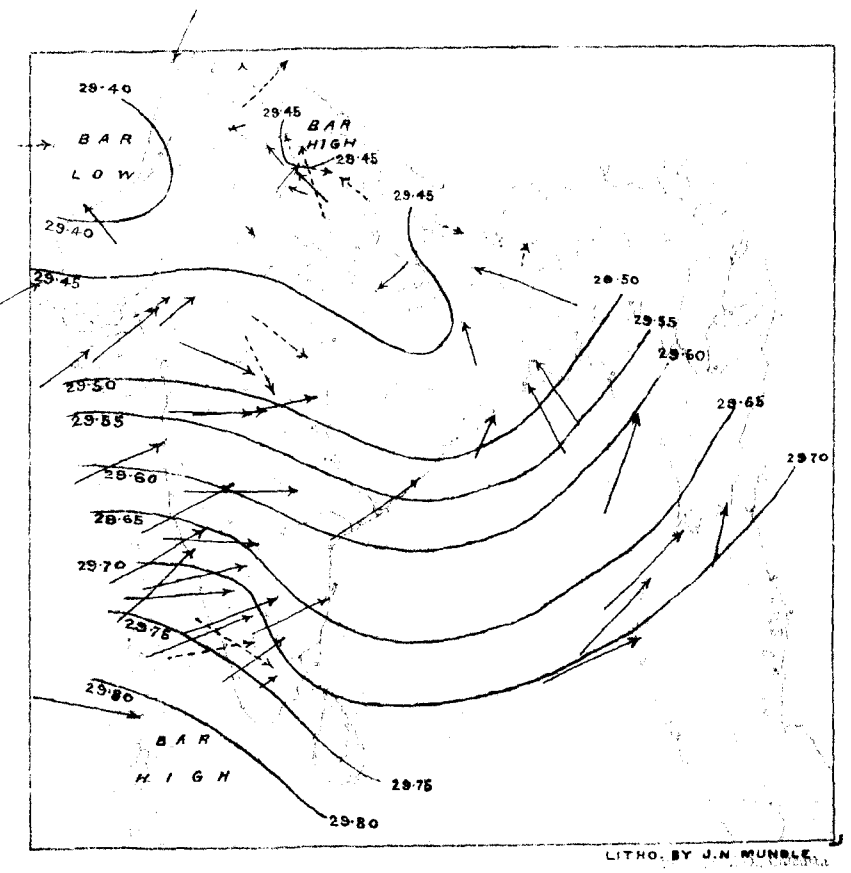


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JULY 1903.



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 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 $\frac{1}{8}$th of an inch being equal to 100 per cent.

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN ABSOLUTE HUMIDITY OF THE MONTH FROM THE NORMAL.

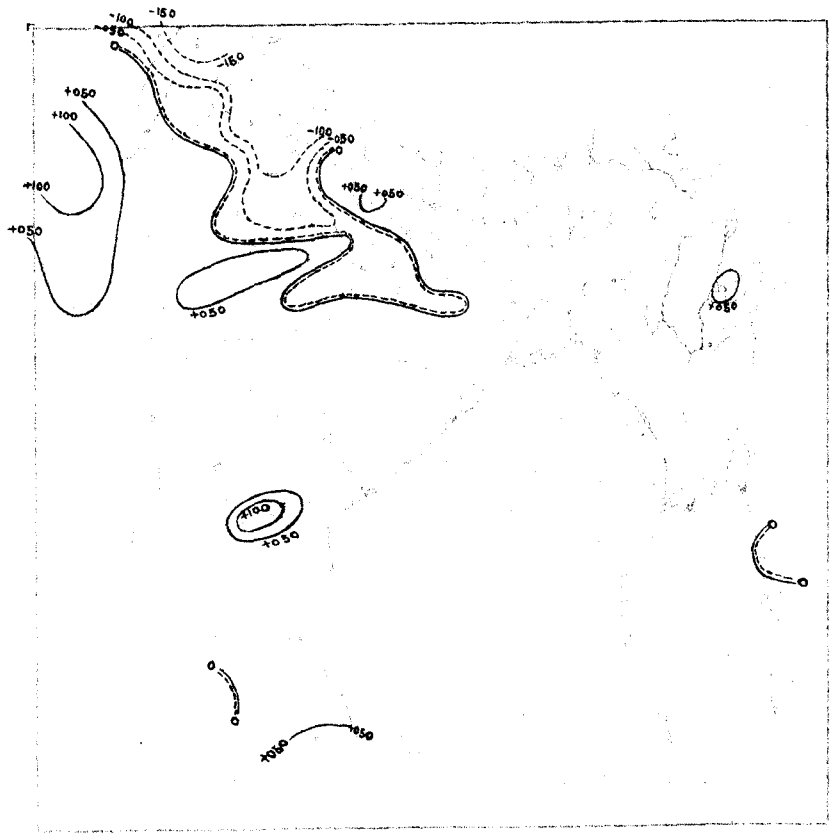
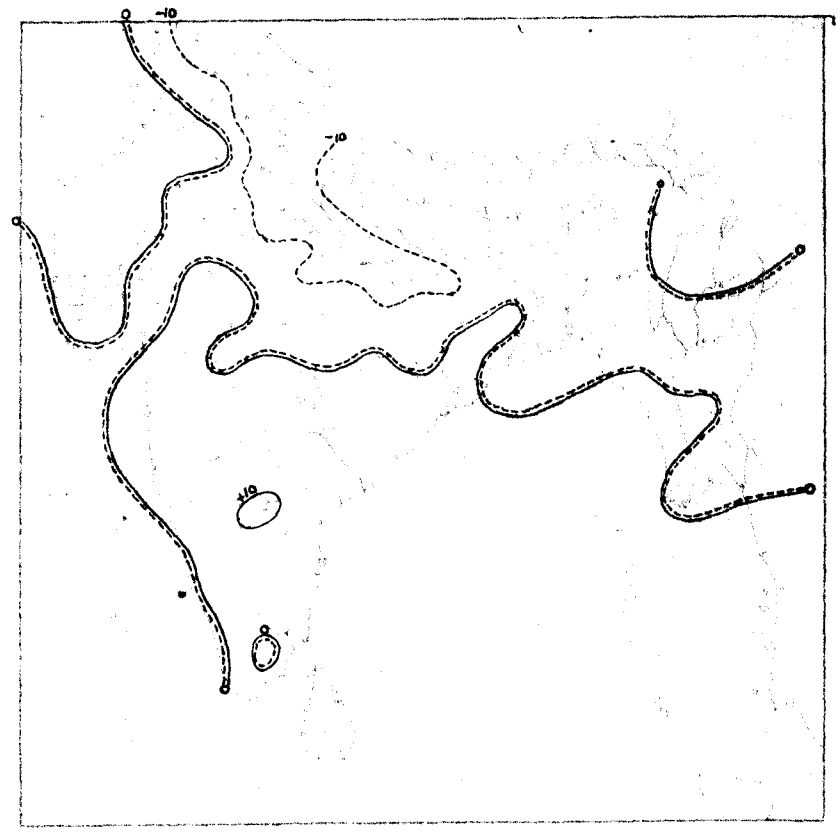


CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN RELATIVE HUMIDITY OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN CLOUD AMOUNT OF THE MONTH FROM THE NORMAL

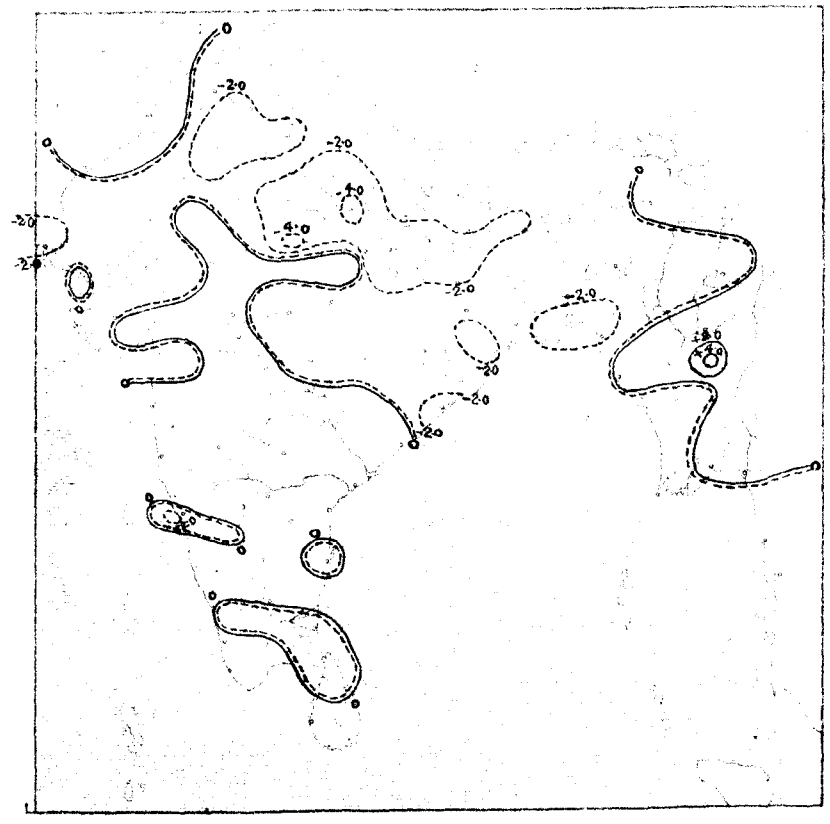
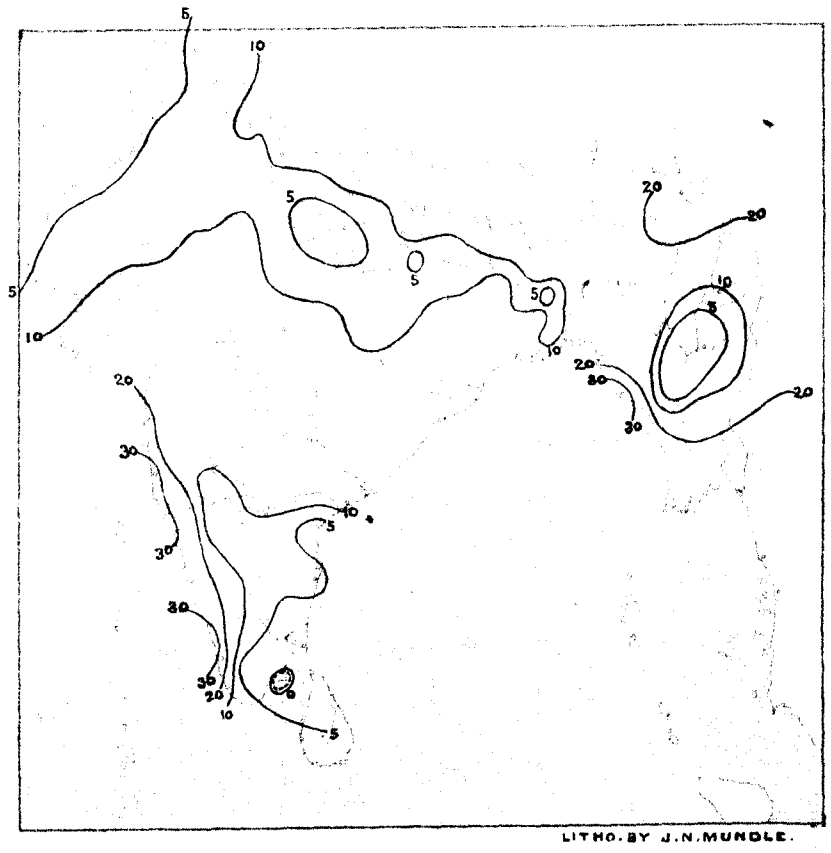


CHART SHEWING THE TOTAL NUMBER OF RAINY DAYS IN THE MONTH OF JULY 1903.



LITHO. BY J.N.MUNDLE.

Explanation.

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

A rainy day is one on which 0·10 inch or more of rain is received within 24 hours.

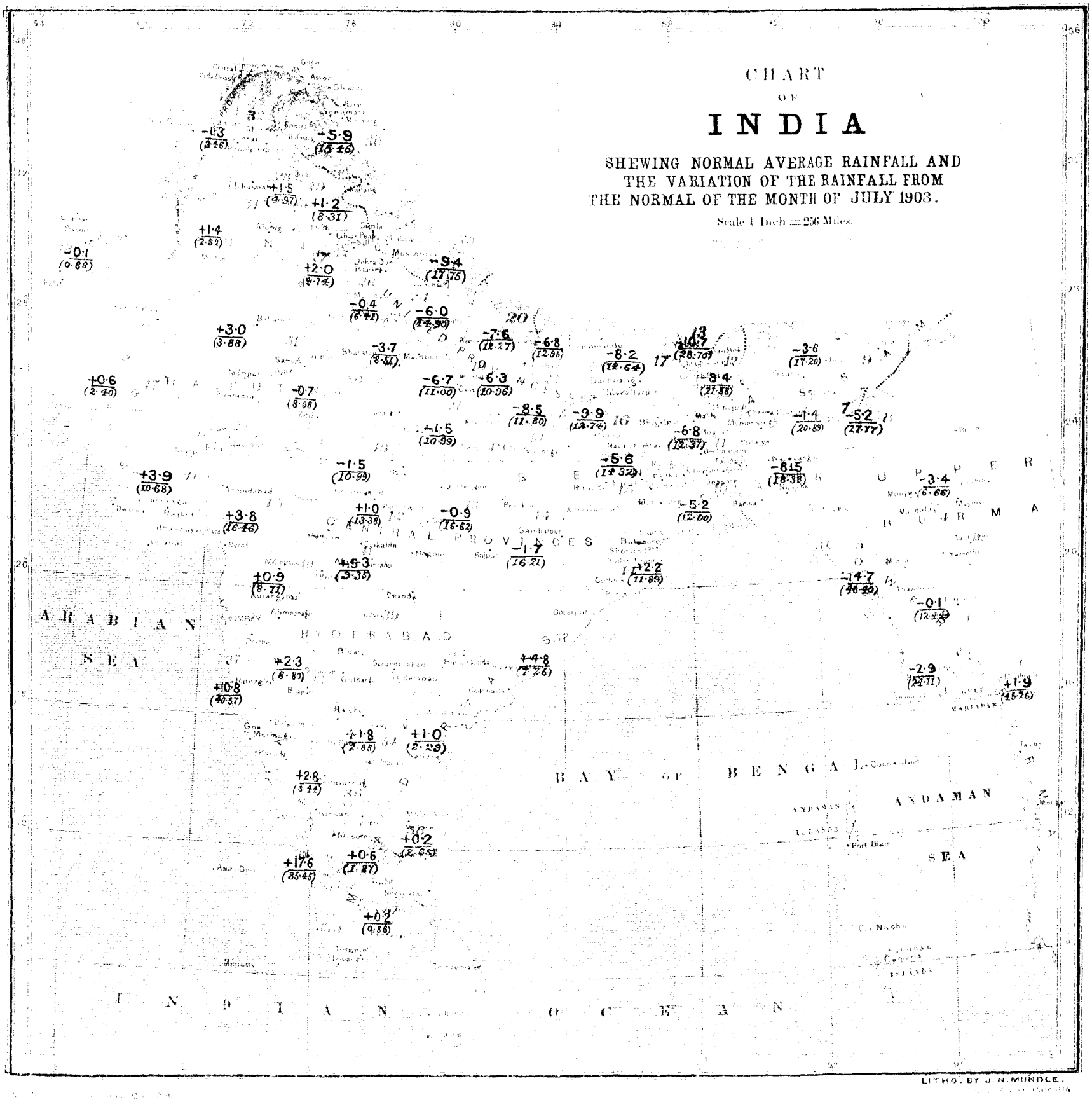
LITHO. BY J.N. MUNDLE.

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.

S. I. P., Calcutta

June '03.—5,000.



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. 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. West Punjab
32. North West Frontier Province
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 and Cutch
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
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, AUGUST, 1903.

INTRODUCTION.

THIS review of the weather in India during the month of August 1903 is based on observations taken daily at 8 A.M. at 232 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 and the Indian monsoon area, during the month of August, 1903.

A considerable and important change in the meteorological conditions occurred during August. In the preceding month of July the various cyclonic storms, which formed over the Bay, passed almost due west into the Central Provinces and dry easterly and east-north-easterly winds prevailed over west Bengal and the Gangetic plain. As a result the temperature was very excessive during July over these areas, and this condition continued to prevail at the commencement of the month under review. The following gives temperature data for the first six days for Bengal, the United Provinces, Rajputana and the Punjab:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	1st August.	2nd August.	3rd August.	4th August.	5th August.	6th August.
	°	°	°	°	°	°
Bengal . . .	+2·3	+2·0	+0·9	+1·7	+1·7	+1·3
United Provinces . .	+5·9	+4·1	+3·9	+3·2	+0·7	−0·7
Rajputana . . .	+2·2	+3·3	+3·4	+0·1	−2·0	−1·1
Punjab . . .	+3·2	+2·9	−0·8	−3·1	−4·6	−1·6

It will be observed that a fairly steady daily decrease of temperature occurred during this period over Bengal and the United Provinces. This change was brought about by increasing rainfall due to a cyclonic storm, which appeared over the head of the Bay and thence travelled west-north-westward and north-westward into the Gangetic plain. This change in the direction of movement of the storms was of great economic importance as it determined rain to those districts where it was most urgently required, at the same time reducing temperature to about the normal.

Heavyish rain occurred over the Kashmir Himalayas and the north Punjab on the 2nd and extended to other parts of the Punjab on the 3rd and 4th, resulting in the large reduction of temperature shown over that area on the 4th, 5th and 6th in the preceding table. During this period the monsoon current over the Arabian Sea gradually decreased in strength and rain fell off over the Peninsula, and, on the 6th, was confined to light showers along the west coast. As a result temperature steadily rose over the Peninsular divisions and on the 6th was generally above the normal in that area.

On the 7th a fresh depression, which had apparently been developed over the land, lay over the Gangetic plain, where pressure was about one sixth of an inch below the normal. Rain was falling moderately to heavily over

north-east India, the Gangetic plain and the north of the Central Provinces, and showers had increased slightly over the Peninsula. The heaviest rainfall apparently occurred over the east of Central India and the adjacent parts of the United Provinces, where the following falls exceeding 4″ in 24 hours were recorded :—

Province.	District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 7th August 1903.
			Inches.
Central India	Bundelkhand	Nowgong	9·74
	Ditto	Chhatarpur	7·41
	Ditto	Bijawar	4·84
United Provinces	Jhansi	Mau	6·21
	Banda	Banda	4·80
	Allahabad	Meja	4·80

The depression moved slowly westward during the next two days and was absorbed in the permanent area of low pressure in the north-west on the 10th. It carried heavy rain with it through Rajputana, etc., and from the 7th to the 11th the mean temperature was considerably to largely below the normal over the Central and United Provinces, Central India and Rajputana. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	7th August.	8th August.	9th August.	10th August.	11th August.
	°	°	°	°	°
Central Provinces	−2·0	−2·9	−0·4	+0·5	+1·2
United Provinces	0	−0·5	−2·2	−2·4	+0·3
Central India	−1·5	−3·5	−3·5	−1·7	+0·2
Rajputana	−0·2	−1·9	−5·4	−4·7	−3·1

The largest deficiency occurred in the maximum or day temperature which was more than 10° below the normal at the following places on the following dates :—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
8th August	Jaipur	79·2	91·1	−11·9
9th ,,	Sambhar	77·3	90·9	−13·6
	Jaipur	78·2	91·1	−12·9
	Ajmer	76·4	88·0	−11·6
10th ,,	Ajmer	77·4	88·0	−10·6
11th ,,	Sambhar	80·4	90·8	−10·4

On the 10th and 11th pressure was very high over India and the monsoon very light over the Arabian Sea, calms having been reported at Mormugao, Karwar, Mangalore, and Calicut at 8 A.M. on the 10th and at Ratnagiri, Mormugao, Karwar, Mangalore, Calicut and Cochin on the 11th. On these two days scattered showers only were received over the greater part of the country and temperature rose over considerable areas. Between the 12th and the 15th a remarkable change took place. The winds shifted to the southward over the greater part of the Indian area and blowing directly on to the line of the hills, gave very heavy rain to the montane and sub-montane districts of northern India while the plains were rainless or received only light to moderate showers. The following statement gives the falls exceeding 7″ in 24 hours over northern India:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Naini Tal	Kashipur	12th August	11·80
Garhwal	Kotdwara	,, ,,	9·65
Pilibhit	Amaria	,, ,,	7·10
Gorakhpur	Maharajganj	13th ,,	10·60
Pilibhit	Puranpur	,, ,,	10·09
Naini Tal	Kilpuri	,, ,,	9·10
Garhwal	Kotdwara	,, ,,	8·52
Pilibhit	Pilibhit (City)	,, ,,	8·27
	Pilibhit (Kachahri)	,, ,,	8·25
Gorakhpur	Hata	,, ,,	8·07
Dehra Dun	Mussooree	,, ,,	8·00
Pilibhit	Amaria	,, ,,	7·45
Bareilly	Choreli	,, ,,	7·27
	Oganpur	,, ,,	7·07
Moradabad	Thakurdwara	,, ,,	7·01
Dehra Dun	Chakrata (obsy.)	14th ,,	9·08
	,, (Tahsil)	,, ,,	8·50
	Rajpur	,, ,,	7·50

As a consequence of this heavy rainfall the mean temperature was considerably lower than usual over northern India except in the extreme north-west. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	12th August.	13th August.	14th August	15th August.
	°	°	°	°
Bengal	−1·2	−1·5	−0·6	−1·0
Bihar	−0·8	−4·7	−3·2	−1·5

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	12th August.	13th August.	14th August.	15th August.
	°	°	°	°
United Provinces	−0·1	−3·5	−4·8	−1·2
Central India	+1·3	−1·0	−0·8	+0·8
Rajputana	−2·6	−2·1	−2·8	−1·2
Punjab	+1·3	+1·6	−3·0	−5·6
North-West Frontier Province.	+3·2	+5·3	−1·3	−6·6

On the 14th and 15th, owing to heavy rain on the hills, a rapid fall of temperature occurred in the north-west, and the maximum temperature was 10° or more below the normal at the following places:—

Date.	Station.	Maximum temperature.		
		Actual, of date.	Normal, of date.	Variation of actual from *normal*, of date.
		°	°	°
14th August.	Roorkee	77·8	90·6	−12·8
	Meerut.	80·0	90·3	−10·3
15th „	Khushab	83·2	100·0	−16·8
	Dera Ismail Khan.	86·3	100·9	−14·6
	Sialkot.	81·5	94·5	−13·0
	Lahore.	86·4	98·2	−11·8

At this time the distribution of pressure, which had resulted in general southerly winds and in heavy rainfall along the line of the hills, changed. The rainfall diminished, the winds shifted to the westward and a depression appeared at the head of the Bay. This depression intensified slowly during the 16th and 17th and finally, accompanied with a second storm, which also formed over the Bay but further to the southward, passed into the Central Provinces where it filled up on the 21st. The storms occasioned an extensive fall of rain over the Peninsula and the central parts of the country, and temperature from the 17th to the 23rd was generally below the normal over the Peninsular divisions. The following gives data:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	17th Aug.	18th Aug.	19th Aug.	20th Aug.	21st Aug.	22nd Aug.	23rd Aug.
	°	°	°	°	°	°	°
Central Provinces	+1·5	+1·7	+0·7	+0·5	+0·5	+2·2	+1·4
Berar	+3·9	+4·2	−0·1	−1·7	−4·1	0	−0·7
West Coast	−1·2	−1·2	−1·3	−1·9	−1·2	−0·1	+0·6
Bombay Deccan	+1·1	+0·9	+1·3	−0·6	−4·5	−1·4	−0·4
Mysore	−0·5	−0·7	−2·1	−1·8	−2·1	−1·7	−0·5
Madras Coast	−3·3	−2·9	−2·4	−1·1	−0·8	+0·8	+0·7
Madras Deccan	−1·0	−1·9	−3·0	−2·5	−3·3	−0·5	−0·1
South India	−3·0	−1·7	−2·0	−2·4	−2·5	−0·5	−0·1

Very little rain fell over northern India during the existence of the above-mentioned depressions, and temperature was higher than usual in north-west India from the 17th to the 23rd, while it was about normal in the north-east. The following gives comparative data for northern India:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	17th Aug.	18th Aug.	19th Aug.	20th Aug.	21st Aug.	22nd Aug.	23rd Aug.
	°	°	°	°	°	°	°
Assam	−1·1	−1·1	−0·8	+0·3	+0·2	+0·3	−1·3
Bengal	−0·4	+0·2	+0·6	+1·1	+1·0	+1·3	+0·5
Orissa	−1·2	−0·1	+0·4	+0·3	+0·1	+2·2	+1·3
Bihar	−1·1	+0·6	+0·6	+1·0	+2·2	+1·3	+2·5
Chota Nagpur	+0·2	+0·7	+0·6	+0·4	−1·0	+1·3	+2·3
United Provinces of Agra and Oudh.	+1·1	+1·5	+2·4	+0·4	+2·1	+2·0	+1·7
Punjab	−0·7	+0·1	+2·6	+3·5	+3·5	+4·4	+6·2
North-West Frontier Province	−6·4	−3·3	−1·1	+1·4	+2·8	+3·6	+4·6
Sind	+2·6	+2·8	+2·8	+2·3	+2·8	+4·0	+4·3
Rajputana	+0·8	+2·8	+3·6	+4·5	+3·6	+4·7	+5·3
Gujarat	+2·0	+1·9	+2·4	+2·5	−0·2	−0·8	+0·1
Central India	+2·6	+3·4	+3·3	+0·4	+1·7	+3·7	+3·6

The reports of the 24th showed that there had been a sudden increase of rain over northern India, and on the following morning a shallow storm was shown over the Gangetic plain. Heavy rain continued all over northern India, while the storm, intensifying as it moved, passed eastward through the United Provinces into Bihar. Exceedingly heavy rain was received in the neighbourhood of Allahabad on the 27th, the following having been the principal amounts:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 27th August 1903.
		Inches.
Sultanpur	Musafirkhana	14·76
Partabgarh	Partabgarh	14·00
Jaunpur	Machhlishahr	13·92
Sultanpur	Amethi	10·98
Partabgarh	Patti	10·12
Allahabad	Allahabad	9·57
Sultanpur	Sultanpur	7·89
Allahabad	Soraon	7·43
Fyzabad	Bikapur	7·30
Allahabad	Phulpur	7·19

This heavy general rainfall reduced temperature suddenly all over northern India, and from the 25th to the 28th the heat was generally less than usual. This is shown below :—.

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

On the 29th a fresh cyclonic storm was shown over the north-west of the Bay and rain was determined to the Peninsula, while the weather over upper India became dry with a rapidly increasing temperature. The following gives comparative temperature data for all divisions from the 28th to the 31st and illustrates the extent of these changes :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	28th August.	29th August.	30th August.	31st August.
	°	°	°	°
Burma	+1·2	−0·9	−1·0	−0·3
Assam	−0·2	−0·3	−0·7	−0·4
Bengal	+0·9	+1·1	−0·1	−1·6
Orissa	+2·0	+1·1	−1·3	−1·3
Bihar	−0·3	+1·6	+1·9	+0·8
Chota Nagpur	+1·9	+1·4	0	−0·8
United Provinces of Agra and Oudh.	−3·2	−1·0	+1·3	+1·9
Punjab	−1·1	+0·9	+2·5	+3·6
North-West Frontier Province.	+2·1	+0·1	+1·4	+2·3
Sind	+1·8	+1·8	+0·9	+0·2
Rajputana	+1·3	+1·8	+3·9	+4·7
Gujarat	+0·4	+0·5	+1·5	+2·
Central India	−0·9	+1·2	+2·0	+2·9
Central Provinces	+0·3	+1·9	+2·4	+1·4
Berar	+0·6	+0·6	+2·2	−0·1
West Coast	+0·3	−0·8	−0·9	−0·5
Bombay Deccan	−0·1	−0·6	+0·2	−1·2
Mysore	−0·1	−2·1	−4·3	−2·2
Madras Coast	+0·5	−3·2	−3·6	−0·5
Madras Deccan	−0·3	−5·8	−5·2	−2·9
South India	+1·2	−0·9	−2·3	−0·8

It will have been noticed from the preceding summary that there are certain points of difference between the meteorological conditions of the months of July and August, which are worthy of being recorded. It will be remembered that during July, the trajectories of the storms, which were developed at the head of the Bay, were unduly and unusually westerly, so that easterly winds prevailed over lower and west Bengal and the Gangetic plain, accompanied with practically rainless weather and excessive temperatures. Early in August these conditions changed. Storms formed at the head of the Bay, as before, but their direction of movement completely altered. Instead of passing along an almost due westerly track, they travelled first to north-west, then recurved to north or north-east, and finally, after reaching the Gangetic plain, moved towards east, while, one storm, which apparently developed over the central Gangetic plain, passed quickly eastward through the east of the United Provinces into Bihar. It is obvious that a very marked change must have occurred in the controlling meteorological conditions to occasion this large change in the direction of movement of the cyclones in the two months but what this change was it is difficult to ascertain. There was a large difference in the distribution of the pressure variations of the two months but this was more likely a result than a cause of the difference in the movements of the depressions. There was a certain amount of difference in the relative forces of the monsoon currents over the Bay and over the Arabian Sea, as is shown below :—

Variation in the strength of the monsoon current from normal.

1903.	July.	August.
Arabian Sea	−0·1	−0·5
Bay of Bengal	+0·2	−0·1

The Bay of Bengal monsoon current was thus, relatively to the normal conditions, 0·3 (Beaufort scale) stronger than the Arabian Sea current in July, and was 0·4 stronger in August, but this appears to be much too small a difference to account for the observed differences in the trajectories of the storms of the two months. Moreover the easterly trend of the storms over the Gangetic plain has not been confined to August, but has been a strongly marked feature of the movements of all the storms of the latter half of the monsoon season.

Pressure.—The mean pressure of the Indian land area was approximately normal, the mean variation having been only —0·001″. Relatively to this general condition pressure was in excess over Burma, the Bay area and Bengal, the excess having been greatest over central Burma, at the stations of Yamethin (+·037″), Minbu (+·036″), Thayetmyo (+·036″) and Toungoo (+·033″). In all other parts of the Indian area pressure was normal or in defect, but the variations were generally small and unimportant, the largest having been —·020″ at Mooltan. On the hills the variations of pressure, on the mean of the month, were small, but in all places, except in the Sikkim area, the vertical pressure anomalies were slightly positive.

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 August 1903.	Pressure anomaly, August 1903.
	″	″
Burma Coast and Bay Islands	+·023	+·024
Burma Inland	+·031	+·032
Assam	+·007	+·008
Bengal and Orissa	+·010	+·011
Gangetic Plain and Chota Nagpur	—·004	—·003
Upper Sub-Himalayas	—·013	—·012
Indus Valley and North-West Rajputana	—·012	—·011
East Rajputana, Central India and Gujarat	—·006	—·005
Deccan	—·006	—·005
West Coast	—·011	—·010
South India	—·004	—·003

Temperature.—The mean temperature of the month was nearly normal, except in Sind, where the heat was somewhat excessive.

The mean maximum temperature of the month exceeded the normal over parts of the North-west Frontier Province and of the north Punjab; over a broad band extending from Sind through Rajputana and across the head of the Peninsula to west and deltaic Bengal; over Tenasserim and over Malabar and west Ceylon. Over the whole of the remainder of the country the mean maximum temperature was less than usual. The variations, both above and below the normal, were, however, generally small and unimportant and exceeded 2° only at the following stations:—

Variations of mean maximum temperature from the normal.

Station.	Positive variations, August 1903.	Station.	Negative variations, August 1903.
	°		°
Hyderabad (Sind)	+4·1	Dera Ismail Khan	—3·2
Jacobabad	+3·4	Sibsagar	—2·4
Kurrachee	+3·2	Madura	—2·7
Peshawar	+2·7	Trichinopoly	—2·4
Gaya	+2·8	Coimbatore	—2·2
Hazaribagh	+2·2		

The mean minimum temperature of the month slightly exceeded the normal over the greater part of the country. The excess was greatest in the extreme north-west and amounted to 2°·3 at Jacobabad and Sialkot, to 2°·1 at Kurrachee and to 2°·0 at Lahore. There were, however, five areas within which the mean minimum temperature was slightly lower than usual, the first included the North-west Frontier Province; the second the central parts of the Peninsula; the third south India and Ceylon, the fourth part of central and lower Burma and the fifth Assam and parts of Bengal and Bihar. Within these areas the reported deficiency was very small.

On the outer hills the variations, both of the maximum and minimum temperature, were generally small, but in Kashmir both the maximum and minimum temperatures were moderately to considerbly lower than usual.

The mean temperature varied by only small amounts from the normal except in two areas. In Sind the heat, on the mean of the month, was in moderate excess (Jacobabad +2°·9), while in the south of the North-west Frontier Province the mean temperature was lower than usual (Dera Ismail Khan —2°·1). These were the largest variations of the mean temperature, the returns for other parts of the country showing a trifling deficiency over the Peninsula, east Bengal, Burma and along the foot of the hills in northern India, and a trifling excess elsewhere.

The following table gives mean comparative data of temperature for the eleven meteorological provinces or divisions into which India is divided:—

METEOROLOGICAL PROVINCE.	VARIATION OF ACTUAL FROM NORMAL OF		
	Mean maximum temperature, August 1903.	Mean minimum temperature, August 1903.	Mean daily temperature, August 1903.
	°	°	°
Burma Coast and Bay Islands	−0·1	+0·2	0
Burma Inland	−0·9	−0·1	−0·5
Assam	−1·0	−0·3	−0·7
Bengal and Orissa	+0·3	+0·2	+0·2
Gangetic Plain and Chota Nagpur	+0·7	+0·3	+0·5
Upper Sub-Himalayas	−0·3	+0·7	+0·2
Indus Valley and North-West Rajputana.	+1·3	+0·9	+1·1
East Rajputana, Central India and Gujarat.	+0·2	+0·9	+0·6
Deccan	+0·3	+0·4	+0·4
West Coast	0	+0·6	+0·3
South India	−1·1	+0·1	−0·6

Winds.—The monsoon was, on the whole, stronger and steadier than usual around the coasts of the Bay, and, at the Bay islands and at the head of the Bay the wind's direction was abnormally southerly. The velocity of the wind decreased, however, quickly inland and at Calcutta, Hazaribagh and Darbhanga the wind was weaker than usual. In upper India also the wind was unusually southerly, and at some places the steadiness was much above the normal for the time of year. This was particularly noticeable at Dehra Dun, Ludhiana and in the Indus valley. Along the Bombay coast the winds were steady from the normal direction, but the velocity of the winds over the Peninsular divisions was generally lower than usual. The south-east trades were approximately normal as regards direction and velocity at the Seychelles and Mauritius, but at Zanzibar the direction was unusually westerly, while the velocity slightly exceeded the normal.

Humidity.—The air was somewhat drier than usual over part of Burma, the west coast, along the foot of the north-west Himalayas and within a broad band extending from west and central Bengal westward into the east of the United Provinces and through the Central Provinces as far as the Bombay Deccan. Within these areas the variations of the mean relative humidity were generally moderate or small, but amounted to −3·4 at Rangoon, to −5·9 at Hazaribagh, to −6·5 at Rawalpindi, to −5·9 at Peshawar and to −2·6 at Karwar. Over the remainder of India the air was generally damper than usual, the variations of the mean relative humidity amounting to +5·5 at Jacobabad, to +8·5 at Neemuch, to +8·6 at Kurnool, to +6·5 at Cocanada, to +7·8 at Trichinopoly and to +8·0 at Colombo. On the hills the mean relative humidity generally exceeded the normal.

The following table gives variation data of the mean aqueous vapour pressure and of mean humidity of nine meteorological provinces for the month of August 1903:—

METEOROLOGICAL PROVINCE.	MEAN ABSOLUTE HUMIDITY.		MEAN RELATIVE HUMIDITY.	
	Average actual, August 1903.	Variation of actual from normal, August 1903.	Average actual, August 1903.	Variation of actual from normal, August 1903.
	"	"	%	
Burma Coast and Bay Islands.	·890	+·006	87	−1
Bengal and Orissa	·949	+·003	86	−1
Gangetic Plain and Chota Nagpur.	·890	−·012	81	−3
Upper Sub-Himalayas	·884	+·028	78	+2
Indus Valley and North-West Rajputana.	·860	+·038	69	−2
East Rajputana, Central India and Gujarat.	·842	+·037	76	0
Deccan	·748	+·026	80	+1
West Coast	·866	+·013	87	−1
South India	·708	+·040	78	+4

Cloud.—The sky was more cloudy than usual over the inland parts of Burma, Assam, north Bihar, the north Gangetic plain, Rajputana, the west of Central India, Gujarat and the west of the Peninsula. The excess of mean cloudiness was large only in north Bihar, where Gorakhpur reported a mean cloud amount of 9·3, the normal amount being 5·9. Over the whole of the remainder of the country the sky was unusually clear of cloud, which was remarkable considering the unsettled character of the weather during the month. This relative deficiency of cloud was particularly remarkable in Tenasserim (Tavoy −2·5), Orissa (Balasore—2·5), parts of the Central (Seoni −3·1) and United Provinces (Jhansi −3·7), the east Panjab (Ludhiana −3·1) and Sind (Kurrachee −3·0).

At the north-west hill stations and in Baluchistan the cloud amount, on the mean of the month, was also generally less than usual.

The following table gives variation data of the mean cloud amount of nine meteorological provinces of India for the month of August 1903:—

METEOROLOGICAL PROVINCE.	MEAN CLOUD AMOUNT.	
	Average actual, August 1903.	Variation of actual from normal, August 1903.
Burma Coast and Bay Islands	8·1	−0·1
Bengal and Orissa	8·6	+0·7
Gangetic Plain and Chota Nagpur	8·5	+0·8
Upper Sub-Himalayas	5·2	−0·8
Indus Valley and North-West Rajputana	2·5	−1·5
East Rajputana, Central India and Gujarat	7·5	−0·2
Deccan	8·3	+0·3
West Coast	7·9	−0·2
South India	8·1	+0·5

Rainfall.—The general rainfall of the month was lighter than usal over north Bombay and the adjoining divisions of Baluchistan and the south Punjab. It was also lighter thn usual over upper Burma. In all other parts of the Indian region the month's rainfall was normal or in excess of the normal though there was still a slight tendency to deficiency over parts of west Bengal, where, in the previous month, there had occurred a partial drought. The average rainfall was actually heaviest in Arakan (51·29″) and was lightest in Sind (0·11″), but relatively to the normal, the rainfall was heaviest in south Oudh (+54%), in north Oudh (+57%), in the east submontane division of the United Provinces (+59%) and in south Hyderabad (+58%). There was practically no rain during the month over Kashgaria, Afghanistan, Persia and Arabia, though at both Kabul and Teheran there was a local fall of about one quarter of an inch. In the south-east trades region the distribution of rain was irregular, Zanzibar having received more rain than usual, while at the Seychelles the fall was in large and at Mauritius in moderate defect.

The following table gives comparative rainfall data of the eleven meteorological provinces for the month of August 1903 :—

Meteorological Province.	Rainfall.			
	Mean actual for August 1903.	Mean normal for August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	32·68	28·79	+6·33*	+22
Burma Inland	5·59	7·18	—1·59	—22
Assam	19·59	15·51	+4·08	+26
Bengal and Orissa	13·82	13·67	+0·15	+ 1
Gangetic Plain and Chota Nagpur	12·41	12·09	+0·32	+ 3
Upper Sub-Himalayas	8·75	10·72	—1·50*	—14
Indus Valley and North-West Rajputana.	2·75	2·57	+0·18	+ 7
East Rajputana, Central India and Gujarat.	8·25	7·32	+1·32*	+18
Deccan	10·46	8·86	+1·18*	+13
West Coast	18·61	17·08	+1·53	+ 9
South India	4·92	4·25	+0·67	+16

* 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.—It will be remembered that last month a faint connexion was traceable between the barometric changes over the western Siberian area and the weather over Kashmir, the Punjab and the North-West Frontier Province. This connexion apparently still existed during August, and an inspection of the daily weather charts would appear to show that the principal periods of disturbed weather and of rainfall in those regions were only partially determined by the monsoon conditions, which prevailed over other parts of the Indian area. Pressure decreased in a marked manner over the western Siberian region on the following dates:—the 1st; the 7th and 8th; the 11th, 12th and 13th; the 19th and 20th; and the 24th and 25th; while disturbed weather and more or less heavy rain prevailed over the extreme north-west of the Indian land area between the 2nd and the 5th; the 10th and 11th; the 14th and 17th; and the 24th and 26th. There exists a certain slight correspondence between these dates which suggests that general actions were taking place over these regions and occasioning disturbed weather over the whole area. This supposition is rendered the more probable, because, it is so difficult to account for some of the bursts of rain which took place over this region by the changes occurring over India. In the Caspian area, as represented by the stations of Tiflis and Baku, considerable falls of the barometer occurred on the 2nd, 6th, 13th to 15th, 18th to 20th, 24th to 26th, and 29th to 31st, and these changes of pressure, as has been noticed in previous months, subsequently manifested themselves over Asiatic Turkey and Persia, but the changes were unimportant and did not affect the weather or the general distribution of pressure.

The European charts show that pressure was very unsteady over the west of the Eur-Asian continent throughout the month. At the beginning of the month pressure was low over northern Europe and high over central and southern Europe and the Black Sea area. On the 3rd a storm appeared over the Black Sea and pressure remained low on the 4th and 5th. High pressures were re-established over the Mediterranean and Black Sea regions on the 6th and continued, though with gradually decreasing intensity till the 15th when they were finally broken down by a storm which occasioned strong winds and rain. Other storms appeared over the Caspian area on the 18th and 23rd and pressure was very unsteady till the 24th after which high pressures were again established in the south and continued till the close of the month.

In Egypt the mean barometric pressure of the month was about 0·059″ above the normal in the delta and about normal in the upper provinces. The mean temperature was about normal everywhere. No rain fell in Egypt, except a few drops at Alexandria on the 24th and at Port Said on the 26th. In the Sudan heavy falls of rain were recorded on the 19th, 21st, 22nd, 24th and 31st. At both Khartoum and Wad Medani the rainfall was in excess of previous years, while at Dueim it was less than in 1902. The following gives data:—

Years.	Khartoum.	Wad Medani.	Dueim.
	Inches.	Inches.	Inches.
1901	0·12	.....	.....
1902	0·20	3·07	2·72
1903	0·47	3·62	1·93

There was no rain during the month over Asiatic Turkey and Persia.

Turning next to the trades-monsoon circulation the observations show that pressure was lower than usual over the south-east trades region, while the winds and rainfall varied irregularly from the average. The following table gives the actual and normal mean wind direction and force and the variation of rainfall for this region :—

AUGUST.	Seychelles.	Zanzibar.	Mauritius.
Actual mean wind direction	S 35° E	S 1° W	S 71° E
Normal mean wind direction	S 36° E	S 9° E	S 67° E
Actual mean wind velocity (miles per diem).	310	183	300
Normal mean wind velocity (miles per diem).	323	168	295
Rainfall variation	−2·50″	+0·82″	−0·95″

The rainfall was thus less than usual at the Seychelles and Mauritius and slightly greater than usual at Zanzibar. The trades were practically normal at the Seychelles and Mauritius, but the wind's direction was more westerly than usual at Zanzibar. Conditions over this region were thus approximately normal, except for the light rainfall at the Seychelles.

For the Indian seas no information is available as to the prevailing direction of the winds, but the force was less than usual. This is shown below :—

AUGUST.	Arabian Sea.	Bay of Bengal.
Mean force (Beaufort scale)	3·8	3·9
Normal force (do.)	4·3	4·0

The wind, on the mean of the month, was hence slightly weaker than usual over the Arabian Sea and normal over the Bay. This is practically all the information available for the oceanic portion of the trades-monsoon circulation and the following table shows the abnormal features of the pressure and wind conditions over the Arabian Sea and the equatorial belt and the mean daily rainfall variations over India as a whole :—

Day of month (August).	Diurnal variation of pressure gradient from normal between Mauritius and Seychelles.	Diurnal variation of pressure gradient from normal between Seychelles and Bombay.	Easterly deflection of wind at Mauritius.	Easterly deflection of wind at Seychelles.	Variation of hourly wind velocity at Mauritius.	Variation of daily wind velocity at Seychelles.	Mean rainfall variation of India.
	″	″					Inch.
1	−·043	+·153	...	+ 9	−6·0	+ 20	+0·03
2	−·081	+·111	−50	−36	−6·4	− 82	+0·09
3	−·055	+·086	−24	−60	+2·4	− 92	+0·06
4	−·014	+·030	−11	−12	−0·1	−107	+0·14
5	−·001	+·016	− 2	−36	−2·2	− 48	+0·02
6	+·017	−·012	−22	−60	−3·2	−103	−0·06
7	+·062	−·052	−32	...	+1·8	−162	+0·14
8	+·052	−·076	−12	+ 9	−0·1	−117	+0·09
9	+·033	−·069	+ 2	+ 9	−0·2	−137	−0·12
10	+·045	−·074	+11	+ 9	+1·2	− 28	−0·13
11	+·053	−·078	+17	+ 9	+3·1	+ 63	−0·04
12	+·064	−·049	+16	+ 9	+3·0	+100	+0·03
13	+·040	−·008	+ 6	−12	−1·0	+ 72	+0·16
14	+·030	−·026	+ 6	+ 9	−3·4	− 40	+0·04
15	+·029	−·052	+ 1	+ 9	−0·9	− 37	−0·01
16	+·032	−·032	+ 2	+ 9	+2·6	− 20	+0·02
17	+·022	−·042	+11	−60	+5·4	− 29	0
18	+·009	−·030	+21	−60	+8·6	− 62	−0·06
19	+·028	+·008	...	+ 9	−0·8	− 65	−0·03
20	+·021	+·049	+15	+ 9	−4·3	+122	+0·13
21	−·003	+·044	− 5	+ 9	−5·4	+ 57	+0·04
22	+·004	−·025	−24	−36	−1·2	+ 73	−0·15
23	+·022	−·052	−14	−12	+0·2	+ 97	+0·03
24	+·024	−·006	− 4	+ 9	+1·1	+ 91	+0·09
25	+·006	−·007	+ 6	−36	+6·1	+ 7	+0·12
26	+·008	−·046	...	+ 9	+8·3	− 42	−0·22
27	+·021	−·037	+23	...	−4·2	−236	+0·10
28	+·035	−·028	+ 4	+ 9	−4·1	+ 71	−0·07
29	+·051	+·009	+ 6	+ 9	+4·5	+112	+0·05
30	+·061	+·006	+10	+ 9	+2·2	+ 91	0
31	+·044	−·024	+15	+ 9	+0·4	+ 40	−0·02

From the 1st to the 5th the barometric gradient was less than usual over the equatorial belt and greater than usual over the Arabian Sea, after which, this condition was reversed and while the pressure difference was steadily greater than usual over the equatorial belt it was almost equally steadily less than usual over the Arabian Sea from the 6th to the close of the month. The wind was

less easterly and more southerly than the normal at both the Seychelles and Mauritius from the 1st to the 8th; it was generally more easterly than usual from the 9th to the 21st; and generally more southerly than usual from the 22nd to the 25th after which, till the end of the month, there was again increased easting in the wind's direction. The velocity was generally low until the 10th, after which the variations were very irregular until the 28th when the velocity increased and was higher than usual till the end of the month.

The rainfall variations over India were generally small. There was some excess from the 1st to the 5th during which period the gradient was excessive over the Arabian Sea and the winds more southerly than the average over the equatorial belt. After this the variations were irregular though there was a marked tendency to increased rainfall when the barometric gradient over the Arabian Sea increased to normal or above the normal. No satisfactory connexion can be established between the increased or diminished easting in the south-east trades and the variations of rainfall over India, but an increased velocity of the wind at the Seychelles is on many occasions associated with an increased rainfall over India.

The following table gives the daily variations of pressure from the normal for certain selected stations in the monsoon area:—

August 1903.

DATE.	PRESSURE VARIATION FROM NORMAL OF							
	Bushire.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	"	"	"	"	"	"	"	"
1	+·017	—·004	—·061	+·031	+·027	—·089	—·068	—·021
2	—·011	—·029	—·052	+·029	+·027	—·055	—·023	—·016
3	—·040	—·053	—·090	—·008	+·002	—·063	—·041	—·042
4	—·015	...	—·063	—·035	—·007	—·032	+·003	—·025
5	+·034	...	—·018	+·012	+·021	+·027	+·013	+·015
6	—·007	...	—·010	+·007	—·020	+·010	+·005	—·003
7	—·094	—·058	—·040	—·024	—·077	—·002	—·022	—·045
8	—·020	+·020	—·043	—·039	—·058	+·020	+·037	—·012
9	+·051	+·069	—·015	—·046	—·003	+·053	+·017	+·018
10	+·054	+·066	—·044	—·099	—·037	+·058	+·020	+·003
11	+·079	+·097	—·009	—·056	—·011	+·090	+·029	+·031
12	+·119	+·059	+·008	—·053	—·021	+·044	—·004	+·022
13	+·019	—·069	+·002	—·022	—·043	—·013	—·001	—·018
14	—·098	—·102	—·074	—·039	—·062	—·038	+·024	—·056
15	+·014	—·073	—·011	—·024	—·033	+·025	+·043	—·008
16	+·028	...	—·019	—·031	—·034	+·018	+·043	+·001
17	+·025	+·089	—·043	—·032	—·044	+·006	+·029	+·004
18	+·061	+·106	+·009	—·064	—·026	+·011	—·017	+·011
19	+·093	+·012	+·027	—·021	—·001	—·007	—·037	+·009
20	+·087	+·034	+·060	—·008	—·001	—·075	—·050	+·007
21	+·010	—·053	—·008	—·019	—·021	—·078	—·027	—·028
22	—·045	—·019	+·004	—·060	—·034	—·030	+·002	—·026
23	+·001	—·063	—·021	—·036	—·017	+·028	+·044	—·009
24	+·001	—·013	—·042	+·018	+·015	+·004	+·010	—·001
25	—·082	—·086	—·012	—·027	—·023	—·028	+·012	—·035
26	—·089	—·097	—·059	—·067	—·051	—·025	—·008	—·057
27	—·084	—·054	—·046	—·069	—·036	—·023	—·041	—·050
28	—·056	+·021	+·007	—·060	—·041	—·027	—·025	—·026
29	—·098	—·033	—·065	—·051	—·051	—·073	—·138	—·073
30	—·080	—·007	—·036	—·060	—·063	—·081	—·134	—·066
31	—·015	+·003	—·083	—·064	—·035	—·072	—·064	—·047

The preceding data show that, on the mean of the whole area, pressure was low on the 3rd and 7th and was higher than usual from the 9th to the 12th. It fell again rapidly on the 14th but was again slightly higher than usual from the 16th to the 20th. It fell quickly on the 21st, rose again on the 24th, but was very low from the 26th to the end of the month. There was a certain amount of agreement between these changes and the general rainfall of the monsoon area. Rain was, on the whole, light between the 9th and 11th and the 16th and 19th, while it was general on the 4th, 7th, 13th, 20th and at the end of the month. Thus in Egypt the only rainfall was on the 24th and 26th; in the Sudan heavy rain fell on the 19th, 21st, 22nd, 24th and 31st; and at Mombassa on the 11th and 22nd.

Magnetic and Solar Disturbances.

Kodaikanal.—The Director of the Kodaikanal Observatory telegraphed as follows during the month:—

August 1st:—No spots or important prominences.

August 12th:—Considerable changes of solar activity last few days, spots only small but numerous faculæ and extensive small prominences.

August 26th:—Several very large prominences on south-east and south-west limbs, all in high southern latitude.

,, *31st*:—Prominence activity continues very marked, only one small spot, faculæ extensive especially near positions of prominences at limb.

The following gives a complete statement of the disturbances recorded at this observatory:—

Solar Physics Observatory, Kodaikanal.

Spots, Faculæ, and Magnetic disturbances.

August 1903.

Day of month.	Spots. Large.	Spots. Small.	Faculæ (groups).	Magnetic disturbances.	Remarks.
1		...	1 (I); 1 (II)	...	
2	...	2	1 (I)	Small.	
3	...	2	1 (III)	...	
4	...	2	3 (III)	Small.	
5	...	3	1 (II); 1 (III)	Small.	
6	...	2	1 (II); 1 (III)	Small.	
7	...	4	1 (I); 1 (II)	...	
8	...	12	1 (I); 1 (II)	Small.	
9	...	21	3 (I)	...	Spots not projected. Weather bad.
10	3	groups	...	...	
11				Moderate.	Sun not visible. Weather bad.
12	1	14	2 (II); 1 (III)	Small.	Also another group too faint to be projected.
13	...	17	2 (II)	Small.	
14				Small.	Sun not visible.
15	1	11	2 (I)	Small.	Another group too faint to be projected.
16	1	17	2 (I)	Small.	
17	...	11	...	Small.	
18	1	13	1 (II); 1 (III)	Small.	
19	...	4	...	...	
20				Small.	Sun not visible.
21	...	6	2 (I); 1 (II)	Small.	
22	...	1	2 (I)	Great.	
23	...	2	1 (II)	Small.	
24	...	3	1 (I); 2 (II)	...	
25	...	4	2 (I); 2 (II)	...	
26	...	5	2 (I); 1 (II)	Moderate.	
27	...	6	2 (I); 1 (II)	Small.	
28	1	group	1 (II)	...	Spots not projected. Weather bad.
29	...	5	1 (II)	...	
30				...	Sun not visible.
31	...	1	1 (I)	...	

NOTE.—The Roman figures within brackets under "Faculæ" indicate their relative extent; (I) showing that they are very extensive, (II) that they form a moderately big group and (III) that they consist only of points and streaks.

Colaba, Bombay.—The following notes have been supplied by the Director of the Colaba observatory:—

The magnetic traces for the month, though they do not show any large disturbances except one denominated 'great' which was recorded on the 26th, do give evidence that the minimum of the magnetic disturbance period has definitely passed. The minimum as determined by the Σ range of Horizontal Force (sum of 24 hourly ordinates of the diurnal inequality of Horizontal Force without regard to signs) appears to have been reached in February 1902, and it may be noted that the *smoothed* Σ range = ·00214 C. G. S. for that month is a record minimum in the Colaba record. After the maximum, which was attained in July 1893, had given Σ range equivalent to ·00395 C. G. S., the minimum was apparently reached in June 1899 when Σ range fell to ·00220 C. G. S. and after rising slightly, it reached its lowest minimum in February 1902. If the indications of the Colaba Σ range curve of the last 55 years be not incorrectly interpreted, they tend to show that the next maximum may probably be a decidedly low maximum.

There were 11 days of calm, 14 days of small, 5 days *viz.*, 11th, 12th, 14th, 22nd, and 23rd of moderate and 1 day of great disturbance during the month under review. Movements suspected to be due to seismic causes occurred on the 26th at about 4 A.M. the strain apparently being relieved at about 2 A.M. the next day.

Small period movements: 6 serrated movements (the oscillations continuing for some time) and 18 abrupt movements (appearing as if suddenly damped in their propagation) have been recorded.

The selected quiet days of the month were the 3rd, 7th, 16th, 19th and 29th.

The means of the observed absolute values of the several

elements for August and for the seven preceding months of 1903 were as follow :—

Months.	January 1903.	February 1903.	March 1903.	April 1903.
Declination .	0° 18′ 17″ E	0° 8′ 1″ E	0° 17′ 58″ E	0° 16′ 29″ E
Horizontal Force.	C. G. S. unit 0·37430	C. G. S. unit. 0·37436	C. G. S. unit 0·37442	C. G. S. unit. 0·37431
Dip . . .	21° 40′ 7″	21° 40′ 3″	21° 41′ 3″	21° 40′ 7″

Months.	May 1903.	June 1903.	July 1903.	August 1903.
Declination .	0° 15′ 8″ E	0° 16′ 0″ E	0° 16′ 36″ E	0° 15′ 29″ E
Horizontal Force.	C. G. S. unit 0·37425	C. G. S. unit 0·37437	C. G. S. units 0·37439	C. G. S. unit 0·37418
Dip . . .	21° 41′	21° 2′	21° 43′ 7″	21° 45′ 4″

The following table gives the ranges of the mean monthly diurnal inequalities of the Horizontal Force and Declination ; and also Σ ranges or sums without regard to sign of all 24 ordinates of the inequalities, from January to August, 1903 :—

Months.	Horizontal Force.		Declination.	
	Range.	Σ Range.	Range in arc.	Σ Range in arc.
January 1903 .	C. G. S. ·000275	C. G. S. ·001646	1′·37	6′·40
February „ .	308	2038	1′·19	4′·82
March „ .	460	2952	2′·12	7′·59
April „ .	491	3232	3′·45	13′·38
May „ .	397	2797	3′·91	15′·53
June „ .	411	2710	4′·64	19′·62
July „ .	419	2868	4′·62	19′·11
August „ .	·000390	·002356	4′·74	18′·90

The following is the daily record of magnetic disturbances recorded at Colaba :—

August 1903.		August 1903.		August 1903.	
1	C.	11	M.	21	S.
2	S.	12	M.	22	M.
3	C.	13	S.	23	M.
4	S.	14	M.	24	S.
5	S.	15	S.	25	S.
6	C.	16	C.	26	G.
7	C.	17	C.	27	S.
8	S.	18	C.	28	C.
9	S.	19	C.	29	C.
10	S.	20	S.	30	S.
				31	C.

The magnitudes of the disturbances are determined from Horizontal Force traces.

C = calm ; S = small ; M = moderate ; G = great ; V. G. = very great. Days are reckoned from midnight to midnight.

Two seismic disturbances were recorded; the first on the 11th at about 10 A. M. and the second on the 13th at about 9 P. M., their amplitudes being 1·4 M. M. and 0·5 M. M. respectively.

Mauritius.—The Director of the Royal Alfred observatory reports that at Mauritius magnetic disturbances were recorded between 3 hours and 24 hours on the 11th ; between 11 hours and 24 hours on the 14th ; between midnight on the 21st and midnight on the 23rd ; between midnight on the 24th and midnight on the 25th and between 9 hours and 16 hours on the 26th.

Groups of sunspots were observed at Mauritius on the 2nd, 6th to 20th (except 11th, 13th and 16th when the weather was cloudy), and the 29th and 30th and individual spots on the 4th, 27th and 28th. Faculæ were recorded on all days except the 4th, 5th, 11th, 13th, 16th, 25th and 26th, when the sky was too cloudy to admit of observations.

Atmospheric Pressure.

The mean 8 A. M. pressure of the whole Indian land area was about normal, the mean variation having been —·001″. There had thus been an increase of 0·024″ since July last, in which month the mean pressure of the whole area was 0·025″ in defect.

The mean pressure of the month exceeded the normal over Burma, the Bay Islands, the greater part of Assam, Bengal, Orissa, at some places on the Madras coast and over the east of Ceylon while it was normal or below the normal over the remainder of the country. The greater

excess was shown over Burma, the Bay Islands and south-east Bengal and the greatest deficiency over the Benares district and the south-west Punjab. This is shown below :—

AREA OF GREATEST EXCESS.		AREA OF GREATEST DEFECT.	
Stations.	Pressure variation from normal.	Stations.	Pressure variation from normal.
	"		"
Yamethin	+·036	Mooltan	—·021
Minbu	+·035	Benares	—·020
Thayetmyo	+·035		
Bassein	+·035		
Toungoo	+·032		
Mandalay	+·026		
Mergui	+·025		
Port Blair	+·022		
Narayanganj	+·022		
Barisal	+·022		
Moulmein	+·021		
Bhamo	+·021		

Plate I gives the actual distribution of the mean pressure of the month and shows that the barometer was highest in south Tenasserim, relatively high in the south of Ceylon and in Malabar ; lowest in the south-west Punjab, the south of the North-west Frontier Province and upper Sind and relatively low over the eastern districts of the United Provinces. The general distribution was about normal, except that barometric gradients were slightly steeper than the average over the east of the Bay.

The slight defect of pressure noticed over India apparently extended west ward into Persia, where Bushire and Jask reported variations of —·005″ and —·009″ respectively, but the amount of the deficiency apparently increased in Asiatic Turkey where it was as much as —·050″. To the westward again pressure apparently increased as in deltaic Egypt, the barometer read 0.059″ above the normal, though in upper Egypt pressure was normal. In southern Arabia the barometer, on the mean of the month, read about 0·025″ below the average, and in the south-east trades region about 0.030″ below, so that apparently all over the equatorial belt and the Arabian sea area pressure was in defect.

Pressure was generally about normal at the level of the hill stations in India, but was slightly excessive at Quetta, in Baluchistan. The variations were generally similar to those reported at the neighbouring plains stations, but, on the whole, there were slight positive vertical pressure anomalies except in Sikkim where they were negative. The following data illustrate these conditions :—

HILL STATION.	Variation from normal pressure, August 1903.	PLAIN STATION.	Variation from normal pressure, August 1903.	Vertical pressure anomaly (Hill–Plain).
	"		"	"
Quetta	+·026	Jacobabad	—·014	+·040
Leh	—·001	Lahore	—·011	+·010
Murree	—·002	Peshawar	—·012	+·010
Simla	+·008	Ludhiana	—·012	+·020
Ranikhet	+·001	Bareilly	—·009	+·010
Chakrata	+·003	Roorkee	—·009	+·012
Darjeeling	—·007	Dhubri	+·007	—·014
Pachmarhi	+·008	Hoshangabad	0	+·008
Mount Abu	+·010	Deesa	—·001	+·011
Wellington	—·004	Coimbatore	—·004	0

The following is a summary of the chief abnormal features of the pressure distribution during the month under review.

(1) The mean pressure of the whole country was only ·001″ below the normal.

(2) Pressure was in slight to moderate excess over Burma, Assam, Bengal and at some stations along the Madras coast.

(3) Pressure was normal or in slight defect over the remainder of the country.

(4) The vertical pressure anomalies were feebly positive except in the Bengal-Sikkim district.

(5) Pressure was lower than usual over the equatorial belt and the Arabian sea.

Barometric depressions and cyclonic storms of the month.

One of the most important features of the meteorological conditions of the month of August was the series of cyclonic storms which, forming at the head of the Bay or over the delta of Bengal, passed thence into the Gangetic plain, giving abundant rainfall to the areas left dry during the preceding month and where rain was badly needed.

Cyclonic storm of August 1st to 5th:—The following gives 8 A.M. data for the stations at the head of the Bay:—

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.			
	"	"	"				Inches.	
Diamond Island.	29·679	+·040	—·036	SW	14	10	6·10	Sea rough.
Bassein .	·687	+·046	—·010	SSW	7	10	1·02	Continuous rain.
Akyab . .	·606	+·039	—·039	SE	6	10	1·84	
Chittagong .	·554	+·012	—·050	S	6	9	0·16	Showery.
Barisal . .	·534	+·015	—·022	NNE	5	10	0·15	
Calcutta .	·497	+·014	—·041	E	7	6	0·02	
Saugor Island	·448	—·010	—·081	ENE	13	8	00·7	
Balasore .	·440	—·002	—·093	ENE	8	9	1·12	Showery.
False Point .	·403	—·028	—·148	Calm	6	9	0·24	Do.
Cuttack .	·445	+·006	—·101	ENE	2	10	1·72	Raining.
Gopalpur .	·465	+·032	—·088	W	6	9	2·79	Drizzling.
Waltair .	·493	+·019	—·111	SW	13	10	0·09	Sea smooth.
Cocanada .	·549	+·042	—·075	SW	11	10	0·02	Sea rising.
Masulipatam .	·584	+·026	—·077	WNW	13	10	0·01	Thunder.

Pressure was decreasing slightly at the head of the Bay, while it was increasing in surrounding regions. In consequence a depression, which lay off the Orissa coast, was intensifying, and at False Point the barometer marked one-seventh of an inch below the normal. The winds were moderately strong around the depression, but the rainfall was only moderately heavy.

The following gives marine data for the northern half of the Bay:—

NAME OF VESSEL.	8 A.M. POSITION.		BAROMETER as corrected by Calcutta office.	WIND.		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	"			
S.S. *Kohinur* .	Cocanada		29·412	WSW	5	Rough sea and dull overcast.
S.S. *Itola* .	13 12	82 40	·601	WSW	4	Moderate sea and fine; noon overcast.
S.S. *Labuan* .	14 03	85 09	...	W	6	High head sea and clear.
S.S. *Tara* . .	15 45	85 53	·537	WSW	6	Rough sea and overcast.
S.S. *Umsinto* .	16 45	86 26	29·508	SW	5	Moderate sea and overcast; 8 P.M. showery.
S.S. *Bangala* .	17 33	89 31	·464	SW	4	Moderate sea and occasional hard rain squalls.
S.S. *Orissa* .	18 26	87 00	·479	WSW	4	Heavy sea and overcast and squally; noon, rainy
S.S. *Drachenfels*	18 38	86 15	·470	W	5	
S.S. *Mombassa* .	20 34	87 41	·455	ENE	6	Slight sea and cloudy, 4 A.M. occasional rain squalls.
S.S. *Malda* .	Saugor Island.		·456	SE	4	Squally.
S.S. *Sirdhana* .	21 30	87 50	·452	ESE	2	Fine.
S.S. *Florican* .	Calcutta.		·454	...	...	4 P.M. showery at times.
S.S. *Lai Sang* .	Calcutta.		·578	...	...	4 P.M. occasional rain squalls.
F.L.V. Torch .	Ridge.		·486	ESE	4	Moderate confused sea and unsettled and ugly weather.

Fresh to strong squally south-westerly winds prevailed over the Bay with showery to rainy weather.

August 2nd.—The following gives 8 A.M. data for the stations in the storm area:—

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.			
	"	"	"				Inches.	
Gopalpur .	29·471	+·006	—·084	SSW	12	6	0·32	Strong wind.
Cuttack .	·447	+·002	—·101	Calm	4	8	5·14	Continuous rain.
False Point	·468	+·065	—·085	SW	10	10	1·63	
Balasore .	·457	+·017	—·078	SSE	9	6	0·09	
Saugor Island.	·473	+·025	—·058	SSW	18	4	0·15	Sea slight.
Calcutta .	·505	+·008	—·036	ESE	6	6	0·71	Showery.
Chaibassa .	·431	—·028	—·089	ENE	5	9	0·28	Do.
Ranchi .	·458	—·028	—·065	ENE	14	9	0·32	Do.
Pendra .	...	—·036	...	NNW	6	3	0·78	Do.
Sambalpur .	·417	—·037	—·143	SW	5	10	4·42	
Raipur .	·457	—·016	—·106	W	9	8	0·67	Do.

The depression had passed inland in the early morning hours and the winds had shifted to south-west at the head of

the Bay. Heavy rain had been received over the east of the Central Provinces and over Orissa, the following amounts exceeding 4″ in 24 hours having been recorded:—

District.		Station.	Rainfall during 24 hours preceding 8 A.M. of 2nd August 1903.
			Inches.
East of Central Provinces	Bilaspur	Mungeli	5·20
	Sambalpur	Bargarh	4·51
	Do.	Sambalpur	4·42
Orissa	Orissa Tributary Mahals.	Tolcher	4·61
	Cuttack	Cuttack	4·59

The centre of the storm lay near Sambalpur at 8 A.M. where the barometric anomaly was —0·143.″

A strong monsoon was blowing over the Bay on the 2nd, the *Argyll* in Lat. 20° 02′ N. and Long. 88° 38′ E. reporting a wind from south-west force 7; the *Florican* in Lat. 19° 57′ N. and Long. 87° 13′ E. south-west by south force 9, and the *Bihara* in Lat. 19° 9′ N. and Long. 90° 14′ E. south-west force 9.

August 3rd.—The following gives 8 A.M. data for the stations in the storm area:—

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.			
	″	″	″				Inches	
Sambalpur	29·464	+·047	—·096	SW	6	9	0·52	
Raipur	·465	+·008	—·104	SW	12	10	3·07	Raining.
Pendra	...	—·030	...	SSE	8	10	2·48	Showery.
Jubbulpore	·429	—·067	—·124	W	5	10	2·14	Raining.
Seoni	·459	—·063	—·076	WNW	8	10	5·10	Continuous rain.
Saugor	·488	—·049	—·075	WNW	8	9	0·18	
Jhansi	·471	—·045	—·051	NW	8	2	0·85	Showery.
Nowgong	·443	—·055	—·079	Calm	2	10	0·51	Do.
Sutna	·410	—·064	—·106	ENE	5	8	...	
Allahabad	·431	—·042	—·073	ENE	6	6	...	
Benares	·426	—·042	—·085	ESE	6	4	...	
Cawnpore	·437	—·039	—·057	E	6	4	0·30	Showery.
Lucknow	·452	—·041	—·061	NE	2	2	...	

The storm, which lay over the east of the Central Provinces on the 2nd, had advanced in a west-north-westerly direction and was entering the east of the Central India plateau. Pressure was lowest at Sutna, but the largest barometric anomaly was —0·124″ at Jubbulpore. The rainfall had been heavy, but not exceptionally so over the storm area.

August 4th.—The following gives 8 A.M. data for the storm area:—

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.			
	″	″	″				Inches.	
Jubbulpore	29·529	+·100	—·030	SW	7	10	4·87	Showery.
Sutna	·473	+·062	—·061	WSW	7	10	0·12	
Nowgong	·484	+·041	—·052	W	3	10	4·76	Continuous rain.
Jhansi	·499	+·028	—·035	Calm	5	6	0·20	Showery.
Allahabad	·440	+·009	—·070	WNW	8	9	0·15	
Benares	·423	—·003	—·091	SSW	4	6	0·06	
Cawnpore	·440	+·003	—·060	SSE	4	7	...	Thunder.
Lucknow	·438	—·014	—·077	SE	3	6	0·05	
Mainpuri	·448	—·025	—·058	Calm	0	10	0·77	Raining.
Agra	·484	+·013	—·040	NW	6	10	3·26	Do.
Bahraich	·473	—·014	—·039	ESE	17	8	...	
Gorakhpur	·453	—·032	—·072	NNE	3	10	...	

The depression had recurved towards north and had passed into the United Provinces, the centre lying between Allahabad and Lucknow where pressure was about 0·08″ below the normal. This change in the trajectory of the depression was an indication of a change in the prevailing meteorological conditions and was of considerable economic importance as the prevailing westerly trend of the depressions during July had left the Gangetic plain almost rainless. Moderate rain was now falling all over northern India.

August 5th.—The following gives 8 A.M. data for the storm area:—

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.			
	″	″	″				Inches	
Benares	29·494	+·071	—·027	WSW	2	10	0·11	
Allahabad	·513	+·073	—·003	WNW	6	10	...	
Cawnpore	·490	+·050	—·017	W	4	10	0·31	Showery.
Lucknow	·488	+·050	—·033	NE	1	10	1·44	
Bahraich	·502	+·029	—·017	Calm	2	4	...	
Gorakhpur	·495	+·042	—·033	Calm	2	10	...	
Patna	·502	+·041	—·034	WSW	4	10	0·82	Do.
Gaya	·493	+·041	—·031	W	5	5	...	
Hazaribagh	·507	+·035	—·017	WNW	8	10	2·84	Thunderstorm.

The depression had drifted slightly eastward, but it had almost filled up and no well-defined centre was shown by the observations. Rainfall continued general over northern India :

Land formed storm of the 6th to the 9th:—The following gives 8 A. M. data for the stations in lower Bengal :—

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.	REMARKS.
	"	"	"				Inches	
Barisal .	29·467	—·064	—·101	SE	4	10	0·88	Showery.
Jessore .	·74	—·046	—·086	NNE	3	8	0·17	
Calcutta .	·472	—·048	—·070	SW	4	10	0·45	Do.
Burdwan .	·464	—·037	—·056	ENE	2	8	1·11	Thunder-storm.
Saugorlsland	·472	—·048	—·072	SW	13	10	0·66	Wind variable.
Balasore .	·486	—·022	—·057	Calm	6	7	0·08	Drizzling.
False Point.	·503	—·050	—·058	SW	9	10	3·08	Continuous rain.
Cuttack .	·516	—·028	—·042	SW	3	9	0·52	
Chaibassa .	·481	—·042	—·044	WSW	2	3	1.00	Showery.

Pressure had decreased over the delta of Bengal, where the barometer marked nearly 0·10″ below the normal. The winds were variable in this area and moderate general rain was falling.

August 7th.—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.	REMARKS.
	"	"	"				Inches	
Pendra . .	...	—·064	...	SW	10	10	2·91	Continuous rain.
Ranchi .	29·400	—·079	—·132	WSW	5	8	0·49	Showery.
Hazaribagh .	·385	—·097	—·148	SW	4	10	1·40	Do.
Gaya . .	·381	—·103	—·152	SE	5	8	0·75	Do.
Patna .	·401	—·086	—·141	ENE	10	10	...	
Benares .	·364	—·112	—·161	SE	3	6	0·90	
Sutna . .	·397	—·101	—·145	WSW	10	10	2·05	Continuous rain.
Allahabad .	·380	—·109	—·144	ESE	6	10	2·84	
Nowgong .	·413	—·091	—·135	NW	5	10	9·74	Heavy rain
Cawnpore .	·382	—·090	—·134	ESE	4	10	0·50	Showery.
Lucknow .	·391	—·085	—·134	SE	2	7	0·08	

The area of lowest pressure had been transferred north-westward from lower Bengal to the central Gangetic plain where pressure was one-sixth of an inch below the normal and light cyclonic winds prevailed. Rain continued general over a large part of northern India and was heavy in the east of central India and the adjacent districts where the following falls exceeding 4″ in 24 hours were recorded :—

DISTRICT.	Station.	Rainfall during 24 hours preceding 8 A.M. of 7th August 1903.
		Inches.
BUNDELKHAND	Nowgong	9·74
	Chhatarpur. . . .	7·41
JHANSI	Mau	6·21
BUNDELKHAND	Bijawar	4·84
BANDA	Banda	4·80
ALLAHABAD	Meja	4·80

August 8th.—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.	REMARKS.
	"	"	"				Inches	
Benares .	29·488	+·124	—·047	SW	5	10	2·61	Showery.
Sutna . .	·462	+·065	—·088	WSW	20	10	0·30	Severe gale.
Allahabad .	·464	+·084	—·068	SSW	7	10	1·90	Continuous rain.
Nowgong .	·433	+·020	—·119	W	7	0	1·18	Do.
Jhansi . .	·429	+·002	—·122	WSW	8	3	0·60	Showery.
Cawnpore .	·417	+·035	—·104	E	5	9	1·03	Do.
Lucknow .	·440	+·049	—·090	E	6	10	1·13	Thunder.
Mainpuri .	...	...	...	Calm	0	5	0·96	Showery.
Agra . .	·419	+·003	—·116	SE	7	10	1·76	Do.

The storm had continued its advance north-westward and lay at 8 A. M. over the Cawnpore district. It was, however, filling up, the greatest barometric anomaly having been —0·122″ at Jhansi as compared with —0·161″ at Benares on the preceding day. Heavyish rain was falling all around the storm area.

August 9th.—The depression had continued to advance north-westward and apparently lay over the region outlined by the stations of Delhi, Agra, and Jaipur, but the storm had continued to fill up and was of very little importance, except, that it still determined heavy rain to its neighbourhood.

During the next week the weather was fairly quiet over India so far as cyclonic storms were concerned, but pressure

was very unsteady and exhibited large changes from day to day. The general distribution of pressure determined heavy rain to the montane and sub-montane areas of northern India but elsewhere only showers were received and the Arabian Sea monsoon was, throughout this period, weak and gave very little rain to western and central India.

Diffused storm of the 16th to the 21st.—The following gives 8 A. M. data for the 16th for the stations at the head of the Bay:—

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.			
	"	"	"				Inches.	
Akyab	29·734	—·028	+·037	S	3	10	4·08	Showery.
Chittagong	·686	—·028	+·021?	SSE	8	7	0·06	Do.
Barisal	·671	—·017	+·062	ESE	3	6	1·62	Do.
Calcutta	·663	—·008	+·079	ENE	2	10	0·26	Do.
Saugor Island.	·644	—·027	+·052	NNE	8	10	0·11	Sea smooth.
Balasore	·656	—·017	+·078	Calm	2	8	0·40	
False Point	·671	—·012	+·077	W	8	10	0·25	Showery.
Cuttack	·674	—·014	+·085	Calm	3	8	0·33	
Gopalpur	·701	—·005	+·115	SSW	9	9	0·30	
Waltair	·745	+·019	+·110	SW	13	10	0·10	Sea smooth.

The barometer was falling slightly at the head of the Bay, where a feeble cyclonic circulation of the winds was shown. The marine reports exhibited a moderate south-west monsoon all over the south and centre of the Bay.

August 17th.—The following gives 8 A. M. data for the stations around the north of the Bay:—

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.			
	"	"	"				Inches	
Akyab	29·696	—·038	—·005	SE	3	8	0·48	
Chittagong	·644	—·042	—·025?	SSW	10	9	0·10	Showery.
Barisal	·616	—·055	+·002	SSE	2	4	0·43	Do.
Calcutta	·606	—·057	+·017	ENE	1	8	1·04	Do.
SaugorIsland	·593	—·051	—·003	E	6	10	1·02	Wind variable.
Balasore	·616	—·040	+·034?	Calm	2	7	0·03	
False Point	·602	—·069	+·004	W	7	8	0·46	Showery.
Cuttack	·622	—·052	+·029	W	3	8	...	
Gopalpur	·630	—·071	+·040	Calm	6	9	0·20	Drizzling.
Waltair	·671	—·074	+·034	SW	12	10	...	Sea smooth.

Pressure had decreased briskly over lower Bengal and the north of the Bay. The depression at the head of the Bay had developed slightly but was still a very feeble depression and occasioned merely a weak cyclonic circulation of the winds on the Bengal coasts. Over the Bay moderate south-west winds were reported and the extensive barometric fall over the Bay appeared to show that another feeble storm was developing over the centre of the Bay.

August 18th.—The following gives 8 A.M. data for the storm area:—

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.			
	"	"	"				Inches	
Masulipatam	29·682	—·055	—·005	WNW	6	9	0·75	Thunder.
Cocanada	·642	—·054	—·015	WSW	6	10	0·10	Sea smooth.
Waltair	·608	—·063	—·031	SW	10	10	...	Do.
Gopalpur	·592	—·038	—·002	N	6	4	0·05	Do.
Cuttack	·577	—·045	—·019	W	2	5	0·25	
False Point	·580	—·022	—·022	W	6	9	1·09	Showery.
Balasore	·583	—·033	—·003	Calm	2	6		
Saugor Island	·586	—·007	—·014	NNE	6	10	0·42	Do.
Chaibassa	·578	—·033	+·009	Calm	1	7	0·09	
Ranchi	·592	—·022	+·001	NNE	2	10	0·08	Do.
Hazaribagh	·592	—·016	+·004	E	4	10	0·33	Do.
Gaya	·597	—·006	+·013	NE	3	5	0·14	Do.
Benares	·569	—·038	—·004	Calm	2	8	0·12	
Allahabad	·589	—·041	+·014	NNW	2	9	0·03	Do.
Sutna	·594	—·023	—·002	NNW	3	10	0·16	Raining.
Jubbulpore	·620	—·027	+·013	WSW	3	3	0·63	Showery.
Pendra	·584	—·050	...	NW	7	4	0·60	
Sambalpur	·613	—·037	+·004	WSW	4	9	0·18	

Pressure had decreased briskly on the north Madras coast but elsewhere the changes were unimportant. A large shallow low pressure area overlay the east of the United Provinces and of the Central Provinces, Orissa, south-west Bengal and the head of the Bay, while apparently a second area of low pressure lay over the Bay off the north Madras coast. Very irregular winds prevailed within and around this area, but the rainfall was unimportant. The winds were fresh and squally over the Bay between Lats. 12° and 16° N.

August 19th,—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.	REMARKS.
	"	"	"				Inches	
Masulipatam	29·642	—·140	—·047	WNW	7	10	...	
Cocanada	·603	—·039	—·056	W	8	7	0·02	Sea slight.
Waltair	·569	—·039	—·074	SW	10	7	0·06	
Gopalpur	·556	—·036	—·042	W	8	7	0·40	Sea rough.
Cuttack	·557	—·020	—·042	ENE	1	7	...	
False Point	·575	—·005	—·031	Calm	6	9	...	
Balasore	·595	+·012	+·006	Calm	2	7	1·03	
Saugor Island	·591	+·005	—·014	E	10	9	0·12	
Chaibassa	·590	+·012	+·017	Calm	1	5	0·03	
Ranchi	·608	+·016	+·009	E	6	10	0·42	Rainy.
Sambalpur	·575	—·038	—·035	SW	4	5	0·33	
Raipur	·571	—·046	—·049	WNW	4	9	1·08	Showery.
Pendra	·563	—·021	...	NNW	9	10	0·01	
Jubbulpore	·584	—·036	—·032	W	4	9	0·45	Do.

The general changes were unimportant except that the barometer was still falling on the north Madras coast, and the depression which lay off that coast on the previous day was apparently advancing westward. The large shallow diffused depression had been stationary over the United Provinces, the Central Provinces, Orissa and south-west Bengal, and rain had been moderately heavy over the west of the Central Provinces.

August 20th.—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.	REMARKS.
	"	"	"				Inches.	
Sambalpur	29·569	—·006	—·044	SSE	4	9	0·40	
Raipur	·541	—·030	—·076	E	2	8	0·15	Showery.
Chanda	·549	—·080	—·114	Calm	0	10	0·69	Raining.
Nagpur	·554	—·066	—·094	SE	4	10	0·56	Drizzling.
Amraoti	·571	—·071	—·100	W	9	10	...	
Seoni	·555	—·039	—·070	ENE	7	9	0·27	
Akola	·587	—·064	—·100	NW	10	10	1·27	
Hoshangabad.	·575	—·058	—·078	SW	1	10	0·27	
Jubbulpore	·555	—·029	—·050	NNE	2	4	1·12	Thunderstorm.
Pendra	·571	+·008	...	ESE	4	10	0·11	

The depression which was crossing the north Madras coast on the 19th had advanced north-westward and had carried with it the whole of the large diffused depression noticed above. A large irregular cyclonic circulation of the winds prevailed over a large part of India and rain had increased over the greater part of the country.

The depression drifted north-westward and northward during the next two days and practically filled up. The storm was, at no time, of any importance or intensity, but it covered a large area of country to which it determined extensive and in places heavy rain.

Land formed depression of the 25th to the 27th.—The following gives 8 A.M. data for the 25th 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.	REMARKS.
	"	"	"				Inches.	
Benares	29·500	—·073	—·106	SSW	2	10	0·12	
Sutna	·528	—·039	—·090	W	6	10	1·20	Continuous rain.
Allahabad	·500	—·063	—·107	WSW	4	10	0·02	Showery.
Nowgong	·528	—·050	—·097	WSW	13	10	1·52	Continuous rain.
Jhansi	·531	—·045	—·097	SW	8	8	2·26	Showery.
Cawnpore	·468	—·076	—·137	SSW	3	10	0·80	Drizzling.
Lucknow	·468	—·086	—·140	Calm	2	10	2·44	Raining.
Mainpuri	·498	—·043	—·103	Calm	...	10	0·75	Do.
Bareilly	·495	—·060	—·111	Calm	3	9	2·63	Showery.
Bahraich	·505	—·068	—·107	E	2	10	1·70	Raining.
Gorakhpur	·500	—·089	—·115	Calm	2	10	0·07	Drizzling.

Pressure was giving way briskly over the central Gangetic plain and a shallow depression was shown over that area extending from Bareilly in the west to Benares in the east, the largest barometric anomaly having been —0·140" at Lucknow. General, moderately heavy rain was falling all over this area.

August 26th.—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.	REMARKS.
	"	"	"				Inches.	
Benares	29·448	—·052	—·161	S	4	10	0·22	Showery.
Sutna	·508	—·020	—·115	WSW	17	10	1·05	Do.
Allahabad	·381	—·119	—·230	WSW	10	10	2·51	Continuous rain.
Cawnpore	·480	+·012	—·128	W	3	10	1·17	Raining.
Lucknow	·459	—·009	—·153	NE	3	10	0·84	Drizzling.
Bahraich	·489	—·016	—·125	ENE	5	9	0·58	Do.
Gorakhpur	·484	—·016	—·135	NE	1	10	1·93	Raining.

Pressure had increased over north-west India, but had decreased briskly to rapidly over the east of the United Provinces.

The depression which lay over the central Gangetic plain on the 25th had apparently been transferred eastward and had intensified considerably. At Allahabad, near which station the centre lay, the barometer marked 0·230″ below the normal. A well-marked cyclonic circulation of the winds prevailed around the centre, and the rainfall was heavy and general.

August 27th.—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.	Remarks.
	″	″	″				Inches.	
Sutna	29·584	+·076	—·046	WNW	12	10	1·01	Showery.
Allahabad	·500	+·119	—·116	WNW	20	10	9·00	Continuous rain.
Benares	·430	—·018	—·185	SW	10	10	1·09	Showery.
Gaya	·551	+·018	—·075	SW	4	3	0·13	Do.
Patna	·556	+·010	—·079	ESE	8	8	0·64	Do.
Gorakhpur	·467	—·017	—·154	ENE	5	10	1·84	Continuous rain.

The depression had continued to drift eastward and lay at 8 A.M. between Benares and Gorakhpur. The largest barometric anomaly was —0·185″ at Benares. A strong and well-marked cyclonic circulation of the winds prevailed around the centre and the rainfall had been very heavy over the east of the United Provinces, where the following falls exceeding 7″ in 24 hours were recorded:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 27th August 1903.
		Inches.
Sultanpur	Musafirkhana	14·76
Partabgarh	Partabgarh	14·00
Jaunpur	Machhlishahr	13·92
Sultanpur	Amethi	10·98
Partabgarh	Patti	10·12
Allahabad	Allahabad	9·57
Sultanpur	Sultanpur	7·89
Allahabad	Soraon	7·43
Fyzabad	Bikapur	7·30
Allahabad	Phulpur	7·19

The depression practically filled up during the 27th and the observations at 8 A.M. on the 28th gave hardly any evidence of its continued existence.

Cyclonic storm of the 27th to 31st August.—The following gives 8 A.M. data for the 27th 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.	Remarks.
	″	″	″				Inches.	
Diamond Island.	29·686	—·022	—·086	SSE	3	5		
Bassein	·696	—·017	—·068	S	3	8	0·08	
Akyab	·663	—·020	—·068	SE	3	2	0·06	
Chittagong	·638	—·002	—·068	SSE	3	2		
Barisal	·619	+·005	—·036	SSE	3	3	0·99	Showery.
Calcutta	·593	+·009	—·049	SE	3	7		
Saugor Island.	·591	+·021	—·046	ESE	10	10	3·40	Thunderstorm.
Balasore	·583	+·014	—·038	WSW	4	9	0·02	
False Point	·589	—·007	—·052	Calm	7	9		
Cuttack	·597	—·001	—·034	Calm	2	5		
Gopalpur	·527	—·032	—·055	NNW	9	1		
Waltair	·589	—·061	—·073	SW	11	9		Sea smooth.
Cocanada	·629	—·042	—·049	WNW	7	8		Sea slight.
Masulipatam	·670	—·026	—·032	NW	8	3		

Pressure was decreasing over the Bay area, but the changes were slight or moderate except at Waltair where the fall amounted to 0·061.″ The winds were feebly cyclonic around 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. *Alesia*	12 03	91 01	29·617	W	4	
S.S. *Umkusi*	Madras.		·688	...	...	Midnight overcast.
S.S. *Zibenghla*	Madras.		·667	...	...	Do. do.
S.S. *Shirley*	13 32	85 15	·650	SW	5	High sea and cloudy; 4 P.M. fierce squalls, thunder and lightning with torrents of rain.
S.S. *Sirsa*	15 11	81 12	·662	WSW	5	Overcast; midnight frequent light 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. *Jeseric* .	16 20	85 51	29·590	WSW	5	High sea; 4 P.M. heavy rain squalls.
S.S. *Floricau* .	17 50	84 25	·544	WNW	4	Moderate sea and cloudy; 8 P.M. passing rain squalls.
S.S. *Argyll* .	18 38	90 00	·612	SW		
S.S. *Langbank* .	20 18	87 44*	...	SW	4	Fine.
S.S. *Clan Colquhoun.*	20 21	88 00	...	Var.	1	Dull overcast.
S.S. *Shahzada* .	Eastern Channel.		·631	...	...	Midnight fine.
S.S. *Taroba* .	Saugor Island.		·771	...	...	Noon much rain.
S.S. *Maharaja* .	Calcutta.		·580	...	...	Noon fine and clear.

* Noon position.

Squally unsettled weather prevailed over the west of the Bay and the winds apparently showed an irregular circulation.

August 28th.—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°.	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.	REMARKS.
	″	″	″				Inches.	
Akyab .	29·663	0	—·070	SE	3	5	0·09	
Chittagong.	·639	+·001	—·069	SE	7	3	...	
Barisal .	·625	+·006	—·032	SE	4	3	0·03	
Calcutta .	·611	+·018	—·036	SE	2	7	0·19	
Saugor Island.	·587	—·004	—·053	ESE	9	7	0·07	Sea smooth.
Balasore .	·583	0	—·041	N	2	4	...	
False Point	·571	—·018	—·073	E	6	8	...	Thunder.
Cuttack .	·583	—·014	—·051	NE	1	5	0·02	
Gopalpur .	·575	—·002	—·062	NNW	9	1	0·03	
Waltair .	·568	—·021	—·099	SW	7	10	0·58	
Cocanada .	·578	—·051	—·103	WNW	6	7	0·09	Sea rough.
Musulipatam	·637	—·033	—·066	NW	10	10	1·68	Thunder.

Pressure continued to decrease slowly over the north of the Bay and the winds exhibited the same cyclonic circulation, but there had been comparatively little development during the preceding 24 hours.

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.	WEATHERS.
	° ′	° ′	″			
S.S. *Flamingo* .	Madras.		29·595	...	...	Midnight light rain.
S.S. *Zibenghla* .	13 32	83 17	·617	WNW	5	High sea and squally with heavy rain.
S.S. *Jeseric* .	13 43	84 45	·560	SW	8	High sea heavy rain squalls.
S.S. *Umkusi* .	14 42	81 52	·624	SW	5	Squally; 4 A.M. heavy rain squalls.
S.S. *Alesia* .	15 54	89 31	·472	WSW	3	
S.S. *Bangala* .	17 46	88 51	·537	SE	2	Fine; 4 P.M. passing rain squalls.
S.S. *Fultala* .	18 02	83 53	·628	WSW	4	Slight sea and fine; 4 P.M. appearance of rain to west.
S.S. *Langbank* .	18 05	86 12	...	ENE	2	Fine.
S.S. *Floricau* .	20 15	86 56	·524	Var.	4	Moderate sea and cloudy; 4 P.M. showery.
S.S. *Lombard* .	20 35	87 45	...	SE	4	Fine; 8 P.M. passing showers.
S.S. *Maharaja* .	21 13	90 12	·551	SE	3	Fine and clear.

The preceding data show that fresh south-westerly winds prevailed over the south-west of the Bay and that a fairly well-defined, though light, cyclonic circulation of the winds was blowing around a centre in about Lat. 16° N and Long. 86° E.

August 29th:—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°.	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.	REMARKS.
	″	″	″					
Bassein .	29·746	+·053	—·019	SSE	4	10	0·46	Drizzling.
Diamond Island.	·726	+·044	—·048	S	14	10	0·86	Sea slight.
Akyab .	·670	+·007	—·065	SE	4	10	0·37	
Chittagong.	·635	—·004	—·076	ESE	6	8	...	
Barisal .	·609	—·016	—·051	SE	3	7	0·01	
Calcutta .	·583	—·028	—·068	ESE	3	6	...	
Saugor Island.	·548	—·039	—·095	E	10	10	0·15	Drizzling.
Balasore .	·544	—·039	—·085	ENE	4	10	0·09	Raining.
False Point.	·498	—·073	—·150	E	9	8	0·09	
Cuttack .	·515	—·078	—·122	NE	3	8	0·22	
Gopalpur .	·466	—·109	—·174	N	14	7	0·19	Showery.
Waltair .	·455	—·113	—·211	N	8	9	0·22	Sea smooth.
Cocanada .	·477	—·101	—·207	W	6	4	1·15	
Masulipatam	·535	—·102	—·169	WNW	16	10	0·98	Raining.
Nellore .	·590	—·111	—·139	NW	9	10	0·78	Rainy.
Madras .	·620	—·112	—·138	SW	6	10	0·14	Sea smooth.

Pressure had increased over Burma, but had decreased over the centre and west of the Bay and the Peninsula, the fall exceeding 0·10″ along the coast from Gopalpur, southward to Madras. Pressure was lowest at Waltair where the barometer marked 0·211″ below the normal, and increasing cyclonic winds prevailed over the Bay area and adjacent parts of India.

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. *Neidenfels* .	Madras.		29·627	...	...	
S.S. *Neptune* .	13 12	84 57	·595	WSW	5	Rough swell and heavy squalls of wind and rain.
S.S. *Persia* . .	13 27	84 47	·514	WSW	7	High sea and thick heavy rain squalls.
S.S. *Zibenghla* .	14 09	87 58	·587	SW by S	5	Confused sea and cloudy; noon squally with rain.
S.S. *Flamingo* .	14 11	82 01	·485	W	6	Confused sea and very heavy rain.
S.S. *Langbank* .	15 31	84 57	...	W	5	Confused sea and rainy.
S.S. *Umkuzi* .	17 14	84 37	·412	NE	6	Heavy rain.
S.S. *Bihara* .	18 18	87 45	·483	SW	4	South-west sea and fine.
S.S. *Lombard* .	18 21	85 09	...	NE	4	Passing rain squalls; 8 P.M. heavy rain.
S.S. *Nizam* .	20 04	86 51*	·640	ESE	4	Fine; noon showery.
S.S. *Alesia*	20 06	87 54	·450	ESE	4	
S.S. *Westminster Bridge.*	Saugor Island.		·495	...	...	8 P.M. squally.
S.S. *Maharaja* .	Chittagong.		·646	SE	2	Fine and clear.

* Noon position.

South-westerly winds, fresh to a moderate gale in force, prevailed over the south-west of the Bay, southerly winds in the east, and easterly to north-easterly winds in the north. The central area of the storm apparently lay between the *Umkuzi* in Lat. 17° 14′ N and Long. 84° 37′ E and the *Langbank* in Lat. 15° 31′ N and Long. 84° 57′ E. On both these vessels heavy rain was falling.

August 30th.—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.	Remarks.
	″	″	″				Inches	
Saugor Island.	29·585	+·037	−·061	ESE	18	10	0·39	Drizzling
Balasore .	·555	+·011	−·078	Calm	5	9	2·45	Showery.
False Point	·550	+·052	−·100	S	17	10	0·19	Rainy.
Cuttack .	·523	+·008	−·117	Calm	3	8	0·38	Showery.
Gopalpur .	·493	+·027	−·150	SSE	22	6	0·49	Strong wind.
Waltair .	·459	+·004	−·212	W	7	9	0·86	
Cocanada .	·501	+·024	−·186	WSW	11	10	0·78	Sea rough.
Masulipatam	·555	+·020	−·150	WNW	17	8	0·82	Thunder.
Nellore .	·614	+·024	−·116?	NW	5	8	0·46	Showery.
Madras .	·624	+·004	−·134	SW	7	9	...	Sea slight.

Pressure was generally increasing over the Bay and the storm centre, at about 8 A.M., was crossing the coast between Waltair and Gopalpur. Pressure was again lowest at Waltair where the barometric anomaly was −0·212″. The depression was apparently filling up. Rain was commencing in the Deccan.

The fowlloing 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. *Clan Murray.*	12 29	84 41	29·683	SW	5	Squally with rain; 4 A.M. lightning and thunder with squalls of rain.
S.S. *Langbank* .	13 17	84 05	...	SW	4	High confused sea; 4 P.M. fine.
S.S. *Palermo* .	14 45	85 28	·609	SW	5 to 4	Fine; 4·15 P.M. rain squalls from south-west.
S.S. *Gloucester City.*	14 52	93 00	...	WSW	5	High swell.
S.S. *St. Quentin*	14 52	85 28	·613	SW	6	High confused sea and cloudy; 4 P.M. showery.
S.S. *Labuan* .	15 13	85 49	...	SSW	...	Cloudy; 3 A.M. heavy squalls and rain.
S.S. *Neidenfels* .	15 48	83 09	·527	W	3	
S.S. *Lombard* .	16 09	83 26	...	SW	9	High sea and passing violent squalls of wind and rain.
S.S. *Persia* .	16 21	86 09	·554	SSW	5	Moderate sea and fine; 4 P.M passing showers.
S.S. *Flamingo* .	16 36	84 29	·475	WSW	4	Moderate sea and showery; 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. *Neptune* .	16 43	86 21	29·572	SSW	4	Following sea and squally showery.
S.S. *Sirsa* .	Cocanada		·525	...	...	8 P.M. cloudy.
S.S. *Nizam* .	18 07	84 08	·481	SW	5	Passing squalls; 4 A.M. light rain.
S.S. *Lindul* .	18 41	90 51	·697	S	4	Moderate sea and fine; 4 A.M. squally.
S.S. *Ula* . .	19 18	87 22*	·594	S by E	6	Heavy head swell and squally.
S.S. *Bihara* .	Gopalpur.		·449	...	...	Noon occasional rain.
S.S. *Westminster Bridge.*	19 44	87 29	·515	SSE	4	Head swell and squally.
S.S. *Umkuzi* .	19 58	86 57	·509	S	4	Showery.
S.S. *Bharata* .	Calcutta.		·635	...	...	
S.S. *Canara* .	Calcutta.		·560	...	...	Noon hazy.

*Noon position.

The wind had shifted round to the southward over the north of the Bay and fresh to strong southerly winds prevailed all over the west and north of the Bay with frequent showers and rain squalls. The *Lombard* in Lat. 16°9′ N and Long. 83°26′ E reported a south-west strong gale and violent squalls.

August 31st.—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°.	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.	REMARK.
	″	″	″				Inches.	
Balasore .	29·632	+·077	—·005	S	7	4	0·29	Showery.
False Point.	·623	+·073	—·029	S	20	9	0·16	Do.
Cuttack .	·598	+·075	—·044	S	3	6	0·20	Do.
Gopalpur .	·598	+·105	—·048	SSW	32	5	0·77	Do
Raipur .	·551	+·047	—·106	E	8	9	0·66	Thunderstorm.
Sambalpur .	·569	+·056	—·089	SSE	4	10	0·03	
Pendra .	·542	+·021	...	E	4	10	0·01	
Jubbulpore	·543	+·005	—·102	NNE	2	6	0·95	Thunder.
Sutna .	·555	—·001	—·075	ENE	5	8	0·05	
Hoshangabad.	·609	+·021	—·092	SW	10	10	2·96	
Seoni .	·576	+·029	—·089	NE	8	8	0·13	
Nagpur .	·584	+·055	—·098	W	6	10	0·95	Showery.
Chanda .	·606	+·099	—·083	Calm	1	10	0·75	Do

Pressure had increased everywhere—more particularly along the mid—Madras coast where the rise amounted to between 0·10″ and 0·15″. The storm had advanced north-westward or north-north-westward and the centre apparently lay between Jubbulpore and Pendra. The storm was filling up and the largest barometric anomaly was —·106″ at Raipur. The winds were cyclonic around the centre and moderate rain had fallen over the Central Provinces. The depression continued to fill up during the day and by the following morning had become quite unimportant.

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

The following records of snowfall during August have been received.

I.—KASHMIR AND PUNJAB HIMALAYAS.

Kashmir.—Fresh snow was observed on the mountains around Gulmarg on the 26th.

II.—UNITED PROVINCES HIMALAYAS.

Almora.—Snow fell as under:—

Malla Johar.

12th August . . .	6 inches.
29th „ . . .	24 „
	2′ 6″

No snow fell in other parts of the district and the snowfall was less than in the previous year.

Summary of Special Storm Reports.

The following notices of storms have been received from the meteorological observers during the month:—

Aug. 1st.—A thunderstorm with lightning and rain passed over Nagpur at 2 P.M.

A slight thunderstorm occurred at Simla between 2-43 and 3-43 P.M. The storm came up from south-west.

Aug. 2nd.—A heavy storm passed over Hoshangabad travelling from north-east to south-west. The storm commenced at 6-30 P.M. and lasted till 7 P.M., the rainfall measuring 1·54″.

„ *3rd.*—A duststorm prevailed at Cherat from 5-5 P.M. to 7-40 P.M.; heavy rain fell.

August 3rd.—A slight thunderstorm was reported at Srinagar at 6 P.M.

" *4th.*—A slight thunderstorm was experienced at Simla between 1-3 and 1-33 P.M., giving light rain.

" *9th.*—A gale of wind accompanied with rain passed over Saugor. Heavy rain fell at surrounding stations.

" *13th.*—A thunderstorm passed over Gulmarg between 4 P.M. and midnight.

A duststorm passed over Skardu between 3 P.M. and 6 P.M.

" *14th.*—A severe gale was experienced at Srinagar between 10 A.M. and 4 P.M., the wind was south-easterly and some rain fell.

August 15th.—A thunderstorm occurred at Simla between 3-30 A.M. and 4 A.M.

" *24th.*—A thunderstorm was experienced at Gulmarg between 5 P.M. and 11 P.M.

" *25th.*—A thunderstorm passed over Gulmarg between 2 P.M. and 11 P.M. accompanied with rain.

" *25th to 27th.*—A storm passed over Allahabad commencing on the evening of the 25th and continuing till the early morning of the 27th. There was only slight thunder and lightning. The rainfall was very heavy in the neighbourhood of Allahabad.

" *31st.*—A thunderstorm was experienced at Pachmarhi at 2 A.M., lasting 10 minutes.

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

Arabian sea.—The monsoon over this area was weaker than usual and during part of the month the winds were unusually southerly over the west and centre of the sea.

Normal south-westerly to westerly squally winds prevailed from the 1st to the 8th with southerly winds near Socotra. On the 9th the direction backed more to the southward and was unusually southerly over the west and centre of the sea till the 15th. Normal winds were re-established on the 16th and continued for three or four days after which the abnormal southerly winds re-appeared over the west and centre of the sea. These conditions continued until the 24th. From the 24th onward to the end of the month the data were extremely scanty, but apparently the principal abnormal feature of the wind's direction was the unusual north westerly trend along the west coast of the Peninsula.

The mean force of the wind was normal or above the normal from the 1st to the 7th; it then decreased and was light until the 20th, when it increased again and was about normal until the 23rd. From the 24th to the end of the month the force was again low. The force was lowest on the 18th, when the average for the whole sea was only 2·9. The mean air movement of the month for the whole Arabian Sea was 3·8, the normal being 4·3.

The following steamer reports regarding the weather over the Arabian Sea were received during the month:—

The *Oriental* left Aden on the 3rd and to Long. 54° E experienced moderate to light southerly and easterly winds and a southerly swell. Thence to arrival at Bombay a moderate to fresh monsoon, occasionally blowing strongly, cloudy weather and high but decreasing sea and swell.

The *Sultan* left Lamu on the 1st and to Lat. 5° N. and Long. 49° E. at noon on 3rd experienced fresh to strong southerly and south-westerly winds, a moderate to high sea and swell, and clear weather; thence to Lat. 10° N and Long. 56° E at noon on the 5th, a moderate to fresh monsoon gale, passing clouds, and high sea; thence to Lat. 15° N and Long. 71° E at noon on the 9th, a moderate to gentle monsoon, cloudy weather, and high swell; thence to arrival at Goa on the 10th, light westerly and north-westerly winds and a few passing showers.

The *Peninsula* left Aden on the 9th and up to Long. 54° E experienced moderate to light variable winds and a south-east swell; thence to Long. 58° E a fresh to strong monsoon and considerable south-westerly swell; thence to arrival at Bombay on the 14th, moderate to gentle monsoon, cloudy squally weather with occasional passing showers, and considerable but decreasing sea and swell.

The *Secunder* left Mauritius on 6th and to Lat. 8° S and Long. 59° E at midnight on 10th experienced a fresh south-east wind, cloudy to overcast weather, a heavy sea, and passing light to heavy rain squalls; thence to Lat. 2° N and Long. 63° E at midnight on the 13th, light easterly and south-easterly winds, occasionally blowing freshly, passing clouds and showers and smooth sea; thence to Lat. 12° N and Long. 69° E at midnight on the 17th, light north-westerly winds, cloudy weather, and a moderate to smooth sea; thence to arrival at Bombay on the 20th, fresh north-westerly winds, overcast weather, passing light rain squalls, and a moderate sea.

The *Egypt* left Aden on the 17th and to Long. 53° E experienced light to fresh variable winds and southerly swell; thence to Long. 60° E a fresh monsoon, heavy sea and swell and heavy dew at night; thence to Long. 67° E a moderate monsoon, cloudy weather with light rain, and moderate sea and swell; thence to arrival at Bombay moderate to gentle north-westerly winds, cloudy weather, and a moderate westerly swell.

The *Oriental* left Aden on the 24th and experienced gentle variable winds, a south-east swell, occasional cloudy and showery weather up to Long. 53° E; thence up to Long. 61° E. at midnight of the 26th, a fresh to strong south-west monsoon, high confused swell, and clear weather; thence to Long. 66° E at midnight on the 27th, a moderate to fresh south-west monsoon, high swell, and cloudy to overcast weather; thence to arrival at Bombay on 29th, gentle westerly winds and cloudy weather.

The preceding extracts show that the south-east trades were not strong during the month and that the weather was fine in the trades region. The *Secunder* experienced light north-westerly winds over the north equatorial belt between the 13th and 17th. All the vessels report a moderate to

fresh monsoon between Longs. 54° E and 67° E and gentle north-westerly winds off the coast.

The trades-monsoon circulation was hence far from strong over this area.

Bay of Bengal.—The winds varied considerably over the north of the Bay owing to the succession of small storms, which formed over or near that region, and thence passed north-westward through Orissa or south-west Bengal. Ordinary south-west or south-south-west winds prevailed over the Bay from the 2nd to the 15th. Variable winds then appeared over the head of the Bay and continued till the 20th, when south-westerly winds re-appeared and continued till the 26th; another storm formed at the head of the Bay on the 27th and cyclonic winds were experienced till the 30th, after which southerly and south-westerly winds were re-established.

The mean force of the wind for the whole Bay was generally below the normal from the 6th to the 14th, normal from the 15th to the 19th, below the normal from the 20th to the 23rd and above the normal from the 24th to the end of the month. On the 3rd, 29th and 31st, when the wind was strongest, the mean force averaged 4·7, while the day with the lowest wind force was the 11th, with a mean force of only 2·8. The mean air movement of the month was 3·9, the normal being 4·0.

The *Madura* left Rangoon on the 3rd and arrived at Saugor Island on the 6th, experiencing south-westerly winds and swell throughout her voyage.

The *Bharata* left Rangoon on the 7th and arrived at Calcutta on the afternoon of the 10th, experiencing throughout her voyage light to moderate south-west winds, generally fine weather with occasional light monsoon.

The *Bangala* left Rangoon on the 10th, with continuous heavy rain and had cloudy overcast weather up to Long. 93° E, where heavy rain squalls were experienced; thence to arrival at Saugor Island occasional light rain squalls and a moderate south-westerly breeze.

The *Malda* left Rangoon on the 14th, experienced to Long. 93° E a moderate to fresh south-west breeze, some rain, and moderate head swell; thence to Long. 89° E a strong south-west breeze, moderate to heavy sea, heavy squalls and rain; thence to arrival at Saugor Island a moderate breeze and sea and occasional rain.

The *Bihara* left Rangoon on the 17th and experienced up to Long. 92° E a moderate south-west breeze, continuous heavy rain squalls and moderate sea; thence to arrival at Saugor Island on 19th, a light to moderate south-west breeze and fine weather.

The *Jumna* left Colombo on the 12th and experienced to Lat. 16° N generally fine weather with light to moderate variable winds and moderate sea and swell; thence to Lat, 19° N occasional rain; thence to arrival at Calcutta strong south-west winds.

The *Taroba* left Rangoon on the 24th with light south-easterly winds, after which westerly winds and moderate sea were experienced up to Saugor Island.

The *Lindula* left Rangoon on the 28th, experienced to Long. 93° E heavy rain and moderate to fresh south-westerly winds; thence to arrival at Saugor Island on 31st a fresh monsoon, high sea and swell, and heavy rain.

The *Palermo* left Colombo on the 27th and experienced moderate south-westerly winds and fine to squally weather.

The preceding data show that over the south and centre of the Bay the monsoon was light or moderate throughout the month and that it was only at the head of the Bay that strong winds were experienced.

Equatorial Belt.—Ordinary south-east trade winds prevailed over this area practically throughout the month. The following comparative data for the Seychelles show that the winds, though slightly lighter and less steady than usual, were approximately normal over this area:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, August 1903.	Normal percentage, August.	Variation of actual from normal August 1903.	Actual, August 1903	Normal, August.	Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
				°	°			
Seychelles . .	81	92	−11	S 35 E	S 36 E	310	323	−13

Temperature of the air.

The temperature conditions of the month of August were much less abnormal than those of the preceding month of July. The rainfall in August was more general and better distributed than in July, so that the variations of temperature were smaller and the changes slighter in August than in July.

The mean maximum or day temperature was above the normal within a broad band extending from Sind through Rajputana and across the head of the Peninsula to Bengal and the head of the Bay. Within this band the variations of the mean maximum temperature from the normal were generally slight or small, but were moderate in parts of

Bihar and Chota Nagpur and considerable in Sind. The following gives comparative data for these areas:—

Province.	Station.	Mean maximum temperature. Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
		°	°	°
Bihar	Gaya	92·8	90·0	+2·8
Chota Nagpur	Hazaribagh	85·9	83·7	+2·2
Sind	Jacobabad	107·2	103·8	+3·4
	Hyderabad	99·6	95·5	+4·1
	Kurrachee	91·4	88·2	+3·2

The mean maximum temperature, likewise, exceeded the normal over Tenasserim, west Ceylon, Malabar, and the north of the North-west Frontier Province and of the Punjab. At most stations in these areas the variations were slight or small, but at Peshawar amounted to +2°·7.

Over the remainder of the country the mean maximum temperature was lower than usual. The deficiency was general along the foot of the Himalayas (except in the north Punjab), over Assam, east Bengal, upper Burma, the Burma coast, and the Peninsula, except Malabar and the Bombay Deccan. The variations were, however, generally slight amounting to over 2° only at the following stations:—

Station.	Mean maximum temperature. Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
	°	°	°
Dera Ismail Khan	97·9	101·1	—3·2
Sibsagar	86·8	89·2	—2·4
Madura	93·9	96·6	—2·7
Trichinopoly	94·2	96·6	—2·4
Coimbatore	86·5	88·7	—2·2

The highest maximum temperatures of the month were generally recorded about the beginning of the month in north-east India, at the close of the month in north-west India, and about the middle of the month over the Peninsula. The following are the highest maximum temperatures recorded in the different divisions:—

Province or Division.	Station.	Highest maximum temperature recorded in August 1903.	Date on which recorded.	Highest maximum temperature recorded in August previous to 1903.	Year in which recorded.
		°		°	
Burma	Monywa	102·3	4th	...	...
Assam	Dibrugarh	95·2	2nd	93·2	1901 and 1902.
Bengal	Raniganj	94·9	2nd	96·5	1884
Orissa	Cuttack	93·4	4 days	99·4	1880
Bihar	Arrah	102·0	2nd	98·4	1883
	Buxar	102·0	2nd	96·5	1896
Chota Nagpur.	Chaibassa	93·1	6th	95·1	1902
United Provinces.	Cawnpore	105·4	1st	99·9	1902
Punjab	Montgomery	113·8	23rd	112·9	1893
N.-W. F. Province.	Peshawar	109·0	2nd & 13th.	112·7	1877
Sind	Jacobabad	111·8	23rd	116·6	1902
Rajputana	Bikaner	106·6	23rd	110·0	1899
Gujarat	Bhavnagar Para.	94·6	18th & 31st.	101·6	1902
Central India.	Nowgong	98·0	1st	100·0	1883
Central Provinces.	Khandwa	94·2	18th	97·2	1899 and 1902.
Berar	Akola	93·9	17th & 18th.	99·8	1899
West Coast.	Cochin	87·3	28th	89·5	1899
Bombay Deccan.	Sholapur	94·2	14th	101·0	1877
Mysore	Bangalore	87·8	9th	91·7	1899
Madras Coast	Nellore	102·3	10th	105·4	1899
Madras Deccan.	Cuddapah	100·2	5th & 10th.	104·2	1899
South India.	Madura	102·0	6th	105·5	1877

The mean minimum or night temperature was in excess of the normal over the greater part of the country, the exceptions having occurred over the North-west Frontier Province, Assam, and part of Bengal, the central and south districts of the Peninsula, and part of lower and central Burma. The variations were generally slight or small, as is shown by the following data:—

Areas of greatest excess of minimum temperature. Station.	Variation.	Areas of greatest defect of minimum temperature. Station.	Variation.
	°		°
Sialkot	+2·3	D. I. Khan	—1·0
Lahore	+2·0	Gorakhpur	—0·7
Jacobabad	+2·3	Narayanganj	—0·7
Kurrachee	+2·1	Thayetmyo	—1·1
		Toungoo	—1·7
		Raichur	—0·6
		Cuddapah	—0·9
		Cocanada	—0·9
		Colombo	—0·4

On the hills the variations of the mean minimum temperature from the normal were irregular in most places, but at several stations in the extreme north-west there was a very marked depression. The following gives comparative data for these stations:—

Hill Station.	Mean minimum temperature.		
	Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
	°	°	°
Gilgit	68·7	72·1	—3·4
Leh	46·8	49·8	—3·0
Murree	58·1	61·0	—2·9
Kailang	47·8	50·3	—2·5
Kabul	56·4	59·4	—3·0

The variations of the mean temperature from the normal exhibited the same general distribution as that shown by the maximum variations. There was a local deficiency of the mean temperature at Khushab and Dera Ismail Khan; a general deficiency along the foot of the Himalayas from Ludhiana to Sibsagar; a general deficiency over Assam, east Bengal, and Burma (except part of the coast), and the greater part of the Peninsula, except Malabar and portions of the Bombay Deccan. Over the remainder of the Indian land area the mean temperature was above the normal. The variations were generally slight and unimportant, except in the extreme north-west where they were larger. The following shows the principal variations:—

Areas of greatest excess of mean temperature.		Areas of greatest defect of mean temperature.	
Station.	Variation.	Station.	Variation.
	°		°
Jacobabad	+2·9	Dera Ismail Khan	—2·1
Hyderabad (Sind)	+2·8	Sibsagar	—1·5
Kurrachee	+2·7	Cocanada	—1·0
Sialkot	+1·9	Trichinopoly	—1·2
Gaya	+1·6	Madura	—1·6
Sutna	+1·5		
Hoshangabad	+1·6		
Malegaon	+1·6		
Mergui	+1·5		
Trivandrum	+1·1		

At most of the hill stations the variations of the mean temperature from the normal were small and unimportant, but around the north-west frontier, owing mainly to the low night temperatures experienced, the mean temperature was considerably lower than usual.

The following gives mean temperature data for the extra-Indian stations:—

Station.	Mean daily temperature.		
	Actual, August, 1903.	Normal, August.	Variation of actual from normal, August 1903.
	°	°	°
Trincomalee	84·0	84·6	—0·6
Colombo	82·0	81·5	+0·5
Amini Divi	81·8	81·4	+0·4
Kabul	74·0	76·1	—2·1
Kashgar	78·2	76·7	+1·5
Teheran	84·3	83·6	+0·7
Ispahan	79·0	78·5	+0·5
Bushire	92·1	90·6	+1·5
Jask	89·2	89·1	+0·1
Muscat	86·2	86·1	+0·1
Baghdad	99·5	93·5	+6·0
Aden	88·3	85·6	+2·7
Perim	90·9	89·7	+1·2
Zanzibar	77·	76·8	+0·8
Seychelles	76·7	78·1	—1·4
Mauritius	68·5	68·1	+0·4

In the west of Ceylon the heat was greater and in the east less than the average, while in southern Arabia as well as at the stations in the south-east trades area (except the Seychelles) the heat, both by day and night, was greater than usual. In Afghanistan the temperature was low, on the mean of the month, but in the Persian Gulf region the temperature was higher than usual both by day and night, and in Asiatic Turkey the excess was large. In Egypt the mean temperature was normal practically everywhere.

The following summarises the chief features of the temperature conditions:—

(1) The mean maximum temperature was in excess within a broad band stretching from Sind through Rajputana and across the head of the Peninsula to Bengal and the head of the Bay. Over the remainder of the country the mean day or maximum temperature was generally in defect.

(2) The mean minimum temperature was, with some local exceptions, generally in excess—most so in Sind.

(3) The variations of the mean temperature from the normal were generally small and unimportant except in the Indus valley, where, at the more southern stations, there was some excess and at the more northern some defect.

(4) The mean night temperature was very low at several of the north-west hill stations.

The following table gives mean temperature data of the month for the 57 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	84·2	74·9	79·6	9·4	17·2	+0·4	+0·4	0
	Lower Burma (Deltaic)	84·0	76·3	80·1	7·7	14·5	−0·7	+0·6	−1·3
	Central do.	87·6	74·2	80·9	13·5	21·9	−0·2	−1·4	+1·2
	Upper do.	90·6	75·8	83·2	14·8	24·9	−1·0	+0·1	−1·1
	Arakan	83·4	77·2	80·3	6·2	12·7	−1·0	−0·1	−0·9
Bengal and Assam.	Eastern Bengal	86·7	77·6	82·2	9·1	16·2	0	−0·2	+0·2
	Assam (Surma)	88·4	76·7	82·6	11·7	18·2	−1·1	−0·1	−1·0
	Do. (Hills)	73·3	64·4	68·9	8·9	19·0	...	...	...
	Do. (Brahmaputra)	87·2	76·9	82·1	10·3	20·1	−1·0	−0·4	−0·6
	Deltaic Bengal	88·8	79·0	83·9	9·8	16·9	+0·6	+0·2	+0·4
	Central do.	89·3	78·5	84·0	10·8	18·3	+0·3	−0·1	+0·4
	North do.	88·4	78·1	83·3	10·4	18·8	−0·3	+0·2	−0·5
	Bengal Hills	63·9	53·8	58·9	10·1	18·2	+0·7	+0·3	+0·4
	Orissa	88·4	79·3	83·9	9·1	15·9	+0·7	+0·7	0
	Chota Nagpur	87·1	75·3	81·2	11·8	17·9	+1·2	+0·6	+0·6
	South Bihar	91·1	78·7	84·9	12·4	26·3	+2·1	−0·1	+2·2
	North do.	89·5	78·9	84·2	10·6	22·7	−0·4	+0·3	−0·7
United Provinces of Agra and Oudh.	United Provinces (East)	90·9	79·3	85·1	11·6	30·0	+1·2	+0·6	+0·6
	Oudh (South)	89·6	78·6	84·1	11·0	26·5	−0·7	0	−0·7
	Do. (North)	89·3	78·0	83·7	11·3	28·6	−0·6	0	−0·6
	United Provinces (Central)	90·2	78·5	84·4	11·7	24·6	+0·4	+0·6	−0·2
	Do. do. (West)	90·4	79·1	84·8	11·3	24·5	−0·6	+0·6	−1·2
	Do. do. (East Submontane).	89·2	78·1	83·7	11·1	22·0	−0·5	−0·7	+0·1
	Do. do. (West Submontane)	87·1	76·2	81·7	11·0	23·1	−1·1	+0·1	−1·2
	Do. do. (Hills)	69·6	60·3	65·0	9·4	18·7	−0·3	+0·5	−0·8
Punjab	Punjab (South-East)	91·6	79·7	85·7	11·9	27·4	−0·2	+0·4	−0·6
	Do. (South)	95·4	79·6	87·5	15·9	29·3	−0·1	+1·1	−1·2
	Do. (Central)	97·4	79·8	88·6	17·6	33·5	−0·8	+2·0	−2·8
	Do. (Submontane)	94·4	77·8	86·1	16·6	30·9	+0·6	+0·9	−0·1
	Do. (Hills)	78·3	57·0	67·7	21·2	36·8	−2·0	−1·9	−0·3
	Do. (West)	101·1	82·0	91·6	19·0	37·5	+0·1	+0·5	−0·4
N.-W. F. Province	North-West Frontier Province	99·9	78·8	89·4	21·2	35·6	−0·3	−0·7	+0·4
Bombay and Malabar Coast Districts (Madras).	Malabar	83·3	74·8	79·1	8·5	14·4	+0·4	+1·0	−0·6
	Madras (South Central)	88·4	72·2	80·3	16·2	24·7	−2·1	+0·7	−2·8
	Coorg	70·1	62·1	66·1	8·0	13·0	+0·4	+0·1	+0·3
	Mysore	80·8	66·4	73·6	14·5	21·0	−1·0	+0·1	−1·1
	Konkan	82·8	76·1	79·5	6·7	11·9	−0·3	+0·4	−0·7
	Bombay Deccan	83·0	69·2	76·2	13·8	21·4	−0·2	+0·2	−0·4
	Hyderabad (North)	83·9	70·6	77·3	13·3	21·3	...	...	...
	Khandesh	86·5	70·9	78·7	15·6	24·9	+0·8	+0·7	+0·1
Central Provinces and Berar.	Berar	86·7	73·6	80·2	13·1	22·8	+0·1	+0·7	−0·6
	Central Provinces (West)	87·0	75·1	81·1	11·9	20·7	+1·2	+0·9	+0·3
	Do. do. (Central)	85·1	73·9	79·5	11·2	18·8	+0·3	+0·5	−0·2
	Do. do. (East)	86·2	75·0	80·6	11·2	17·8	+0·6	+0·3	+0·3
Bombay (North)	Gujarat	88·5	77·5	83·0	11·0	17·9	−0·1	+0·7	−0·8
	Kathiawar and Cutch	87·8	77·4	82·6	10·4	17·2	+0·6	+1·0	−0·4
	Sind	99·4	81·5	90·5	17·9	27·8	+3·6	+1·9	+1·7
	Baluchistan Hills	93·9	57·7	75·8	36·2	50·3	+0·9	−2·2	+3·1
Rajputana and Central India.	Central India (East)	85·9	75·3	80·6	10·7	21·6	+0·5	+1·2	−0·7
	Rajputana (East), Central India (West)	89·3	77·0	83·2	12·3	22·9	+0·3	+0·8	−0·5
	Do. (West)	95·4	79·4	87·4	15·9	29·7	+0·8	+1·6	−0·8
Madras	East Coast (North)	88·2	78·2	83·2	9·9	18·0	−0·9	−0·5	−0·4
	Hyderabad (South)	86·4	72·1	79·2	14·3	22·8	−0·7	−0·4	−0·3
	Madras (Central)	91·1	74·3	82·8	16·8	26·0	−0·3	−0·4	+0·1
	East Coast (Central)	92·5	78·4	85·5	14·1	25·4	−1·0	+0·3	−1·3
	Do. (South)	93·1	77·0	85·0	16·1	28·1	−1·2	+0·4	−1·6
	Madras (South)	92·9	76·1	84·1	16·7	27·5	−1·7	−0·4	−1·3

The hottest area outlined by the isotherm of 90° included the west Punjab and Sind, while the coolest areas outlined by the isotherm of 80° included Tenasserim and the Malabar, Coorg, Mysore, Konkan, Deccan divisions of the Peninsula, and the central division of the Central Provinces. The mean daily range of temperature was, on the whole, less than usual, except in Baluchistan, Sind, south Bihar, and central Burma. It was as much as 36° in Baluchistan, over 20° in the North-west Frontier Province and the Punjab hills, and decreased to less than 10° in Tenasserim, deltaic Burma, Arakan, east Bengal, the Assam hills, deltaic Bengal, Orissa, the United Provinces hills, Malabar, Coorg, the Konkan, and the north division of the east coast.

The following gives a short account of the principal changes of temperature during the month under review:—

On the 1st and 2nd, although a storm was passing from the Bay into Orissa, rain was very light and scattered over northern India, and the mean temperature was excessive over northern India and Burma though it was lower than usual over the Peninsula. The following gives comparative temperature data for these two days for all divisions:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	1st August.	2nd August.
	°	°
Burma	+2·1	+0·5
Assam	+2·0	+1·9
Bengal	+2·3	+2·0
Orissa	+0·9	−1·6
Bihar	+5·3	+5·7
Chota Nagpur	+2·2	+1·2
United Provinces of Agra and Oudh	+5·9	+4·1
Punjab	+3·2	+2·9
North-West Frontier Province	+0·9	+4·0
Sind	+3·3	+5·3
Rajputana	+2·2	+3·3
Gujarat	+0·4	+0·3
Central India	+4·1	+4·0
Central Provinces	0	+2·1
Berar	−3·6	+1·4
West Coast	0	+0·4
Bombay Deccan	−0·6	+1·4
Mysore	−0·3	+0·3
Madras Coast	−0·3	+0·4
Madras Deccan	−1·2	+0·5
South India	−1·6	+0·6

The above shows that the greatest excess occurred over sind, Bihar and the United Provinces. The excess was most marked in the day or maximum temperature which was more than 10° above the normal at the following stations:—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
1st August	Cawnpore	105·4	90·2	+15·2
	Benares	104·1	89·9	+14·2
	Allahabad	104·1	90·1	+14·0
	Gaya	101·4	90·1	+11·3
	Patna	99·5	89·4	+10·1
2nd „	Benares	103·6	89·8	+13·8
	Allahabad	103·6	90·1	+13·5
	Cawnpore	103·4	90·1	+13·3
	Patna	100·5	89·5	+11·0
	Gaya	100·9	90·1	+10·8

By the 3rd the storm, which was passing through Orissa, had reached the Gangetic plain and a considerable extension of rain occurred during the next four days over northern India. The rainfall was not very heavy over Bihar and the United Provinces, but it was sufficient to occasion a steady daily fall of temperature over that area. The following gives temperature data from the 2nd to the 6th for those two divisions and illustrates the change which took place:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	2nd August.	3rd August.	4th August.	5th August.	6th August.
	°	°	°	°	°
Bihar	+5·7	+4·2	+4·5	+1·5	+1·1
United Provinces	+4·1	+3·9	+3·2	+0·7	−0·7

Over the Punjab, the North-west Frontier Province and Rajputana the rainfall was much heavier than it was in the more eastern divisions and the fall of temperature and depression of temperature were correspondingly increased. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	2nd August.	3rd August.	4th August.	5th August	6th August.
	°	°	°	°	
Punjab	+2·9	−0·8	−3·1	−4·6	−1·6
N.-W. Frontier Province.	+4·0	−4·8	−4·0	−7·2	−6·0
Rajputana	+3·3	+3·4	+0·1	−2·0	−1·2

As is ordinarily the case when heavy rain occurs during the monsoon, the deficiency of temperature was most marked in the day readings, and between the 3rd and the 6th, the day or maximum temperature was more than 10° below the normal at the following stations in the above-mentioned divisions :—

DATE.	STATION.	MAXIMUM TEMPERATURE.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
4th August . .	Sirsa . . .	87·3	98·6	—11·3
5th ,,	Bikaner . . .	85·2	97·5	—12·3
	Umballa . . .	82·5	93·0	—10·5
	D. I. Khan . .	91·3	101·7	—10·4
6th ,, . .	D. I. Khan . .	90·3	101·6	—11·3
	Montgomery . .	91·8	102·8	—11·0

As the rain increased over northern India, it fell off over the Peninsula and between the 3rd and the 6th, the mean temperature was generally excessive in the Peninsular divisions. The following gives data :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDIN 8 A.M. OF			
	3rd August.	4th August.	5th August.	6th August.
	°	°	°	°
Central Provinces . . .	+0·8	—0·9	+1·8	+1·5
Berar	—0·2	—2·0	+0·8	+0·8
West Coast	+0·7	+0·9	+1·2	+1·5
Bombay Deccan . . .	—0·4	+0·1	0	+0·8
Mysore	—0·4	+1·2	+1·7	+1·6
Madras Coast	+1·4	+2·4	+3·3	+1·4
Madras Deccan	—0·3	+1·0	+1·5	+2·3
South India	+1·6	+1·4	+2·3	+2.2

Between the 7th and the 10th, another storm gave heavy daily rain to northern India, except the extreme north-west, while the Peninsula was comparatively rainless. As a result, the temperature distribution, relatively to the normal, was, during these four days, generally the reverse of that prevailing at the commencement of the month, higher temperatures than usual prevailing over the Peninsula, north Bombay and the Indus valley, and lower temperatures than usual over the remainder of northern India, over the Central Provinces, and over Burma. The variations from the normal were not, however, very large at this time, as is shown by the following comparative data for all divisions :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A. M. OF			
	7th August.	8th August.	9th August.	10th August.
	°	°	°	°
Burma	+ 0·2	+ 0·2	+ 0·8	— 0·2
Assam	+ 1·2	— 1·1	+ 0·2	+ 0·2
Bengal	— 0·2	— 2·4	— 1·1	0
Orissa	— 2·1	— 0·9	+ 1·4	+ 1·8
Bihar	+ 1·4	— 0·7	— 2·3	— 0·2
Chota Nagpur . . .	— 0·9	— 2·4	— 0·2	+ 1·5
United Provinces of Agra and Oudh.	0	— 0·5	— 2·2	— 2·4
Punjab	+ 0·3	+ 2·1	+ 1·8	— 0·1
North-West Frontier Province.	— 3·3	+ 0·6	+ 3·0	+ 3·7
Sind	+ 4·2	+ 3·2	+ 3·9	+ 4·0
Rajputana	— 0·2	— 1·9	— 5·4	— 4·7
Gujarat	+ 1·0	+ 1·1	— 0·1	+ 1·1
Central India	— 1·5	— 3·5	— 3·5	— 1·7
Central Provinces . . .	— 2·0	— 2·9	— 0·4	+ 0·5
Berar	— 0·9	— 2·0	+ 0·1	+ 1·0
West Coast	+ 1·0	+ 1·2	+ 1·4	+ 1·9
Bombay Deccan . . .	0	— 0·6	+ 0·8	+ 1·5
Mysore	+ 1·5	+ 0·1	+ 0·5	+ 2·1
Madras Coast	+ 0·4	+ 0·5	+ 1·6	+ 1·7
Madras Deccan . . .	+ 1·3	— 0·3	+ 2·2	+ 2·9
South India	+ 1·5	+ 1·4	+ 2·0	+ 0·4

By the morning of the 10th the storm had practically disappeared and from the 11th to the 13th light scattered showers only were received over the greater part of the country. During these three days temperature generally rose, except in two areas. The first included Ceylon and south India, where, although there was nothing exceptional in the way of rainfall, so far as the meteorological observatories show, there occurred a sudden and considerable fall of temperature. The following gives data for Ceylon and south India from the 9th to the 13th:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	9th August	10th August.	11th August.	12th August.	13th August.
	°	°	°	°	°
Ceylon	+0·9	—0·9	—4·6	—4·3	—1·2
South India	+2·0	+0·4	—2·3	—6·6	—2·3

The second area included Burma, where also a considerable fall of temperature occurred between the 10th and 13th. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	10th August.	11th August.	12th August.	13th August.
	°	°	°	°
Burma . . .	—0·2	—1·0	—1·7	—1·6

On the 13th the distribution of pressure changed in such a manner that the monsoon current became more southerly than usual over nearly the whole country. As is usual when this distribution prevails, the winds blew across the plains without depositing much moisture, but gave heavy continuous rain on and near the Himalayas. Temperature hence fell over the extreme north of India, and from the 14th to the 16th was lower than usual over all the northern divisions, from the North-west Frontier Province to Assam. The following gives data:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	14th August.	15th August.	16th August.
	°	°	°
North-West Frontier Province . .	—1·3	—6·6	—4·4
Punjab	—3·0	—5·6	—0·4
Rajputana	—2·8	—1·2	—0·4
United Provinces	—4·8	—1·2	+0·4
Bihar	—3·2	—1·5	—0·6
Bengal	—0·6	—1·0	—1·4
Assam	—5·2	—2·7	—1·7

The effect of this heavy rainfall on temperature was mainly exhibited at the submontane stations and in the day temperature, and at the following places the maximum temperature was more than 10° below the normal:—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
14th August.	Roorkee . . .	77·8	90·6	—12·8
	Meerut . . .	80·0	90·3	—10·3
15th „	Khushab . . .	83·2	100·0	—16·8
	D. I. Khan . .	86·3	100·9	—14·6
	Sialkot . . .	81·5	94·5	—13·0
	Lahore . . .	86·4	98·2	—11·8
16th „	D. I. Khan . .	90·3	100.8	—10·5

During these three days the mean temperature was generally excessive over the head of the Peninsula and in north Bombay, but remained steadily low over the Madras coast districts. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	14th August.	15th August.	16th August.
	°	°	°
Orissa	+1·5	+0·2	+0·7
Central Provinces	+1·7	+2·1	+1·8
Berar	+2·7	+5·0	+3·9
Gujarat	+0·2	+1·0	+1·9
Sind	+1·4	+1·3	+2·9
Bombay Deccan	+2·1	+1·6	+1·9
Madras Coast	—2·9	—4·3	—2·6

Between the 17th and the 23rd, the rainfall practically ceased over north-west India; was very light over northern India generally and was only moderate over the Peninsula. In consequence temperature generally rose and by the 22nd and 23rd was much higher than usual over nearly the whole of northern India, while it was about normal over the Peninsula and Burma. The excess was, on the whole, more marked in the day than in the night temperature and was more than 8° at the following stations on the following dates:—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
22nd August.	Cherat . . .	98·4	86·8	+11·6
	Mooltan . . .	108·9	100·0	+ 8·9
23rd „	Montgomery . .	113·8	101·3	+12·5
	Bikaner . . .	106·6	96·8	+ 9·8
	Cherat . . .	96·4	86·7	+ 9·7
	Sirsa . . .	107·3	98·2	+ 9·1
	Rawalpindi . .	102·0	93·4	+ 8·6
	Mooltan . . .	108·4	99·9	+ 8·5
	Jacobabad . . .	111·8	103·3	+ 8·5
	Peshawar . . .	106·5	98·2	+ 8·3

On the 24th rain increased again over northern India, and on the 25th a fresh storm was shown over the United Provinces and the mean temperature was low over nearly the whole country from the 24th to the 27th. The deficiency was greatest over the Punjab and the United Provinces,

as is shown by the following table which gives comparative data for all divisions for the above four days :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	24th August.	25th August.	26th August.	27th August.
	°	°	°	°
Burma	−0·4	−0·3	0	+1·5
Assam	−0·3	−2·0	−1·4	−0·4
Bengal	+0·3	−0·9	−0·6	−0·4
Orissa	+0·9	−0·5	+0·4	+2·5
Bihar	−1·5	−0·1	−1·5	−2·3
Chota Nagpur	+2·7	+0·9	+0·1	+0·3
United Provinces of Agra and Oudh.	−1·6	−3·5	−4·3	−2·9
Punjab	+2·2	−1·4	−4·9	−4·9
North-West Frontier Province.	+5·4	+1·7	−4·2	−5·8
Sind	+2·7	+1·3	+1·2	+0·8
Rajputana	+0·6	−0·5	−0·7	+0·2
Gujarat	+0·2	+0·2	−0·4	−0·3
Central India	−0·6	−2·3	−2·1	−1·7
Central Provinces	−0·5	−2·7	−1·6	−0·6
Berar	−3·1	−3·2	−1·1	−0·4
West Coast	+0·6	+0·6	+1·0	+1·2
Bombay Deccan	−0·5	−0·9	−0·5	−0·2
Mysore	−2·1	+1·0	−1·1	−1·0
Madras Coast	+0·6	+0·9	−0·1	+1·7
,, Deccan	+1·2	+0·4	+0·7	+0·5
South India	−0·2	+0·1	−1·4	−0·1

The deficiency in the day temperature was more than 10° at the following places:—

DATE.	Station.	MAXIMUM TEMPERATURE.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
24TH AUGUST	Roorkee	79·3	90·5	−11·2
27TH ,,	Dera Ismail Khan	88·8	100·7	−11·9
	Allahabad	78·2	89·6	−11·4
	Khushab	88·3	99·5	−11·2
	Lucknow	79·2	90·2	−11·0
	Cawnpore	79·3	90·0	−10·7
	Montgomery	90·8	101·3	−10·5

From the 28th to the end of the month rain was very scanty over northern India, while it was general and moderately heavy over the Peninsula. In consequence temperature fell in the latter and rose in the former area, and at the close of the month, the distribution of temperature, relatively to the normal, was similar to that which prevailed at the commencement of the month, *viz*, a general excess over northern and part of central India and a general deficiency over the Peninsula. The following gives comparative data for all divisions for the last four days of the month :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	28th August.	29th August.	30th August.	31st August.
	°	°	°	°
Burma	+1·2	−0·9	−1·0	−0·3
Assam	−0·2	−0·3	−0·7	−0·4
Bengal	+0·9	+1·1	−0·1	−1·6
Orissa	+2·0	+1·1	−0·3	−1·3
Bihar	−0·3	+1·6	+1·9	+0·8
Chota Nagpur	+1·9	+1·4	0	−0·8
United Provinces of Agra and Oudh.	−3·2	−1·0	+1·3	+1·9
Punjab	−1·1	+0·9	+2·5	+3·6
North-West Frontier Province.	+2·1	+0·1	+1·4	+2·3
Sind	+1·8	+1·8	+0·9	+0·2
Rajputana	+1·3	+1·8	+3·9	+4·7
Gujarat	+0·4	+0·5	+1·3	+2·5
Central India	−0·9	+1·2	+2·0	+2·9
Central Provinces	+0·3	+1·9	+2·4	+1·4
Berar	+0·6	+0·6	+2·2	−0·1
West Coast	+0·3	−0·8	−0·9	−0·5
Bombay Deccan	−0·1	−0·6	+0·2	−1·2
Mysore	−0·1	−2·1	−4·3	−2·2
Madras Coast	+0·5	−3·2	−3·6	−0·5
Madras Deccan	−0·3	−5·8	−5·2	−2·9
South India	+1·2	−0·9	−2·3	−0·8

Winds.

Winds were, on the average of the month, generally above their normal strength at the Bay Islands and on the Burma coast, while the steadiness was generally normal or above the normal. At Port Blair and Akyab the wind was

more, and at Rangoon, Diamond Island and Cocos Island less, westerly than usual. This is shown below:—

Station.	Mean steadiness.			Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual percentage, August 1903.	Normal percentage, August.	Variation of actual from normal, August 1903.	Actual, August 1903.	Normal, August.	Westerly deflection.	Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
				°	°				
Port Blair .	81	82	− 1	S 60 W	S 49 W	+11	281	242	+39
Cocos Island .	92	91	+ 1	S 37 W	S 41 W	− 4	...	...	...
Akyab . .	90	63	+27	S 4 W	S 1 E	+ 5	93	85	+ 8
Rangoon . .	58	65	− 7	S 8 W	S 38 W	−30	50	110	−60
Diamond Island	82	78	+ 4	S 44 W	S 45 W	− 1	198	193	+ 5

The monsoon currents were, likewise, stronger than usual at the head of the Bay, but the velocity decreased quickly inland and at Calcutta it was below the normal. The steadiness was everywhere greater than usual, and at all stations the wind's direction was unusually southerly. The following gives data:—

Station.	Mean steadiness.			Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual percentage, August 1903.	Normal percentage, August.	Variation of actual from normal, August 1903.	Actual, August 1903.	Normal, August.	Southerly deflection.	Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
				°	°				
Chittagong .	71	61	+10	S 1 E	S 25 E	+24	218	142	+76
Calcutta .	64	56	+ 8	S 7 E	S 14 E	+ 7	95	115	20
Saugor Island.	66	57	+ 9	S 1 W	S 13 W	+12	402	315	+87
False Point .	68	53	+15	S 45 W	S 47 W	+ 2	265	238	+27

The wind's velocity was normal at Allahabad where, however, the direction was very unusual. At Darbhanga and Hazaribagh the directions were approximately normal, while the velocity at both places was lower than usual. This is shown in the following statement:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, August 1903.	Normal percentage, August.	Variation of actual from normal, August 1903.	Actual, August 1903.	Normal, August.	Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
				°	°			
Allahabad .	14	4	+10	N 31 W	N 16 E	135	134	+ 1
Darbhanga .	50	60	−10	S 68 E	S 77 E	64	111	−47
Hazaribagh .	21	8	+13	S 10 W	S 4 W	159	185	−26

In the upper sub-Himalayas the wind was a trifle more southerly than usual and the velocity generally slightly above the average. At Dehra Dun and Ludhiana the wind was exceptionally steady for this part of the country. The following gives comparative data:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, August 1903.	Normal percentage, August.	Variation of actual from normal, August 1903.	Actual, August 1903.	Normal, August.	Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
				•	°			
Dehra Dun . .	52	14	+38	S 8 W	S 26 W	27	24	+ 3
Roorkee . .	19	22	− 3	S 24 E	S 24 E	71	58	+13
Meerut . .	19	10	+ 9	S 46 E	S 55 E	28	48	−20
Lahore . .	7	25	−18	N 72 E	S 80 E	68	69	− 1
Ludhiana .	31	11	+20	S 25 E	S 59 E	72	39	+33

In the Indus valley the winds blew from about the normal directions but were steadier than usual, though the velocity was low at Peshawar and Jacobabad:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, August 1903.	Normal percentage, August.	Variation of actual from normal, August 1903.	Actual, August 1903.	Normal, August.	Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
				°				
Peshawar . .	55	51	+ 4	N 17 E	N 41 E	53	93	−40
Jacobabad . .	70	59	+11	S 28 E	S 44 E	72	101	−29
Kurrachee . .	91	88	+ 3	S 69 W	S 67 W	411	397	+14

At Jaipur the wind was more southerly than the average, while at Deesa the direction was about normal. The velocity was slightly lower than usual at both stations:—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, August 1903.	Normal, August.	Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
	•	°			
Jaipur	S 79 W	N 66 W	103	118	−15
Deesa	S 54 W	S 52 W	265	278	−13

The following gives comparative data of air movement for 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, August 1903.	Normal percentage, August.	Variation of actual from normal, August 1903.	Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
Bay Islands	87	87	0	281	242	+39
Burma	77	69	+ 8	114	129	—15
Bengal	67	58	+ 9	238	191	+47
Bihar	50	60	—10	64	111	—47
Chota Nagpur	21	8	+13	159	185	—26
Orissa	68	53	+15	265	238	+27
United Provinces of Agra and Oudh.	26	13	+13	65	66	— 1
North-West Frontier Province.	55	51	+ 4	53	93	—40
Punjab	19	18	+ 1	70	54	+16
Rajputana	66	59	+ 7	184	198	—14
Sind	81	74	+ 7	242	249	— 7

The velocity of the wind was generally higher than usual over parts of the Bay area, but was generally low over the inland parts of the country. Increased steadiness was reported almost everywhere, and over a large part of northern India the wind's direction was more southerly than usual.

The wind blew from about the normal direction along the west coast and was steadier than usual. The velocity was below the average at Bombay and above at Karwar. The following gives data :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, August 1903.	Normal percentage, August.	Variation of actual from normal, August.	Actual, August 1903.	Normal, August.	Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
				°	°			
Bombay	92	83	+ 9	S 87 W	S 81 W	303	376	—73
Karwar	87	73	+14	N 85 W	N 87 W	119	87	+32

In the Deccan the velocity was low, except, at Buldana and Sholapur, while the direction was practically normal. This is shown below :—

STATION.	MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, August 1903.	Normal, August.	Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
	°	°			
Belgaum	S 69 W	S 71 W	460	517	—57
Sholapur	N 79 W	W	348	296	+52
Akola	N 67 W	N 67 W	172	200	—28
Buldana	N 69 W	N 65 W	238	195	+43
Khandwa	N 51 W	N 81 W	195	199	— 4
Nagpur	N 88 W	N 80 W	...	...	...
Hyderabad (Deccan)	N 88 W	N 81 W	175	203	—28

Over southern India the winds were practically normal.

The following gives comparative data of the air movement over the Peninsula :—

PROVINCE OR DIVISION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, August 1903.	Normal percentage, August.	Variation of actual from normal, August 1903.	Actual, August 1903.	Normal, August.	Variation of actual from normal, August 1903.
Central Provinces	73	74	— 1	195	199	— 4
Berar	87	79	+ 8	205	198	+ 7
Bombay Deccan	82	85	— 3	404	407	— 3
Madras Deccan	86	86	0	216	233	—17
West Coast	90	78	+12	211	232	—21
Mysore	85	88	— 3	197	222	—25
Madras Coast	66	60	+ 6	146	166	—20
South India	58	75	—17	98	93	+ 5

Winds were, on the whole, somewhat stronger and steadier than usual over the Himalayas, but the mean directions were very irregular. At Darjeeling the wind was very unusual, the mean direction having been S 16° W while the normal direction is S 81° E.

At Aden the wind was more easterly and at Perim more westerly than the average. This is shown below :—

Station.	Mean wind direction. Actual, August 1903.	Mean wind direction. Normal, August.
	°	°
Aden	S 8 E	S 4 E
Perim	N 79 W	N 49 W

The wind was stronger and steadier than usual at Zanzibar, but the wind's direction was more westerly than the average. At the Seychelles, on the contrary, the wind was slightly less steady and less strong than usual, but the direction was normal, while at Mauritius the mean wind direction was about normal and the velocity slightly higher than usual.

The following gives data for these three stations :—

Station.	Mean steadiness. Actual percentage, August, 1903.	Mean steadiness. Normal percentage, August.	Mean steadiness. Variation of actual from normal, August, 1903.	Mean wind direction. Actual, August, 1903.	Mean wind direction. Normal, August.	Mean wind velocity in miles per diem. Actual, August, 1903	Mean wind velocity in miles per diem. Normal, August.	Mean wind velocity in miles per diem. Variation of actual from normal, August, 1903.
				°	°			
Zanzibar	81	76	+ 5	S 1 W	S 9 E	183	168	+15
Seychelles	81	92	−11	S 35 E	S 36 E	310	323	−13
Mauritius	...	...	...	S 71 E	S 67 E	300	295	+ 5

The air movement over the Indian area during the month was hence characterised by the following features :—

(1) The monsoon was stronger than usual over parts of the Bay, particularly at the head of the Bay.

(2) The velocity of the wind decreased quickly inland and was on the whole below the normal in upper India.

(3) The wind was more southerly than usual over northern India.

(4) The monsoon was weak, but steady on the Bombay coast.

(5) In the north of the equatorial belt the mean wind conditions of the month were approximately normal.

Humidity and Cloud.

The mean relative humidity, over by far the greater part of the country, was in excess of the normal, due generally to an actual excess in the amount of aqueous vapour present in the air.

In four areas the mean relative humidity was in defect. The first included part of Burma and of the Burma coast, where the mean absolute humidity, the mean relative humidity and the mean temperature were all below the normal. The greatest deficiency of the mean absolute humidity was at Moulmein and of the mean relative humidity at Rangoon. The following gives comparative data for the stations in this area :—

Station.	Absolute Humidity. Actual, August, 1903.	Absolute Humidity. Normal, August.	Absolute Humidity. Variation of actual from normal, August, 1903.	Relative Humidity. Actual, August, 1903.	Relative Humidity. Normal, August.	Relative Humidity. Variation of actual from normal, August, 1903.
	"	"	"	%	%	
Rangoon	·881	·911	−·030	91·0	94·4	−3·4
Moulmein	·813	·870	−·057	91·0	93·9	−2·9
Toungoo	·885	·901	−·016	91·0	92·3	−1·3
Yamethin	·837	·845	−·008	86·0	87·0	−1·0
Minbu	·881	·872	+·009	84·0	84·6	−0·6

The second area included parts of Bengal, Orissa, Bihar, Chota Nagpur and the east of the United Provinces, and thence stretched westward across the head of the Peninsula, as far as Malegaon and Ahmednagar. In the northern portion of this area the mean absolute humidity was in defect, but in the southern portion the mean absolute humidity exceeded the normal, and the deficiency in the mean relative humidity values was due to the prevailing high temperature. This is shown below :—

Station.	Mean temperature variation, August, 1903.	Absolute Humidity. Actual, August, 1903.	Absolute Humidity. Normal, August.	Absolute Humidity. Variation of actual from normal, August, 1903.	Relative Humidity. Actual, August, 1903.	Relative Humidity. Normal, August.	Relative Humidity. Variation of actual from normal, August, 1903.
	°	"	"	"	%	%	
Hazaribagh	+1·5	·775	·803	−·028	83·0	88·9	−5·9
Gaya	+1·6	·928	·931	−·003	82·0	86·4	−4·4
Benares	+0·8	·958	·963	−·005	85·0	88·8	−3·8
Allahabad	+1·0	·935	·954	−·019	84·0	87·2	−3·2
Balasore	+0·6	·950	?	?	86·0	88·8	−2·8
Saugor Island.	+1·0	·992	·990	+·002	87·0	89·4	−2·4
Sambalpur	+0·9	·894	·886	+·008	84·0	86·4	−2·4
False Point	+0·6	·979	·959	+·020	86·0	87·7	−1·7

STATION.	Mean temperature variation, August, 1903.	ABSOLUTE HUMIDITY. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.	RELATIVE HUMIDITY. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
	°	"	"	"	%	%	
Raipur	—0·1	·854	·842	+·012	88·0	89·3	—1·3
Berhampore.	+0·1	·975	·987	—·012	91·0	92·2	—1·2
Ahmednagar.	—0·2	·675	·632	+·043	79·0	82·5	—3·5
Amraoti	+0·5	·805	·782	+·023	86·0	88·6	—2·6
Malegaon	+1·6	·728	·720	+·008	75·0	77·3	—2·3
Khandwa	+0·9	·783	·768	+·015	83·0	84·7	—1·7
Seoni	+0·8	·796	·786	+·010	88·0	89·7	—1·7
Nagpur	+0·7	·823	·810	+·013	84·0	85·1	—1·1
Akola	+0·2	·789	·768	+·021	82·0	82·5	—0·5

The third area of deficient relative humidity lay along the foot of the north-west Himalayas. At Peshawar and Rawalpindi, where the deficiency in the mean relative humidity was largest, the mean absolute humidity was lower than usual and the mean temperature higher, but at the other stations the mean absolute humidity was in excess of the average. The following gives data :—

STATION.	ABSOLUTE HUMIDITY. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.	RELATIVE HUMIDITY. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
	"	"	"	%	%	
Peshawar	·806	·823	—·017	65·0	70·9	—5·9
Rawalpindi	·813	·839	—·026	73·0	79·5	—6·5
Sialkot	·905	·892	+·013	78·0	79·0	—1·0
Umballa	·945	·941	+·004	87·0	88·4	—1·4
Dehra Dun	·808	·800	+·008	89·0	90·3	—1·3

The fourth area of low relative humidity covered portions of the west coast, but the variations were generally small, as is shown by the following comparative data :—

STATION.	ABSOLUTE HUMIDITY. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.	RELATIVE HUMIDITY. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
	"	"	"	%	%	
Karwar	·827	·834	—·007	85·0	87·6	—2·6
Mangalore	·865	·855	+·010	91·0	91·5	—0·5
Calicut	·850	·834	+·016	90·0	90·5	—0·5

Over practically the whole of the remainder of the Indian land area the relative humidity, on the mean of the month, was in excess of the normal. The excess was more than 5·0 at the stations for which comparative data are given below :—

STATION.	ABSOLUTE HUMIDITY. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.	RELATIVE HUMIDITY. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
	"	"	"	%	%	
Kurnool	·793	·715	+·078	84·0	75·4	+8·6
Bellary	·720	·648	+·072	76·0	67·7	+8·3?
Trichinopoly	·774	·726	+·048	75·0	67·2	+7·8
Cocanada	·936	·850	+·086	87·0	80·5	+6·5
Colombo	·899	·846	+·053	85·0	77·0	+8·0
Neemuch	·866	·776	+·090	93·0	84·5	+8·5
Jacobabad	1·008	·885	+·123	76·0	70·5	+5·5

The following gives comparative data for all divisions for the month of August :—

PROVINCE OR DIVISION.	ABSOLUTE HUMIDITY. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.	RELATIVE HUMIDITY. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
	"	"	"	%	%	
Burma	·888	·888	0	90·0	89·7	+0·3
Assam	·896	·896	0	93·0	92·2	+0·8
Bengal	·967	·964	+·003	90·0	89·4	+0·6
Orissa	·954	·927	+·027	85·0	86·5	—1·5
Bihar	·972	·963	+·009	88·0	87·5	+0·5
Chota Nagpur	·810	·818	—·008	85·0	88·0	—3·0
United Provinces	·931	·919	+·012	87·0	86·3	+0·7
Punjab	·899	·877	+·022	76·0	75·9	+0·1
North-West Frontier Province.	·806	·823	—·017	72·0	72·6	—0·6
Sind	·975	·893	+·082	79·0	76·5	+2·5
Rajputana	·856	·827	+·029	80·0	78·1	+1·9
Gujarat	·896	·861	+·035	86·0	84·2	+1·8
Central India	·867	·824	+·043	90·0	87·2	+2·8
Central Provinces	·836	·819	+·017	86·0	86·6	—0·6
Berar	·797	·775	+·022	84·0	85·6	—1·6
West Coast	·861	·856	+·005	89·0	88·7	+0·3
Bombay Deccan	·698	·680	+·018	82·0	81·7	+0·3
Mysore	·642	·630	+·012	86·0	82·8	+3·2
Madras Coast	·873	·850	+·023	80·0	77·8	+2·2
Madras Deccan	·745	·711	+·034	81·0	78·1	+2·9
South India	·758	·735	+·023	74·0	70·7	+3·3

The humidity conditions at the hill stations varied irregularly from the normal. There was a general excess of relative humidity in Kashmir, notwithstanding that the mean absolute humidity was in defect, owing to the prevailing low temperature. It was in defect at most of the stations on the outer ranges of the Himalayas, but was in excess at Darjeeling, Pachmarhi and in large excess at Wellington. The following gives data for the hill stations:—

Hill Station.	Absolute Humidity.			Relative Humidity.		
	Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.	Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
	"	"	"	%	%	
Leh	·275	·282	—·007	63·0	58·7	+4·3
Srinagar	·587	·625	—·038	87·0	85·9	+1·1
Gilgit	·448	·494	—·046	51·0	50·3	+0·7
Chakrata	·533	·531	+·002	94·0	93·0	+1·0
Murree	·526	·514	+·012	80·0	81·6	—1·6
Cherat	·602	·588	+·014	69·0	73·4	—4·4
Simla	·498	·506	—·008	90·0	91·4	—1·4
Ranikhet	·573	·571	+·002	89·0	90·1	—1·1
Mussooree	·558	·555	+·003	95·0	95·3	—0·3
Mount Abu	·631	·609	+·022	95·0	95·8	—0·8
Darjeeling	·516	·514	+·002	98·0	95·9	+2·1
Pachmarhi	·688	·651	+·037	93·0	91·6	+1·4
Wellington	·468	·432	+·036	79·0	71·2	+7·8

The following table gives the driest and dampest places on the plains of India, as measured by the mean relative humidity of the month:—

Stations with lowest relative humidity (less than 70%).			Stations with highest relative humidity (over 93%).		
Stations.	Mean absolute humidity.	Mean relative humidity.	Stations.	Mean absolute humidity.	Mean relative humidity.
	"	%		"	%
Madura	·756	69	Sibsagar	·973	97
Nellore	·777	69	Hoshangabad	·848	97
Bikaner	·838	69	Bhamo	·907	96
Peshawar	·806	65	Bassein	·932	95
Hyderabad	·748	64	Akyab	·960	95
Montgomery	·829	61	Tezpur	·941	95
Tinnevelly	·682	58	Dibrugarh	·899	94

The air was thus driest at Tinnevelly (58%), while it was almost completely saturated at Sibsagar (97%), Hoshangabad (97%), and Bhamo (96%).

The mean absolute humidity was in considerable excess at Aden and Perim. At the former station the mean temperature was in large excess and the mean relative humidity was in slight defect, while at the latter the mean temperature was only in slight excess and the mean relative humidity also in slight excess. This is shown below:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.	Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
	"	"	"	%	%	
Aden	·915	·838	+·077	72·0	72·3	—0·3
Perim	·915	·889	+·026	67·0	66·4	+0·6

In the south-east trades region the variations were irregular. At the Seychelles the mean absolute humidity was in moderate excess, while the mean temperature was low, so that the mean relative humidity was 5 above the normal, while at Zanzibar the variations from the normal were unimportant, and at Mauritius the mean relative humidity was in moderate defect. The following gives data:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.	Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
	"	"	"	%	%	
Zanzibar	·775	·728	+·047	87·0	84·9	+2·1
Seychelles	·755	·725	+·030	80·0	75·0	+5·0
Mauritius	·494	·509	—·015	71·0	75·0	—4·0

The variations of the mean cloud amount of the month from the average were somewhat irregular in their distribution. Cloud was in defect over the Bay area, as well as over the eastern half of the Peninsula, the Central Provinces, part of the Central India plateau, the south Gangetic plain, part of Chota Nagpur, parts of north and east and south-west Bengal. The deficiency was considerable over a large part of this area, and amounted to 1·0 or more at the following stations:—

Area.	Station.	Mean cloud amount.		
		Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
Bay area	Tavoy	5·9	8·4	—2·5
	Mergui	5·7	7·6	—1·9
	Diamond Island	7·6	8·6	—1·0
East of Peninsula.	Gopalpur	5·1	7·5	—2·4
	Nellore	5·8	7·7	—1·9
	Coimbatore.	4·6	5·8	—1·2

Area.	Station.	Mean cloud amount. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
Central Provinces.	Seoni	5·4	8·5	−3·1
	Raipur	7·2	8·7	−1·5
	Nagpur	7·5	8·7	−1·2
	Jubbulpore	7·1	8·3	−1·2
Central India Plateau.	Jhansi	5·4	8·5	−3·1
Gangetic Plain.	Gaya	6·9	8·0	−1·1
Chota Nagpur.	Chaibassa	5·6	7·7	−2·1
North Bengal.	Jalpaiguri	6·0	8·3	−2·3
South-West Bengal.	Balasore	5·8	8·3	−2·5
	Cuttack	6·6	7·6	−1·0
East Bengal.	Barisal	6·9	8·6	−1·7

Cloud was also in defect, and in some places considerably so, over the Punjab and the North-West Frontier Province. The deficiency was greatest along the foot of the hills and over the east of the Punjab, and exceeded 1·0 at the following stations:—

Area.	Station.	Mean cloud amount. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
Punjab.	Ludhiana	3·2	6·3	−3·1
	Sirsa	2·4	4·7	−2·3
	Delhi	5·5	6·7	−1·2
	Rawalpindi	3·0	4·2	−1·2
	Sialkot	3·1	4·2	−1·1
N.-W. F. Province.	Peshawar	2·0	3·3	−1·3

The third area of deficient cloud included lower Sind, where Hyderabad reported a deficiency of 1·5 and Kurrachee of 3·0.

Over the remainder of the Indian land area the mean cloud amount was in excess, but, except in the Gorakhpur division of the United Provinces, north Bihar, Kathiawar, and parts of the west of the Peninsula, of Mysore and of the Bombay Deccan, the variations were not large or important.

The following gives comparative data for the stations at which the excess amounted to 1·0 or more:—

Area.	Station.	Mean cloud amount. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
United Provinces.	Gorakhpur	9·3	5·9	+3·4
North Bihar.	Darbhanga	8·1	6·8	+1·3
Kathiawar.	Bhavnagar Para	8·8	7·1	+1·7
	Rajkot	8·7	7·5	+1·2
West Coast.	Mormugao	8·3	7·0	+1·3
	Karwar	8·4	7·3	+1·1
Mysore.	Bangalore	9·3	8·2	+1·1
	Mysore	8·9	7·9	+1·0
Bombay Deccan.	Ahmednagar	8·6	7·2	+1·4

At the stations on the outer Himalayan ranges and in Baluchistan the mean cloud amount was generally in defect, but at Darjeeling, Mount Abu and Pachmarhi it was in slight excess. This is shown below:—

Hill Station.	Mean cloud amount. Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
Chakrata	3·1	5·9	−2·8
Ranikhet	7·3	8·4	−1·1
Murree	3·7	4·8	−1·1
Cherat	3·1	3·9	−0·8
Simla	7·6	8·0	−0·4
Gilgit	4·0	4·2	−0·2
Leh	4·2	4·2	0
Srinagar	4·7	4·6	+0·1
Mussooree	8·5	7·8	+0·7
Chaman	0·1	0·6	−0·5
Quetta	0·7	1·1	−0·4
Wellington	6·0	6·4	−0·4
Darjeeling	9·4	9·0	+0·4
Pachmarhi	9·3	9·1	+0·2
Mount Abu	8·8	8·7	+0·1

At Aden the cloud amount, on the mean of the month, was normal, while at Perim it was in defect. The following gives data :—

STATON.	MEAN CLOUD AMOUNT.		
	Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
Aden	4·1	3·7	+0·4
Perim	1·7	3·7	−2·0

In the south-east trades area the mean cloud amount was normal, except at Mauritius, where there was some excess. This is shown below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, August, 1903.	Normal, August.	Variation of actual from normal, August, 1903.
Zanzibar	6·2	6·2	0
Seychelles	6·4	6·4	0
Mauritius	6·5	5·5	+1·0

Rainfall.

The monsoon was, on the whole, weak along the west coast during the month under review, and the rainfall normal or slightly below the normal over the west and centre of the Peninsula. On the other hand, the Bay monsoon was strong and daily rain fell over Burma and north-east India. Between the 1st and the 6th a storm passed from the Bay to the United Provinces and rain was fairly general, except over the interior and east of the Peninsula. Between the 7th and the 9th a slight storm was shown over the United Provinces, but during this time the monsoon was light along the west coast, so that, though rain was general over eastern and north-eastern India, there was very little over the Peninsula or north-west India. From the 10th to the 15th the distribution of pressure was such that the monsoon was directed towards the Himalayas and, while little rain was received over the plains, heavy and fairly continuous rain fell over and near the foot of the hills from the Punjab to Assam. On the 16th another storm appeared over the Bay and thence passed into the Central Provinces. Rain was light on the 16th and 17th, when the depression was developing over the Bay, but increased on the 18th and fell fairly generally, except in the north-west, until the 21st. On the 22nd and 23rd the storm filled up and the rainfall was light generally. On the 24th a slight storm appeared over the United Provinces, and between that date and the 27th the rainfall again increased. The storm filled up on the 28th, rain immediately decreasing, but on the 29th another storm appeared, and from that date to the close of the month rain occurred in most places, except in the north-west.

The general distribution of rain was hence largely determined by the following conditions :—

The weakness of the west coast or Arabian sea monsoon current, which, except during the prevalence of the storms, was below its normal strength.

The abnormal pressure conditions between the 10th and 15th, which determined heavy rain to the montane and submontane regions at the expense of the plains.

The frequency of storms over the Bay area and central and north-east India.

The actual distribution of rain, as shown by the meteorological observatories, is given in Pl. IV. Practically no rain fell over Baluchistan or the lower part of the Indus valley, and only very light rain over the south of the Peninsula, the dry region of Burma and, to a less extent, over the west Deccan. From these regions the rainfall increased and amounted to 54·80″ at Moulmein, to 75·90″ at Akyab, to 39·16″ at Jalpaiguri, to 25·24″ at Dehra Dun and to 28·09″ at Karwar.

The following table gives comparative rainfall data for 57 meteorological divisions of the Empire :—

PROVINCE.	DIVISION.	NUMBER OF RAINY DAYS.		RAINFALL.		
		Average actual, August, 1903.	Average normal, August.	Average actual, August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.
				Inches.	Inches.	Inches.
BURMA	Tenasserim	27·1	26·9	37·96	42·54	−4·58
	Lower Burma (Deltaic)	27·1	24·9	23·64	22·03	+1·56
	Central do.	18·0	17·9	10·66	10·71	−0·05
	Upper do.	8·0	10·3	5·01	7·28	−2·27
	Arakan	28·2	26·0	51·29	40·03	+11·26

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, August, 1903.	Average normal, August.	Average actual, August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.
				Inches.	Inches.	Inches.
Bengal and Assam	Eastern Bengal	21·2	18·0	18·97	16·47	+2·50
	Assam (Surma)	26·7	21·6	27·14	20·82	+6·32
	Do. (Hills)	24·5	21·4	28·88	23·04	+5·84
	Do. (Brahmaputra)	20·9	16·2	19·73	14·62	+5·11
	Deltaic Bengal	16·5	16·0	11·74	12·12	−0·38
	Central do.	15·6	15·1	11·24	11·38	−0·14
	North do.	18·8	15·6	22·89	17·43	+5·46
	Bengal Hills	27·5	23·3	33·87	24·94	+8·93
	Orissa	16·1	15·2	11·16	11·95	−0·79
	Chota Nagpur	16·4	16·6	11·12	13·65	−2·53
	Bihar (South)	13·4	13·5	9·56	11·55	−1·99
	Do. (North)	14·8	13·4	15·25	12·30	+2·95
United Provinces of Agra and Oudh.	United Provinces (East)	13·0	13·1	13·45	11·39	+2·06
	Oudh (South)	14·5	12·3	17·20	11·19	+6·01
	Do. (North)	15·3	12·4	18·40	11·68	+6·72
	United Provinces (Central)	12·8	12·4	11·95	10·55	+1·40
	Do. (West)	9·0	9·3	7·94	7·77	+0·17
	Do. (Submontane, East)	14·8	12·7	18·53	11·69	+6·84
	Do. (Do. West)	13·4	12·8	15·64	14·11	+1·53
	Do. (Hills)	16·9	18·0	18·45	17·61	+0·84
Punjab	Punjab (South-East)	7·7	7·3	5·61	6·43	−0·82
	Do. (South)	3·6	5·0	2·93	4·18	−1·25
	Do. (Central)	5·2	5·2	4·08	4·82	−0·74
	Do. (Submontane)	7·9	8·1	7·89	8·35	−0·46
	Do. (Hills)	14·7	14·7	18·51	16·35	+2·16
	Do. (West)	3·3	2·9	3·01	2·16	+0·85
North-West Frontier Province.	North-West Frontier Province	4·5	4·7	3·38	3·62	−0·24
Bombay and Malabar Coast Districts (Madras).	Malabar	23·1	21·4	19·55	20·32	−0·77
	Travancore	16·0	...	9·62	...	...
	Madras (South-Central)	7·3	5·8	4·91	3·64	+1·27
	Coorg	22·9	...	15·35	...	...
	Mysore	10·7	8·3	5·89	5·09	+0·80
	Konkan	24·7	24·7	25·65	24·82	+0·83
	Bombay Deccan	9·3	9·7	5·13	5·93	−0·80
	Hyderabad North	12·4	11·4	10·54	7·89	+2·65
	Khandesh	9·5	10·3	6·80	6·32	+0·48
Central Provinces and Berar.	Berar	12·4	10·3	8·59	6·92	+1·67
	Central Provinces (West)	14·4	13·0	13·05	10·59	+2·46
	Do. do. (Central)	16·5	15·1	16·12	13·72	+2·40
	Do. do. (East)	17·2	15·0	15·19	13·81	+1·38
Bombay (North)	Gujarat	13·1	13·3	8·46	9·79	−1·33
	Kathiawar and Cutch	8·2	8·4	5·38	6·75	−1·37
	Sind	0·1	2·2	0·11	2·21	−2·10
	Baluchistan Hills	0·9	1·3	0·36	0·80	−0·44
Rajputana and Central India.	Central India (East)	14·2	13·0	11·78	11·21	+0·57
	Rajputana (East), Central India (West)	10·0	9·2	9·17	7·46	+1·71
	Rajputana West	4·4	4·3	3·79	3·32	+0·47
Madras	East Coast (North)	13·3	11·0	10·16	7·51	+2·65
	Hyderabad (South)	13·5	10·5	10·37	6·55	+3·82
	Madras (Central)	7·7	6·6	4·79	4·12	+0·67
	East Coast (Central)	7·0	5·8	4·46	3·47	+0·99
	East Coast (South)	7·2	7·2	5·40	4·99	+0·41
	Madras (South)	3·4	2·8	1·92	1·62	+0·30

The preceding data show that in 37 out of the fifty-seven divisions the month's rainfall was heavier than usual. These 37 divisions included the coast divisions of Burma, Assam, the east, hills and north divisions of Bengal, north Bihar, the United Provinces, the hills and west divisions of the Punjab, and most of the central and Peninsular divisions. The excess was more than 50% in the areas for which comparative data are given below:—

Division.	Rainfall.			
	Average actual, August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
South Oudh	17·20	11·19	+6·01	+54
North do.	18·40	11·68	+6·72	+57
United Provinces, East Submontane.	18·53	11·69	+6·84	+59
Hyderabad, South	10·37	6·55	+3·82	+58

Over the remainder of India the month's rainfall was in defect of the normal, but the deficiency was not important, except in upper Burma, the south Punjab and the extreme north-west. The following gives comparative data for the divisions in which the deficiency amounted to 30% or more:—

Division.	Rainfall.			
	Average actual, August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Upper Burma	5·01	7·28	—2·27	—31
South Punjab	2·93	4·18	—1·25	—30
Sind	0·11	2·21	—2·10	—95
Baluchistan hills	0·36	0·80	—0·44	—55

From the fifth figure column of the table on pages 352 and 353 it would appear that the rainfall of the whole Indian region (excluding the hill districts) was 1·24 inch above the normal on the average of all divisions.

Daily rain fell over Tenasserim, lower Burma, Arakan and part of central Burma, as well as in parts of the upper Chindwin and the Chin hills, but in the Thayetmyo district of central Burma and in practically all districts of upper Burma only light and scattered showers were received. The following gives comparative data for these districts:—

District.	Rainfall.			
	Average actual, August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Thayetmyo	4·55	6·89	—2·34	—34
Yamethin	3·78	7·02	—3·24	—46
Meiktila	1·71	4·49	—2·78	—62
Magwe	3·04	4·79	—1·75	—37
Minbu	3·01	4·46	—1·45	—33
Pakokku	4·37	6·88	—2·51	—36
Myngyan	2·09	4·18	—2·09	—50
Lower Chindwin	2·26	5·57	—3·31	—59
Upper do.	13·04	14·55	—1·51	—10
Kyaukse	1·67	4·11	—2·44	—59
Sagaing	2·28	4·70	—2·42	—51
Mandalay	3·77	5·89	—2·12	—36
Ruby Mines	8·16	11·11	—2·95	—27
Shwebo	2·28	6·20	—3·92	—63
Katha	7·85	9·89	—2·04	—21
Bhamo	14·90	15·34	—0·44	— 3
Myitkyina	17·88	16·99	+0·89	+ 5

The rainfall was generally heavier during the first week than at any other time during the month, and the following amounts exceeding 5″ in 24 hours were recorded during the first few days. This is shown below:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tavoy	Tavoy	1st August	7·89
Sandoway	Gwa	2nd ,,	6·16
Tavoy	Launglon	3rd ,,	8·35
Kyaukpyu	An	,, ,,	6·50
Amherst	Amherst	,, ,,	5·23

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tavoy	Tayetchaung	3rd August	5·18
Amherst	Moulmein	4th ,,	9·56
Tavoy	Launglon	,, ,,	7·38
Toungoo	Kyaukkyi	,, ,,	6·63
Kyaukpyu	Ramree	,, ,,	6·25
Uppe- Chindwin	Bomalin	,, ,,	6·06
Toungoo	Shwegyin	,, ,,	5·13
Sandoway	Taungup	5th ,,	8·82
Kyaukpyu	Ramree	,, ,,	6·43
Akyab	Akyab	,, ,,	6·04
Sandoway	Sandoway	,, ,,	5·90
Kyaukpyu	Kyaukpyu	,, ,,	5·84
Tavoy	Tavoy	,, ,,	5·41
Akyab	Rathedaung	,, ,,	5·40
	Akyab	6th ,,	11·45
Sandoway	Sandoway	,, ,,	7·16
	Taungup	,, ,,	5·42
Akyab	Rathedaung	7th ,,	6·67
Sandoway	Taungup	,, ,,	5·27

The total rainfall of the month was about normal, except in Arakan, where it was in moderate excess, and in upper Burma, where it was in moderate defect. The following gives a summary of the rainfall data of the month :—

Division.	Rainfall. Average actual, August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Tenasserim	37·96	42·54	−4·58	−11
Lower Burma Deltaic	23·64	22·08	+1·56	+ 7
Central Burma	10·66	10·71	−0·05	0
Upper do.	5·01	7·28	−2·27	−31
Arakan	51·29	40·03	+11·26	+28

Almost daily rain was received over the Surma valley of Assam. In the hills the rainfall was somewhat less continuous and in the Brahmaputra valley the average number of rainy days was twenty-one during the month. As in Burma, the heaviest rainfall was generally recorded during the first seven days, as is shown by the following table which gives the more noteworthy daily falls (exceeding 4″ in 24 hours) registered during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kamrup	Hajo	2nd August	4·28
	Mandakata	3rd ,,	4·50
Sylhet	Sephinjuri Bil	,, ,,	4·01
	Sunamgani	4th ,,	6·12
Khasi and Jaintia Hills.	Wahmaulien	,, ,,	5·25
	Cherra Poonjee, Mr. Shadwell's house.	,, ,,	4·53

The rainfall was in excess in all parts of the province. The following gives comparative data for the eight plains districts of the province. :—

District.	Rainfall. Average actual, August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	26·71	19·34	+7·37	+38
Sylhet	27·53	22·16	+5·37	+24
Goalpara	23·31	16·31	+7·00	+43
Kamrup	16·07	12·33	+3·74	+30
Darrang	17·68	13·32	+4·36	+33
Nowgong	17·73	13·39	+4·34	−32
Sibsagar	18·73	14·49	+4·24	+29
Lakhimpur	26·75	18·77	+7·98	+43

The total rainfall of the month amounted to 103·94″ at Cherra Poonjee and to 112·51″ at Wahmaulien, the heaviest fall in any one day having been 17·68″ at the former and 13·26″ at the latter station.

In Bengal the month's rainfall was about normal over the greater part of the province, and in some excess over the more northern divisions. The partial drought which prevailed over the northern and western divisions of the province in July ceased during the first week of the month under review, when general rain fell, due to a shallow depression which passed from the head of the Bay through the western districts into the Gangetic plain. From that time onward to the end of the month a series of storms affected the province, except between the 10th and 15th, when, owing to an unusual distribution of pressure, although no storm was present, very heavy rain was received over the montane and submontane districts.

In south-west Bengal general showers were received throughout the month, the days of most general rainfall having been the 6th to the 8th, the 14th, the 20th and 21st and the 30th and 31st. The following falls exceeding 4″ in 24 hours were recorded during the month, showing that the rainfall was generally heaviest between the 6th and 8th,

when the second storm of the month was affecting the province:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Midnapore	Kukrahaty	6th August	5·97
24-Parganas	Diamond Harbour	,, ,,	5·54
Murshidabad	Kandi	,, ,,	4·91
Howrah	Mohesreka	,, ,,	4·63
	Ulubaria	,, ,,	4·50
24-Parganas	Barasat	7th ,,	5·25
Nadia	Ranaghat	8th ,,	6·58
	Krishnagar	,, ,,	5·46
	Chuadanga	14th ,,	7·05
	Ranaghat	,, ,,	5·04

The general rainfall of the month was lighter than usual over the greater part of the division, as is shown by the following comparative statement for the districts in this division:—

District.	Rainfall. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burdwan	9·45	11·76	—2·31	—20
Birbhum	13·44	11·45	+1·99	+17
Bankura	9·91	11·89	—1·98	—17
Midnapore	10·09	12·86	—2·77	—21
Hoogly	9·38	12·55	—3·17	—25
Howrah	10·94	11·39	—0·45	—4
24-Parganas	12·91	13·29	—0·38	—3
Calcutta	10·17	12·69	—2·52	—20
Nadia	14·62	10·96	+3·66	+33
Murshidabad	11·37	10·45	+0·92	+9
Jessore	10·88	10·67	+0·21	+2
Khulna	11·70	12·32	—0·62	—5

In north Bengal the rainfall was light and scattered during the first three days and again between the 17th and 20th, but was general and fairly heavy at other times.

In this division the heaviest rainfall was generally received between the 10th and 15th, when, as mentioned above, the monsoon currents were determined directly towards the range of the Himalayas, though large amounts were also recorded between the 23rd and the end of the month, when a small depression was shown over west Bengal. The following amounts exceeding 6″ in 24 hours were registered on the following dates in this division:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jalpaiguri	Kalchini	11th August	6·99
	Buxa	12th ,,	10·73
	Alipur Duar	14th ,,	8·38
Pabna	Pabna	,, ,,	6·04
Jalpaiguri	Buxa	16th ,,	6·02
Darjeeling	Siliguri	23rd ,,	7·58
Jalpaiguri	Bhagatpur	24th ,,	6·60
	Buxa	29th ,,	7·06
	Kalchini	30th ,,	9·35
	Buxa	31st ,,	8·76

The general rainfall exceeded the normal, as is shown by the following comparative data for the contained districts:—

District.	Rainfall. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rajshahi	12·51	10·35	+2·16	+21
Dinajpur	14·65	12·41	+2·24	+18
Jalpaiguri	42·58	26·53	+16·05	+61
Cooch Behar	23·17	19·28	+3·89	+20
Rangpur	13·09	12·58	+0·51	+4
Bogra	13·85	11·48	+2·37	+21
Pabna	14·03	11·04	+2·99	+27

East Bengal received fairly general rain throughout the month, though the fall was comparatively light, between the 27th and the 29th. No storms passed over this division

during the month, and the only amounts exceeding 5″ in 24 hours were those given below :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Chittagong	Kutubdia	8th August	5·43
		10th ,,	5·46
Mymensingh	Nalitabari.	,, ,,	5·31
		11th ,,	6·32
	Mymensingh	,, ,,	5·40
	Nalitabari	12th ,,	5·61
Dacca	Narayanganj	13th ,,	6·01
Mymensingh	Sherpur Town	,, ,,	5·65
	Durgapur	,, ,,	5·35
	Nalitabari	14th ,,	6·24
	Sherpur Town	15th ,,	5·15

The general rainfall of the division slightly exceeded the normal, but the fall was less than usual in Backergunj and Noakhali. This is shown by the following comparative data for the districts :—

District.	Rainfall. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dacca	13·99	12·59	+1·40	+11
Mymensingh	21·42	14·96	+6·46	+43
Faridpur	13·78	11·49	+2·29	+20
Backergunge	15·04	16·21	−1·17	− 7
Tippera	15·10	12·78	+2·32	+18
Noakhali	22·75	23·92	−1·17	− 5
Chittagong	27·81	21·92	+5·89	+27

In Bihar there was very little rainfall between the 1st and the 4th and the rain was again light between the 18th and the 23rd and the 29th and the end of the month. At other times, the rainfall was general and was heavy and very general between the 5th and the 9th, the 12th and the 15th and the 24th and the 27th, amounts exceeding 5″ in 24 hours having been registered at the following places on the following dates:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Champaran	Ramnagar	12th August	7·00
Darbhanga	Khutauna	,, ,,	6·77
	Ladonia	,, ,,	6·00
Champaran	Bagaha	,, ,,	6·00
		13th ,,	8·64
	Ramnagar	,, ,,	6·00
Purnea	Kaliaganj	15th ,,	5·10
	Kishanganj	25th ,,	6·10
Bhagalpur	Protapganj	,, ,,	5·50

The month's rainfall was heavier than usual in north and lighter than usual in south Bihar, as is shown by the following comparative data for the districts in the two divisions :—

District.	Rainfall. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Patna	9·11	11·21	−2·10	−19
Gaya	9·36	11·72	−2·36	−20
Shahabad	11·33	11·66	−0·33	− 3
Saran	15·56	11·00	+4·56	+41
Champaran	25·44	12·81	+12·63	+99
Muzaffarpur	11·85	11·00	+0·85	+ 8
Darbhanga	8·55	12·51	− 3·96	−32
Monghyr	7·76	11·41	−3·65	−32
Bhagalpur	13·22	11·66	+1·56	+13
Purnea	19·66	14·98	+4·68	+31
Malda	10·98	11·07	−0·09	− 1
Sonthal Parganas	10·61	11·66	−1·05	− 9

In Orissa the rainfall was generally light between the 22nd and 28th, but was more or less general at other times, and was fairly heavy on the 1st and 2nd, the 6th and 7th, and the 30th and 31st. Amounts exceeding 4″ in 24 hours

were recorded at the following places on the following dates:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Orissa Tributary Mahals.	Talcher	2nd August	4·61
Cuttack	Cuttack	,, ,,	4·59
Orissa Tributary Mahals.	Nayagarh	7th ,,	5·13
Angul	Kumarkhole	31st ,,	4·25

The month's rainfall was about normal, except in Balasore, as is shown by the following comparative data for the districts in the division:—

District.	Rainfall.			
	Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuttack	11·68	12·77	—1·09	— 9
Balasore	8·84	11·83	—2·99	—25
Puri	11·08	12·14	—1·06	— 9

Chota Nagpur received general rainfall between the 6th and the 8th and between the 14th and the 20th and showers at other times. There were no very heavy falls in this division and the month's rainfall was lighter than usual. This is shown below:—

District.	Rainfall.			
	Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hazaribagh	9·79	12·58	—2·79	—22
Ranchi	12·08	13·31	—1·23	— 9
Palamau	8·60	13·42	—4·82	—36
Manbhum	11·53	12·55	—1·02	— 8
Singhbhum	9·04	14·56	—5·52	—38

The rainfall over the province was somewhat irregularly distributed, but except at Kharagdiha and Ramgar in the Hazaribagh District, at Palamau and at Ghatsila in the Singhbum District where the deficiency averaged about 6″, there were no areas of important defect.

The month's rainfall was in greater or less excess over the whole of the United Provinces. The periods of most general rain coincided generally with the appearance of the different storms of the month while in addition there was a burst of heavy rain over the montane and submontane regions between the 12th and 14th, due to the unusual pressure and wind conditions of that period. The principal periods of rainfall were hence from the 4th to the 13th, the 20th and 21st, and the 24th to the 29th. The heaviest falls were generally recorded either between the 12th and 14th or about the 27th, when the third storm of the month was recurving and concentrating over the United Provinces. The following is a record of the heaviest falls (exceeding 7·50 inches in 24 hours) registered during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Naini Tal	Kashipur	12th August	11·80
Garhwal	Kotdwara	,, ,,	9·65
Gorakhpur	Maharajganj	13th ,,	10·60
Pilibhit	Puranpur	,, ,,	10·09
Naini Tal	Kilpuri	,, ,,	9·10
Garhwal	Kotdwara	,, ,,	8·52
Pilibhit	Pilibhit (City)	,, ,,	8·27
	Pilibhit (Kachahri)	,, ,,	8·25
Gorakhpur	Hata	,, ,,	8·07
Dehra Dun	Mussooree	,, ,,	8·00
	Chakrata (Obsy)	14th ,,	9·08
	Chakrata (Tahsil)	,, ,,	8·50
Sultanpur	Musafirkhana	27th ,,	14·76
Partabgarh	Partabgarh	,, ,,	14·00
Jaunpur	Machhlishahr	,, ,,	13·92
Sultanpur	Amethi	,, ,,	10·98
Partabgarh	Patti	,, ,,	10·12
Allahabad	Allahabad	,, ,,	9·57
Sultanpur	Sultanpur	,, ,,	7·89

The total rainfall of the month was more than 50% in excess of the average over south and north Oudh and the east submontane division of the United Provinces.

The following gives comparative data for the districts in these divisions :—

District.	Rainfall. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Fyzabad	19·28	11·64	+7·64	+66
Gonda	23·22	12·28	+10·94	+89
Bara Banki	16·49	11·33	+5·16	+46
Bahraich	19·73	12·12	+7·61	+63
Sitapur	14·80	10·59	+4·21	+40
Kheri	14·78	12·63	+2·15	+17
Sultanpur	24·43	12·53	+11·90	+95
Partabgarh	23·54	11·09	+12·45	+112
Rae Bareli	14·97	11·46	+3·51	+31
Unao	13·41	10·68	+2·73	+26
Lucknow	14·76	10·56	+4·20	+40
Hardoi	13·10	10·65	+2·45	+23
Gorakhpur	22·49	11·71	+10·78	+92
Basti	20·91	12·52	+8·39	+67
Azamgarh	13·69	11·34	+2·35	+21
Ballia	14·73	10·84	+3·89	+36

Over the remainder of the United Provinces the total fall was generally in trifling excess.

There were three fairly general falls of rain over the Punjab during the month under review, *viz.*, between the 2nd and the 5th, the 9th and the 15th, and the 22nd to the 26th. The rainfall was heaviest during the second and third periods when the following amounts exceeding 4·50″ in 24 hours were registered :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kangra	Kangra	10th August	8·12
Gurdaspur	Dalhousie	,, ,,	5·40
Kangra	Palampur	13th ,,	8·25
	Dharmsala	,, ,,	7·05
	Hamirpur	14th ,,	9·50
	Dharmsala	,, ,,	7·05
	Palampur	,, ,,	6·21
Gurdaspur	Dalhousie	,, ,,	5·42
Simla	Kot Khai	,, ,,	4·95
	Simla	,, ,,	4·89
Kangra	Nurpur	,, ,,	4·85
Umballa	Kasauli	,, ,,	4·55
	Dadupur	23rd ,,	4·80
Kangra	Dharmsala	24th ,,	5·16
	Dera	,, ,,	5·00

The following table gives comparative data for the rainfall divisions of the province :—

Division.	Rainfall. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
South East Punjab	5·61	6·43	—0·82	—13
South Punjab	2·93	4·18	—1·25	—30
Central Punjab	4·08	4·82	—0·74	—15
Punjab Submontane	7·89	8·35	—0·46	— 6
Punjab Hills	18·51	16·35	+2·16	+13
West Punjab	2·19	1·79	+0·40	+22

The rainfall of the month was hence in excess in the hills and west divisions and in defect elsewhere. The deficiency was greatest in the south division, where it amounted to 30%.

In the North-west Frontier Province there were also three periods of rainfall during the month, *viz.*, the 2nd to the 5th, the 13th to the 17th and the 24th to the 28th. The rainfall was, unlike that in the Punjab, generally heaviest during the first period. The following were the heaviest falls (exceeding 2″ in 24 hours) recorded during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Hazara	Oghi	2nd August	2·11
	Haripur	,, ,,	2·10
Malakand	Malakand	3rd ,,	3·50
Dera Ismail Khan	Dera Ismail Khan	4th ,,	4·95
	Kulachi	,, ,,	2·62
	Shekh Budin	,, ,,	2·50
	Kulachi	14th ,,	2·28
Peshawar	Mardan	17th ,,	2·04

The rainfall of the month was very irregularly distributed, as is shown by the following comparative data for the contained districts:—

District.	Rainfall.			
	Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Peshawar	1·69	3·15	—1·46	— 46
Hazara	7·29	7·28	+0·01	0
Kohat	2·74	4·36	—1·62	— 37
Bannu	2·96	2·73	+0·23	+ 8
Dera Ismail Khan	5·53	1·76	+3·77	+214

Baluchistan received showers between the 1st and the 8th, the 14th and 18th, and on the 26th and 27th. The rainfall was generally light and less than the normal. The following gives data for the province:—

Province.	Rainfall.			
	Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Baluchistan	0·36	0·80	—0·44	—55

Kashmir, like the Punjab and the North-west Frontier Province, recorded three rainfall periods, *viz.*, between the 1st and the 6th, the 8th and the 14th, and the 20th and 26th. The rainfall was particularly heavy in Jummoo between the 10th and 14th when, as previously stated, the monsoon was determined directly towards the Himalayas, and the following large falls exceeding 4 inches in 24 hours were registered:—

State.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jummoo	Sambha	10th August	7·45
	Jasmairgarh	" "	4·12
	Golabgarh	11th "	11·50
	Sambha	12th "	4·65
	Sri Ranbir Singh Pora	13th "	8·09
	Kathua	" "	5·02
	Bisolee	" "	4·02
	Golabgarh	14th "	11·50
	Manawar	" "	5·12

Western Rajputana received moderately general showers between the 1st and the 10th, but after the latter date, the weather was fine, with a few occasional light showers. The showers were heavy during the first ten days, but the rainfall was irregularly distributed, as is shown by the following comparative data for the larger states:—

State.	Rainfall.			
	Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jaisalmer	1·33	2·12	—0·79	—37
Jodhpur	4·09	3·46	+0·63	+18
Bikaner	2·44	3·14	—0·70	—22

In eastern Rajputana the rainfall was similar, except, that there occurred a brief but general burst of rain between the 23rd and the 27th. There was a remarkable fall of rain over eastern Rajputana on the 8th when the second storm of the month was affecting north-west India and the following amounts exceeding 4 inches in 24 hours were recorded:—

State.	Station.	Rainfall during 24 hours preceding 8 A.M. of 8th August 1903.
		Inches.
Kotah	Atroo	6·25
	Sangod	6·13
	Chipabarod	5·80
	Indargarh	5·48
Ulwar	Pertabgarh	5·47
Kotah	Shahabad	5·22
Jaipur	Jaipur	5·16
Kotah	Chechat	5·09
Jaipur	Gangapur	5·00
Ajmer-Merwara	Sawar	4·45
Jaipur	Lalsot	4·24

The month's rainfall on the whole exceeded the normal, as is shown by the following data for certain states :—

STATE.	RAINFALL.			
	Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jaipur	9·23	6·85	+2·38	+35
Alwar	6·30	5·48	+0·82	+15
Bharatpur	8·10	7·27	+0·83	+11
Dholpur	11·63	8·28	+3·35	+40
Karauli	15·22	9·08	+6·14	+68
Kotah	14·20	9·82	+4·38	+45
Ajmer-Merwara	6·41	5·63	+0·78	+14
Udaipur	8·18	8·46	−0·28	− 3

In Central India there was a partial break in the rains between the 12th and the 18th, and again from the 27th to the end of the month, but at other times fairly general and moderately heavy rain was received. In Gwalior and Bundelkhand the fall was heavy betwen the 3rd and 8th, and again on the 24th and 25th. The following amounts exceeding 4 inches in 24 hours were registered during the month :—

STATE.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
BUNDELKHAND	Ghoora	3rd August	4·62
	Nowgong	4th "	4·76
	Chhatarpur	" "	4·10
	Deora	6th "	6·15
	Simariya	" "	5·28
	Ghoora	" "	5·00
	Tikamgarh	" "	4·36
REWA	Bardi	" "	4·20
BUNDELKHAND	Nowgong	7th "	9·74
	Chhatarpur	" "	7·41
	Bijawar	" "	4·84
GWALIOR	Dhodhar	8th "	5·48
	Goona	" "	5·43
	Gwalior Residency	" "	5·11
	" Fort	" "	4·72
	Moti Mahal	" "	4·70
BHOPAL AGENCY	Ashta	23rd "	4·39
GWALIOR	Moti Mahal	24th August.	6·00
	Gwalior Fort	" "	5·67
	Bhind	" "	4·93
	Gwalior Residency	" "	4·82
	Gird Gwalior	" "	4·65
	Tavarghar	" "	4·27
BUNDELKHAND	Samthar	" "	4·21
GWALIOR	Gwalior Residency	25th "	6·23
	Moti Mahal	" "	4·60
NAGODE	Nagode Hospital	" "	4·38

The general rainfall of the month was above the normal in some parts of the Agency, as is shown by the following data for the larger states :—

STATE.	RAINFALL.			
	Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Bhopal Agency	9·87	12·82	−2·95	−23
Gwalior	11·47	9·36	+2·11	+23
Rewa	12·71	13·49	−0·78	− 6
Bundelkhand	14·34	12·88	+1·46	+11

In the Central Provinces the rainfall was comparatively light between the 9th and the 17th and between the 27th and the 30th but at other times daily rainfall was received. The falls were not, on the whole, exceptionally heavy, and the only amounts exceeding 5 inches in 24 hours were as follows :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
BILASPUR	Mungeli	2nd August	5·20
NARSINGHPUR	Mohpani	3rd "	7·55
BHANDARA	Sakoli	" "	5·20
SEONI	Seoni	" "	5·10
DAMOH	Hatta	7th "	5·96
FEUDATORY STATES	Rampur	" "	5·86
HOSHANGABAD	Pachmarhi	19th "	5·95
		20th "	7·19
BHANDARA	Tirora	24th "	6·75

The general rainfall of the month was, however, above the normal, as is shown by the following data for the rainfall divisions :—

Division.	Rainfall. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Central Provinces, West . .	13·05	10·59	+2·46	+23
„ „ Central . .	16·12	13·72	+2·40	+17
„ „ East . .	15·19	13·81	+1·38	+10

Berar had less rain than the Central Provinces, and a fairly well-marked break occurred between the 6th and the 18th, but at other times showers were frequent and the general rainfall of the month was proportionately as heavy as in the different divisions of the Central Provinces. This is shown below:—

Division.	Rainfall. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Berar	8·59	6·92	+1·67	+24

The rainfall in the Nizam's dominions was heavier than usual in all districts except Indur, Yelgandel and Sirpur-Tandur where it was in slight defect. The general rainfall was more than 40% in excess, as is shown below:—

Division.	Rainfall. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hyderabad, North	10·54	7·89	+2·65	+34
South	10·37	6·55	+3·82	+58

The Bangalore, Kolar, Tumkur, Chitaldroog, and Mysore districts of Mysore reported very little rain between the 1st and the 9th, but from the 10th onward to the end of the month fairly general daily rainfall was received, while in the Hassan, Shimoga and Kadur districts, rain was fairly continuous throughout the month. There were no very heavy falls, but the total rainfall was in slight excess, as is shown below :—

Division.	Rainfall. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Mysore	5·89	5·09	+0·80	+16

From the 10th to the 14th, the rainfall was very light and scattered over the Konkan division of the Bombay Presidency, but at other times daily rain was received. The rainfall was heaviest between the 1st and 3rd and on the 20th and 21st and the following amounts exceeding 6 inches in 24 hours were recorded on the latter dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kolaba . . .	Pen	20th August .	10·85
	Roha . . .	„ „ .	8·05
	Panvel . . .	„ „ .	6·10
Thana . . .	Kurla . . .	21st „ .	7·00
Kolaba . . .	Uran	„ „ .	6·80
Thana . . .	Thana . . .	„ „ .	6·27
Kolaba . . .	Pen	„ „ .	6·08
Thana . . .	Bhiwndi . . .	„ „ .	6·03

The general rainfall was about normal, as is shown by the following data for the contained districts :—

District.	Rainfall. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North Kanara . .	20·35	21·43	—1·08	— 5
Savantvadi . . .	34·37	29·29	+5·08	+17
Ratnagiri . . .	25·15	26·44	—1·29	— 5
Kolaba	35·00	30·74	+4·26	+14
Thana . . .	22·90	20·75	+2·15	+10

In the Karnatak the rainfall was much lighter than on the coast, but moderately general showers were received between the 1st and the 8th, the 17th and the 21st, and the 28th and 30th. There were no noteworthy falls in this division and the month's rainfall was lighter than usual in two districts. This is shown by the following data for the districts :—

District.	Rainfall.			
	Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dharwar	3·18	3·67	−0·49	−13
Bijapur	5·08	3·26	+1·82	+56
Belgaum	4·05	6·51	−2·46	−38

In the south Deccan similar conditions prevailed. There were showers at the beginning, middle and end of the month, with intervening periods of fine weather, and the general rainfall was less than usual in Satara and Poona and heavier than usual in Sholapur. This is shown by the following data :—

District.	Rainfall.			
	Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Satara	7·91	9·98	−2·07	−21
Sholapur	6·65	3·95	+2·70	+68
Poona	5·56	7·02	−1·46	−21

There were some heavy falls at Malcolmpeth, the more important having been as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Satara	Malcolmpeth	1st August	5·85
	Do.	2nd ,,	7·75
	Do.	3rd ,,	4·50
	Do.	20th ,,	4·01

In the north Deccan the rainfall was both heavier and more continuous than in the more southern division, and the general rainfall of the month was slightly in excess of the average. The following gives data for the districts :—

District.	Rainfall.			
	Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ahmednagar	4·53	2·88	+1·65	+57
Nasik	8·81	9·56	−0·75	− 8
Khandesh	7·12	5·97	+1·15	+19

Gujarat received showers, which were, however, light, except in the Surat district. The following gives comparative data for the different districts :—

District.	Rainfall.			
	Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Surat	13·88	11·37	+2·51	+22
Broach	4·21	7·50	−3·29	−44
Kaira	5·58	9·18	−3·60	−39
Panch Mahals	7·52	10·30	−2·78	−27
Ahmedabad	5·67	7·24	−1·57	−22

The rainfall was heavy in Surat about the 21st, when the following amounts exceeding 6 inches in 24 hours were recorded :—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 21st August 1903.
		Inches.
Surat Agency	Dharampur	9·68
Surat	Bulsar	8·02
	Pardi	7·83
Surat Agency	Bansda	6·94

Kathiawar and Cutch reported showers between the 1st and 5th, the 11th and 13th and the 21st to 27th, but,

except on the 1st and 22nd, the falls were light and the general rainfall was below the normal. This is shown below :—

District.	Rainfall. Average actual, August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Baroda	8·03	10·45	−2·42	−23
Rewa Kantha	8·13	11·36	−3·23	−28
Mahi Kantha	7·15	9·21	−2·06	−22
Palanpur	4·71	6·83	−2·12	−31
Kathiawar	4·85	5·69	−0·84	−15
Cutch	2·8	3·13	−0·33	−11

In Sind there was no rain, except showers in Nagar-Parkar.

The Malabar coast districts of Madras received fairly steady daily rainfall. No heavy falls were reported and the general rainfall of the month was about normal. The following gives data for the districts :—

District.	Rainfall. Average actual August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Malabar	16·72	16·23	+0·49	+ 3
South Canara	26·06	27·60	−1·54	− 6

South Madras received showers, which were heavy in the Madura district about the middle of the month. The district rainfall was as follows:—

District.	Rainfall. Average actual, August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Madura	3·09	2·28	+ 0·81	+36
Tinnevelly	0·85	0·85	0	0

South-central Madras experienced fine weather up to the 9th. This was followed by two days of general rain, after which the weather was showery till the close of the month. District data are given below :—

District.	Rainfall. Average actual, August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Salem	6·05	4·51	+1·54	+34
Coimbatore	3·41	2·12	+1·29	+61

Similar conditions prevailed in central Madras where the weather was showery from the 10th onward and was very showery on the 29th and 30th. The total rainfall was in slight excess, as is shown by the following district data :—

District.	Rainfall. Average actual, August, 1903.	Average normal, August.	Variation of actual from normal, August, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah	4·25	4·34	−0·09	− 2
Anantapur	3·48	3·50	−0·02	− 1
Bellary	4·84	3·54	+1·30	+37
Kurnool	6·55	4·95	+1·60	+32

The north division of the east coast received frequent rain which occurred chiefly during the formation and advance of the cyclonic storms of the Bay. The rainfall was heaviest in the Godavari and Kistna districts, where the following amounts exceeding 5 inches in 24 hours were recorded on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kistna	Kykalur	17th August	5·15
	Bezwada	28th "	5·20
	Jaggayapet	29th "	6·25
	Sattenapalle	" "	5·72
Godavari	Bhadrachalam	30th "	10·25
Kistna	Bezwada	" "	6·65
	Sattenapalle	" "	5·61
	Nandigama	" "	5·40
	Narasarapet	" "	5·36
	Ponnur	" "	5·35
	Tenali	" "	5·04
	Mangalagiri	" "	5·02

The general rainfall was considerably in excess of the normal, as is shown by the following district data :—

DISTRICT.	RAINFALL. Average actual, August 1903.	Aver ae normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	8·73	8·23	+0·50	+ 6
Vizagapatam	7·32	6·26	+1·06	+ 17
Godavari	10·23	6·35	+3·88	+ 61
Kistna	13·89	5·80	+8·09	+139

The central division of the east coast received much less rain than the more northern division, and there were no heavy falls, but the general rainfall of the month was in moderate excess, as is shown below :—

DISTRICT.	RAINFALL. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Nellore	4·46	3·47	+0·99	+29

The south division had two periods of fairly general rain, *viz.*, between the 12th and the 17th and the 28th and the 30th, the weather at other times having been fair to showery. The month's rainfall was generally in excess of the normal, as is shown by the following district data :—

DISTRICT.	RAINFALL. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madras	6·45	4·68	+1·77	+38
Chingleput	6·04	5·82	+0·22	+ 4
North Arcot	6·05	5·08	+0·97	+19
South Arcot	4·38	5·62	—1·24	—22
Tanjore	5·69	4·31	+1·38	+32
Trichinopoly	4·69	4·11	+0·58	+14

The rainfall returns from the extra-Indian stations show that at Minicoy, Amini Divi and Colombo the month's rainfall was in excess of the normal, while on the east coast of Ceylon the fall was deficient. Over Kashgaria, Afghanistan, Persia and Arabia there was practically no rain during the month, though Kabul and Teheran both reported a local fall of about one quarter of an inch.

In the south-east trades region the rainfall was irregularly distributed. Zanzibar reported some excess while at the Seychelles the fall was in large and at Mauritius in moderate defect. The following gives data for the extra-Indian stations :—

STATION.	RAINFALL. Average actual, August 1903.	Average normal, August.	Variation of actual from normal, August 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee	2·86	4·15	—1·29	— 31
Colombo	7·49	3·90	+3·59	+ 92
Minicoy	7·95	6·49	+1·46	+ 22
Amini Divi	7·41	5·04	+2·37	+ 47
Kabul	0·25	0·18	+0·07	+ 39
Kashgar	0	1·10	—1·10	—100
Meshed	0	0·01	—0·01	—100
Teheran	0·26	0·05	+0·21	+420
Ispahan	0·01	0	+0·01	...
Bushire	0	0	0	0
Jask	0	0	0	0
Muscat	0	0	0	0
Baghdad	0	0·09	—0·09	—100
Aden	0·05	0·14	—0·09	— 64
Perim	0	0·43	—0·43	—100
Zanzibar	2·72	1·90	+0·82	+ 43
Seychelles	0·70	3·20	—2·50	— 78
Mauritius	1·88	2·83	—0·95	— 34

Crop Report.

Madras.—The rainfall was generally good except in some parts of the central and southern districts of the Presidency. The standing crops, at the close of the month, were generally in good condition, but some dry crops in Godavari and Kistna had been affected by heavy rain.

Bombay.—Rain was generally sufficient during August over Bombay, but more was required at the close of the

month in parts of Larkana, Ahmedabad, Kaira, the Deccan and the Carnatic. Young crops, at the end of the month, were generally in good condition but had been damaged by floods in part of Kurrachee, by excessive rain in parts of Ahmedabad, the Panch Mahals, Surat and Belgaum, and were suffering from insufficient moisture in parts of Nasik.

Bengal.—Rain, though unevenly distributed, fell generally over the province during the month, and prospects improved generally. In Patna, Gaya, Shahabad, Monghyr, Bhagalpur and Pabna more rain was still needed at the close of the month for the transplantation of winter rice.

United Provinces.—Rain fell heavily throughout the month in the United Provinces, breaking up the drought which prevailed during July. Prospects improved very much during the month and at the end were good except in parts of Aligarh and Muttra where more rain was needed.

Punjab.—Good rain fell throughout the province during the month and, at the close of the month, the condition and prospects of the standing crops were good throughout the province, except in parts of Ferozepore, where unirrigated crops were withering. There had been some damage by excessive rain in parts of Sialkot and by floods in Mooltan.

North-west Frontier Province.—Excellent rain fell over the province during the beginning of the month but the fall subsequently diminished, and at the close of the month, more rain was required everywhere. The condition of the autumn crops was, however, good on irrigated and fair on unirrigated areas.

Burma.—Rain fell heavily over Burma outside the dry zone. Sowings were retarded and in the unirrigated area of Kyaukse agricultural operations were at a standstill at the close of the month for want of rain. Rain was most needed in Shwebo, Sagaing, lower Chindwin, Meiktila, and Myingyan.

Central Provinces.—The condition of the crops was generally good at the close of the month but damage had been done to cotton, *juar* and *til* by constant showers in Nagpur, Seoni, Betul, and Chhindwara.

Assam.—The prospects, at the close of the month, of jute were good, and of tea and sugarcane fair to good except in Kamrup where the sugarcane prospects were poor. Ploughing and transplanting of late rice, harvesting of early rice, plucking and manufacture of tea and cutting of jute were in progress during the month.

Mysore.—The general prospects were good at the end of the month.

Berar.—The crops were damaged during the month by excessive rain in parts of Akola, Amraoti and Buldana, but elsewhere they were in a tolerably fair condition.

Hyderabad.—The prospects, at the close of the month, were good.

Rajputana.—The condition and prospects of the standing crops were good.

Central India.—At the close of the month the crops were good in Gwalior, Bhopal, Baghelkhand and Bhopawar, fair in Malwa and Indore, and average in Bundelkhand.

Kashmir.—The condition of the standing crops was good.

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 232 Stations in India, Burma, etc., in August, 1903.

Table

Abstract of Observations taken at 8 A.M. at 232

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.				+·023								84·6	−0·1	75·5	+0·2	80·1	0	9·1					16·6
1	Tenasserim and Bay Islands.	Car Nicobar.	25	29·825		29·777	29·888	15th	29·782	29th	·106	80·3	87·0		76·1		81·6		10·9	89·4	8th	73·1	28th	16·3
		Port Blair .	61	29·806	+·022	29·798	29·876	15th	29·740	27th	·136	80·2	85·0	−0·2	77·9*	+0·7	81·5*	+0·3	7·1	89·7	10th	72·7	26th	17·0
		Mergui .	96	29·811	+·025	29·840	29·893	13th	29·747	26th	·146	77·8	85·7	+1·5	74·1	+1·5	79·9	+1·5	11·6	90·6	4 days	71·4	17th	19·2
		Tavoy .	26	29·877	+·020	29·834	29·966	15th	29·795	27th	·171	76·8	83·5	+0·7	74·0	+0·2	78·8	+0·5	9·5	88·7	11th	72·0	15th	16·7
		Moulmein .	94	29·759	+·021	29·792	29·863	11th	29·688	4th	·175	75·8	82·7	−0·3	73·4	−0·7	78·1	−0·5	9·3	87·0	13th	71·3	2 days	15·7
2	Lower Burma .	Rangoon .	57	29·785	+·020	29·780	29·896	11th	29·715	28th	·181	78·2	83·9	−1·2	75·7	0	79·8	−0·6	8·2	86·1	2 days	72·9	2 days	13·2
		Bassein .	27	29·809	+·035	29·771	29·919	11th	29·725	1st	·194	75·4	83·9	−0·6	76·3	+0·6	80·1	0	7·6	89·7	9th	73·1	13th	16·6
		Diamond Island.	41	29·787	+·015	29·763	29·887	11th	29·703	1st	·184	80·7	84·1	−0·2	76·8	+1·2	80·5	+0·5	7·3	86·9	2 days	73·2	2 days	13·7
5	Arakan . .	Akyab .	20	29·747	+·015	29·710	29·876	11th	29·643	1st	·233	79·3	83·4	−1·0	77·2	−0·1	80·3	−0·6	6·2	87·9	28th	75·2	4 days	12·7
3	Central Burma.	Toungoo .	183	29·647	+·032	29·773	29·773	11th	29·549	4th	·224	78·0	86·9	+0·2	73·3	−1·7	80·1	−0·8	13·6	95·9	27th	71·1	15th	24·8
	II.—Burma, Inland.				+·031								90·2	−0·9	75·7	−0·1	83·0	−0·5	14·6					23·9
3	Central Burma.	Thayetmyo .	130	29·678	+·035	29·751	29·809	11th	29·592	4th	·217	79·9	88·3	−0·6	75·0	−1·1	81·7	−0·9	13·3	92·0	27th	73·0	2 days	19·0
4	Upper Burma .	Minbu .	165	29·617	+·035	29·726	29·739	11th	29·513	5th	·224	80·4	89·9	−0·7	77·4	+0·4	83·7	−0·2	12·5	92·7	2 days	75·1	13th	17·6
		Yamethin .	657	29·144	+·036	29·753	29·258	12th	29·054	2 days	·204	78·5	89·2	−0·6	74·5	+0·2	81·9	−0·2	14·7	96·3	1st	71·7	12th	24·6
		Monywa .		29·485		29·704	29·565	12th	29·399	4th	·166	81·9	95·0		74·1		84·6		20·9	102·3	4th	70·3	12th	32·0
		Mandalay .	250	29·521	+·026	29·720	29·602	12th	29·427	4th	·175	81·0	92·8	−0·5	77·9	+0·3	85·4	−0·1	14·9	102·1	1st	73·1	12th	29·0
		Bhamo .	381	29·366	+·021	29·703	29·442	31st	29·266	5th	·176	77·4	86·1	−2·0	75·0	−0·4	80·6	−1·2	11·1	93·5	2nd	72·1	2 days	21·4
4(a)	Burma Hill Stations.	Maymyo .		26·349			26·421	12th	26·284	1st & 7th.	·137	70·0	76·8		66·2		71·5		10·6	82·0	3 days	63·8	12th	18·2
		Lashio .		27·003	+·014		27·077	12th	26·895	5th	·182	72·6	81·1	−2·0	69·7	+0·6	75·4	−0·7	11·4	89·0	3rd	66·0	2 days	23·0
	III.—Assam.				+·007								87·4	−1·0	76·9	−0·3	82·2	−0·7	10·5					19·8
7	Surma . .	Silchar .	104	29·635	+·017	29·691	29·724	31st	29·530	6th	·194	80·0	88·4	−1·1	76·7	−0·1	82·6	−0·6	11·7	93·5	2nd	75·3	7 days	18·2
9	Brahmaputra .	Sibsagar .	333	29·379	−·004	29·669	29·450	31st	29·285	2 days	·165	79·4	86·8	−2·4	77·2	−0·5	82·0	−1·5	9·6	93·2	2nd	72·0	13th	21·2
		Dhubri .	115	29·570	+·007	29·640	29·648	31st	29·470	7th	·178	80·3	86·4	+0·4	78·1*	−0·2*	82·3*	+0·1	8·3	91·2	2nd	75·8	2 days	15·4
		Gauhati .	195	29·509		29·658	29·594	19th	29·412	7th	·182	80·4	89·2		77·4		83·3		11·8	94·5	1st	74·5	14th	20·0
		Tezpur .	252	29·452		29·664	29·520	23rd	29·357	6th	·163	78·6	87·4		77·0		82·3		10·4	92·1	2 days	73·4	2 days	18·7
		Dibrugarh .	353	29·361		29·675	29·434	23rd	29·275	1st	·159	77·6	86·2		74·9		80·6		11·3	95·2	2nd	70·0	13th	25·2
	IV.—Bengal and Orissa.				+·010								88·3	+0·3	78·4	+0·2	83·4	+0·2	9·9					17·3
6	East Bengal .	Chittagong .	87	29·682	+·005	29·667	29·758	11th	29·501	6th	·257	80·1	86·1	+0·6	76·6	+0·5	81·4	+0·6	9·5	91·5	1st	74·6	11th	16·9
		Noakhali .	43	29·663		29·653	29·790	11th	29·526	6th	·264	80·7	85·6		77·4		81·5		8·2	89·2	1st	74·9	11th & 16th.	14·3
		Comilla .	36	29·674		29·658	29·765	11th	29·543	6th	·222	79·8	87·3		76·5		81·9		10·8	92·8	1st	73·3	13th	19·5
		Sirajganj .	49	29·640		29·639	29·719	31st	29·524	7th	·195	80·6	86·8		78·3		82·8		8·5	91·3	2nd	75·7	8th	15·6
		Narayanganj	26	29·669	+·022	29·643	29·747	11th	29·532	6th	·215	81·2	87·4	−0·1	78·3†	−0·7†	82·6†	−0·4	9·1	91·1	2 days	74·3	13th	16·8
		Barisal .	13	29·674	+·022	29·632	29·784	11th	29·509	6th	·275	81·7	86·7	−0·1	78·1	−0·1	82·4	−0·1	8·6	89·8	28th	75·1	10th	14·7
		Mymensingh	59	29·637	+·015	29·647	29·718	31st	29·535	7th	·183	80·9	86·5	−0·4	77·8	−0·3	82·2	−0·4	8·7	91·2	2nd	74·6	2 days	16·6
		Faridpur .	46	29·643		29·637	29·733	11th	29·515	6th	·218	81·2	87·1		78·1		82·6		9·0	90·3	1st & 6th.	74·9	8th, 11th & 13th.	15·4
10	Deltaic Bengal	Jessore .	33	29·639	+·014	29·617	29·746	11th	29·495	6th	·251	81·5	88·3	−0·3	78·4	−0·3	83·4	−0·3	9·9	92·0	1st	75·7	8th	16·3
		Calcutta .	21	29·642	+·018	29·609	29·766	11th	29·506	6th	·260	81·7	88·1	+1·0	78·4	+0·1	83·3	+0·6	9·7	91·9	1st	74·9	8th	17·0
		Saugor Island	25	29·624	+·003	29·593	29·771	11th	29·479	1st	·292	83·1	88·4	+1·2	80·6	+0·8	84·5	+0·1	7·8	92·9	1st	77·1	8th	15·8
		Krishnagar .	47	29·622		29·617	29·732	11th	29·488	6th	·244	81·7	89·7		78·8		84·3		10·9	93·8	6th	76·0	8th	17·8
		Midnapore	149	29·498		29·593	29·617	11th	29·367	7th	·250	81·9	89·4		78·8		84·1		10·6	92·3	6th, 12th & 14th.	74·7	8th & 9th 14th.	17·6

* Mean of 30 days. † Mean of 25 days.

Note 1.—When a query is inserted against any reading or in the variation

Note 2.—The divisional means of the figure columns, Nos. 41, 43, and 45

I.

Stations in India, Burma, etc., in August, 1903.

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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 31st August.	Variation from normal of period, 1st May to 31st August 1903.	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	56	57	58
														92	+0·5	·898	−·004	8·0	−0·5				32·68	28·79	+·6·33					I.—Burma Coast and Bay Islands.		
3				1	3	16	3		S 43° W	3·6	3·6			89		·918		8·0		16			10·76			37·21			4·27	Car Nicobar(a)	Tenasserim and Bay Islands.	1
				1	2	14	12	2	S 64° W	10·4	11·7	9·6	+22	89	+0·5	·925	+·005	8·0	−0·4	20			12·86	14·06	−1·20	69·68	65·48	+4·20	3·84	Port Blair.		
18	3				4	4		2	S 60° W	2·0	1·8	1·6	+13	93	+0·7	·873	P	5·7	−1·9	25	25·00	0	29·85	29·97	−0·12	96·71	111·02	−14·31	4·10	Mergui,		
22	1	1			1	5	1		S 56° W	1·2				93	+0·1	·861	−·004	5·9	−2·5	27	27·40	−0·40	43·12	47·29	−4·17	136·42	160·05	−23·63	8·35	Tavoy.		
23				1	3	4			S 18° W	2·9	3·2	3·2	0	91	−2·9	·813	−·057	8·9	+0·9	30	27·10	+2·90	54·80	40·63	+14·17	158·23	142·37	+15·86	6·35	Moulmein		
1		1	4	8	9	7	1		S 13° E	6·7	5·6	4·7	+19	91	−3·4	·881	−·030	9·2	0	25	23·90	+1·10	22·27	19·85	+2·42	64·25	69·57	−5·32	2·01	Rangoon .	Lower Burma .	2
8				3	12	7	1		S 11° W	4·6		3·4	+35	95	+1·5	·932	+·017	9·1	+0·5	26	25·40	+0·60	23·91	23·17	+0·77	76·22	82·35	−6·13	2·86	Bassein.		
				1	6	20	4		S 10° W	8·4	8·4	6·7	+25	88	+2·0P	·931	+·011	7·6	−1·0	23	22·10	+0·90	31·12	23·45	+7·67	85·39	82·85	+2·54	6·10	Diamond Island.		
				15	11	5			S 17° E	4·1	3·9	3·2	+22	95	+1·1	·960	+·011	8·9	−0·1	29	26·60	+2·40	75·90	42·00	+33·90	177·69	151·29	+26·40	11·45	Akyab. .	Arakan.	5
5				15	9	2			S 23° E	3·5	3·5	3·9	−10	91	−1·3	·885	−·016	8·9	−0·4	28	24·30	+3·70	22·21	18·68	+3·53	60·88	57·00	+3·88	3·29	Toungoo .	Central Burma.	3
														86	+1·4	·881	+·009	7·7	+0·7				5·59	7·18	−1·59					II.—Burma Inland.		
				5	26				S 7° E	3·7		5·9	−37	89	+3·7	·910	+·037	8·1	−0·6	12	13·20	−1·20	4·02	6·43	−2·41	25·62	23·77	+1·85	0·84	Thayetmyo .	Central Burma	3
			1	25	5				S 40° E	9·0	10·7			84	−0·6	·881	+·009	7·5	+1·3	9	8·60	+0·40	3·12	5·10	−1·98	17·28	19·99	−2·71	0·69	Minbu .	Upper Burma .	4
				13	16				S 20° E	11·0	11·6			86	−1·0	·837	−·008	9·9	P	5	11·50	−6·50	1·92	6·40	−4·48	13·39	21·54	−8·15	0·54	Yamethin.		
2				19	12				S 28° E	5·4	5·6			82		·896		8·4		2	7·70	−5·70	1·16	4·62	−3·46	9·51	16·03	−6·52	0·78	Monywa.		
				7	21	3			S 6° E	12·7	12·8			80	+1·1	·854	−·004	2·6	P	6	7·00	−1·00	4·46	3·99	+0·47	13·82	18·38	−4·56	1·99	Mandalay.		
23	2		1	1	1	2	1		S 36° W	1·5	1·8			96	+4·0	·907	+·009	9·5	+1·3	21	19·60	+1·40	18·85	16·55	+2·30	42·79	55·74	−12·95	1·96	Bhamo.		
							1		S 45° W	2·1				90		·669		3·8		12	16·20		5·13	9·66	−4·53	34·80	35·22	−0·42	1·56	Maymyo .	Burma Hill Stations.	4(a)
30		7	1	3	7	12	1		S 6° W	3·5				90	−0·9	·720	−·022	9·7	+0·7	21			16·61	12·84	+3·77	44·07	44·38	−0·31	2·17	Lashio.		
														93	+1·4	·940	+·007	9·3	+0·5				19·59	15·51	+4·08					III.—Assam.		
				1					S 45° E	1·2	2·1	3·0	−30	92	+1·1	·939	+·002	9·4	+0·1	26	21·50	+4·50	23·17	20·23	+2·91	64·40	77·92	−13·52	2·90	Silchar .	Surma.	7
30																																
7	1	8	2	9	3			1	S 84° E	2·5	2·3	2·7	−15	97	+2·6	·973	+·009	9·9	+0·8	27	17·70	+9·30	26·62	16·51	+10·08	80·85	59·87	+20·98	2·88	Sibsagar .	Brahmaputra .	3
2		8	4	4	8	4	1		S 47° E	3·6	4·2	3·2	+31	91	+0·4	·952	+·011	9·0	+0·5	19	14·50	+4·50	16·56	13·29	+3·27	76·70	67·38	+9·32	2·38	Dhubri.		
9	6	4	1	3	3	4	1		N 67° E	1·6	1·8			90		·935		9·0		21	13·30	+7·70	13·79	10·56	+3·23	44·38	42·37	+2·01	1·55	Gauhati.		
5		4	6	2	5	6	2	4	S 25° E	2·4	2·5			95		·911		9·2		16	15·50	+0·50	11·86	13·14	−1·28	42·09	48·46	−6·37	1·64	Tezpur.		
7	3	8	3	2	4	3	1		N 75° E	0·8	0·8			94		·899		9·5		24	15·40	+5·60	25·52	19·25	+6·27	69·11	73·88	−4·77	2·94	Dibrugarh.		
														90	+0·3	·964	+·007	7·6	−0·3				13·82	13·67	+0·15					IV.—Bengal and Orissa .		
				3	15	12	1		S 29° E	9·1	9·0	6·1	+48	88	P	·901	−·011	7·9	−0·3	19	17·94	+1·06	17·87	16·86	+1·01	51·90	68·87	−16·97	3·30	Chittagong .	East Bengal .	6
				4	18	5	4		S 34° E	6·8	7·4			90		·939		6·8		25	22·58	+3·42	21·93	23·93	−2·00	60·30	79·38	−19·08	3·13	Noakhali.		
				3	15	13			S 30° E	6·8	5·7			91		·920		7·8		20	17·14	+2·86	14·98	15·80	−0·82	61·91	61·77	+0·14	4·25	Comilla.		
2		1	5	10	8	3	2		S 28° E	4·5	4·6			93		·974		7·6		16	13·87	+2·13	11·28	10·86	+0·42	31·97	41·68	−9·71	3·50	Sirajganj.		
				3	13	11	4		S 21° E	7·9	6·8	6·0	+13	93	+2·7	·997	+·025	8·5	−0·2	18	17·83	+0·17	13·74	12·01	+1·73	40·35	46·40	−6·05	5·85	Narayanganj.		
3		1	1	11	11	3			S 18° E	4·5				90	+0·9	·979	+·014	6·9	−1·7	26	18·74	+7·26	17·35	12·29	+5·06	45·48	51·52	−6·04	3·65	Barisal.		
2				8	14	4	2	1	S 47° E	3·9	3·5			90	−0·8	·955	0	8·0	0	24	18·90	+5·10	24·01	14·34	+9·67	89·65	59·97	+29·68	5·40	Mymensngh.		
2				2	11	13	3		S 19° E	5·1	4·3			92		·985		6·8		19	16·22	+2·78	14·00	12·08	+1·92	39·35	45·60	−6·25	2·62	Faridpur.		
4	1	1		15	8	1		1	S 30° E	3·1	3·1	4·1	−24	92	+1·5	·933	−·005	8·6	+0·2	19	17·03	+1·97	8·36	10·55	−2·19	35·94	43·07	−7·13	1·24	Jessore .	Deltaic Bengal.	10
		1	6	8	5	9	2		S 14° E	4·1		5·3	−23	90	+0·9	·974	+·010	8·5	0	17	18·88	−1·88	10·17	12·38	−2·21	28·75	41·68	−12·93	2·31	Calcutta.		
	1	1	5	3	8	12	1		S 7° W	16·6		12·4	+34	87	−2·4	·992	+·002	9·0	−0·1	17	17·00	0	11·34	15·68	−4·34	31·78	46·74	−14·96	3·40	Saugor Island		
		1	4	11	9	2	1		S 29° E	3·5	3·8			91		·984		7·6		17	14·26	+2·74	11·73	10·25	−1·48	31·67	37·04	−5·37	5·16	Krishnagar.		
3		1	4	11	9	2	1		S 29° E	3·5	3·8			91		·984		7·6		17	14·26	+2·74	11·73	10·25	−1·48	31·67	37·04	−5·37	5·16	Krishnagar.		
7	1	2	1	2	17	1			S 10° E	2·9	2·6			89		·957		5·2		17	16·00	+1·00	6·35	12·51	+6·16	26·42	41·27	−14·85	0·73	Midnapore.		

returns of any station, the data for that station are not utilized in calculating the provincial variations. (a) Wind variable 5.
are derived only from the data available.

Table

Abstract of Observations taken at 8 A.M. at 232 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	29·322?		29·569?	29·434	11th	29·162	7th	·272	81·3	89·7		78·3		84·1		11·4	94·6	25th	74·9	8th	19·7
		Raniganj	334	29·316		29·598	29·416	11th	29·152	7th	·264	80·6	90·6		78·2		84·5		12·4	94·9	2nd	75·4	8th	19·5
		Burdwan	99	29·552	+·005	29·599	29·661	11th	29·414	7th	·247	81·7	89·5	+0·3	79·0	−0·1	84·3	+0·1	10·5	92·9	1st	75·8	9th	17·1
		Naya Dumka	489	29·155?		29·601?	29·238	11th	28·892	7th	·246	80·9	88·9		77·6		83·3		11·3	94·0	1st & 2nd	74·4	11th	19·6
		Berhampore	67	29·592	+·006	29·606	29·677	11th	29·445	7th	·232	81·3	89·1	+0·5	78·4	−0·3	83·8	+0·1	10·7	93·8	6th	75·3	11th	18·5
		Rampur Boalia	70	29·594		29·613	29·676	11th	29·454	7th	·222	82·1	88·7		79·0		83·9		9·7	92·1	4 days	76·1	11th & 28th.	16·0
		Malda	72	29·567		29·590	29·639	23rd	29·418	7th	·221	81·7	89·6		79·0		84·3		10·6	91·6	2nd	76·5	11th & 12th.	18·1
		Bogra	61	29·611	+·020	29·624	29·685	19th	29·496	7th	·189	81·3	88·5	+0·2	78·6	+0·2	83·6	+0·2	9·9	93·2	2nd	75·7	12th & 26th.	17·5
12	North Bengal	Dinajpur	123	29·548	+·016	29·625	29·625	23rd	29·428	7th	·197	81·5	88·7	−0·1	78·5	−0·1	83·6	−0·1	10·2	93·3	2nd	74·5	13th	18·8
		Rangpur	123	29·566		29·644	29·644	23rd	29·456	7th	·188	81·4	88·9		78·1		83·5		10·8	93·2	1st	74·3	13th	18·9
		Jalpaiguri	284	29·392	+·004	29·634	29·479	23rd	29·284	7th	·195	79·4	87·7	−0·4	77·1	+0·4	82·4	0	10·6	92·4	2nd	74·1	15th	18·3
		Cooch Behar	156	29·529		29·640	29·608	19th	29·417	7th	·191	80·7	88·4		78·5		83·5		9·9	93·4	1st & 2nd	74·1	14th	19·3
17	North Bihar	Purnea	125	29·532	+·007	29·611	29·603	31st	29·388	7th	·215	81·5	88·9	−0·3	78·5	+0·1	83·7	−0·1	10·5	94·7	2nd	74·7	12th	20·0
14	Orissa	Balasore	50	29·598	+·005	29·590	29·742	11th	29·446	1st	·296	82·3	88·6	+0·7	78·5	+0·5	83·6	+0·6	10·1	90·9	11th & 12th.	75·7	8th & 12th.	15·2
		False Point	21	29·635	+·001	29·598	29·793	11th	29·440	1st	·353	83·0	87·2	+0·2	79·1	+0·9	83·2	+0·6	8·1	91·5	28th	75·1	8th	16·4
		Cuttack	80	29·573	+·004	29·595	29·731	11th	29·422	1st	·309	82·6	90·4	+1·3	79·1	+0·8	84·8	+1·1	11·3	93·4	4 days	76·7	2nd	16·7
		Puri	24	29·641		29·604	29·795	11th	29·483	1st	·312	83·1	87·3		80·4		83·9		6·9	91·7	28th	76·6	7th	15·1
	V.—Gangetic Plain and Chota Nagpur.				−·004								89·8	+0·7	78·1	+0·3	84·0	+0·5	11·7					24·3
15	Chota Nagpur	Hazaribagh	2,007	27·638	−·003	29·581	27·748	11th	27·454	7th	·294	77·2	85·9	+2·2	74·0	+0·8	80·0	+1·5	11·9	89·2	2nd & 12th.	70·3	8th	18·9
		Ranchi	2,128	27·522	+·003	29·585	27·636	11th	27·351	7th	·285	75·9	84·4	+1·1	73·2	+0·6	78·8	+0·9	11·2	87·2	11th & 12th.	70·9	8th	16·3
16	South Bihar	Daltonganj	730?	28·689		29·571	29·002	11th	28·706	7th	·296	80·9	91·6		77·6		84·6		14·0	98·6	2nd	74·0	17th	24·6
15	Chota Nagpur	Purulia		28·820		29·579	28·925	11th	28·652	7th	·273	80·4	89·1		76·5		82·8		12·6	91·5	6 days	73·4	8th	18·1
		Chaibassa	760	28·674	+·014	29·581	29·003	11th	28·725	2nd	·278	80·4	88·9	+0·3	77·4	+0·4	83·2	+0·4	11·5	93·1	6th	75·0	9th	18·1
16	South Bihar	Gaya	375	29·248	−·001	29·575	29·352	10th	29·055	7th	·297	82·9	92·8	+2·8	78·8	+0·4	85·8	+1·6	14·0	101·2	1st	74·8	14th	26·4
		Dehri	351	29·255		29·558	29·360	10th	29·055	7th	·305	82·4	90·7		79·3		85·0		11·4	100·9	1st & 2nd.	74·0	17th	26·9
		Patna	183	29·451	+·001	29·586	29·533	10th	29·267	7th	·266	82·5	90·5	+1·4	79·0	−0·5	84·8	+0·5	11·5	100·5	2nd	75·2	13th	25·3
		Arrah	190	29·433		29·574	29·524	10th	29·254	7th	·270	82·5	91·1		79·3		85·2		11·8	102·0	2nd	75·6	8th	26·4
		Buxar	239	29·471		29·564	29·472	10th	29·170	7th	·302	81·8	89·8		78·3		84·1		11·5	102·0	2nd	73·6	16th	28·4
17	North Bihar	Bhagalpur	160	29·482		29·584	29·552	11th & 19th.	29·319	7th	·233	82·8	90·2		79·0		84·6		11·2	98·2	2nd	75·6	8th	22·6
		Darbhanga	166	29·478	+·005	29·597	29·551	2 days	29·307	7th	·244	81·7	88·1	−0·4	79·7	+0·4	83·9	0	8·4	95·8	2nd	75·0	13th	20·8
		Muzaffarpur	178	29·458		29·589	29·528	9th	29·283	7th	·245	81·7	88·7		78·7		83·7		10·0	97·2	2nd	74·2	24th	23·0
		Motihari	224	29·413		29·595	29·484	31st	29·246	7th	·238	81·2	89·5		78·4		83·9		11·1	97·4	2nd	73·5	25th	23·9
		Chapra	181	29·434		29·663	29·521	10th	29·254	7th	·267	82·4	91·6		79·2		85·5		12·4	101·9	2nd	76·1	24th	25·8
18	United Provinces, East.	Benares	267	29·326	−·020	29·547	29·446	10th	29·146	7th	·300	82·9	90·9	+1·4	79·0	+0·2	85·0	+0·8	11·9	104·1	1st	73·7	8th	30·4
		Allahabad	309	29·291	−·012	29·554	29·409	11th	29·117	26th	·292	82·7	90·8	+1·0	79·5	+0·3	85·2	+1·0	11·3	104·1	1st	74·6	28th	29·5
22	United Provinces (East Submontane.)	Gorakhpur	257	29·356	−·005	29·569	29·445	23rd	29·183	7th	·262	81·7	89·2	−0·6	78·1	−0·7	83·7	−0·7	11·1	96·0	2nd	74·0	16th & 28th.	22·0
19	South Oudh	Lucknow	368	29·225	−·017	29·550	29·310	10th	29·070	7th	·240	82·0	89·6	−0·7	78·6	0	84·1	−0·4	11·0	100·3	1st	73·8	28th	26·5
20	North Oudh	Bahraich	401	29·207	0	29·568	29·300	10th	29·049	7th	·251	81·3	89·3	−0·6	78·0	0	83·7	−0·3	11·3	100·6	1st	72·0	27th & 28th.	28·6
21	United Provinces (Central.)	Cawnpore	416	29·177	−·014	29·546	29·269	11th	29·01$_7$	7th	·252	82·5	91·2	+1·3	79·1	+0·8	85·2	+1·1	12·1	105·4	1st	75·0	9th, 27th & 29th.	30·4
		Mainpuri	516	29·090	?	29·562	29·171	11th	28·947	7th	·224	82·0	91·1	+0·3	78·4	0	84·8	+0·2	12·7	97·3	1st, 4th & 19th.	75·0	14th	22·3

Note 1.—When a query is inserted against any reading or in the variation

Note 2.—The divisional means of the figure columns Nos. 41, 43 and 45

I—*continued.*

in India, Burma, etc., in August, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 31st August.	Variation from normal of period, 1st May to 31st August 1903.	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	56	57	58
14		5	6	3	2	1			S 85° E	2·9	3·4			83		·945		6·7		16	16·66	− 0·66	11·58	11·66	− 0·08	27·39	38·74	−11·35	2·79	Bankura .	Central Bengal	11
27			2	2					S 72° E	1·0				90		·945		6·6		13	16·00	− 3·00	8·92	13·01	− 4·09	23·78	40·86	−17·08	2·23	Raniganj.		
2		2	7	3	8	7	2		S 16° E	3·4	3·3	3·6	− 8	89	+2·5	·965	+·022	8·6	−0·1	16	16·48	− 0·48	14·15	11·25	+ 2·90	36·88	40·00	− 3·12	3·40	Burdwan.		
8		1	6	7	5	2	1	1	S 42° E	3·0	3·3			88		·934		9·2		19	18·23	+ 0·77	12·78	13·41	− 0·63	27·83	41·11	−13·28	1·60	Naya Dumka.		
3			6	6	7	7	1	1	S 14° E	4·6	4·2	4·2	0	91	−1·2	·975	−·012	9·1	+1·2	17	16·30	+ 0·61	9·10	11·71	− 2·61	25·18	37·17	−11·99	1·68	Berhampore.		
13		1	2	4	8	2	1		S 14° E	4·5	4·6			88		·970		7·0		15	14·68	+ 0·32	9·58	10·53	− 0·95	28·46	38·23	− 9·77	3·03	Rampur Boalia.		
	1	1	8	12	7	2			S 47° E	6·5	6·0			88		·956		8·3		15	14·48	+ 0·52	7·04	10·27	− 3·23	25·78	35·08	− 9·30	1·68	Malda.		
15			10	1	4	1			S 63° E	3·8	3·3			90	+1·2	·964	−·001	8·5	+1·3	15	15·90	− 0·90	11·96	11·62	+ 0·34	46·32	45·20	+ 1·12	2·60	Bogra.		
		4	9	10	5	2	1		S 57° E	2·7	2·6			90	−0·1	·974	+·011	9·0	+1·0	16	15·71	+ 0·29	13·58	14·01	− 0·43	47·70	50·01	− 2·31	3·40	Dinajpur .	North Bengal.	12
8		2	11	3	4	2	1		S 63° E	2·7	2·8			91		·972		7·0		14	13·35	+ 0·65	12·88	13·02	− 0·14	58·43	59·35	− 0·92	3·34	Rangpur.		
	2	7	9	7	2	3	1		S 83° E	0·8	1·0			93	+1·3	·933	−·013	6·0	−2·3	29	18·38	+10·62	39·16	24·87	+14·29	90·93	93·15	− 2·22	6·16	Jalpaiguri.		
11			10	7	1	2			S 63° E	1·6	1·6			91		·964		8·9		21	16·72	+ 4·28	26·61	20·42	+ 6·19	99·30	93·41	+ 5·89	4·06	Cooch Behar.		
12		1	9	8		1			S 68° E	2·9	2·5	2·3	+ 9	92	+2·4	·991	+·011	7·0	−0·6	18	16·57	+ 1·43	12·22	14·40	− 2·18	36·76	43·75	− 6·99	1·76	Purnea .	North Bihar.	17
8	2	1	1		5	14			S 34° W	5·7				86	−2·8	·950	?	5·8	−2·5	11	16·03	− 5·03	9·51	11·34	− 1·83	33·99	40·31	− 6·32	2·45	Balasore .	Orissa.	14
2			2	1	2	14	10		S 53° W	10·5	10·9	9·5	+15	86	−1·7	·979	+·020	8·6	+0·3	17	16·16	+ 0·84	12·04	13·68	− 1·64	33·48	39·10	− 5·62	3·08	False Point.		
7		3	2		2	12	5		S 48° W	2·8		2·6	+ 8	83	+0·1	·925	+·033	6·6	−1·0	17	16·19	+ 0·81	13·09	13·20	− 0·11	38·08	39·72	− 1·64	5·14	Cuttack.		
8		2			1	19		1	S 47° W	17·5	16·5			88		1·006		6·0		14	12·85	+ 1·15	7·17	12·13	− 4·96	25·32	32·97	− 7·65	1·52	Puri.		
														87	−0·7	·934	+·001	7·2	+0·3				12·41	12 09	+0·32					**V.—Gangetic Plain and Chota Nagpur.**		
2	1		5	3	4	9	5	2	S 31° W	7·5	6·7	7·5	−11	83	− 5·9	·775	−·028	9·9	+1·1	13	17·77	− 4·77	13·18	12·60	+ 0·58	26·69	38·45	−11·76	2·84	Hazaribagh .	Chota Nagpur.	15
		4	5	1	5	7	6	3	S 40° W	7·4	8·7			89	?	·800	+·001	8·9	+0·9	17	17·81	− 0·84	8·90	11·27	− 2·37	28·95	39·52	−10·57	1·99	Ranchi.		
17		3	5		2	4			S 63° E	4·1	3·6			82		·864		4·1		13	15·74	− 2·74	6·11	12·11	− 6·00	14·04	31·76	−17·72	1·47	Daltonganj .	South Bihar.	16
4		4	4	5	5	3	5	1	S 23° E	3·8	4·7			88		·905		6·4		20	16·52	+ 3·48	10·66	12·30	− 1·64	24·55	37·52	−12·97	1·47	Purulia.	Chota Nagpur .	15
19		3	2			4	3		S 63° W	1·2	1·0			87	−0·1	·905	+·002	5·6	−2·1	12	16·94	− 4·94	9·63	11·77	− 2·14	27·57	36·96	− 9·39	2·94	Chalbassa.		
5		8	3	2	3	6	3	1	S 45° E	4·4	3·5	2·6	+35	82	−4·4	·928	−·003	6·9	−1·1	14	14·26	− 0·26	9·33	13·18	− 3·85	17·24	35·26	−18·02	2·86	Gaya.	South Bihar .	16
1	1	1	10	1	7	5	3	2	S 27° E	7·8	7·0			85		·941		7·6		15	14·44	+ 0·56	11·98	12·92	− 0·94	18·25	31·91	−13·66	2·97	Dehri.		
1		3	10	8	1	4	4		S 58° E	6·7	7·5	3·2	+134	89	+2·5	·990	+·021	8·6	−0·3	12	13·52	− 1·52	8·19	12·58	− 4·09	14·70	35·71	−21·01	2·70	Patna.		
5	1	7	2	9		4	1	2	S 76° E	3·5	3·5			87		·961		4·6		17	12·87	+ 4·13	11·40	10·50	+ 0·90	17·38	32·27	−14·89	1·37	Arrah.		
2			12	6		5	6		S 41° E	5·6	5·3			87		·938		7·4		15	13·35	+ 1·65	14·12	11·29	+ 2·83	22·52	29·33	− 6·81	2·05	Buxar.		
11		1	3	3	2	2			S 39° E	2·7*	2·5*			87		·968		7·3		13	13·32	− 0·32	8·15	11·26	− 3·11	20·38	34·55	−14·17	1·75	Bhagalpur .	North Bihar.	17
4			11	11	1	1	2	1	S 59° E	2·8		4·4	−36	90	+1·5	·978	+·006	8·1	+1·3	13	14·07	− 1·07	9 44	13·66	− 4·22	27·81	36·68	− 8·87	1·54	Darbhanga.		
10		3	10	6	1			1	S 83° E	3·6				91		·987		5·1		13	13·03	− 0·63	12·89	10·64	+ 2·25	26·77	32·19	− 5·42	2·81	Muzaffarpur.		
3		3	18	3		3	1		S 84° E	5·9	5·7			90		·961		7·1		15	12·97	+ 2·03	20·90	12·23	+ 8·67	38·66	36·27	+ 2·39	3·45	Motihari.		
6		1	11	7	2	4			S 57° E	4·4	3·9			88		·974		7·4		15	12·61	+ 2·39	11·91	9·74	+ 2·17	18·14	28·77	−10·63	2·15	Chapra.		
6		1	7	3	3	6	3	2	S 9° E	3·6	4·1	4·2	− 2	85	−3·8	·958	−·005	7·6	−0·4	15	13·40	+ 1·60	10·46	12·05	− 1·59	14·92	30·37	−15·45	2·61	Benares .	United Provinces, East.	18
2	2	4	5	3	1	3	6	5	N 29° W	6·3	5·6	5·6	0	84	−3·2	·935	−·019	8·5	−0·2	11	11·80	− 0·80	18·03	12·03	+ 6·00	23·16	30·89	− 7·73	9·00	Allahabad.		
9	3	7	5	1	5	1			N 80° E	2·0		2·3	−13	89	+1·5	·961	+·006	9·3	+3·4	14	14·10	− 0·10	21·07	13·24	+ 7·83	38·19	37·42	+ 0·77	7·03	Gorakhpur .	United Provinces (East Submontane)	23
5	2	6	7	6	1	1	2	1	N 85° E	2·1	2·3	3·0	−23	87	−0·5	·951	?	7·0	+0·1	17	14·20	+ 2·80	16·14	11·83	+ 4·31	26·59	30·08	− 3·49	2·44	Lucknow .	South Oudh.	19
10		1	12	5	1	1	1		S 72° E	4·3	4·0			90	+2·5	·961	+·006	6·7	+0·7	17	12·70	+ 4·30	22·79	16·80	+ 5·99	30·40	37·14	+ 2·26	5·13	Bahraich .	North Oudh.	20
1	1	2	11	3	5	3	5		S 48° E	4·2				87	0	·960	+·006	7·8	+0·3	11	12·30	− 1·30	8·45	11·96	− 3·51	12·60	27·32	−14·72	2·50	Cawnpore .	United Provinces (Central).	21
26	1	1	2	1					N 73° E					86	+1·4	·950	+·017	7·0	+0·2	15	10·90	+ 4·10	8·90	10·13	− 1·23	14·52	24·04	− 9·52	1·33	Mainpuri.		

returns of any station, the data for that station are not utilized in calculating the provincial variations.
are derived only from the data available.

* Mean of 22 days.

Table

Abstract of Observations taken at 8 A.M. at 232 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 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								92·4	−0·3	78·1	+0·7	85·3	+0·2	14·4					28·2
24	United Provinces, (West Submontane).	Bareilly	568	29·027	−·009	29·557	29·108	20th	28·890	7th	·218	81·1	88·7	−1·2	78·0	0	83·4	−0·6	10·7	94·4	4th	70·1	26th.	24·3
		Dehra Dun	2,233	27·410	−·014	29·575	27·505	20th	27·284	12th & 13th.	·221	76·1	83·9	−0·1	73·1	0	78·5	−0·1	10·8	90·0	1st	69·5	14th & 27th,	20·5
		Roorkee	899	28·702	−·009	29·563	28·788	20th	28·578	12th	·210	81·0	88·8	−1·9	77·4	+0·4	83·1	−0·8	11·4	94·3	3rd	69·7	26th	24·6
22	United Provinces, West.	Meerut	738	28·848	−·017	29·548	28·928	20th	28·729	7th	·199	81·1	90·0	−0·9	78·3	0	84·2	−0·5	11·7	96·6	3rd	70·3	26th	26·3
26	South-East Punjab.	Delhi	718	28·867	−·017	29·543	28·941	15th	28·759	7th	·182	82·8	91·6	−0·2	79·7	+0·4	85·7	+0·1	11·9	99·2	3rd	71·8	26th	27·4
28	Central Punjab.	Lahore	702	28·862	−·011	29·525	28·949	15th	28·676	13th	·273	85·3	97·4	−0·8	79·8	+2·0	88·6	+0·6	17·6	104·4	23rd	70·9	26th	33·5
27	South Punjab	Sirsa	662	28·911	−·011	29·529	28·997	15th	28·776	13th	·221	86·0	98·3	−0·1	81·3	+1·1	89·8	+0·5	17·0	107·3	23rd	76·6	25th & 26th.	30·7
		Patiala	818	28·766		29·545	28·861	15th	28·634	13th	·227	82·8	92·5		77·8		85·2		14·7	98·0	19th	70·1	26th	27·9
29	Punjab (Submontane).	Ludhiana	812	28·765	−·012	29·539	28·853	15th	28·619	13th	·234	83·0	94·0	−1·0	79·2	+0·2	86·6	−0·4	14·8	100·0	2nd	70·6	25th & 27th	29·4
		Sialkot	830	28·738	−·015	29·530	28·828	15th	28·550	13th	·278	84·2	96·1	+1·4	80·0	+2·3	88·1	+1·9	16·1	102·7	2nd & 8th.	73·1	4 days.	29·6
		Umballa	892	28·698	?	29·550	28·789	20th	28·576	12th	·213	81·5	92·2	−0·6	76·5	?	84·4	?	15·7	98·0	1st & 3rd.	68·2	26th	29·8
		Rawalpindi	1,674	27·920	−·011	29·548	28·019	15th	27·710	13th	·309	82·3	95·3	+1·4	75·5	+0·3	85·4	+0·9	19·8	103·0	2nd & 24th.	68·1	5th & 26th.	34·9
	VII.—Indus Valley and North-West Rajputana.				-·012								98·8	+1·3	80·6	+0·9	89·8	+1·1	18·3					32·4
32	N.-W. Frontier Province.	Peshawar	1,110	28·467	−·012	29·542	28·555	17th	28·239	13th	·316	86·0	101·9	+2·7	77·5	−0·3	89·7	+1·2	24·4	109·0	2nd & 13th.	70·9	17th & 26th.	38·1
		D. I. Khan	590	28·967	−·011	29·500	29·094	15th	28·753	13th	·341	85·1	97·9	−3·2	80·0	−1·0	89·0	−2·1	17·9	105·2	2nd	72·1	26th.	33·1
31	West Punjab	Khushab	612	28·951	?	29·525	29·062	15th	28·758	13th	·304	86·1	98·8	−1·4	80·9	+0·1	89·9	−0·7	17·9	106·3	13th	69·9	26th	
		Montgomery	558	28·996	−·005	29·510	29·084	15th	28·819	13th	·265	89·1	102·3	+0·3	82·0	+0·4	92·2	+0·4	20·3	113·8	23rd	0	27th	40·8
		Mooltan	420	29·111	−·021	29·493	29·223	17th	28·915	13th	·308	87·6	102·1	+1·4	83·2	+1·1	92·7	+1·3	18·9	108·9	22nd	73·5	26th	35·4
7	Sind	Jacobabad	186	29·352	−·014	29·496	29·461	15th	29·156	13th	·305	88·4	107·2	+3·4	83·7	+2·3	95·5	+2·9	23·5	111·8	23rd	76·7	30th	35·1
		Hyderabad	96	29·474	−·019	29·522	29·559	15th & 18th.	29·318	13th	·241	84·3	99·6	+4·1	80·1	+1·4	89·9	+2·8	19·5	102·6	19th	72·5	31st	30·1
		Kurrachee	30	29·608	0	29·589	29·706	18th	29·489	13th	·217	83·5	91·4	+3·2	80·8	+2·1	86·1	+	10·6	95·4	4th	77·2	28th & 31st,	18·2
51	West Rajputana	Bikaner	771	28·812	−·010	29·542	28·911	15th	28·677	13th	·234	85·7	97·9	+0·8	82·2	+1·6	90·1	+1·2	15·7	106·6	23rd	76·0	5th	30·6
		Pachpadra	380	29·255	?	29·591	29·348	15th	29·154	13th	·194	81·9	94·8	−0·1?	77·8	+0·5	86·3	+0·2?	17·0	103·0	31st	72·0	5th	31·0
		Jodhpur	782	28·853		29·612	28·949	15th	28·741	13th	·208	81·2	93·4		78·3		85·9		15·1	102·7	31st	75·3	1st	27·4
	VIII.—East Rajputana, Central India and Gujarat.				-·006								88·2	+0·2	77·0	+0·9	82·6	+0·6	11·2					20·3
50	East Rajputana	Jaipur	1,431	28·212	−·003	29·595	28·301	15th	28·098	7th	·203	80·1	90·9	−0·6	76·7	+0·6	83·8	0	14·2	99·2	20th	74·1	16th	25·1
		Bharatpur	585	28·956?		29·498?	29·061	31st	28·900	3rd & 8th.	·161	82·6	92·3		78·9		85·7		13·4	100·9	1st	74·4	25th	26·5
		Kotah	819	28·794		29·609	28·886	15th	28·691	7th	·195	81·6	88·4		77·9		83·2		10·5	95·5	3rd	74·1	9th & 20th.	21·4
		Sambhar	1,254	28·378	?	29·587	28·462	15th	28·281	7th	·181	81·2	91·5	+0·2	77·4	+0·2	84·5	+0·2	14·1	100·5	31st	75·4	5 days	25·1
		Ajmer	1,611	28·035	−·010	29·602	28·131	15th	27·946	3rd	·185	79·2	86·8	−1·4?	77·0	+1·7	81·9	+0·2?	9·8	94·1	31st	74·1	9th	20·3
		Udaipur	1,925	27·758		29·631	27·848	15th	27·677	1st	·171	77·7	85·1		73·8		79·5		11·3	90·5	31st	71·3	17th, 28th & 29th,	19·2
		Deesa	466	29·210	−·001	29·631	29·298	11th	29·108	3rd	·190	80·2	90·1	+1·2	77·1	+1·5	83·7	+1·4	13·0	97·1	31st	74·5	29th	22·6
46	Kathiawar and Cutch.	Bhuj	395	29·274	+·004	29·621	29·361	18th	29·164	13th	·197	81·2	89·3	+0·6	77·3	+1·1	83·3	+0·9	12·0	94·3	31st	74·9	29th & 30th.	19·4
		Jamnagar	61	29·623*		29·630*	29·710	18th	29·518	1st	·192	81·6	88·3		77·0		82·7		11·3	91·0	4 days	75·2	4 days	15·8
		Rajkot	429	29·273	−·001	29·655	29·357	11th	29·153	1st	·204	79·7	89·1	+0·2	75·0	+0·5	82·2	+0·4	12·1	94·4	31st	71·8	29th	22·6
		Veraval	18	29·709	−·015	29·669	29·787	23rd	29·594	1st	·193	80·9	83·2	+1·1	79·2	+1·5	81·6	+1·3	4·6	86·1	16th, 17th & 18th.	76·3	30th	9·8
		Dwarka	37	29·656		29·638	29·740	18th	29·554	1st	·186	81·7	85·4		79·3		82·4		6·1	87·4	16th	76·2	11th	11·2
		Bhavnagar Para.	55	29·659*		29·658*	29·753	23rd	29·534	2nd	·219	81·1	90·7	−2·1?	76·6†	?	83·6†	?	14·1	94·6	18th & 31st.	76·5	30th	24·1
4	Central India	Nowgong	757	28·854	−·016	29·566	28·966	11th	28·699	7th	·267	80·4	87·8	−0·1	77·8	+1·1	82·8	+0·5	10·0	98·0	1st	74·5	25th	23·5
		Indore	1,823	27·882	+·005	29·658	27·985	11th	27·798	1st	·187	74·8	83·3	+0·4	71·8	+0·5	77·6	+0·5	11·5	88·3	3rd & 19th.	69·1	14th	19·2

* Mean of 30 days.

† Mean of 29 days.

Note 1.—When a query is inserted against any reading or in the variation

Note 2.—The divisional means of the figure columns Nos. 41, 43 and 45

I—*continued.*

in India, Burma, etc., in August, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 31st August.	Variation from normal of period, 1st May to 31st August 1903.	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	56	57	58
														82	+0·3	·903	+·021	4·9	−1·2				8·75	10·72	−1·50					**VI.—Upper Sub-Himalayas.**		
10		2	12	4		1	2		S 81° E	2·5	2·4	3·6	− 33	90	+2·2	·959	+·032	7·0	+0·1	15	12·18	+2·82	10·62	14·43	− 3·81	18·06	36·62	−18·56	2·63	Bareilly	United Provinces (West Submontane).	24
15		1	1	3	2	6	2	1	S 24° W	1·1		1·1	0	89	−1·3	·808	+·008	7·3	−1·0	18	21·30	−3·30	25·24	30·68	− 5·44	42·81	71·21	−28·40	6·09	Dehra Dun.		
4		1	2	15	2	2	1	4	S 38° E	3·1*		2·5	+ 24	86	+0·5	·906	+·028	5·8	−0·9	10	12·10	−2·10	13·58	13·09	+ 0·49	28·53	31·83	− 3·30	5·22	Roorkee.		
14			12			1	3	1	E	1·3	1·3	2·1	− 38	85	+3·7	·908	P	6·2	−0·7	9	9·40	−0·40	7·20	9·30	− 2·10	16·01	22·74	− 6·73	2·19	Meerut .	United Provinces, West.	22
10		2	3	7	2		4	3	S 45° E	3·0	2·7	4·1	− 34	79	+1·4	·892	+·031	5·5	−1·2	6	9·30	−3·30	3·27	8·52	− 5·25	9·10	21·13	−12·03	1·18	Delhi .	South-East Punjab,	26
6	2	2	1	14	2	1	1	2	S 48° E	2·9		2·9	0	77	+2·3	·946	+·056	2·9	−0·9	5	5·28	−0·20	5·31	5·30	+ 0·01	10·82	14·17	− 3·35	2·68	Lahore .	Central Punjab,	28
2	1		2	8	1	8	8	1	S 39° W	5·3	4·8	4·6	+ 4	73	+2·2	·902	+·047	2·4	−2·3	5	4·80	+0·20	2·42	3·87	− 1·45	12·27	10·51	+ 1·76	1·41	Sirsa .	South Punjab.	27
2	1		3	15	3	1	1	5	S 39° E	5·3	5·4			84		·944		5·8		8			3·57			9·51			1·12	Patiala.		
5		2		15	1	2	2	4	S 33° E	3·5	3·1	1·4	+121	80	+0·8	·907	+·015	3·2	−3·1	8	7·30	+0·70	8·36	6·35	+ 2·01	15·10	19·25	− 4·15	2·65	Ludhiana .	Punjab (Submontane),	29
7	2	4	8	6	2	1		1	S 84° E	2·6		2·3	+ 13	78	−1·0	·905	+·013	3·1	−1·1	8	8·40	−0·40	9·19	9·69	− 0·50	26·59	21·81	+ 4·78	3·33	Sialkot.		
18			1	10			1	1	S 45° E	5·7				87	−1·4	·945	+·004	6·2	P	8	7·90	+0·10	8·30	8·03	+ 0·27	18·30	22·70	− 4·40	1·75	Umballa.		
27	1	1	2						N 57° E	1·4	1·3	1·6	− 19	73	−6·5	·813	−·026	3·0	−1·2	9	8·00	+1·00	7·98	8·70	− 0·72	15·45	20·71	− 5·26	2·81	Rawalpindi.		
														72	+1·1	·873	+·032	3·1	−0·7				2·75	2·57	+0·18					**VII.—Indus Valley and North-West Rajputana.**		
7	10	3				1	1	9	N 18° W	2·0	2·2	4·0	− 45	65	−5·9	·806	−·017	2·0	−1·3	1	2·30	−1·30	1·00	2·36	− 1·36	3·68	5·07	− 1·39	1·00	Peshawar .	N.-W. Frontier Province.	32
12	3	10		2	1	2	1		N 43° E	1·5	1·6	2·1	− 23	79	+4·8	·947	+·028?	1·9	−0·3	5	2·40	+2·60	9·05	1·63	+ 7·42	12·73	5·00	+ 7·73	4·95	D. I. Khan		
1	1	13	10	2		3	1		N 68° E	8·4	7·1			70	+0·9	·874	+·015	2·3	−0·5	4	2·80	+1·20	3·67	2·73	+ 0·94	8·94	9·75	− 0·81	1·15	Khushab .	West Punjab .	31
3	3	1	2	9	9	4			S 23° E	6·9‡	6·4‡			61	?	·829	?	2·7	+0·1	5	3·20	+1·80	1·25	2·99	− 1·74	7·28	6·88	+ 0·40	0·53	Montgomery.		
10		3		16	1	1			S 50° E	1·4	1·7	3·2	− 47	70	+2·4	·908	+·040	2·0	−0·1	4	2·30	+1·70	2·21	2·02	+ 0·19	6·44	5·35	+ 1·09	1·20	Mooltan.		
11		2	2	10	6				S 42° E	2·8	2·9	4·0	− 28	76	+5·5	1·008	+·123	2·1	0	0	1·90	−1·90	0	1·13	− 1·13	2·77	2·60	+ 0·17	0	Jacobabad	Sind . . .	47
						31			S 45° W	13·0	13·5	13·8	− 2	64	?	·748	?	3·6	−1·5	0	2·40	−2·40	0	2·40	− 2·40	4·94	5·66	− 0·72	0	Hyderabad.		
						11	18	2	S 77° W	13·7	17·1	17·2	− 1	82	−0·6	·942	+·040	4·8	−3·0	0	1·90	−1·90	0	1·77	− 1·77	3·56	6·14	− 2·58	0	Kurrachee.		
			1		4	11	11	2	S 56° W	9·9		6·2	+ 60	69	+0·3	·838	+·008	4·5	0	5	4·90	+0·10	2·44	3·12	− 0·68	7·70	9·09	− 1·39	0·90	Bikaner .	West Rajputana	51
				1	14	12	3	1	S 28° W	9·9	8·6	9·7	− 11	80	+1·0	·873	+·018	1·4	?	4	4·90	−0·90	4·96	3·56	+ 1·40	8·28	10·31	− 2·03	2·47	Pachpadra.		
				5	14	12			S 56° W	7·6	6·8			78		·834		7·2		5	5·90	−0·90	5·68	4·56	+ 1·12	15·38	10·51	+ 4·87	2·24	Jodhpur.		
														85	+2·5	·875	+·038	7·2	+0·4				8·25	7·32	+1·32					**VIII.—East Rajputana, Central India and Gujarat.**		
2	1	3	1			9	11	4	S 89° W	4·1		5·5	− 25	82	+3·4	·842	+·029	7·4	+0·5	10	11·60	−1·60	11·79	8·89	+ 2·90	18·10	20·70	− 2·60	5·16	Jaipur .	East Rajputana.	50
15	1	4	3	1	1	3	2	1	N 63° E	3·4	3·1			91		1·012		4·5		9			7·46			13·91			3·40	Bharatpur.		
2	1	1		1		10	9	7	S 87° W	5·8	4·6			79		·855		5·3		14	10·60	+3·40	14·01	8·92	+ 5·09	26·65	23·45	+ 3·20	4·17	Kotah.		
4			1		1	2	18	5	N 87° W	6·8		8·1	− 16	77	+0·5	·721	?	6·1		12	9·40	+2·60	5·07	6·77	− 1·70	17·23	16·34	+ 0·89	1·79	Sambhar.		
2		1	1	1		5	14	7	N 86° W	9·2	8·2	5·5	+ 49	85	+3·4	·849	+·050	6·7	+0·4	7	8·90	−1·90	7·33	7·25	+ 0·08	16·48	17·76	− 1·28	2·97	Ajmer.		
4		1		1	1	6	15	3	S 81° W	5·3	4·7			83		·785		6·2		9	8·70	+0·30	8·36			21·05			1·94	Udaipur,		
					7	16	5	3	S 49° W	11·0		12·0	− 3	86	+2·5	·880	+·040	8·5	+0·4	5	10·09	−5·09	3·61	6·67	− 3·06	16·12	19·35	− 3·23	1·44	Deesa.		
					1	9	14	7	S 85° W	16·5	13·9	14·9	− 7	86	+4·5	·908	+·071	8·3	+1·0	5	3·70	+1·30	4·49	2·44	+ 2·05	14·09	12·03	+ 2·06	1·90	Bhuj .	Kathiawar and Cutch.	46
					11	15	5		S 36° W	18·2	22·0			83		·895		5·6		7			9·10			25·19			5·06	Jamnagar.		
						15	15	1	S 70° W	11·4	11·3	11·6	− 3	87	+3·4	·883	+·045	8·7	+1·2	7	6·60	+0·40	8·10	4·52	+ 3·58	19·30	23·17	− 3·87	3·29	Rajkot.		
						10	15	6	S 84° W	19·7	19·7	13·9	+ 42	86	−1·7	·906	+·026	8·3	+0·1	5	8·10	−3·10	2·75	2·30	+ 0·45	20·57	14·79	+ 5·78	1·02	Veraval.		
	1					14	15	1	S 72° W	17·4				85		·924		7·3		6			1·85			22·92			0·28	Dwarka.		
					2	19	2	3	S 65° W	8·5	8·0			80	?	·852	?	8·8	+1·7	7	8·80	−1·80	5·28	4·42	+ 0·86	18·82	14·27	+ 4·55	3·00	Bhavnagar Para.		
3	2	1	3			4	16	2	N 86° W	3·8	3·8	3·4	+ 12	88	+0·7	·915	+·033	8·7	+0·7	14	14·10	−0·10	22·10	13·51	+ 8·59	27·07	36·19	− 9·12	9·74	Nowgong .	Central India	49
	1					1	6	23	N 54° W	7·6	6·2	6·1	+ 2	90	+0·9	·788	+·022	9·7	+0	13	10·60	+2·40	8·43	7·56	+ 0·87	33·15	23·50	+ 9·65	2·68	Indore.		

returns of any station, the data for that station are not utilized in calculating the provincial variations.
are derived only from the data available.

‡ Mean of 18 days.

Table

Abstract of Observations taken at 8 A.M. at 232 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 pressures (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	28·049	−·001	29·635	28·147	11th	27·960	3rd	·187	76·8	85·4	+0·4	73·8	+1·3	79·6	+0·9	11·6	92·0	31st	72·2	5 days	19·8
45	Gujarat	Surat	39	29·688*	−·011*	29·670*	29·780	11th	29·566	1st	·214	80·2	86·8	−0·2	77·0	+0·5	81·9	+0·2	9·8	91·6	19th	74·5	21st	17·1
		Ahmedabad	163	29·535	−·008	29·646	29·622	11th	29·417	1st	·205	80·9	90·1	0	78·0	+0·9	84·0	+0·5	12·1	94·2	31st	75·6	13th	18·6
22	United Provinces, West.	Agra	555	29·037	?	29·548	29·118	11th & 15th.	28·904	7th	·214	82·8	90·8	−0·3	79·9	+1·1	85·4	+0·4	10·9	99·0	1st	76·4	25th	22·6
21	United Provinces, Central.	Jhansi	858	28·762	−·009	29·574	28·866	11th	28·611	7th	·255	80·7	88·4	−0·5	78·1	+1·0	83·3	+0·3	10·3	95·2	23rd	74·1	9th & 25th,	21·1
	IX.—Deccan.				−·006								85·5	+0·3	72·6	+0·4	79·1	+0·4	12·9					21·2
38	Bombay Deccan.	Belgaum	2,539	27·283	−·006	29·763	27·337	11th	27·208	30th	·129	70·0	76·3	+0·2	66·2	0	71·3	+0·1	10·1	81·3	11th & 12th.	63·9	13th	17·4
		Sholapur	1,590	28·186	−·014	29·729	28·278	11th	28·090	1st	·188	75·8	87·4	−1·4	71·0	+0·4	79·2	−0·5	16·4	94·2	14th	69·0	5 days	25·2
		Poona	1,840	27·939	−·010	29·732	28·027	11th	27·833	1st	·194	73·6	82·0	+0·1	70·2	+0·7	76·1	+0·4	11·8	87·0	15th	67·9	11th	19·1
		Bijapur	1,948	27·847	−·011	29·741	27·919	11th	27·763	1st	·156	74·1	86·4	+0·3	69·5	−0·4	78·0	−0·1	16·9	91·9	11th & 15th.	67·3	10th	24·6
40	Khandesh	Malegaon	1,430	28·301	−·011	29·082	28·398	11th	28·194	1st	·204	78·0	88·5	+1·9	72·8	+1·3	80·7	+1·6	15·7	93·9	12th & 16th.	69·0	11th & 15th,	24·9
		Ahmednagar	2,152	27·632	−·007	29·726	27·726	11th	27·536	1st	·190	74·2	84·4	−0·4	69·0	0	76·7	−0·2	15·4	89·9	16th & 18th.	65·0	11th	24·9
41	Berar	Akola	930	28·783	−·006	29·665	28·885	11th	28·682	1st	·203	78·3	87·3	+0·1	73·6	+0·3	80·5	+0·2	13·7	93·9	17 th & 18t	70·3	9th	23·6
		Amraoti	1,215	28·490	+·001	29·661	28·600	11th	28·380	1st	·220	77·1	86·1	0	73·6	+1·0	79·9	+0·5	12·5	93·4	15th	71·5	9th	21·9
42	Central Provinces, West.	Khandwa	1,044	28·652	−·007	29·655	28·757	11th	28·558	1st	·199	77·7	86·6	+1·1	74·7	+0·6	80·7	+0·9	11·9	94·2	18th	71·6	3rd	22·6
		Hoshangabad	1,006	28·678	0	29·646	28·793	11th	28·575	1st	·218	77·6	86·7	+1·7	75·3	+1·5	81·0	+1·6	11·4	91·8	30th	72·2	31st	19·6
		Nagpur	1,025	28·656	+·003	29·640	28·783	11th	28·544	3rd	·239	78·5	87·7	+0·7	75·2	+0·6	81·5	+0·7	12·5	93·1	12th	73·1	18th & 25th,	20·0
43	Central Provinces, Central.	Chanda	634	29·070	−·002	29·650	29·177	11th	28·933	30th	·243	78·5	87·0	−0·6	75·1	+0·1	81·1	−0·3	11·9	92·7	10th & 13th.	72·5	19th	20·2
		Seoni	2,033	27·651	−·001	29·615	27·784	11th	27·536	3rd	·248	76·2	83·8	+0·7	72·5	+0·9	78·2	+0·8	11·3	88·3	15th	70·5	25th & 27th.	17·8
		Jubbulpore	1,327	28·315	−·007	29·595	28·447	11th	28·151	3rd	·296	77·6	85·6	+0·9	74·1	+0·2	79·9	+0·6	11·5	90·4	17th	71·6	8th & 27th.	18·8
		Saugor	1,807	27·864	+·007	29·619	27·974	11th	27·730	7th	·244	76·2	83·8	+0·2	73·7	+0·9	78·8	+0·6	10·1	89·4	19th	71·1	8th	18·3
49	Central India	Sutna	1,040	28·567	−·015	29·564	28·697	11th	28·402	7th	·295	79·8	87·2	+1·3	77·6	+1·7	82·4	+1·5	9·6	97·0	3rd	73·1	8th	23·9
44	Central Provinces, East.	Raipur	970	28·682	−·007	29·601	28·811	11th	28·540	2nd	·271	78·6	85·7	−0·2	75·0	+0·1	80·4	−0·1	10·7	90·1	30th	72·3	28th	17·8
		Pendra	...	27·618?		29·581?	27·752	11th	27·471	3rd	·281	76·2	84·4		72·4		78·4		12·0	88·8	2nd	69·6	8th	19·2
		Sambalpur	486	29·167	−·003	29·600	29·298	11th	28·984	2nd	·314	81·0	88·5	+1·3	77·7	+0·5	83·1	+0·9	10·8	91·6	4th	75·1	7th & 17th,	16·5
39	Hyderabad (North).	Aurangabad	1,905	27·836†		29·685†	27·926	11th	27·716	30th	·180	74·3	84·2		69·3		76·7		14·9	88·8	5 days.	66·7	9th & 13th,	22·1
		Indur	...	28·449			28·543	16th	28·309	1st	·234	76·2	85·1		73·3		79·2		11·8	89·8	15th & 16th,	71·2	18th & 19th.	18·6
		Bidar	2,165	27·632		29·740	27·711	10th	27·498	2nd	·213	73·5	82·4		69·3		75·9		13·1	87·5	10t h& 11th,	64·3	1st	23·2
53	Hyderabad (South).	Gulbarga	1,503	28·278	−·007	29·737	28·349	11th	28·178	1st	·171	74·9	87·0	−1·3	70·7	−0·4	78·9	−0·9	16·3	93·5	11th	68·3	8th	25·2
		Raichur	1,326	28·460	−·010	29·742	28·522	10th	28·370	29th	·152	76·3	88·3	−0·2	71·9	−0·6	80·1	−0·4	16·4	94·1	10th	69·6	19th	24·5
		Hyderabad (Deccan).	1,690	28·070	−·009	29·712	28·147	9th	27·965	1st	·182	74·7	84·2	−1·9	71·9	?	78·1	?	12·3	89·4	10th & 11th.	69·2	20th	20·2
		Secunderabad	1,787	27·976	?	29·718	28·056	9th	27·875	1st	·181	74·5	85·6	−0·5	71·0	−0·3	78·3	−0·4	14·6	91·6	10th & 11th.	69·0	20th	22·6
		Hanumkonda.	871	28·849		29·666	28·945	1th	28·725	29th	·220	78·6	86·7		74·8		80·8		11·9	92·0	12th	70·3	17th	21·7
	X.—West Coast.				−·011								83·0	0	75·5	+0·6	79·3	+0·3	7·5					13·0
37	Konkan	Bombay	37	29·743	−·014	29·720	29·830	11th	29·630	1st	·200	80·0	84·4	+0·4	77·8	+0·8	81·2	+0·6	6·6	87·0	15th, 16th & 18th.	74·0	21st	13·0
		Ratnagiri	110	29·710	?	29·758	29·775	11th	29·627	1st	·148	78·6	83·2	−0·5	75·5	+0·3	79·4	−0·1	7·7	85·3	11th, 12th & 13th.	72·4	16th	12·9
		Mormugao	60	29·785	−·011	29·780	29·835	11th & 23rd.	29·710	30th	·125	78·6	83·4	0	75·9	+0·1	79·6	+0·1	7·5	86·0	27th & 28th,	73·4	18th	12·6
		Goa	199									78·3	80·7	−1·2	76·5	+0·7	78·6	−0·3	4·2	83·0	13th	74·0	17th, 18th & 20th.	9·0
		Karwar	44	29·808	−·011	29·784	29·861	24th	29·724	30th	·137	78·5	82·3	−0·2	74·6	0	78·5	−0·1	7·7	84·7	14th	72·5	18th & 20th,	12·2
33	Malabar	Cochin	10	29·897	−·010	29·835	29·943	15th	29·831	30th	·112	78·1	84·7	+1·0	74·8	+0·5	79·8	+0·8	9·9	87·3	28th	72·7	14th	14·6
		Calicut	27	29·863	−·012	29·824	29·913	16th	29·801	30th	·112	74·2	83·4	+0·6	75·3†	+1·2†	79·4†	+0·9	8·1	86·8	27th	71·2	29th	15·6
		Mangalore	65	29·819	−·014	29·816	29·857	23rd	29·745	30th	·112	74·5	82·5	−0·3	74·2	+0·2	78·4	−0·1	8·3	84·7	4th & 27th,	72·4	15th & 20th,	12·3
		Trivandrum	198	29·693	−·008	29·828	29·758	16th	29·628	29th	·130	76·9	82·5	+0·2	74·9	+1·9	78·7	+1·1	7·6	86·0	5th	71·0	17th	15·0

Note 1.—When a query is inserted against any reading or in the variation

Note 2.—The divisional means of the figure columns Nos. 41, 43, and 45

* Mean of 30 days. † Mean of 25 days. ‡ Mean of 29 days.

I—*continued.*

in India, Burma, etc., in August, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 31st August.	Variation from normal of period, 1st May to 31st August 1903.	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	56	57	58
1	1	1				11	16	1	S 77° W	10·8	9·7	11·9	− 18	93	+8·5	·866	+·090	7·5	+0·7	8	10·50	− 2·50	7·86	9·22	− 1·36	23·77	23·58	+ 0·19	2·18	Neemuch	Central India	49
	1				4	13	9	4	S 66° W	7·8	7·3	13·6	− 46	86	+0·7	·892	+·003	7·9	+0·3	17	12·30	+ 4·70	10·02	7·29	+ 2·73	31·62	31·72	− 3·10	2·51	Surat	Gujarat	45
					1	18	4	8	S 70° W	3·1	5·1			85	+2·0	·889	÷·030	8·0	?	9	10·90	− 1·90	6·35	7·66	− 1·31	23·62	27·02	− 3·40	2·40	Ahmedabad.		
1		4		6	1	11		8	S 88° W	5·5	6·5	4·4	+ 48	84	+1·7	·940	+·027	7·4	+0·8	11	10·00	+ 1·00	10·27	8·14	+ 2·13	14·53	22·20	− 7·67	3·26	Agra	United Provinces, West.	22
3		3	2	1		11	4	4	S 64° W	5·2	5·8	3·9	+ 49	86	+4·1	·898	+·028	3·0	−3·7	12	12·70	− 0·70	10·80	11·61	− 0·81	18·46	30·20	−11·74	2·30	Jhansi	United Provinces, Central.	21
														85	+0·3	·769	+·018	7·2	−0·4				10·46	8·86	+ 1·18					IX.—Deccan.		
						15	15	1	S 70° W	19·1		20·7	− 8	93	+1·0	·684	+·016	8·7	0	20	17·10	+ 2·60	5·12	8·67	− 3·55	36·39	35·06	+ 1·33	0·40	Belgaum	Bombay Deccan.	38
1	1					10	15	4	S 83° W	12·1	14·6	11·0	+ 33	78	+3·3	·696	+·026	7·4	−0·3	8	8·00	0	7·71	6·09	+ 1·62	25·19	15·64	+ 9·55	3·33	Sholapur.		
						3	26	2	S 89° W	14·2		14·0	+ 1	84	+0·7	·696	+·003	7·9	−0·5	10	8·60	+ 1·40	3·51	3·31	+ 0·20	16·11	16·42	− 0·31	1·10	Poona.		
1					1	16	10	3	S 67° W	12·6	12·3			84	+2·5	·707	+·012	6·4	−1·1	7	5·60	+ 1·40	4·11	2·17	+ 1·97	15·13	9·83	+ 5·30	0·80	Bijapur.		
						10	17	4	S 81° W	11·6	13·3	10·0	+ 33	75	−2·3	·728	+·008	7·3	0	4	5·80	− 1·80	2·54	3·55	− 1·01	17·98	13·72	+ 4·26	1·48	Malegaon	Khandesh	40
2						9	10	10	N 88° W	10·1	12·3			79	−3·5	·675	+·013	8·6	+1·4	8	5·20	+ 2·80	2·71	2·29	+ 0·42	22·55	11·15	+11·40	0·61	Ahmednagar.		
						4	19	8	N 84° W	7·3	7·2	7·9	− 9	82	−0·5	·789	+·021	7·9	+0·1	10	8·90	+ 1·10	5·38	6·28	− 0·90	25·11	22·48	+ 2·63	1·64	Akola	Berar	41
			1			7	18	5	S 87° W	10·6	9·4	6·1	+ 54	86	−2·6	·805	+·023	7·2	−0·7	13	10·00	+ 3·00	12·41	6·44	+ 5·97	34·34	23·77	+10·57	3·92	Amraoti.		
						2	7	22	N 60° W	3·1		7·6	+ 7	83	−1·7	·783	+·015	7·8	+0·1	9	10·70	− 1·70	7·05	7·05	0	19·78	22·10	− 2·32	1·32	Khandwa	Central Provinces, West.	42
						31			S 45° W	3·3	3·4	3·4	0	97	+5·6	·818	+·012	8·1	−0·5	17	15·00	+ 2·00	17·62	14·68	+ 2·94	30·52	38·83	− 8·31	2·96	Hoshangabad.		
5	2			2	2	3	11	3	S 86° W	5·4§	4·3	8·0	− 46	84	−1·1	·823	+·013	7·5	−1·2	17	12·60	+ 4·40	14·50	11·06	+ 3·44	47·09	34·96	+ 12·13	2·78	Nagpur.		
19						4	7	1	S 79° W	2·5	2·2	5·4	− 59	85	+2·7	·835	+·036	7·7	−0·7	17	13·60	+ 3·40	14·04	13·90	+ 0·14	45·99	40·40	+ 5·59	2·25	Chanda	Central Provinces, Central.	43
	3	3	1		1	5	9	9	N 66° W	7·3	6·1	4·8	+ 27	88	−1·7	·796	+·01	5·4	−3·1	16	16·40	− 0·40	16·05	12·49	+ 3·56	44·06	40·21	+ 3·85	5·10	Seoni.		
	2	1		1	3	8	12	4	S 78° W	4·4	3·9	4·6	− 15	91	+1·0	·858	+·030	7·1	−1·2	16	16·30	− 0·30	19·90	16·48	+ 3·42	37·66	46·68	− 9·02	4·87	Jubbulpore.		
	1	2	1	1	1	4	19	2	S 88° W	9·0	8·0	4·3	+ 86	87	?	·794	?	7·3	−0·3	15	15·40	− 0·40	9·69	12·97	− 3·28	23·96	37·53	−13·57	2·50	Saugor.		
1	3	2	3	1		7	11	3	N 86° W	6·5	5·9	7·9	− 25	88	+1·1	·898	+·027	9·1	+1·7	18	14·40	+ 3·60	12·55	12·47	+ 0·08	20·68	34·45	−13·77	2·38	Sutna	Central India	49
1	1		4			14	10	1	S 64° W	9·8	11·8	7·3	+ 62	88	−1·3	·854	+·012	7·2	−1·5	15	14·20	+ 0·80	12·01	13·02	− 1·01	28·40	38·73	−10·33	3·07	Raipur	Central Provinces, East.	44
2	4	1	1	3	9	5	2	4	S 33° W	6·3	5·4			88		·801		7·1		19			18·92			35·43			2·91	Pendra.		
	1		1	3	2	15	7	2	S 52° W	4·9	4·8	3·0	+ 60	84	−2·4	·894	+·008	7·6	−0·5	17	17·10	− 0·10	15·37	17·63	− 2·26	31·88	53·42	−18·54	4·42	Sambalpur.		
						4	23	4	W	14·9	14·3			81		·698		7·1		10	9·50	+ 0·50	10·29	5·25	+ 5·01	24·45	19·06	+ 5·39	5·30	Aurangabad.	Hyderabad (North).	39
4		4						23	N 34° W	5·4	4·5			81		·733		6·5		15	14·50	+ 0·50	10·26	10·61	− 0·35	28·51	26·76	+ 1·75	1·95	Indur.		
	2	1			4	13	8	3	S 67° W	8·5	7·2			85		·707		4·5		13	12·50	+ 0·50	9·90	8·39	+ 1·51	29·69	23·93	+ 5·76	2·00	Bidar.		
	2					2	19	8	N 77° W	11·5	11·0			83	+3·2	·715	+·011	7·6	0	12	8·10	+ 3·90	10·86	4·75	+ 6·11	28·83	16·93	+11·90	2·60	Gulbarga	Hyderabad (South).	53
						23	6	1	S 55° W	13·6	12·9			78	0	·707	?	3·7	?	10	8·70	+ 1·30	5·74	6·52	− 0·78	18·32	15·89	+ 2·43	2·14	Raichur.		
2							29		W	7·5	7·3			85	+2·7	·732	+·016	7·0	−0·6	18			10·90	7·61	+ 3·29	27·37	19·70	+ 7·67	2·70	Hyderabad (Deccan).		
	1						17	13	N 69° W	10·5		10·0	+ 5	83		·709		5·8		15	12·00	+ 3·00	10·55	7·61	+ 2·94	27·45	19·70	+ 7·75	3·05	Secunderabad.		
	1				9	8	11	2	S 76° W	10·2*	8·7			81		·796		7·6		14	12·00	+ 2·00	12·33			46·59			3·24	Hanumkonda.		
														89	+0·3	·861	+·005	8·3	+0·6				18·61	17·08	+1·53					X.—West Coast.		
						7	20	4	S 86° W	12·7		15·8	− 20	87	+0·6	·897	+·016	9·2	+0·3	18	19·50	− 1·50	18·76	14·07	+ 4·69	69·39	60·46	+ 8·93	5·03	Bombay	Konkan	37
3			1	3	1	9	10	4	S 67° W	9·6	9·5	10·3	− 8	90	+2·5	·873	−·002	8·0	0	22	23·70	− 1·70	21·16	22·29	− 1·13	90·17	89·62	+ 0·55	3·77	Ratnagiri.		
4	3	2			1	1	3	17	N 44° W	10·3‖				92	+1·6	·905	+·007	8·3	+1·3	23			18·38	18·59	− 0·21	89·31	76·67	+13·24	2·79	Mormugao.		
4	2	6	1		1	4	13		N 77° W					90	+0·7	·877	−·003	9·2	+0·7	25			25·02	19·14	+ 5·88	99·18	82·87	+16·31	3·77	Goa.		
12				1	1	8	8	1	S 66° W	4·9		8·5	− 2·6	85	−2·6	·827	−·007	8·4	+1·1	25	24·00	+ 1·00	28·09	23·91	+ 4·18	124·49	100·95	+23·54	3·75	Karwar.		
6	5	7	6	1		1		5	N 32° E	5·8				87	+1·0	·848	+·007	8·0	+0·9	23	18·60	+ 4·40	24·19	13·47	+ 0·72	87·46	76·06	+11·40	2·16	Cochin	Malabar	33
18	1	2	1	1		2	2	4	N 45° W	3·8‡	4·8‡			90	−0·5	·850	+·016	7·8	+0·5	19	18·80	+ 0·20	17·17	15·80	+ 1·37	92·14	88·24	+ 3·90	2·40	Calicut.		
27			1	1		1		1	S 23° E	1·7		2·9	− 41	91	−0·5	·865	+·010	7·9	−0·6	25	24·40	+ 0·60	21·87	22·26	− 0·39	107·96	101·17	+ 6·79	3·87	Mangalore.		
1	15						4	11	N 28° W	7·9				86	+0·3	·806	−·001	8·2	+0·8	10	9·30	+0·70	2·86	4·15	− 1·29	34·5	32·51	+ 2·01	0·55	Trivandrum.		

returns of any station, the data for that station are not utilized in calculating the provincial variations.
are derived only from the data available.

§ Mean of 17 days.

‡ Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M. at 232 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 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
	XI. South India.				-·004								89·6	−1·1	74·5	+0·1	82·0	−0·6	15·1					24·6
57	Madras (South)	Pambau	37	29·816		29·780	29·881	15th	29·728	29th	·153	82·5	89·3		78·7		84·1		10·6	93·3	5th	74·2	14th	19·1
		Tinnevelly	168	29·686	0	29·783	29·755	16th	29·604	29th	·151	84·4	96·0	−0·7	78·8	−0·3	87·4	−0·5	17·2	101·4	9th & 10th	72·9	16th	28·5
		Madura	447	29·391	0	29·773	29·456	16th	29·323	29th	·133	81·8	93·9	−2·7	75·4	−0·4	84·7	−1·6	18·5	102·0	6th	71·0	10th	31·0
		Periyakulam	945	28·900			28·947	16th	28·821	29th	·126	78·9	92·2		71·6		80·3		20·6	99·7	10th	68·4	31st	31·3
34	Madras, South Central	Salem	940	28·921	−·013	29·804	28·962	15th, 16th & 23rd	28·841	30th	·121	78·1	90·2	−2·0	73·2	+0·7	81·7	−0·7	17·0	98·7	6th	69·4	26th	27·3
		Coimbatore	1,348	28·505	−·004	29·804	28·555	16th	28·433	29th & 30th.	·122	75·6	86·5	−2·2	71·2	+0·6	78·9	−0·8	15·3	91·9	28th	69·8	4 days	22·1
35	Coorg	Mercara	3,781	26·185	?		26·233	23rd	26·114	30th	·119	64·3	70·1	+0·4	62·1	+0·1	66·1	+0·3	8·0	74·0	11th, 12th & 15th.	61·0	31st	13·0
36	Mysore	Chitaldroog	2,405	27·444	−·005	29·782	27·494	11th	27·359	30th	·135	71·3	81·3	−0·8	67·9	−0·1	74·6	−0·5	13·4	84·6	25th	65·9	12th & 30th	18·7
		Bangalore	3,021	26·874	−·009	29·825	26·919	23rd	26·782	30th	·137	69·3	81·0	−0·8	65·9	+0·3	73·5	−0·3	15·1	87·8	9th	64·3	27th	23·5
		Hassan	3,091	26·816	−·011	29·828	26·856	23rd	26·729	30th	·127	70·0	78·4	+0·1?	65·1	+0·6	71·8	+0·4?	13·3	82·8	10th	63·5	6th	19·3
		Mysore	2,518	27·374	−·010	29·822	27·424	23rd	27·288	30th	·136	71·2	82·9	−1·1	66·5	0	74·7	−0·6	16·4	87·1	25th	64·5	27th	22·6
56	Madras East Coast, South	Negapatam	31	29·799	−·007	29·759	29·869	15th	29·712	29th	·157	82·9	93·3	−0·4	77·9	+0·6	85·6	+0·1	15·4	100·1	4th	73·5	10th & 13th	26·6
		Cuddalore	12	29·810	+·001	29·751	29·888	15th	29·713	30th	·175	82·2	92·7	−1·0	77·2	+0·9	85·0	−0·1	15·5	100·2	9th	69·2	6th	31·0
		Trichinopoly	255	29·583	−·004	29·771	29·635	16th	29·505	29th	·130	81·6	94·2	−2·4	76·8	+0·1	85·5	−1·2	17·4	101·6	5th	71·9	10th	29·7
		Madras	22	29·778	−·012	29·731	29·844	23rd	29·667	29th	·177	81·7	92·9	−0·9	77·3		85·1	−0·5	15·6	100·5	4th & 5th	73·0	17th	27·5
		Vellore	707	29·100		29·747	29·153	10th	28·992	30th	·161	80·5	92·4		75·6		84·0		16·8	98·4	5th & 6th	72·5	10th & 13th.	25·9
55	Madras East Coast, Central	Nellore	71	29·709	+·002	29·713	29·765	1th	29·585	29th	·180	83·3	95·4	−0·2	79·0	+0·3	87·2	+0·1	16·4	102·3	10th	74·1	29th	28·2
		Masulipatam	15	29·736	+·002	29·686	29·827	11th	29·585	29th	·242	81·6	89·6	−1·7	77·8	+0·2	83·7	−0·8	11·8	94·6	6th	72·1	17th	22·5
54	Madras, Central	Cuddapah	433	29·368	−·013	29·740	29·423	16th	29·276	30th	·147	81·1	93·5	−0·2	75·9	−0·9	84·7	−0·6	17·6	100·2	5th & 10th	71·7	16th	28·5
		Kurnool	945	28·835	?	29·726	28·893	15th	28·748	1st	·145	77·8	89·8	0	73·5	−0·2	81·7	−0·1	16·3	95·2	6th	70·4	2 1s	24·8
		Bellary	1,475	28·332	−·009	29·753	28·383	11th	28·255	1st	·128	77·3	90·1	−0·7	73·6	0	81·9	−0·4	16·5	96·0	10th & 11th.	71·2	29th	24·8
52	Madras East Coast, North	Cocanada	26	29·696	+·003	29·657	29·811	11th	29·516	29th	·295	81·0	88·6	−1·1	77·6	−0·9	83·1	−1·0	11·0	94·1	10th	74·5	14th	19·6
		Waltair(Vizag.)	226	29·466	−·004	29·631	29·611	11th	29·292	29th	·319	81·9	89·2	?	78·3	?	83·8	?	10·9	96·4	6th	76·4	4th, 16th & 30th	20·0
		Gopalpur	21	29·646	+·014	29·607	29·792	11th	29·504	1st	·288	82·5	86·7	−0·7	78·8	0	82·8	−0·4	7·9	90·2	28th	75·9	1st	14·3
	XII.– Hill Stations.																							
48	Baluchistan	Pishin											93·7		57·7		75·8		36·0	97·4	1st & 2nd.	49·1	29th	48·3
		Quetta	5,502	24·505	+·026		24·585	18th	24·389	13th	·186	74·3	91·2	+0·7	63·3	+2·2	77·3	+1·5	27·9	94·6	2nd, 23rd & 24th	50·9	28th	43·7
		Kalat										75·4	92·9	+2·5	39·9	−8·2	66·4	−2·9	53·0	99·3	11th	32·7	28th & 29th.	66·6
		Chaman	4,311	25·492	+·005		25·579	31st	25·400	13th	·179	80·5	97·6	−0·4	69·7	−0·6	83·7	−0·5	27·9	103·2	1st	60·6	16th	42·6
30	Punjab	Leh	11,503	19·663	−·001		19·750	30th	19·527	13th	·223	54·4	72·7	−4·7	46·8	−3·0	59·8	−3·9	25·9	78·1	23rd	38·9	28th & 29th.	39·2
		Srinagar	5,204	24·700	−·007		24·789	31st	24·487	13th	·302	67·6	82·7	−1·2	63·7	+0·8	73·2	−0·2	19·0	92·3	20th	56·7	26th	35·6
		Gulmarg		21·789			21·865	31st	21·630	13th	·235	59·0	65·8		48·5		57·2		17·3	73·6	2nd	40·3	27th & 29th.	33·3
		Sonemarg		21·741			21·846	20th	21·600	12th	·246	50·8	69·0		47·2		58·1		21·8	77·9	2nd	40·1	30th & 31st.	37·8
		Skardu		22·718			22·812	18th & 30th	22·520	13th	·292	66·2	82·4		58·4		70·4		24·0	94·1	13th	52·2	27th	41·9
		Dras		20·731			20·829	30th	20·583	13th	·240	59·1	75·7		47·4		61·6		28·3	83·0	13th	38·1	28th	44·9
		Gilgit	4,890	24·926			25·053	17th	24·678	13th	·375	75·9	91·7	−2·5	68·7	−3·4	80·2	−3·0	23·0	104·5	2nd & 13th.	53·6	17th	45·9
		Chitral		24·570			24·590	13th	24·560	15th 17th & 31st.	·030	75·4	94·1		66·0		80·1		28·1	102·2	13th	57·5	31th	44·7
		Killa Drosh										76·1	94·0		71·2		82·6		22·8	102·2	13th	63·2	4th & 18th	39·0
		Murree	6,333	23·741	−·002		23·818	20th	23·586	13th	·232	66·1	73·8	−0·6	58·1	−2·9	66·0	−1·8	15·7	79·3	24th & 31st	48·4	26th	30·9

Note 1.—When a query is inserted against any reading or in the variation

Note 2.—The divisional means of the figure columns Nos. 41, 43 and 45

I—*continued.*

in India, Burma, etc., in August, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 31st August.	Variation from normal of period, 1st May to 31st Aug. 1903.	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	56	57	58
														79	+3·0	·781	+·025	6·4	−0·3				4·92	4·25	+0·67					XI.—South India.		
8	1			1	5	8	6	2	S 53° W	10·6	11·3			79		·881		3·6		4	0·60	+ 3·40	2·23	0·81	+ 1·42	3·73	1·65	+ 2·08	0·81	Pamban	Madras (South)	57
	1			1	1	6	13	9	N 85° W	8·3	8·0			58	−1·0	·682	−·018	6·0	+0·5	0	1·00	− 1·00	0·15	0·48	− 0·33	1·66	2·66	− 1·00	0·07	Tinnevelly.		
8	9		1			1	2	10	S 72° W	2·9	3·3	3·7	− 11	69	+3·0	·756	+·022	5·3	0	8	6·20	+ 1·80	3·11	3·69	− 0·58	10·10	9·65	+ 0·45	·53	Madura.		
21	4	2		1			2	1	N 11° W	3·2	3·5			70		·682		5·8		2	3·80	− 1·80	1·33	1·88	− 0·55	4·93	6·35	− 1·42	0·79	Periyakulam.		
5	1				3	15	7		S 54° W	4·6	4·1	4·2	− 2	83	+3·6	·803	+·032	6·9	+0·5	16	9·50	+ 6·50	10·04	7·47	+ 2·57	26·92	18·93	+ 7·99	1·86	Salem	Madras, South Central.	34
					9	14	8		S 45° W	4·7	4·2	7·4	− 43	87	+3·3	·775	+·032	4·6	−1·2	4	3·00	+ 1·00	1·35	1·12	+ 0·23	9·01	6·28	+ 2·73	0·70	Coimbatore.		
4							18	9	N 75° W	5·7	5·3	8·9	− 40	97	+2·0	·597	+·020	9·7	+1·1	28	26·70	+ 1·30	23·75	26·36	− 2·61	103·68	99·84	+ 3·84	3·08	Mercara	Coorg	35
						10	19	2	S 78° W	10·0	8·7			86	+3·7	·661	+·014	9·0	+0·1	10	7·80	+ 2·20	5·48	2·68	+ 2·80	18·32	13·01	+ 5·31	1·83	Chitaldroog	Mysore	36
1						13	16	1	S 72° W	10·8	9·4	7·6	+ 24	88	+3·5	·634	+·018	9·3	+1·1	15	10·40	+ 4·60	7·47	5·36	+ 2·11	15·38	16·69	− 1·31	1·78	Bangalore.		
1						7	16	7	W	4·3	3·8			87	+3·6	·639	+·025	8·9	+0·2	9	9·60	− 0·60	2·64	3·37	− 0·73	27·69	17·40	+10·29	0·83	Hassan.		
						19	11	1	S 63° W	10·5	11·3			83	+2·0	·632	−·010	8·9	+1·0	8	6·40	+ 1·60	4·16	2·93	+ 1·23	20·38	12·43	+ 7·95	2·56	Mysore.		
4				1	13	12	1		S 67° W	5·1	4·5	5·7	− 21	73	+1·6	·817	+·021	5·3	−0·4	6	5·70	+ 0·30	2·88	3·66	− 0·78	10·71	8·65	+ 2·06	0·76	Negapatam	Madras East Coast, South.	56
28					1	1	1		W	2·0	2·5			82	+2·0?	·899	+·019?	7·5	+0·8	8	8·00	0	4·31	5·33	− 1·02	11·49	11·14	+ 0·35	1·87	Cuddalore.		
16					7	7	1		S 72° W	5·9		8·2	− 28	75	+7·6	·774	+·048	3·3	?	8	5·40	+ 2·60	4·48	4·35	+ 0·13	14·29	10·10	+ 4·19	2·90	Trichinopoly.		
			1	6	13	11			S 51° W	6·2		7·3	− 15	80	+4·9	·862	+·036	6·8	−0·5	9	12·60	− 3·60	6·44	5·34	+ 1·15	17·01	12·37	+ 4·56	2·07	Madras.		
8		1	1	1		7	2	11	N 76° W	3·4	3·4			74		·763		2·2		9	7·90	+ 1·10	4·50	5·31	− 1·01	13·08	14·53	− 1·45	1·33	Vellore.		
5				2	2	1	8	13	S 73° W	7·0				69	−2·6	·777	−·039	5·8	−1·9	5	5·40	− 0·40	3·26	4·03	− 0·77	12·83	8·46	+ 4·37	1·03	Nellore	Madras East Coast, Central.	55
2				1	2	11	15		S 71° W	8·3	8·0	7·8	+ 3	85	+2·3	·913	+·022	7·0	−0·8	12	9·80	+ 2·20	9·82	6·89	+ 2·93	30·26	18·64	+11·62	1·85	Masulipatam		
					4	18	9		N 83° W					73	−0·1	·767	−·006	7·1	−0·7	9	8·00	+ 1·00	8·90	6·15	+ 2·75	22·21	15·02	+ 7·19	3·96	Cuddapah	Madras, Central.	54
	1				14	12	4		S 76° W	11·9				84	+8·6	·793	+·078	6·9	−0·6	9	9·20	− 0·20	9·22	5·94	+ 3·28	18·92	15·20	+ 3·72	3·19	Kurnool.		
					4	20	7		N 86° W	10·1	10·7	10·7	0	76	+8·3?	·720	+·072	7·3	−0·6	7	4·10	+ 2·90	2·41	2·32	+ 0·09	9·59	7·76	+ 1·83	0·69	Bellary.		
11			1		9	7	3		S 72° W	6·4	5·4			87	+6·5	·936	+·086	7·1	−0·5	17	9·70	+ 7·30	8·46	5·40	+ 3·06	25·38	17·03	+ 8·35	1·48	Cocanada	Madras East Coast, North.	52
	1			3	26	1			S 44° W	13·7				79	?	·859	?	8·2	?	5	8·40	− 3·40	2·32	5·32	− 3·00	14·70	16·15	− 1·45	0·86	Waltair (Vizag.)		
3	4			9	12	2	1		S 41° W	14·0	13·7	9·1	+ 51	85	+0·1	·935	+·010	5·1	−2·4	13	10·60	+ 2·40	8·30	7·96	+ 0·34	23·64	23·95	− 0·31	2·79	Gopalpur.		
																														XII.—Hill Stations.		
																				0	0·20	− 0·20	0	0·15	− 0·15	0·62	0·45	+ 0·17	0	Pishin	Baluchistan.	48
28				1	1		1		S 11° W	1·6	1·7	4·5	−62	57	−0·6	·487	+·008	0·7	−0·4	0	0·70	− 0·70	0	0·62	− 0·62	1·04	2·19	− 1·15	0	Quetta.		
	4		10		14		2		S 39° E					33		·294				0	0·50	− 0·50	0	0·31	− 0·31	0·52†	1·65	− 1·13	0	Kalat.		
	1		8		7	12	3		S 13° W	8·0	8·8			34	+1·4	·349	−·020	0·1	−0·5	0	0	0	0	0	0	0·55	0·28	+ 0·27	0	Chaman.		
	1	7	9	4	5	2	3		S 75° E	2·1				63	+4·3	·275	−·007	4·2	0	0	1·70	− 1·70	0·06	0·54	− 0·48	0·89	1·33	− 0·44	0·03	Leh	Punjab	30
2	1	3		9	11	2		3	S 20° E	3·6	3·4			87	+1·1	·587	−·038	4·7	+0·1	7	4·70	+ 2·30	4·12	1·94	+ 2·18	14·70	9·30	+ 5·40	0·88	Srinagar.		
13		2	6	4	4			2	S 65° E	2·9	3·3			82		·419		4·2		9			5·29			24·16‡			1·35	Gulmarg.		
8		10	10	3					N 75° E	3·4	3·1			95		·258		4·4		10			5·37			25·08			1·17	Sonemarg.		
17	4	4	1			1	4		N 9° W	4·6	4·7?			54		·341		3·7		2	1·10	+ 0·90	0·45	0·96	− 0·51	5·30	2·72	+ 2·58	0·19	Skardu.		
18	1	3		1		2	6		N 78° W	7·2	5·8			64		·328		3·1		2	1·40	+ 0·60	0·54	0·58	− 0·04	5·67	4·59	+ 1·08	0·19	Dras.		
27		1	1	1			1		E	2·8	2·5			51	+0·7	·448	−·046	4·0	−0·2	3	1·80	+ 1·20	0·47	0·34	+ 0·13	2·25	2·10	+ 0·15	0·21	Gilgit.		
24							7		W	5·3	5·2			55		·478		1·0		0			0			7·39			0	Chitral.		
31									Calm					70		·637		0·8		3			0·36			8·11			0·13	Killa Drosh.		
19	2		1	4	3			2	S 45° E	6·6	7·1	4·8	+48	80	−1·6	·526	+·012	3·7	−1·1	11	15·60	− 4·60	11·34	13·62	− 2·28	25·94	31·96	− 6·02	3·50	Murree.		

returns of y station, the data for that station are not utilized in calculating the provincial variations.
are derived only from the data available.

† Rainfall from 26th June to 21st July wanting.
‡ Rainfall since 1st June to date.

Table

Abstract of Observations taken at 8 A.M. at 232 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—*contd.*	Kailang	10,087	20·895			20·971	31st	20·760	13th	·211	55·5	70·6	−3·1	47·8	−2·5	59·2	−2·8	22·8	77·3	13th	40·9	27th	36·4
		Poo											78·1		58·4		68·3		19·7	83·2	2nd & 13th.	52·5	27th	30·7
		Simla	7,224	23·017	+·008		23·088	31st	22·891	13th	·194	61·8	67·0	−0·1	59·2	−0·3	63·1	−0·2	7·8	69·9	19th	51·4	26th	18·5
	North-West Frontier Province.	Para Chinar	6,000	24·335			24·418	31st	24·159	13th	·259	74·2	85·7		63·7		74·7		22·0	92·1	13th	58·2	27th	33·9
		Cherat		25·526	+·004		25·604	15th	25·310	13th	·264	75·3	89·2	+2·3	70·2	0	79·7	+1·2	19·0	98·4	13th & 22nd.	63·1	17th & 26th.	35·3
25	United Provinces.	Chakrata	7,022	23·172*	+·003*		23·237	20th	23·050	13th	·187	62·2	67·5	−1·3	59·9	+0·4	63·7	−0·5	7·6	72·5	9th	56·8	25th & 27th.	15·7
		Mussooree	6,705	23·441	+·002		23·508	20th & 21st	23·326	13th	·182	63·4	69·0	−0·1	60·6	+0·7	64·3	+0·3	8·4	76·3	19th	56·9	26th	19·4
		Ranikhet	6,069	23·980	+·001		24·051	20th	23·871	12th	·180	66·3	72·9	+0·5	62·6	+0·4	67·8	+0·5	10·3	78·0	1st & 9th.	58·0	14th	20·0
		Muktesar	7,600	22·755			22·826	20th	22·657	12th	·169	61·5	69·1		57·9		63·5		11·2	73·9	2nd	54·3	14th	19·6
13	Bengal	Yatung	10,480										61·6		50·1		55·8		11·5	69·1	4th	47·9	27th & 28th.	21·2
		Darjeeling	7,376	22·944	−·007		23·010	19th	22·872	12th	·138	60·4	66·2	+0·7	57·5	+0·3	61·9	+0·5	8·7	70·7	2 days	55·6	14th	15·1
8	Assam Hill Tracts	Shillong	4,920	25·025			25·085	19th	24·946	7th	·139	67·9	75·4		64·0		69·7		11·4	81·7	2nd	59·0	16th	22·7
		Cherra Poonjee	4,309	25·572			25·633	31st	25·498	5th	·135	66·3	71·2		64·8		68·0		6·4	78.3	2nd	63·0	14th	15·3
	Central India	Mount Abu	3,945	25·815	+·010		25·952	23rd	25·789	13th	·163	67·1	72·6	+0·6	65·3	+1·1	69·0	+0·9	7·3	79·2	31st	63·4	6 days	15·8
		Pachmarhi	3,528	26·284	+·008		26·387	11th	26·167	3rd	·220	69·7	76·8	+2·1	68·0	+0·9	72·4	+1·5	8·8	81·6	18th & 22nd	65·7	9th	15·9
	South India	Wellington	6,200	24·194	−·004		24·234	24th	24·132	30th	·102	63·8	71·0	−0·4	57·2	+0·1	64·1	−0·2	13·8	75·7	18th	52·2	9th	23·5
		Kodaikanal	7,658	22·783			22·821	24th	22·708	30th	·113	56·7	62·1		52·4		56·0		9·7	65·4	9th & 11th.	50·4	10th	15·0
		Ootacamund		23·016			23·061	23rd	22·957	1st & 29th.	·104	57·2	62·7		52·2		57·5		10·5	66·5	7th, 10th & 25th.	47·8	9th	18·7
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·845	+·013	29·783	29·924	15th	29·773	29th	·151	80·6	91·0	−1·1	76·9	−0·1	84·0	−0·6	14·1	95·0	5th	74·0	11th & 12th.	21·0
		Colombo	40	29·872	−·013	29·838	29·947	23rd	29·823	3rd & 29th.	·124	80·9	87·0	+1·4	77·1	−0·4	82·0	+0·5	9·9	90·5	22nd	71·5	11th	19·0
	Persia	Meshed	3,104									76·5			61·4	+1·0						51·9	29th	
		Teheran		25·707§			25·890	12th	25·555	27th	·335	82·3	96·9¶	+0·2	71·8	+1·2	84·3¶	+0·7	25·1	104·1	7th	62·4	28th & 29th.	41·7
		Ispahan		24·248§			24·380	12th	24·120	27th	·260	76·2	94·2	−1·2	63·7	+2·2	79·0	+0·5	30·5	100·1	7th	59·8	3 days	40·3
		Bushire	14	29·539	−·005	29·572	29·644	19th & 20th.	29·404	7th	·240	91·8	99·0	+2·0	85·0	+1·0	92·1	+1·5	14·0	107·5	15th	79·4	26th	28·1
		Bahrein (*b*)	30	29·542			29·617	20th	29·431	14th	·216	93·1 ††	101·9 **	**	87·1 **	**	94·5 **	**	14·8	107·5	7th	79·9	24th	27·6
		Jask		29·605††	−·009††		29·715	18th	29·483	14th	·232	88·6	94·1	−0·4	81·1	+0·5	89·2	+0·1	10·0	101·8	15th	78·7	26th	23·1
		Muscat	20	29·573?	−·080?	29·480?	29·682	18th	29·358?	13th	·324	86·8	87·9	0	84·5	+0·2	86·2	+0·1	3·4	94·3	14th	80·1	1st	14·2
	Arabia	Baghdad	220	29·458	−·050	29·644	29·621	31st	29·330	3rd	·291	91·9	115·5	+7·2	83·5	+4·7	99·5	+6·0	32·0	121·0	15th	73·9	28th	47·1
		Busrah		29·566			29·693	31st	29·467	3rd	·232		109·5		84·3		96·9		25·2	113·9	6th	77·9	23rd	36·0
		Aden	94	29·622	−·028	29·647	29·714	20th	29·539	3rd	·175	86·8	93·8	+2·3	82·7	+3·1	88·3	+2·7	11·1	96·8	2nd	78·8	29th	18·0
		Perim	201	29·515	−·025	29·615	29·604	21st	29·451	3rd	·153	89·3	95·5	+0·4	85·4	+2·0	90·9	+1·2	11·1	100·7	14th & 17th.	83·5	7th & 9th.	17·2
	Afghanistan	Kabul										70·0	91·4	−1·1	56·4	−3·0	74·0	−2·1	35·0	95·1	7days	48·8	29th	46·3
	Central Asia	Kashgar	4,255	25·477‡‡			25·640	31st	25·280	3rd & 26th.	·360	74·8	90·9	+2·8	65·4	+0·1	78·2	+1·5	25·5	99·1	1st	49·3	18th	49·8
	Arabian Sea Islands.	Amini Devi	13	29·883	−·008	29·824	29·920	24th	29·821	30th	·099	81·6	86·1	+0·8	77·4	0	81·8	+0·4	8·7	89.1	25th	73·0	16th	16·1
		Minicoy	7	29·924		29·856	29·977	23rd	29·869	30th	·108	81·0	85·9	+0·6						87·7	21st			
	Africa	Zanzibar	73	30·053	−·033	30·054	30·120	1st	29·985	10th	·135	75·5	81·8	+1·0	73·3	+0·6	77·6	+0·8	8·5	84·3	20th	71·4	22nd	12·9
		Do. Dunga		29·994			30·089	6th	29·886	17th	·203	73·2	83·8		68·5		76·2		15·3	87·5	21st	62·7	19th	24·8
	Straits Settlements.	Penang §§	20	29·913		29·858	29·951	13th	29·831	5th & 10th.	·120	81·2	88·5		73·9		81·2		14·6	90·0	4 days	72·0	3 days	18·0
		Singapore §§	10	29·919		29·861	29·966	12th	29·861	30th	·105	81·6	84·9		73·9		79·4		11·0	90·4	4th	70·0	10th	20·4

Notes.—When a query is inserted against any reading or in the variation returns o f

* Mean of 25 days.
(*b*) Observation of 29 days.
** Mean of 26 days.
§§ 9 hours observations.
§ Areroid uncorrected.
†† Aneroid corrected.
‡ Mean of 30 days.
¶ Mean of 29 days.

I—*concluded.*

in India, Burma, etc., in August, 1903—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 & A.W. Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 31st August.	Variation from normal of period, 1st May to 31st August 1903.	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	56	57	58
	2	1	2		4	11	6	5	S 68° W	1·3				82		·364		6·6		5			2·50	1·43	+ 1·07	6·82	6·65	+ 0·17	0·72	Kailang.	Punjab—*consld.*	30
																		6·2		2			0 62	0·45	+ 0·17	2·48	2·57	— 0·09	0·28	Poo.		
18	2	1	1	1	5	2	1		S 76° W																						
16	5	2		2	5			1	N 72° E	2·3	2·2	1·6	+38	90	—1·4	·498	—·008	7·6	—0·4	16	18·90	—2·90	18·43	17·67	+ 0·76	36·21	45·42	— 9·18	4·89	Simla.		
19		1	2	2	5		1	1	S 22° E	5·6	5·1			57		·475		1·7		4	6·40	—2·40	1·74	2·57	— 0·83	11·83	9·83	+ 2·00	0·86	Para Chinar	North-West Frontier Province.	
18	3			3	4		1	1	S 11° E	3·5	3·3			69	—4·4	·602	+·014	3·1	—0·8	4			2·36	3·21	— 0·85	6·62	10·03	— 1·41	0·75	Cherat.		
18	4			3	4	1		1	S 18° E	7·7	9·2	4·3	+114	94	+1·0	·533	+·002	3·1	—2·8	19	20·10	—1·10	28·25	19·18	+ 9·07	56·45	50·45	+ 6·00	9·08	Chakrata .	United Provinces.	25
	1	5	12	1	1	1	6	4	N 53° E					95	—0·3	·558	+·003	8·5	+0·7	22	22·10	—0·10	31·58	31·43	+ 0·15	56·30	73·84	—17·54	7·13	Mussooree.		
																				13	18·50	—5·50	12·59	14·33	— 1·74	24·58	36·94	—12·36	2·33	Ranikhet.		
18	1		1			3	4	4	N 77° W	2·0	2·3	1·9	+21	89	—1·1	·573	+·002	7·3	—1·1	19			10·12			20·78			1·64	Muktesar.		
10	2		2	9	1		3	4	S 45° E	5·3	4·8			94		·513		8·5													
																				26	24·43	+1·57	10·26	9·68	+ 0·58	35·37	31·20	+ 4·17	1·40	Yatung .	Bengal . .	13
13	1	3	1	5	2	3	2	1	S 27° E	3·9	3·6	3·4	+ 6	98	+2·1	·516	+·002	9·1†	+0·4	27	24·13	+2·87	26.89	26·83	+ 0·06	77·25	92·83	—15·63	3·13	Darjeeling.		
16	4	4	3	1	1	1		1	N 45° E	2·4	2·7			89		·602		8·2		18	18·50	—0·50	18·90	12·70	+ 6·20	71·31	51·91	+19·40	7·05	Shillong .	Assam Hill Tracts.	8
2	1	3	3	3	6	7	4	2	S 20° W	6·7	7·7			98		·635		9·7		31	25·70	+5·30	109·97	74·79	+35·18	335·26	322·98	+12·28	18·72	Cherra Poonjee.		
4		2		1		13	4	2	S 57° W	12·1	12·2	10·8	+13	95	—0·8	·631	+·022	8·8	+0·1	20	17·20	+2·80	17·97	20·21	— 2·24	42·56	50 64	— 8·08	4·75	Mount Abu	Central India.	
1	1	1	1			2	8	17	N 58° W	11·4	11·7	7·5	+56	93	+1·4	·688	+·037	9·3	+0·2	21	21·80	—0·80	33·78	20·68	+13·10	56·50	57·21	— 0·71	7·19	Pachmarhi.		
16	1	1	2		4	6		1	S 21° W	2·9		3·8	—24	79	+7·8	·468	+·036	6·0	—0·4	9	8·90	+0·10	5·32	4·13	+ 1·19	20·76	14·88	+ 5·88	0·97	Wellington .	South India.	
	3						10	18	N 55° W	13·8				81		·373		7·1		19	11·30	+7·70	12·94	5·99	+ 6·95	29·65	20·36	+9·29	1·63	Kodaikanal.		
15						7	8	1	S 74° W	6·1	5·7			87		·407		7·0		11	11·30	—0·30	6·81	4·70	+ 2·11	49·04	22·75	+26·29	1·45	Ootacamund.		
							31		S 45° W						+3·0	·852	—·017	2·7	—0·2	4			1·55	4·64	—3·09	12·03	10·58	+ 1·45	0·74	Trincomalee	Ceylon.	
				1	4	2	14	9	1	S 49° W	8·6		8·7	— 1	85	+8·0	·899	+·053	6·2	+0·1	10			7·49	3·90	+ 3·59	38·64	28·08	+10·56	2·00	Colombo.		
														54		·489		0·6		0			0	0·01	—0·01	3·73	0·99	+ 2·74	0	Meshed .	Persia.	
12		1			2	13		2	S 48° W	2·4	3·1			38		·410		2·6		1			0·26	0·05	+ 0·21	1·06	0·83	+ 0·23	0·19	Teheran.		
28	2						1		N 27° W	1·5	2·0			55		·503		1·7		0			0·01	0	+ 0·01	0·32	0·17	+0·15	0·01	Ispahan.		
14	4	2	1	2	1	2	1	9	N 18° W	5·5	6·5	7·8	—17	65	—1·7	·974	—·015	1·5		0			0	0	0	0	0	0	0	Bushire.		
2	3			1	3	4	3	6	7	S 88° W	**	**			78		1·220								0			0	Bahrein.		
2			19	6						S 80° E	13·3	11·9			†† 77	+1·9	†† 1·037	+·016	†† 1·1	—1·0	0			0	0	0	0	0·13	—0·13	0	Jask.‖		
3	1			1	25			1	S 48° E	3·8	4·0			83	+1·4	1·072	+·070	1·4	—0·8	0			0	0	0	0·03	0·40	— 0·37	0	Muscat.		
17	7	1				1	3	2	N 27° W	2·1	2·8	3·2	—13	38	—7·1	·567	—·047	0·4	+0·2	0			0	0·09	— 0·09	0	0·33	— 0·33	0	Baghdad .	Arabia.	
																				0			0			0·82			0	Busrah.		
	6		1	3	10	2	9			S 17° W	9·8‡	7·9‡	10·8	—27	72	—0·3	·915	+·077	4·1	+0·4	0			0·05	0·14	— 0·09	0·05	0·37	— 0·32	0·05	Aden.		
					2		19	3	7	S 63° W	13·1‡	13·3‡			67	+0·6	·915	+·026	1·7	—2·0	0			0	0·43	— 0·43	0·47	0·83	— 0·36	0	Perim.		
				1	10	12	8			S 5° E					40		·303		0·5	+0·3	1			0·25	0·18	+ 0·07	3·90	1·13	+ 2·77	0·25	Kabul .	Afghanistan.	
24			1		1					S 45° E	2·5	2·2			52		·454		0·6		0			0	1·10	— 1·10	0	2·58	— 2·58	0	Kashgar (*c*)	Central Asia.	
		1				1		1	16	13	N 69° W					82		·887		8·2		13		7·41	5·04	+ 2·37	42·77	32·19	+10·58	3·08	Amini Devi	Arabian Sea Islands.	
		6				2	6	17	N 48° W	7·3	7·8			82		·858		5·4		13			7·95	6·49	+ 1·46	32·29	28·15	+ 4·14	2 26	Minicoy.		
1			1	4	15	9	1			S 9° W	8·2	7·7			87	+2·1	·775	+·047	6·2	0	6			2·72	1·90	+ 0·82	13·40	16·33	— 2·93	1·36	Zanzibar .	Africa.	
21				2	1	7				S 30° W	5·8	5·7			92		·757		5·3		7			5·77			16·96			2·10	Do. Dunga.		
7	6	5	1	6	4			1		N 76° E	4·6							0·6		17			6·51			32·91			1·09	Penang(*d*) .	Straits Settlements.	
			1	6	11	7	1	3	2	S 35° E									6·5		16			12·79			29·89			3·26	Singapore.		

XIII.—Extra India.

any station, the data for that station are not utilized in calculating the provincial variations.

†† Mean of 27 days. † Mean of 24 days. (*c*) Wind observations of 26 days. ‖ Wind observations of 27 days. (*d*) Wind variable.

Table II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 64 Stations in India, Burma, etc., in August 1903.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 64

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
Burma Coast and Bay Islands.	Port Blair	61	29·823	29·732	·091	29·774	+·027	29·765	85·1	77·9*	7·2	89·7	72·7	17·0	82·5	83·7	80·8*	+ 0·9	75·4	78·8	78·7	77·6
	Rangoon	57	·803	·706	·097	·761	+·024	·756	83·9	75·7	8·2	86·9	72·7	14·2	80·9	79·4	78·1	− 0·4	73·7	78·0	76·8	76·2
	Diamond Island	41	·804	·724	·080	·760	+·015	·736	84·1	76·8	7·3	87·0	73·0	14·0	82·0	80·9	79·2	+ 0·7	74·1	78·7	78·0	76·9
	Cocos Island ¶	119	·727	·646	·081	·682	?	·733	85·4	77·0	8·4	90·6	73·1	17·5	82·3	81·7	79·9	+ 0·1	73·9			
	Akyab	20	·764	·668	·096	·720	+·013	·683	83·2	77·2	6·0	87·9	75·0	12·9	80·8	81·2	79·3	− 0·9		79·3	79·0	
Bengal and Orissa.	Chittagong	87	·641	·546	·095	·601	−·003	·635	85·8	76·6	9·2	90·8	74·6	16·2	82·4	82·7	80·0	+ 0·3	75·6	78·6	78·7	77·6
	Calcutta (Alipore)	21	·651	·553	·098	·607	+·011	·574	87·9	78·4	9·5	90·9	74·8	16·1	84·5	84·5	82·9	+ 0·4	76·9	80·3	80·3	79·1
	Saugor Island	25	·635	·542	·093	·591	+·003	·562	88·2	80·5	7·7	91·9	77·1	14·8	84·8	86·3	83·5	+ 1·1	77·9	80·8	81·4	80·0
	False Point	21	·647	·553	·094	·605	−·013	·568	87·2	79·1	8·1	91·5	75·1	16·4	84·6	84·4	82·1	+ 0·6	77·2	80·2	80·2	79·2
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·650	27·557	·093	27·606	−·013	·532	85·7	74·0	11·7	89·4	70·5	18·9	80·5	81·4	78·4	+ 1·1	72·5	74·2	74·6	73·8
	Darbhanga	166	29·495	29·369	·126	29·437	−·001	·555	87·8	79·7	8·1	95·8	74·9	20·9	84·5	86·5	83·0	+ 0·1	78·0	80·5	81·1	79·9
	Allahabad	309	·303	·193	·110	·252	−·021	·510	90·9	79·5	11·4	101·2	74·5	29·7	86·2	88·2	83·9	+ 0·7	76·3	80·2	80·6	79·0
Upper Sub-Himalayas.	Dehra Dun	2,233	27·430	27·349	·081	27·383	−·021	·552	83·6	73·0	10·6	88·9	69·7	19·2	78·7	79·5	76·7	− 1·3	71·6*	74·6	75·6	73·9
	Roorkee	899	28·718	28·626	·092	28·668	−·020	·522	88·7	77·3	11·4	94·5	69·9	24·6	83·7	86·8	82·0	− 1·0	76·0	78·6	79·7	78·1
	Meerut	738	·866	·772	·094	·812	−·021	·504	90·1	78·4	11·7	96·6	70·3	26·3	84·6	88·1	83·5	− 0·3	76·7	79·1	80·0	78·6
	Lahore	702	·871	·782	·089	·819	−·024	·471	97·4	79·8	17·6	101·6	70·9	33·7	90·3	94·8	87·7	− 1·1	76·7	81·1	81·9	79·9
	Ludhiana	812	·780	·694	·086	·731	−·014	·491	91·0	79·3	11·7	100·0	70·5	29·5	87·3	91·4	85·6	− 0·1	76·7	79·1	79·4	78·4
N.-W. Frontier Province, Indus Valley and N. W. Rajputana.	Peshawar	1,110	·478	·359	·119	·412	−·020	·466	101·8	77·6	24·2	109·0	70·8	38·2	92·0	99·0	88·8	+ 1·6	71·6	78·1	77·6	75·8
	Jacobabad	186	29·360	29·255	·105	29·300	−·022	·437	107·3	83·6	23·7	111·9	76·7	35·2	95·9	104·8	94·5	+ 2·9	80·2	85·5	88·8	84·8
	Kurrachee	30	·618	·545	·073	·584	−·006	·564	91·2	80·8	10·4	95·2	77·2	18·0	87·2	87·0	84·6	+ 2·5	78·0	81·5	82·3	80·6
East Rajputana, Central India and Gujarat.	Jaipur	1,431	28·224	28·130	·094	28·176	−·010	·544	90·9	76·7	14·2	99·0	74·3	24·7	84·3	87·7	82·3	+ 0·9	74·4	77·1	77·8	76·4
	Udaipur	1,925	27·769	27·686	·083	27·728		·585	85·2	73·9	11·3	90·7	71·3	19·4	80·6	82·0	78·8		71·3	74·8	75·4	73·8
	Deesa	466	29·218	29·114	·104	29·164	−·008	·578	90·1	77·1	13·3	97·8	74·4	23·4	84·0	88·5	83·1	+ 1·6	75·1	77·7	78·4	77·1
	Jamnagar	61	·631	·554	·077	·592		·600	88·4	76·9	11·5	91·0	74·8	16·2	85·0	85·3	81·9		74·6	78·2	77·7	76·8
Deccan.	Belgaum	2,539	27·292	27·209	·083	27·250	−·010	·712	76·6	66·2	10·4	81·3	63·9	17·4	72·6	73·3	70·0	+0·5	66·1	69·7	69·8	68·5
	Sholapur	1,590	28·189	28·071	·118	28·137	−·016	·655	87·4	71·0	16.4	94·3	65·9	25·4	80·4	84·3	77·9	− 0·2	65·3	72·3	73·1	71·4
	Akola	930	·791	·674	·117	·730	−·011	·609	87·5	73·6	13·9	93·8	70·5	23·3	82·2	85·8	80·4	+ 0·8	74·3	75·7	76·6	74·7
	Buldana	2,132	27·614	27·516	·098	27·563	−·011	·619	82·0	69·7	12·3	87·3	67·0	20·3	76·9	80·0	75·6	+ 0·3	68·3	71·7	72·9	71·0
	Khandwa	1,044	28·660	28·554	·106	28·605	−·012	·597	86·6	74·7	11·9	94·0	71·7	22·3	80·6	84·5	79·5	+ 1·2	72·0	75·1	76·4	74·5
	Nagpur	1,025	·670	·561	·109	·614	+·002	·584	87·9	75·2	12·7	93·1	73·1	20·0	82·1	84·4	81·0	+ 0·8	73·2	76·5	77·2	75·6
	Nagpur (Sanitary Commr.'s Office)	1,013	·676	·564	·112	·613		·579	87·5	75·1	12·4	92·4	71·6	20·8	82·5	84·4	80·5		73·3	77·2	77·7	76·1
	Hyderabad (Deccan).	1,690	·676	27·967	·109	·026	−·004	·646	84·3	71·8	12·5	89·6	69·3	20·3	78·5	82·7	77·7	+ 0·4	70·4	73·3	76·2	73·3
West Coast.	Bombay	37	29·757	29·680	·077	29·716	−·011	·693	84·4	77·5	6·9	87·1	74·1	13·0	81·5	81·4	80·3	+ 0·4	75·4	77·9	77·6	77·0
	Karwar	44	·814	·746	·068	·777	−·010	·753	82·3	74·7	7·6	84·7	72·5	12·2	80·3	80·5	78·1	+ 0·3	72·3	77·0	76·8	75·4

* Mean of 30 days. ¶ Observations of 30 days.

II.

Stations in India, Burma, etc., in August, 1903.

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
																									%	%						
·848*	·941	·919	·903	+·010	89*	84	80	84	−2	7·5	7·3	7·4	−0·1					4	3	28	26	1	S. 60° W.	S. 49° W.	81	82	281†	242	12·86	3·84	Port Blair	Burma Coast and Bay Islands.
·810	·928	·895	·878	−·010	91	88	89	89	−1	8·8	9·5	9·2	+0·3	4		2	1	16	14	19	4	2	S. 8° W.	S. 38° W.	58	65	*50†	110	22·27	2·01	Rangoon	
·802	·941	·926	·890	+·017	87	86	87	87	0	7·6	8·6	8·1	+0·1			1		1	12	36	11	1	S. 44° W.	S. 45° W.	82	78	198†	193	30·92	6·10	Diamond Island.	
·802					86					8·1	8·0	8·1	−0·3						14	43	2	1	S 37° W.	S 41° W.	92	91		?	14·98	2·87	Cocos Island.	
	·985	·964				93	90			8·0	7·8	7·9	−0·3					8	41	13			S. 4° W.	S. 1° E.	90	63	93†	85	75·90	11·45	Akyab	
·875	·931	·926	·911	+·005	95	81	82	87	0	7·8	8·1	8·0	+0·3				3	20	18	17	4		S. 1° E.	S. 25° E.	71	61	218†	142	17·87	3·30	Chittagong	Bengal and Orissa.
·905	·979	·980	·954	−·003	93	83	83	86	−2	8·5	8·9	8·7	+0·4	1		1	9	13	19	17	2		S. 7° E.	S. 14° E.	64	56	95	115	10·17	2·31	Calcutta (Alipore).	
·921	·998	1·007	·975	−·013	88	83	80	84	−3	9·0	9·1	9·1	+1·2	1	1	1	5	11	24	17	1	1	S. 1° W.	S. 13° W.	66	57	402	315	11·34	3·40	Saugor Island.	
·912	·973	·978	·954	+·021	92	82	83	86	+1	8·8	8·6	8·7	+0·8		1		3	4	9	30	12	3	S. 45° W.	S. 47° W.	68	53	265†	238	12·04	3·08	False Point	
·781	·770	·773	·775	−·024	93	74	73	80	−5	9·9	10·0	10·0	+1·0	3	1	3	8	12	9	7	9	10	S. 10° W.	S. 4° W.	21	8	159†	185	13·18	2·84	Hazaribagh	Gangetic Plain and Chota Nagpur.
·928	·988	·989	·972	+·011	92	83	78	84	0	7·7	6·5	7·1	+0·9	12	1		21	20		1	4	3	S. 68° E.	S. 77° E.	50	60	64	111	9·44	1·54	Darbhanga.	
·868	·955	·943	·922	−·024	86	77	72	79	−4	8·5	8·3	8·4	+0·6	2	3	7	15	2	2	7	13	11	N. 31° W.	N. 16° E.	14	4	135†	134	18·03	9·00	Allahabad	
·761*	·812	·810	·804	+·011	93*	83	84	87	0	7·6	8·0	7·8	+0·1	7			8	9	14	17	6	1	S. 8° W.	S. 26° W.	52	14	27	24	25·24	6·09	Dehra Dun	Upper Sub-Himalayas.
·884	·911	·925	·907	+·043	94	79	73	82	+4	5·6	5·3	5·5	−0·9	4	3	3		27	4	3	5	13	S. 24° E.	S. 21° E.	19	22	71	58	13·58	5·22	Roorkee	
·905	·914	·922	·917	+·039	93	78	70	80	+3	6·0	5·8	5·9	−0·6	23		2	16	5	1	8	6	1	S. 46° E.	S. 55° E.	19	10	28†	48	7·20	2·19	Meerut	
·881	·944	·919	·914	+·046	86	67	57	70	+5	3·1	2·8	3·0	−0·7	8	10	6	5	7	13	1	4	8	N. 72° E.	S. 80° E.	7	25	68	69	5·31	2·68	Lahore	
·888	·891	·851	·877	+·003	89	69	59	72	−1	3·7	4·0	3·9	−1·9	5	2	2	1	32	1	1	12	6	S. 25° E.	S. 59° E.	31	11	72†	39	8·36	2·65	Ludhiana	
·707	·799	·688	·731	−·044	74	54	37	55	−6	1·7	3·0	2·4	−0·5	8	23	14	5	2	2	1	2	5	N. 17° E.	N. 41° E.	55	51	53†	93	1·00	1·00	Peshawar	N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.
·991	1·082	1·149	1·074	P	86	64	53	68	P	1·7	2·2	2·0	−0·3	14				31	15	2			S. 28° E.	S. 44° E.	70	59	72†	101	0	0	Jacobabad	
·924	1·000	1·043	·989	+·120	88	77	81	82	+3	3·4	2·6	3·0	−3·7							30	31	1	S. 69° W.	S. 67° W.	91	88	411†	397	0	0	Kurrachee	
·825	·845	·828	·832	+·023	89	72	65	75	−1	6·9	7·8	7·4	0	1	3	4	3	1	4	19	18	9	S. 79° W.	N. 66° W.	52	43	103	118	11·79	5·16	Jaipur	East Rajputana, Central India and Gujarat.
·765	·797	·803	·788		87	76	73	79		7·3	6·6	7·0		4	1	2	1	1	1	16	29	7	S. 82° W.		68		112†		8·36	1·94	Udaipur	
·817	·865	·840	·851	+·051	91	75	63	76	+1	8·0	7·1	7·6	−0·4				1		9	33	15	4	S. 54° W.	S. 52° W.	80	75	265	278	3·61	1·44	Deesa	
·829	·874	·849	·850		89	73	70	78		6·0	5·6	5·8							10	30	20		S. 53° W.		83		522†		9·10	5·06	Jamnagar‡	
·639	·691	·687	·672	+·016	90	86	84	90	+1	8·8	8·4	8·6	−0·1						1	28	31	2	S. 69° W.	S. 71° W.	87	89	460	517	5·12	0·40	Belgaum	Deccan.
·675	·692	·676	·681	+·021	89	67	59	72	+3	8·5	9·0	8·8	+0·4	1	1	1				14	21	24	N. 79° W.	W.	77	81	348†	296	7·71	3·33	Sholapur	
·756	·804	·795	·785	+·032	92	74	66	77	+1	8·4	8·7	8·6	+0·4	1	2					2	28	29	N. 67° W.	N. 67° W.	87	82	172†	200	5·38	1·64	Akola	
·676	·715	·724	·705	+·008	93	78	72	81	0	9·0	8·8	8·9	+1·1		3					4	28	27	N. 69° W.	N. 65° W.	86	76	238†	195	11·47	3·29	Buldana	
·759	·801	·810	·790	+·021	88	77	69	78	−1	8·0	7·9	8·0	+0·4		2					2	7	51	N. 51° W.	N. 81° W.	93	84	195	199	7·05	1·32	Khandwa	
·797	·848	·847	·831	+·034	91	77	73	80	+1	7·7	8·0	7·9	−0·7	8	6		2	3	3	5	30	5	N. 88° W.	N. 80° W.	53	64		191	14·50	2·78	Nagpur	
·802	·868	·866	·845		91	78	74	81		7·1	7·7	7·4		20		2		4	1	30		5	S. 46° W.		47		35†		18·03	3·74	Do. (Sanitary Commr.'s Office).	
·726	·757	·823	·769	+·044	93	78	74	82	+3	7·4	7·5	7·5	+0·7	7							52	3	N. 88° W.	N. 81° W.	87	84	175†	203	10·90	2·70	Hyderabad (Deccan).	
·854	·913	·902	·890	+·012	91	85	84	87	0	8·4	9·0	8·7	−0·1							12	43	7	S. 87° W.	S. 81° W.	92	83	303	376	18·76	5·03	Bombay	West Coast.
·763	·887	·876	·842	+·014	89	86	84	86	−1	6·8	7·1	7·0	−0·2	3						6	41	12	N. 85° W.	N. 87° W.	87	73	119	87	28·09	3·75	Karwar	

† Corrected. ‡ Wind variable 2.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 64

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	28·892	28·779	·113	28·852			92·5	71·6	20·9	99·7	68·4	31·3	85·1	86·2	80·4		68·3	73·0	73·3	71·6
	Salem	940	·919	·790	·129	·869	−·024	29·738	90·4	73·2	17·2	96·9	69·6	27·3	81·8	87·6	79·9	+0·1	71·3	75·9	78·1	75·1
	Chitaldroog	2,405	27·448	27·352	·096	27·409	0	·735	81·7	68·0	13·7	84·7	65·9	18·8	74·9	77·9	73·9	+0·4	66·6	69·6	70·7	69·0
	Bangalore	3,021	26·878	26·773	·105	26·838	−·006	·742	81·2	65·9	15·3	88·0	64·4	23·6	74·0	78·6	72·9	+0·6	65·1	68·4	69·6	67·7
	Hassan	3,091	·821	·738	·083	·792	−·011	·773	78·6	65·1	13·5	82·8	63·5	19·3	74·3	79·9	71·0	+1·2	64·2	68·4	68·8	67·1
	Mysore	2,518	27·376	27·278	·098	27·327	−·012	·758	83·0	66·5	16·5	87·1	64·7	22·4	76·8	78·0	73·5	−0·2	65·5	69·1	70·1	68·2
	Madras	22	29·779	29·662	·122	29·729	−·014	·680	92·9	77·1	15·8	100·5	72·9	27·6	86·2	88·2	83·5	−0·5		78·3	78·7	77·9
	Bellary	1,475	28·338	28·220	·118	28·288	−·016	·691	90·2	73·6	16·6	96·2	71·1	25·1	81·5	86·6	80·5	−0·3	69·6	74·2	77·3	73·7
	Waltair	226	29·469	29·364	·105	29·417		·581	89·3	78·3	11·0	96·4	76·4	20·0	85·5	85·8	83·0		74·8	77·7	78·5	77·0
Hill Station, Baluchistan.	Quetta	5,502	24·512	24·424	·088	24·466	+·024		91·0	63·4	27·6	94·8	50·9	43·9	83·7	88·9	76·7	+1·7	54·3	61·7	60·7	58·9
Hill Stations, Northern India.	Leh	11,593	19·670	19·557*	·113	19·625*	+·004		72·8	46·8	26·0	78·1	38·7	39·4	63·7	70·3	58·9	−2·3	43·2	52·5	55·6	50·8
	Srinagar	5,204	24·715	24·633	·082	24·672	+·004		82·6	63·7	18·9	92·5	56·5	36·0	72·8	80·2	72·5	0	61·1	68·8	73·7	67·9
	Simla (Ridge)	7,224	23·033	22·983	·050	23·006	+·004		67·0	59·1	7·9	69·9	51·4	18·5	63·8	64·6	62·5	−0·9	58·0	61·3	63·0	60·8
	Chakrata	7,022	·185†	23·142†	·044	·162†	−·007		67·4	59·9	7·5	72·5	56·8	15·7	63·8	64·7	63·1	−0·3	59·5	62·9	63·8	62·1
	Ranikhet	6,969	·991	·924	·070	·944	−·011		72·9	62·6	10·3	77·9	58·1	19·8	68·5	69·2	66·9	+0·1	61·6	65·4	66·2	64·4
	Muktesar	7,600	22·771	22·767	·064	22·739			68·9	57·9	11·0	73·7	54·3	19·4	63·7	64·2	62·2		57·2	61·6	62·1	60·3
	Katmandu	4,388	25·547	25·469	·078	25·511	‡		81·6	68·2	13·4	87·2	64·9	22·3	76·5	77·2	73·8	−1·2	66·8	70·9	71·6	69·8
	Darjeeling	7,376	22·950	22·904	·046	22·930	−·002		66·0	57·5	8·5	70·6	55·5	15·1	63·0	64·1	61·3	+0·7	57·6	61·9	62·9	60·8
Hill Stations, Central India.	Mount Abu	3,945	25·886	25·825	·061	25·853	−·008		72·6	65·3	7·3	79·2	63·4	15·8	69·2	70·7	68·4	+0·9	61·1	67·3	68·0	66·5
	Pachmarhi	3,528	26·298	26·218	·080	26·256	+·009		76·8	68·1	8·7	81·7	65·8	15·9	71·3	71·1	71·1	+1·6	67·3	69·3	70·4	69·0
	Chikalda	3,642	·170	·089	·081	·127	−·013		73·8	65·8	8·0	78·8	63·9	14·9	70·1	72·6	68·8	+1·2	65·2	69·3	71·3	68·6
Hill Stations, S. India.	Kodaikanal	7,688	22·795	22·730	·065	22·761			62·3	52·4	9·9	65·4	50·4	15·0	59·8	57·6	56·0		49·5	55·8	56·1	53·5
	Ootacamund		23·022	·957	·065	·990			62·8	52·2	10·6	66·5	47·8	18·7	60·0	58·7	56·5		51·2	56·1	56·3	54·5
	Dodabetta		21·997	21·960	·037	21·980			56·3	48·2	8·1	61·9	45·7	16·2	54·7	51·8	51·1		48·4	52·1	50·4	50·3
Extra India.	Aden	94	29·635	29·496	·139	29·563	−·027	·585	93·8	82·7	11·1	96·7	78·8	17·9	89·1	91·9	88·0	+3·2	74·8	80·8	78·2	77·9
	Perim	201	·520	·399	·121	·457	−·037	·584	96·5	85·4	11·1	100·7	83·5	17·2	93·0	93·6	90·2	+1·1	75·8	80·6	81·0	79·1
	Minicoy	7	·932	·878	·054	·900		·832	85·9			87·7			82·7	82·4				77·6	77·3	
	Zanzibar	73	30·076	·973	·103	30·025	−·029	30·025	81·9	73·3	8·6	84·3	71·4	12·9	76·8	80·7	77·3	+1·0	68·5	73·5	73·3	71·8
	Port Victoria (Seychelles).	15	29·983	·961	·082	29·942	−·031	29·882	80·6	73·0	7·6	82·4	70·5	11·9	79·2	80·1	76·7	−1·4	71·0	73·7	73·9	72·9
	Mauritius (Pamplemouses).	181				30·008	−·011	30·139				78·7	56·3	22·4			68·5	+0·4				63·0

* Mean of 30 days. † Mean of 25 days. ‡ Mean of 17 days.

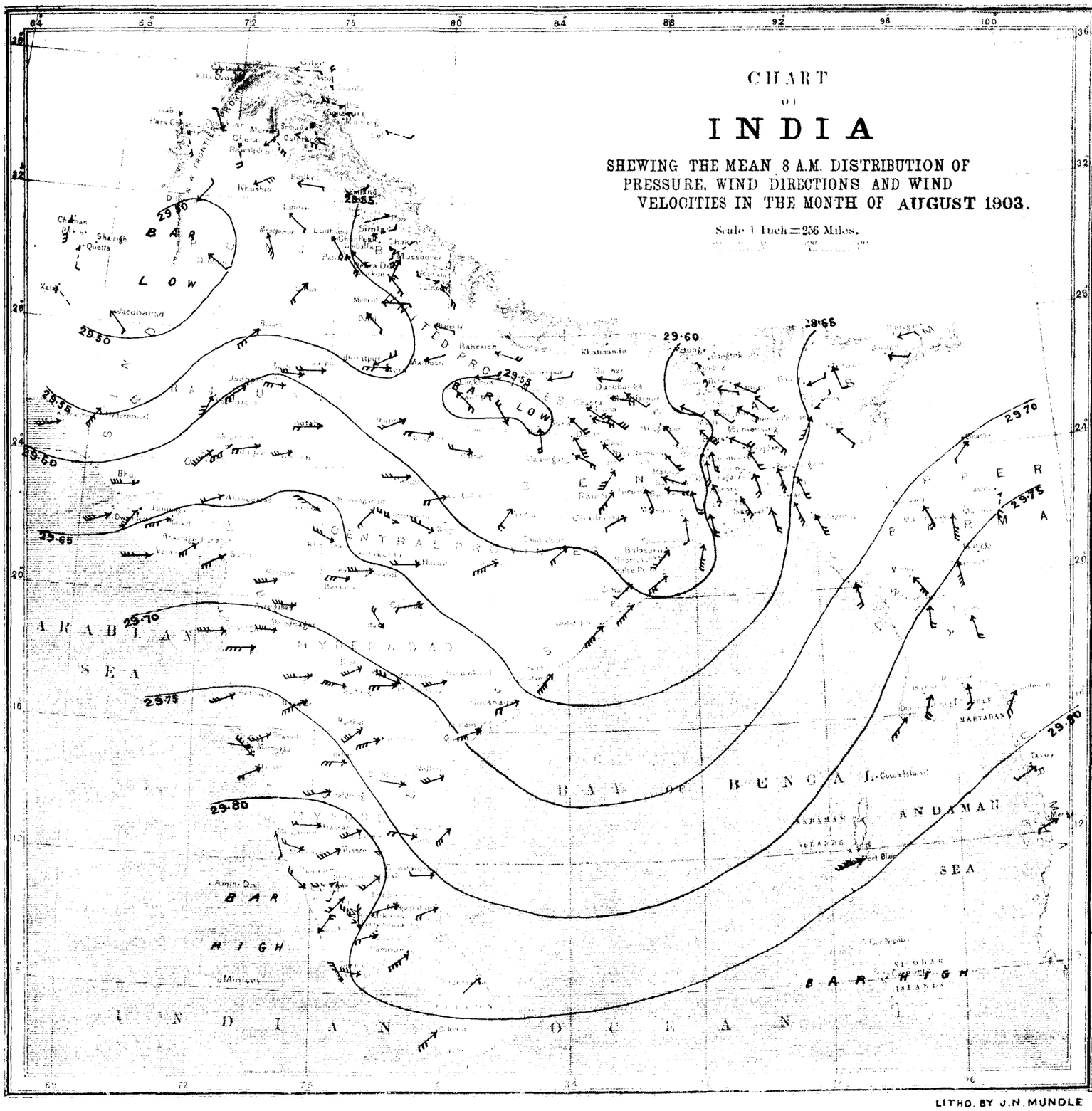
II—*concluded.*

Stations in India, Burma, etc., for August, 1903—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
																									%	%						
·653	·651	·647	·661		84	54	53	61		5·5	8·2	6·9		7	13	4	4	2	13	10	3	6	S. 74° W.		10		84¶		1·33	0·79	Periyakulam	South India.
·742	·820	·847	·803	+·051	91	76	65	77	+ 4	6·8	8·0	7·4	+1·1	14	1	2			7	18	20		S. 61° W.	S. 57° W.	58	75	93¶	93	10·04	1·86	Salem.	
·641	·658	·664	·654	+·034	93	76	70	80	+ 4	9·1	8·6	8·9	+0·3						1	17	32	12	S. 85° W.	S. 83° W.	85	87	206¶	259	5·48	1·83	Chitaldroog.	
·611	·631	·622	·621	+·009	96	75	65	79	+ 1	8·7	8·0	8·4	+1·8		1				1	22	31	7	S. 78° W.	S. 79° W.	85	90	224¶	188	7·47	1·78	Bangalore.	
·595	·630	·634	·620	+·030	95	74	74	81	+ 1	9·1	8·8	9·0	+0·2	1	1					14	30	16	N. 87° W.	N. 87° W.	82	89	90¶	106	2·64	0·83	Hassan.	
·620	·620	·640	·627	—·003	95	67	68	77	+ 2	9·1	9·0	9·1	+0·6			1			*	19	36	6	S. 81° W.	S. 84° W.	87	86	209¶	333	4·16	2·56	Mysore.	
	·863	·856	·880	+·062		70	65	77	+ 5	5·9	6·7	6·3	−0·3		1		2	2	10	15	26	6	S. 66° W.	S. 41° W.	66	60	146¶	166	6·45	2·07	Madras.	
·677	·760	·826	·754	+·096	82	70	65	72	+ 9	7·9	7·8	7·9	+0·1		1	1			1	9	35	15	N. 85° W.	N. 87° W.	84	87	257¶	263	2·41	0·69	Bellary.	
·820	·816	·876	·847		85	70	71	75		8·1	7·9	8·0			1	1	1		9	49		1	S. 39° W.		85		147¶		2·32	0·86	Waltair.	
·335	·326	·239	·300	—·084	58	28	17	34	−11	0·7	0·9	0·8	−0·5	20	10	1		2	2	2	13	12	N. 55° W.	N. 80° W.	40	31	38¶	76	0	0	Quetta.	Hill Station, Baluchistan.
·255	·306	·336	·299	+·035	78	51	46	58	+10	3·5	4·2	3·9	−1·3		2	3	5	1	13	16	18	4	S. 54° W.	S. 69° W.	52	39	49¶	39	0·06	0·03	Leh.	Hill Stations, Northern India.
·514	·666	·761	·648	+·033	87	82	75	81	+ 4	3·5	3·8	3·7	−0·3	8	7	3	3	6	10	5	6	14	N. 83° W.	N. 51° W.	16	5	74¶	62	4·12	0·88	Srinagar.	
·474	·519	·562	·518	— ·010	91	87	92	91	0	8·0	9·7	8·9	0	30	19	2		1	8	1		1	N. 4° E.	N. 32° E.	19	22	53¶	81	18·43	4·89	Simla (Ridge).	
·506	·568	·585	·553	+·012	93	95	95	96	+ 4	9·1	9·2	9·2	+0·6	8	3			15	35	1			S. 13° E.	S. 75° W.	71	46	222¶	111	28·25	9·03	Chakrata.	
·539	·592	·615	·582	+·010	95	85	86	89	+ 1	9·0	9·2	9·1	+0·4	25		2	3			15	9	8	S. 80° W.	S. 58° W.	34	25	55¶	50	12·59	2·33	Ranikhet.	
·467	·529	·539	·512		96	89	89	91		8·8	9·0	8·9		16	3	1	6	18	5	4	5	4	S. 31° E.		27		116¶		10·12	1·61	Muktesar.	
·646	·698	·717	·687	+·010	93	77	77	82	+ 1	6·9	7·0	7·0	−0·1		4		19		1	1	37		N. 83° W.	N. 77° W.	31	5	28¶	18	15·46	2·14	Katmandu.	
·476	·545	·562	·528	+·021	99	95	94	96	+ 1	8·1‡	6·9§	7·5	−1·4	12			4	15	5	13	8	5	S. 16° W.	S. 81° E.	35	23	86¶	95	26·69	3·13	Darjeeling.	
·588	·649	·656	·631	+·022	94	91	88	91	0	8·8	8·7	8·8	+0·3		1	3		3	2	42	7	4	S. 52° W.	S. 60° W.	72	73	297¶	254	17·97	4·75	Mount Abu.	Hill Stations, Central India.
·664	·692	·703	·686	+·027	96	90	84	90	0	9·1	8·9	9·0	+0·3	4	3	2	1			1	12	39	N. 50° W.	N. 84° W.	79	75	279¶	206	33·78	7·19	Pachmarhi.	
·618	·709	·754	·694	+·051	97	96	94	96	+ 2	8·3	7·4	7·9	−1·0	39	3						20		N. 39° W.	N. 41° W.	36	74	170¶	266	14·83	2·60	Chikalda.	
·326	·408	·438	·387		83	80	92	86		7·4	9·4	8·4			6			1	1		9	38	N. 48° W.		76		323¶		12·94	1·63	Kodaikanal.	Hill Stations, S. India.
·368	·411‖	·432	·404		94	79	87	87		7·2	8·7	8·0		21	1					14	20	6	S. 83° W.		56		121¶		6·81	1·45	Ootacamund	
·337	·364	·353	·351		98	55	91	91		7·5	9·2	8·4		1	1					33	15	12	S 74° W.		79		358¶		12·76	2·57	Dodabetta.	
·761	·940	·785	·829	+·044	68	69	53	63	− 2	2·4	1·2	1·8	0	9		2	6	17	8	17	3		S. 8° E.	S. 4° E.	50	70	11¶ 199¶	262	0·05	0·05	Aden.	Extra India.
·762	·883	·890	·845	+·041	63	58	57	59	+ 1	0·7	1·2	1·0	−1·6			1	1	3		15	14	28	N. 79° W.	N. 49° W.	66	51	321¶	333	0	0	Perim.	
	·879	·869				79	79			6·1	6·6	6·4			7					1	12	42	N 56° W.		90		188¶		7·95	2·26	Minicoy.	
·635	·787	·724	·715	+·013	77	85	69	77	− 1	5·9	5·6	5·8	+1·2			1	1	13	32	13	2		S. 1° W.	S. 9° E.	81	76	183¶	168	2·72	1·36	Zanzibar.	
·742	·761	·762	·755	+·030	91	76	74	80	+ 5	6·5	6·3	6·4	0		1	2		44	10	4		1	S. 35° E.	S. 36° E.	81	92	310	323	0·70	0·30	Fort Victoria (Seychelles).	
			·494	—·015				71	− 4			6·5	+1·0										S. 71° E.	S. 67° E.			300	295	1·88	0·51	Mauritius (Pamplemousses).	

‡ Mean of 23 days. ‖ Mean of 29½ days. ¶ Corrected. ** Wind variable 5.

G. I. C. P. O.—No. 137 Meteo.—31-12-03.—595—C. T.



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	„	„	„	„	„

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.

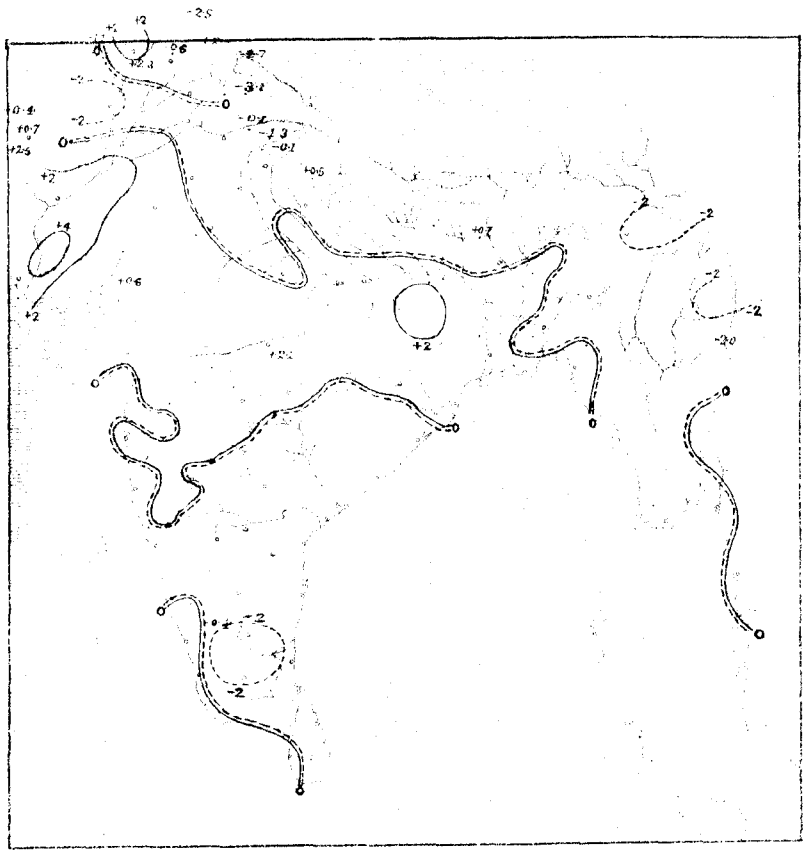
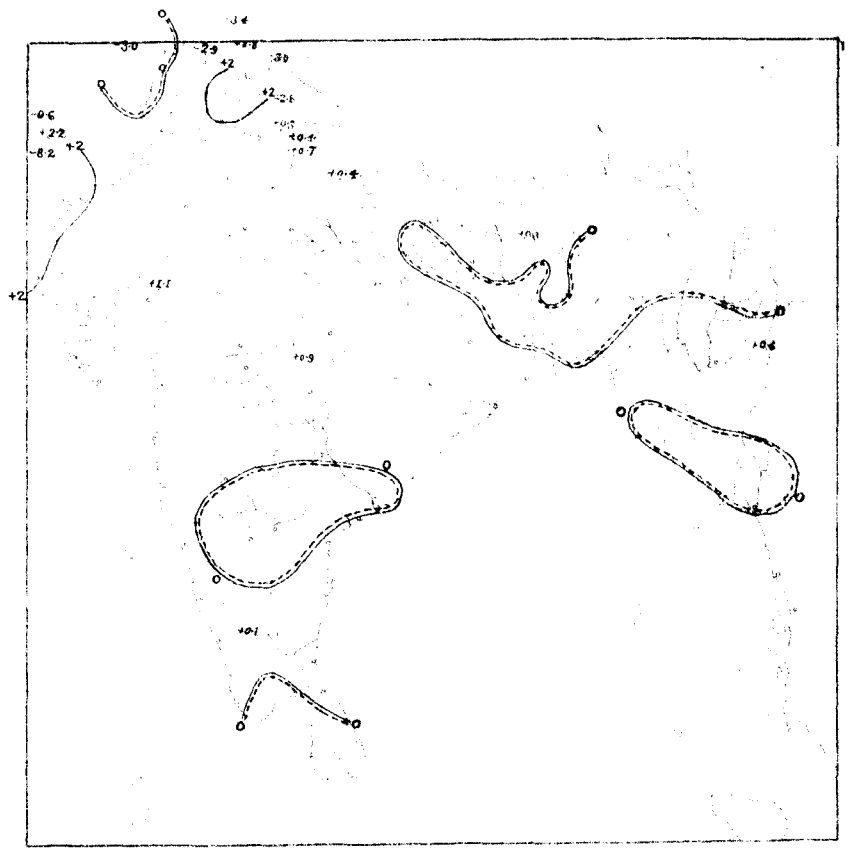


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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 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 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.

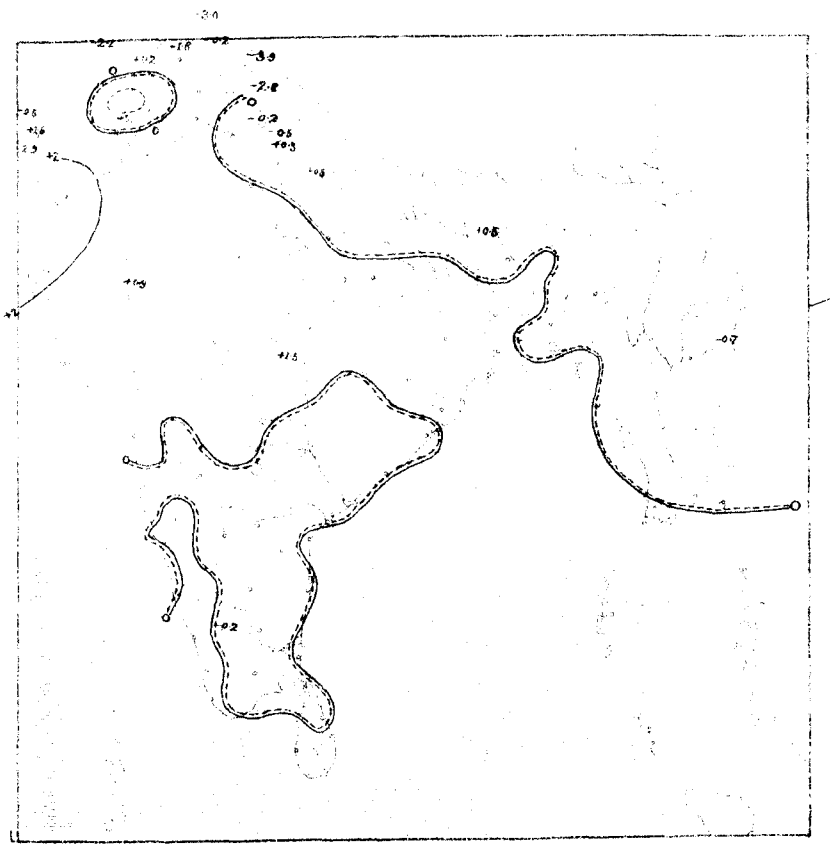
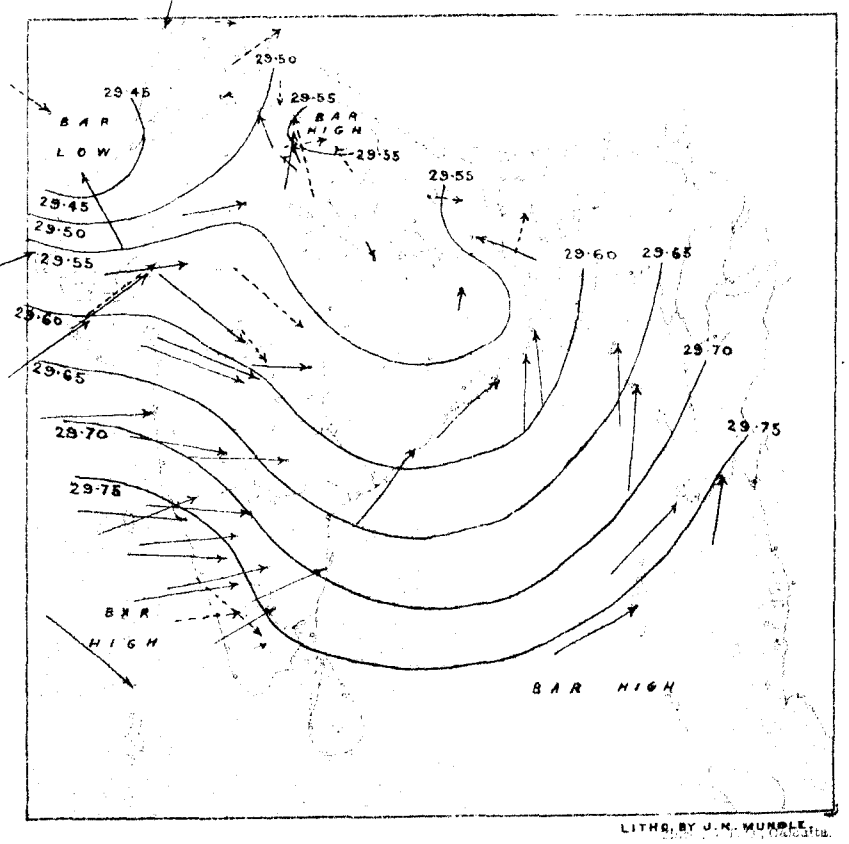


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF AUGUST 1903.



No. 164, Wr ... Aug 8—5,000

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 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 ⅜th of an inch being equal to 100 per cent.

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN ABSOLUTE HUMIDITY OF THE MONTH FROM THE NORMAL.

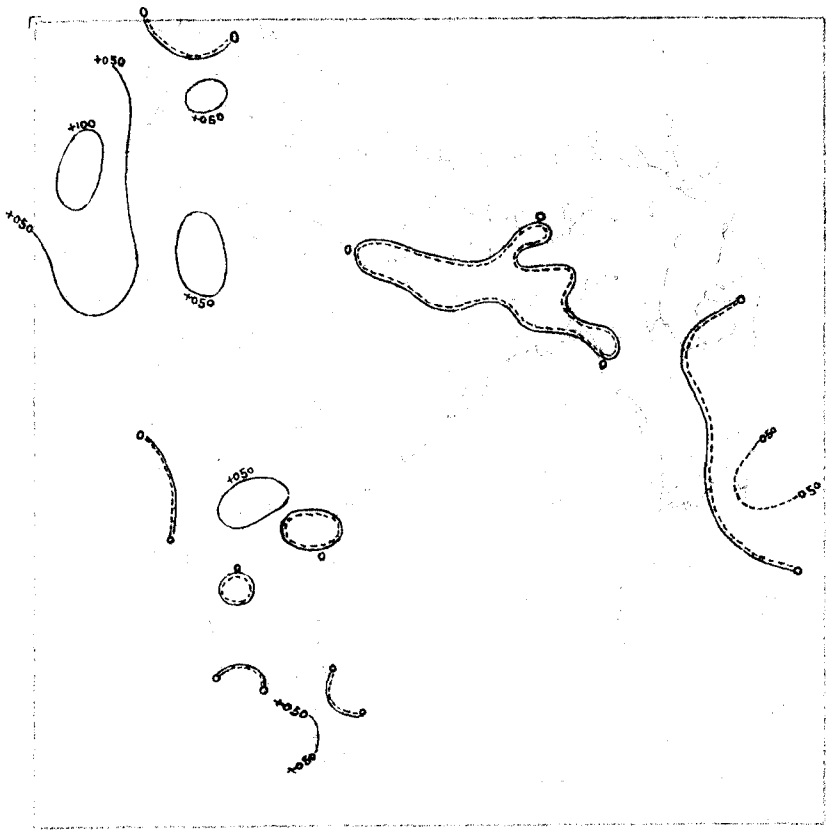
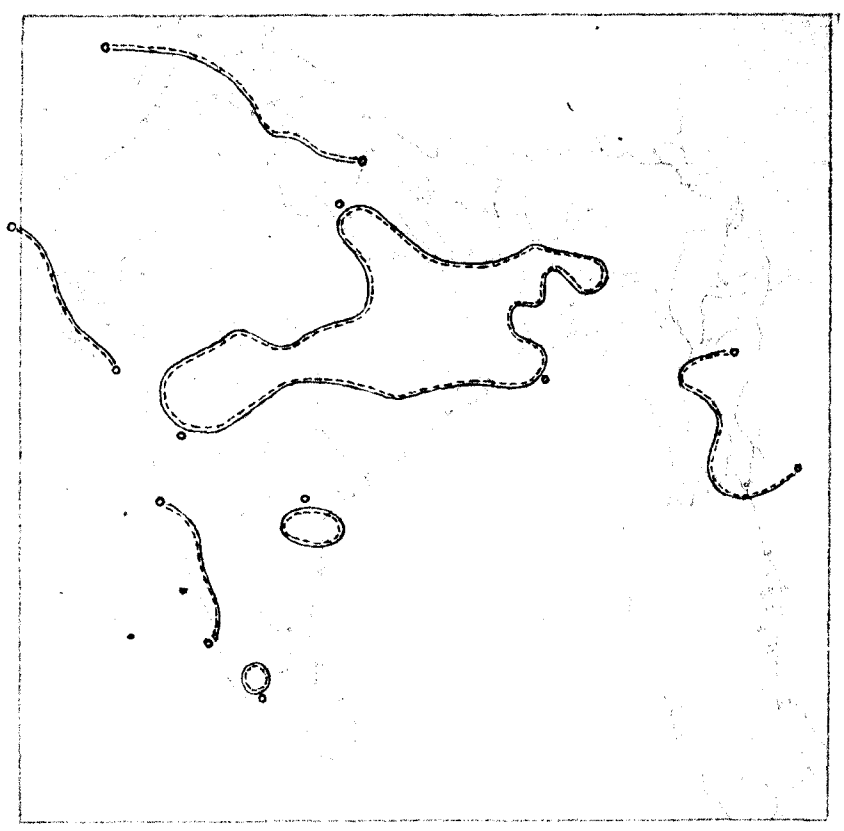


CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN RELATIVE HUMIDITY OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN CLOUD AMOUNT OF THE MONTH FROM THE NORMAL.

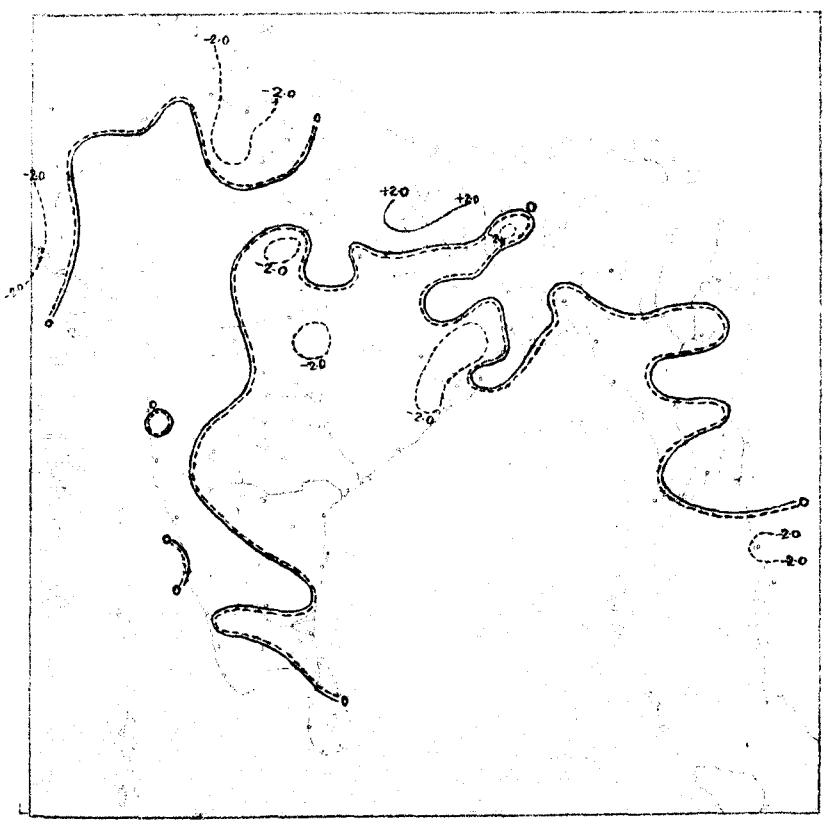
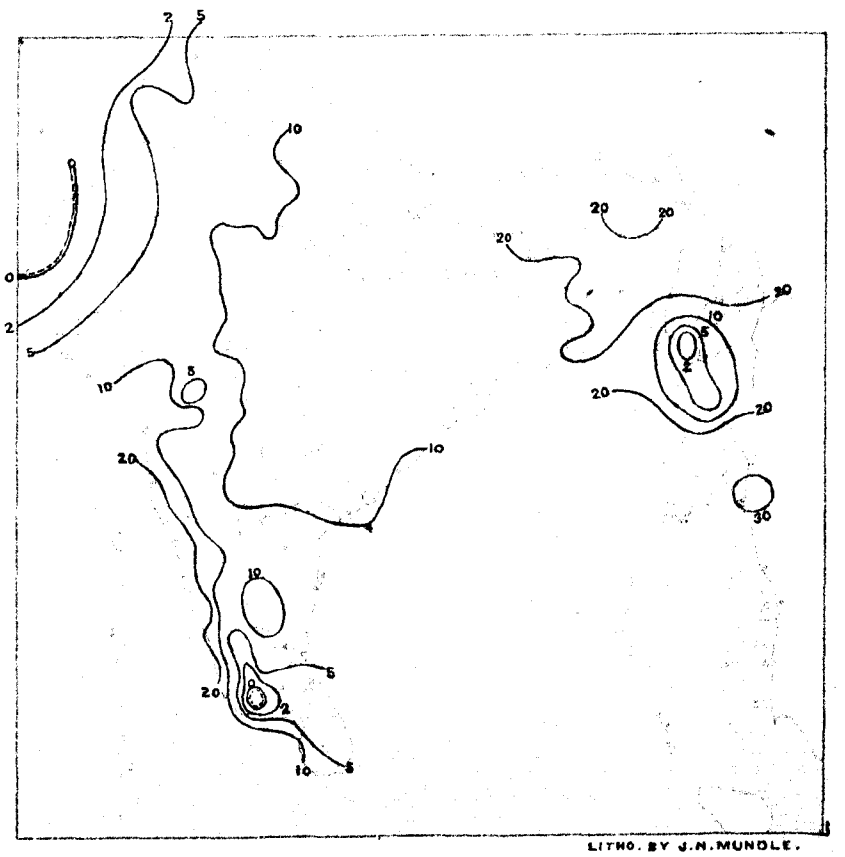


CHART SHEWING THE TOTAL NUMBER OF RAINY DAYS IN THE MONTH OF AUGUST 1903.



LITHO. BY J.N.MUNDLE.

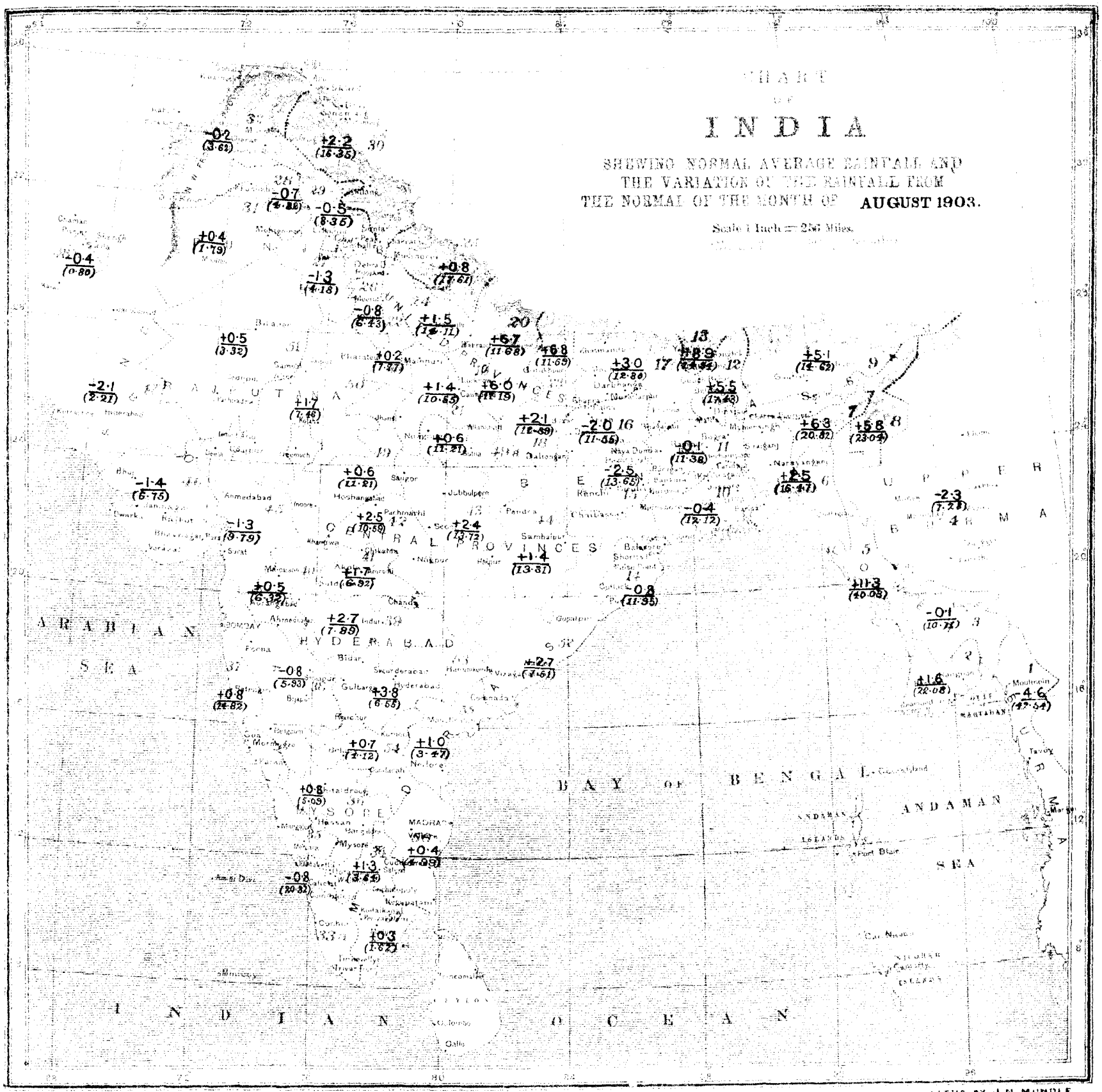
Explanation.

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

A rainy day is one on which 0·10 inch or more of rain is received within 24 hours.

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. 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. West Punjab
32. North West Frontier Province
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 and Cutch
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
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, SEPTEMBER, 1903.

INTRODUCTION.

THIS review of the weather in India during the month of September 1903, is based on observations taken daily at 8 A.M. at 232 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 September 1903.

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 under review :—

During September 1903 the weather was more disturbed than usual over the Bay area and surrounding regions, occasioned by a series of small storms which was developed over the Bay, and thence progressed through the central parts of the country into upper India. Over western India, on the contrary, the weather was fairly quiet. The south-west monsoon was, on the whole, weaker than usual over the Arabian Sea, and the rains ceased at about the normal date over north-west India.

At the commencement of the month pressure was increasing briskly to rapidly over nearly the whole country, due to the filling up of a depression lying over the Satpuras. The residual depression of this disturbance was

however, still occasioning moderately heavy rain over the central districts of India, the heaviest falls on the 1st and 2nd having been as follows:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Bilaspur	Mungeli	1st	4·60
Feudatory States	Deogarh (Bamra)	,,	4·03
Kotah	Iklera	2nd	6·15
Surat	Pardi	,,	5·35
Jhalawar	Jhalrapatan	,,	5·01
Hoshangabad	Sohagpur	,,	4·96
Mandla	Tikaria	,,	4·75
Hoshangabad	Pachmarhi	,,	4·68
Saugor	Khurai	,,	4·65
Damoh	Hatta	,,	4·52
Bhopal Agency	Narsinghgarh	,,	4·46
Jhalawar	Chaoni	,,	4·39
Kotah	Bakani	,,	4·38
Bhopal Agency	Maksudangarh	,,	4·23
Hoshangabad	Hoshangabad	,,	4·15
Kotah	Manoharthana	,,	4·08

This rainfall reduced temperature to below the normal over the areas where it fell, as is shown by the following comparative data of temperature for the more central districts for these two days:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	1st September.	2nd Septembe .
	°	°
Gujarat	—0·1	—0·3
Central India	+2·9	—0·3
Central Provinces	+0·2	—2·4
Berar	—1·9	—3·3
Bombay Deccan	—2·1	—1·4

Ordinary weather, with feeble monsoon conditions, giving scattered rainfall, prevailed over the Indian land area until the 5th, but on the following day, the 6th, another very shallow barometric depression appeared over the east Satpuras. This depression hung about this region during the 7th and 8th, during which days moderate rain continued to be received in the neighbourhood of the disturbance and in north-east India due to the flow of moist air from the Bay. This rainfall maintained relatively low temperatures over the central parts of the country and the Gangetic plain, but the reduction of temperature over these areas was at no time very large or important. During this period there was no rain over the extreme north-west of India, and from the 1st to the 9th the heat was greater than usual over the North-west Frontier Province, the Punjab, Rajputana and Sind. The following gives temperature data for each alternate day from the 1st to the 9th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	1st Sept.	3rd Sept.	5th Sept.	7th Sept.	9th Sept.
	°	°	°	°	°
North-West Frontier Province	+2·8	+4·3	+5·0	+4·0	+2·6
Punjab	+4·5	+4·1	+4·0	+2·5	+1·8
Rajputana	+5·5	+3·6	+3·2	+1·2	0
Sind	+3·3	+2·0	—0·2	+1·4	+2·1

Between the 9th and the 11th the weather became very disturbed over Kashmir and the extreme north-west of India. Snow fell in Kashmir and rain over the hills and plains of north-west India. This disturbed weather was followed by an outflow of cool air from the hills, the observer at Cherat reporting a northerly wind, blowing at the rate of 40 miles per hour, on the morning of the 11th. In consequence there occurred a rapid fall of temperature which was reduced to considerably below the normal over the whole of north-western India and surrounding regions. The following gives data from the 10th to 14th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	10th Sept.	11th Sept.	12th Sept.	13th Sept.	14th Sept.
	°	°	°	°	°
Further Kashmir	—0·2	+ 0·4	— 1·1	—5·3	—6·7
Baluchistan	+1·3	—10·7	— 9·4	—7·2	—6·0
North-West Frontier Province	—2·3	— 7·3	—10·0	—7·1	—5·5
Punjab	—0·3	— 5·7	— 8·7	—6·4	—3·8
Rajputana	—0·8	— 4·8	— 4·7	—3·7	—2·8
Gujarat	—0·7	— 1·2	— 0·3	+0·6	+1·6
Central India	—2·9	— 1·1	— 0·8	—0·8	—1·9

In the meantime pressure began to give way slowly around the head of the Bay on the 10th, and on the morning

of the 11th a small storm was shown near Jessore where pressure was 0·104″ below the normal. This storm travelled to the neighbourhood of Hazaribagh by the 12th; of Benares by the 13th; of Allahabad by the 14th; and of Cawnpore by the 15th where it filled up. Heavyish rain accompanied the storm in its passage west-north-westward, the largest amounts reported (exceeding 5″ in 24 hours) having been as follows:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
24-Parganas	Budge Budge	12th	6·72
Howrah	Howrah	,,	6·57
Midnapore	Kukrahaty	,,	6·21
24-Parganas	Basirhat	,,	6·11
Khulna	Kalaroa	,,	6·00
24-Parganas	Diamond Harbour	,,	5·83
	Barasat	,,	5·54
Midnapore	Contai	,,	5·37
Bulandshahr	Bulandshahr	,,	5·30
Midnapore	Tamluk	,,	5·23
24-Parganas	Dum Dum	,,	5·18
Jaunpur	Kutahan	14th	7·75
Sultanpur	Kadipur	,,	6·52
Mirzapur	Robertsganj	,,	6·38
Bara Banki	Haidargarh	,,	5·75
Mirzapur	Chakia	,,	5·15
Azamgarh	Deogaon	,,	5·06
Gorakhpur	Maharajganj	15th	12·25
Fyzabad	Fyzabad	,,	11·71
Basti	Harraiya	,,	10·37
Sultanpur	Kadipur	,,	9·52
Fyzabad	Akbarpur	,,	8·10
Gonda	Gonda	,,	7·13
Fyzabad	Bikapur	,,	7·10
Basti	Domariaganj	,,	7·00
Bahraich	Kaisarganj	,,	7·00
Bara Banki	Fatehpur	,,	6·38
Gonda	Tarabganj	,,	5·96
	Utraula	,,	5·90
Basti	Bansi	,,	5·73

Temperature fell under the influence of this rainfall and was somewhat below the normal over west Bengal and considerably below over the United Provinces from the 12th to the 16th. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	12th Sept.	13th Sept.	14th Sept.	15th Sept.	16th Sept.
	°	°	°	°	°
Bihar	+0·4	−3·0	+0·1	+2·0	+2·1
Chota Nagpur	+0·2	−4·2	−2·1	+0·1	+0·5
United Provinces of Agra and Oudh.	−0·6	−2·6	−2·8	−4·3	−3·8

During this time the weather was showery over the Peninsula and the temperature unsteady, but the general conditions were fairly normal and call for no special description..

On the 15th another shallow depression appeared; this time over the north-west of the Bay. The depression crossed the Circars coast on the 16th, advanced through the Deccan on the 17th and 18th and through Khandesh, Gujarat and Sind between the 19th and 21st. Moderately heavy rain accompanied the storm in its progress. The mean temperature was low over the centre of the Peninsula during this time, but was steadily high in front of the advancing storm over the north-west of the Peninsula and over north-west India and though rain fell over Gujarat and Sind on the 20th and 21st, the accompanying fall of temperature was not sufficient to reduce the mean temperature to below the normal. The following gives comparative temperature data for north-west India and Berar from the 15th to the 21st:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	15th Sept.	16th Sept.	17th Sept.	18th Sept.	19th Sept.	20th Sept.	21st Sept.
	°	°	°	°	°	°	°
Punjab	−1·7	−0·9	−2·1	−0·5	+0·8	+2·0	+3·4
Rajputana	−0·6	0	−0·9	+0·7	+2·3	+2·0	+1·9
Sind	+0·9	+0·5	+2·0	+2·9	+6·1	+6·4	+4·8
Gujarat	+1·7	+2·0	+2·9	+3·4	+4·5	+0·6	+0·1
Berar	+0·7	+2·7	+3·6	+2·8	−0·3	−1·4	−0·2

The rains ceased over north-west India at this time and except for a slight fall over Sind on the 30th, the mean temperature of this part of India was excessive till the close of the month. The following gives comparative

temperature data for this area for each alternate day from the 22nd to the 30th :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	22nd Sept.	24th Sept.	26th Sept.	28th Sept.	30th Sept.
	°	°	°	°	°
North-West Frontier Province	+0·7	+2·3	+3·3	+3·3	+4·0
Punjab	+4·0	+4·0	+5·2	+4·3	+4·4
Sind	+4·5	+4·1	+2·8	+2·4	+0·9
Rajputana	+2·2	+2·0	+3·1	+0·7	+2·4
Gujarat	−0·5	+0·4	+1·1	+0·1	+0·1
Central India	+0·1	+0·1	+2·3	+1·0	+1·9

It will be observed that the area of greatest excess lay over Sind at the commencement of this period, but at the close of the month was shown over Kashmir where the heat was largely above the normal on the 30th. The following gives data :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF								
	22nd Sept.	23rd Sept.	24th Sept.	25th Sept.	26th Sept.	27th Sept.	28th Sept.	29th Sept.	30th Sept.
	°	°	°	°	°	°	°	°	°
Further Kashmir	+1·7	+3·1	+2·3	+5·2	+6·3	+7·8	+7·1	+7·8	+10·6

Over other parts of India the weather remained unsettled and showery—more particularly over the Deccan and north-east India. On the 27th pressure was giving way over the whole Indian land area and a depression was apparently forming at the head of the Bay. The reports of the 28th showed that a depression had been developed over the Sunderbuns. This depression moved westward through Orissa into the Central Provinces occasioning rain over north-east India and the Peninsula so that the mean temperature was generally low over these areas. The following gives comparative data for all divisions (except those in the north-west) from the 28th to the 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	−1·5	−0·4	+0·6
Assam	+0·2	+0·6	+1·2
Bengal	−1·2	−1·6	−1·7
Orissa	+0·1	−2·2	−4·3
Bihar	+0·3	+0·7	+0·1
Chota Nagpur	+1·1	−0·2	−1·8
United Provinces of Agra and Oudh	+1·0	+2·0	+3·0
Central Provinces	+0·8	+1·4	+1·8
Berar	+1·0	+0·7	+0·3
West Coast	+0·9	+0·5	+0·3
Bombay Deccan	−0·8	0	+0·5
Mysore	+1·7	+0·5	−0·5
Madras Coast	+0·3	+0·7	−0·9
Madras Deccan	−1·6	+0·4	−1·7
South India	+0·1	0	−0·5

Pressure.—The mean pressure of the Indian land area for the month of September 1903 was ·002″ below the normal so that the variation was identical with that for the same month last year. Compared with this general condition pressure was in excess over Burma, Assam, Bengal, the north-east of the Peninsula, and along the foot of the Himalayas as far west as Umballa. The excess was nowhere large, but amounted to 0·038″ at Narayanganj, to 0·030″ at Silchar, to 0·028″ at Dinajpur and Cuttack, and to 0·030″ at Bassein. Over the whole of the remainder of the Indian land area, as well as westward over Persia and Arabia, pressure was lower than usual, while over the south-east trades region the pressure variations were irregular. The negative anomalies were generally small, but amounted to 0·033″ at Colombo, to 0·024″ at Negapatam and to 0·025″ at Salem and Surat. The vertical pressure anomalies were generally small except in the Sind-Baluchistan and the Leh-Lahore areas, but were on the whole, positive.

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 Sept. 1903.	Pressure anomaly, Sept. 1903.
	″	″
Burma Coast and Bay Islands	+·015	+·017
Burma Inland	+·013	+·015
Assam	+·017	+·019
Bengal and Orissa	+·020	+·022
Gangetic Plain and Chota Nagpur	+·004	+·006
Upper Sub-Himalayas	−·003	−·001
Indus Valley and North-West Rajputana	−·013	−·011
East Rajputana, Central India and Gujarat	−·014	−·012
Deccan	−·007	−·005
West Coast	−·020	−·018
South India	−·011	−·009

Temperature.—Except in north-west India, where, on the mean of the month, the heat was greater than usual, the variations of the mean temperature conditions were generally unimportant.

The mean maximum or day temperature of the month exceeded the average over the greater part of the north-west dry area (Jacobabad +3°·5); the Bombay coast and Deccan (Belgaum and Poona each +1°·0); the Burma coast (Mergui +1°·3) and north Bengal and part of Assam (Dhubri +1°·1). The mean maximum was also in considerable excess at the Kashmir hill stations. In all other places the mean day temperature was in defect, more especially so at some central stations (Nowgong −2°·7); in south Madras (Trichinopoly −4°·2), and locally in the North-west Frontier Province (Dera Ismail Khan −3°·0).

The mean minimum temperature of the month, owing in part probably to the cloudy state of the sky, was more or less excessive in all places except parts of lower Bengal and of Burma, and the south coast of the Peninsula. The excess was generally small except in north-west India (Lahore +5°·0) and locally in Tenasserim (Mergui +2°·2). At the hill stations the mean minimum temperature was generally in excess.

The mean temperature of the month was in slight excess of the normal over the Deccan and in moderate excess over north-west India, while elsewhere it was in defect. The variations were not large or important, but the excess amounted to 3°·1 at Rawalpindi, to 2°·8 at Kurrachee, to 2°·6 at Jacobabad, and to 2°·4 at Sialkot, while the deficiency amounted to 2°·4 at Trichinopoly, to 1°·8 at Madura, to 1°·4 at Negapatam, to 1°·7 at Madras, to 1°·2 at Coimbatore and to 1°·0 at Indore, Khandwa and Barisal. At the hill stations the variations of the mean temperature from the normal were generally small except at the Kashmir stations where the heat was more or less excessive.

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

Meteorological Province.	Variation of actual from normal of		
	Mean maximum temperature, Sept. 1903.	Mean minimum temperature, Sept. 1903.	Mean daily temperature, Sept. 1903.
	°	°	°
Burma Coast and Bay Islands	+0·2	+0·6	+0·4
Burma, Inland	−0·4	+0·1	−0·2
Assam	−0·3	+0·5	+0·1
Bengal and Orissa	−0·4	0	−0·2
Gangetic Plain and Chota Nagpur	−0·6	+0·8	+0·1
Upper Sub-Himalayas	−0·7	+2·6	+1·0
Indus Valley and North-West Rajputana.	+1·3	+1·8	+1·6
East Rajputana, Central India and Gujarat.	−0·9	+1·5	+0·3
Deccan	−0·8	+1·0	+0·1
West Coast	−0·1	+0·4	+0·2
South India	−1·4	+0·4	−0·5

Winds.—The winds were, on the whole, more westerly than usual over a large part of the Bay, more southerly than usual over Bengal, and more easterly than usual in upper India, while in Rajputana and the upper part of the Indus valley, the directions were very variable. Over nearly the whole of this area the winds were very steady for the time of year, but the velocity, in most places, was lower than usual. Over the Peninsula the wind's direction was, on the whole, approximately normal, but over this region also, while the steadiness was greater than usual, the velocity was low. Very variable winds prevailed at the north-western hill stations. In the south-east trades region the winds were, on the whole, stronger and steadier than usual, and at the three stations in this area the direction was abnormally southerly.

Humidity.—One of the most noteworthy features of the meteorology of the month, as was the case in the same month of last year, was the increased dampness of the air. The absolute humidity or amount of vapour present in the air was greater than usual over nearly the whole country, the only important exceptions having been parts of Burma and of Bengal and the Malabar division of Madras. The relative humidity was in trifling defect, on the mean of the month, in lower Burma, the Brahmaputra valley and north Bengal and over part of the western desert and was in excess over practically the whole of the remainder of the Indian land area. The excess was greatest over the central Punjab (Khushab +12·2); Central India (Neemuch +15·1) and Madras (Trichinopoly +10·5). At most of the hill stations, except those in further Kashmir and at Quetta, the mean relative humidity was also in excess of the normal. In the south-east trades region the variations of humidity were irregular.

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 1903.	Variation of actual from normal, September 1903.	Average actual, September 1903.	Variation of actual from normal, September 1903.
	"	"	%	
Burma Coast and Bay Islands.	·896	+·011	87	−1
Bengal and Orissa	·937	−·004	86	0
Gangetic Plain and Chota Nagpur.	·888	+·030	81	0
Upper Sub-Himalayas	·840	+·101	76	+8
Indus Valley and North-West Rajputana.	·815	+·108	64	+3
East Rajputana, Central India and Gujarat.	·784	+·081	68	+3
Deccan	·752	+·042	80	+3
West Coast	·877	+·036	86	+1
South India	·726	+·070	78	+6

Cloud.—Increased cloudiness accompanied the increased dampness of the air over the greater part of the country.

Over the Bay area there was, however, a remarkable deficiency of cloud, nearly every station around the Bay exhibiting a lower cloud amount than usual. The area of diminished humidity over the Brahmaputra valley and north Bengal was marked by less cloud than usual and there were likewise small areas of diminished cloud amount over the extreme south of Madras, the Bombay Deccan and the central districts of the Central Provinces. Elsewhere the sky, on the mean of the month, was more cloudy than the normal. This was most markedly the case over the Gangetic plain, Central India and Gujarat, where the variations ranged between +2·0 and +3·3. On the hills, except over further Kashmir and Baluchistan, the mean cloud amount was generally greater than the normal, and this was also the case over the south-east trades region.

The following table gives mean variation data of cloud amount of nine meteorological provinces :—

Meteorological Province.	Mean cloud amount.	
	Average actual, September 1903.	Variation of actual from normal, September 1903.
Burma Coast and Bay Islands	7·2	−0·4
Bengal and Orissa	8·0	+1·0
Gangetic Plain and Chota Nagpur	7·6	+1·4
Upper Sub-Himalayas	4·4	+1·0
Indus Valley and North-West Rajputana	1·6	−0·5
East Rajputana, Central India and Gujarat	5·3	+0·9
Deccan	7·7	+0·9
West Coast	6·5	−0·1
South India	7·9	+0·9

Rainfall.—The rainfall of the month of September 1903 exceeded the normal over the greater part of the country—more particularly in the extreme north-west and in the south of the Peninsula. In the submontane Punjab the variation amounted to +105%, in the central Punjab to +68%; in the North-west Frontier Province to +65%; in south Madras to +104%; in the south division of the east coast to +101%; and in south central Madras to +87%. The only important exceptions to this general condition of excess were reported from Bengal where the rainfall was normal in most districts and below the normal in north Bihar, and the Bombay Presidency where the month's rainfall was generally in slight defect and in Sind in moderate defect. Over the countries to the north-west of India, *viz.*, in Afghanistan, Persia, Asiatic Turkey and Arabia practically no rain fell during the month. Ceylon shared in the excess over the Peninsula and the rainfall at Trincomalee and Colombo was as largely above the normal as that in southern India. In the south-east trades region the distribution of rain was irregular, the Seychelles reporting a deficiency, and both Mauritius and Zanzibar some excess of rain.

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

Meteorological Province.	Rainfall.			
	Mean actual for September 1903.	Mean normal for September.	Variation of actual from normal, September 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	20·68	21·28	−0·15*	−1
Burma, Inland	5·62	6·57	−0·95	−14
Assam	12·37	11·92	+0·45	+4
Bengal and Orissa	11·99	11·33	+0·66	+6
Gangetic Plain and Chota Nagpur	7·69	7·22	+0·47	+7
Upper Sub-Himalayas	6·31	4·49	+2·02*	+45
Indus Valley and North-West Rajputana.	1·41	0·76	+0·65	+86
East Rajputana, Central India and Gujarat.	5·10	4·36	+1·18*	+27
Deccan	8·63	7·57	+1·00*	+13
West Coast	10·06	9·20	+0·86	+9
South India	7·97	4·89	+3·08	+63

* 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.

So far the discussion has been concerned almost wholly with the meteorological changes taking place within India and the Indian seas. In the following paragraphs a brief account is given of the larger meteorological changes which have affected surrounding regions so far as they appear to be connected with the Indian weather.

General remarks for the Indian monsoon area.—September is ordinarily the last month of general monsoon rainfall over the whole of India though rain continues to fall over north-east India and parts of the Peninsula during October. The following table gives information as to the diurnal variation of rainfall over India together with information as to the abnormal conditions of pressure and of air movement over the equatorial belt and the Arabian Sea, in order to see if any connection can be traced between the conditions over the sea area and the rainfall conditions over India :—

Date of month.	Diurnal variation of pressure gradient from normal between Mauritius and Seychelles.	Diurnal variation of pressure gradient from normal between Seychelles and Bombay.	Easterly deflection of wind at Mauritius.	Easterly deflection of wind at Seychelles.	Variation of hourly wind velocity from normal at Mauritius.	Variation of daily wind velocity from normal at Seychelles.	Mean variation of rain over India.
1	2	3	4	5	6	7	8
	"	"	°	°	Miles.	Miles.	Inch.
1 . .	+·072	−·014	...	+ 4	+ 0·9	+ 64	−0·01
2 . .	+ 034	+·034	− 4	+ 4	−1·5	+ 59	+0·03
3 . .	+·014	−·013	+ 1	+ 4	−1·2	+ 44	−0·01

Date of month.	Diurnal variation of pressure gradient from normal between Mauritius and Seychelles.	Diurnal variation of pressure gradient from normal between Seychelles and Bombay.	Easterly deflection of wind at Mauritius.	Easterly deflection of wind at Seychelles.	Variation of hourly wind velocity from normal at Mauritius.	Variation of daily wind velocity from normal at Seychelles.	Mean variation of rain over India.
1	2	3	4	5	6	7	8
	"	"	°	°	Miles.	Miles.	Inch.
4 . .	—·042	—·018	+ 10	—17	—2·4	— 32	—0·02
5 .	—·076	—·005	—48	—65	—3·6	+ 17	—0·11
6 . .	—·058	—·016	—28	—65	+6·0	+ 23	+0·07
7 .	—·044	—·022	—31	—41	—3·1	— 36	0
8 . .	—·036	+·008	—43	—65	—3·2	+ 24	+0·07
9 . .	+·013	+·045	—61	—41	—2·8	+ 28	—0·07
10 . .	+·036	+·046	—21	—41	—1·3	+ 31	+0·04
11 . .	+·034	—·018	— 1	—41	+0·2	+ 48	+0·15
12 . .	+·059	—·058	+ 9	—86	+1·1	—195	+0·26
13 . .	+·094	—·028	0	—41	+3·7	— 43	+0·09
14 . .	+·108	0	+ 6	—17	+6·2	+ 94	+0·02
15 . .	+·367	+·041	+ 10	+ 4	+6·1	+205	+0·11
16 . .	+·036	+·056	+ 14	—17	+3·6	— 11	—0·03
17 . .	—·008	+·049	+ 13	+ 4	+2·5	— 58	+0·06
18 . .	—·063	+·070	+ 14	—65	—0·7	+ 16	+ 009
19 . .	—·089	+·082	—61	...	—6·1	—175	+0·08
20 . .	—·045	—·005	— 29	+ 4	+5·2	—101	0
21 . .	—·014	—·012	—28	—17	+5·2	— 21	—0·04
22 . .	+·020	—·025	—12	+ 4	—0·2	+ 4	+0·12
23 . .	+·007	+·013	— 5	+ 4	—0·9	+ 5	+0·04
24 . .	+·025	—·020	+ 6	+ 4	+2·0	+ 55	+0·07
25 . .	+·048	—·028	+16	+ 4	+4·1	+ 59	+0·05
26 .	+·047	—·018	+12	+ 4	+1·6	+ 23	+0·13
27 . .	+·019	+·032	+ 7	+ 4	+1·2	— 55	+0·06
28 . .	—·015	+·034	0	—17	—0·6	+ 8	+0·05
29 . .	+·004	+·003	—13	+ 4	—1·0	— 3	+0·12
30 . .	+·018	+·032	— 6	—17	+1·8	+ 35	+0·10

The preceding data show that the general rainfall of India was, on the whole, lighter than usual between the 1st and the 5th September. It then rose to above the normal and continued more or less excessive practically till the end of the month. The days of greatest excess of rain were the 11th, 12th, 15th, 22nd, 26th, 29th and 30th. The pressure gradient was greater than usual in the equatorial belt from the 1st to the 3rd, from the 9th to the 16th, from the 22nd to the 27th and on the 29th and 30th, and over the Arabian Sea was greater than usual on the 2nd, from the 8th to the 10th, from the 15th to the 19th and from the 27th to the end of the month. There is thus some slight indication that the Indian rainfall, during the month under review, exceeded the normal when the pressure differences over the equatorial belt were above the normal. The winds were more southerly than usual at Mauritius from the 1st to the 11th; more easterly than usual from the 12th to the 18th; more southerly than usual from the 19th to the 23rd; more easterly than usual from the 24th to the 27th and more southerly than usual till the close of the month. At the Seychelles the wind's direction was abnormally easterly from the 1st to the 3rd, unusually southerly from the 4th to the 19th and slightly more easterly than the average generally from the 20th to the close of the month. These variations in the direction of the wind in the equatorial belt do not, so far as can be judged, appear to have exercised any influence on the variations of rainfall over India. The velocity of the wind at Mauritius was generally lower than usual from the 1st to the 10th, it then increased and, except on the 18th, 19th, 22nd, 23rd, 28th and 29th, remained above the normal till the end of the month. The wind was thus generally strongest when it was most easterly and so far as can be judged the variations or the velocity exhibited no connection with the variations in the Indian rainfall. At the Seychelles the wind on most days was stronger than usual, while, as has been stated above, the Indian rainfall on most days was heavier than usual, but a direct connexion between the variations of the two elements cannot be traced.

From the section on barometric disturbances it will be seen that feeble cyclonic conditions prevailed over India on the 5th and 6th, between the 9th and 15th, between the 15th and 21st and between the 28th and 30th and the diurnal variations of the Indian rainfall appear to have been largely due to these disturbances.

At this season of the year, when the movement of the air over the monsoon area is generally from the southward towards the north, it can hardly be anticipated that changes occurring to the northward of India would affect the weather over the Indian region. The barometric changes over western Siberia during September were frequently large and important, but it is practically impossible to trace any connexion between these changes and the variations in the weather over northern India. In Kashmir the weather was very unsettled between the 7th and the 12th and very slightly unsettled on the 18th and 19th, while the principal barometric falls over western Siberia occurred on the 6th, 9th, 15th to 17th, 22nd to 24th and the 29th. Comparing the Tiflis and Baku pressure observations with those recorded in Persia a slight resemblance may be traced. Pressure gave way rapidly at Tiflis and Baku on the 3rd, 7th, 11th, 23rd, 27th and 30th and in Persia falls of the barometer occurred simultaneously on the 3rd, 11th and 28th. There is not, however, any evidence of the passage of areas of low pressure from the one region to the other and all that can be said is that a general fall of pressure affected the whole area. The weather was undisturbed throughout the month. Southerly (south-west to south-east) winds prevailed almost uninterruptedly in Afghanistan and there was no rain throughout the month while the weather was equally fine over Kashgar, Persia and Asiatic Turkey. In Egypt throughout the whole month the weather was remarkably free from disturbance and pressure was normal all over Egypt and the Sudan. The

Sudan rainfall for September for the past three years was as follows:—

	1901.	1902.	1903.
	"	"	"
Khartoum	0·00	0·07	0·08
Wad Medani	...	0·92	0·11
Dueim	...	2·35	3·27

and shows that except at Dueim the month's rainfall was not heavier than usual.

Pressure was unsteady over the south-east trades region and the diurnal changes were, on the whole, similar to those which occurred generally over the whole Indian monsoon area.

The following table shows the daily variations of pressure from the normal for various selected stations within the monsoon area and the mean variation, derived from the whole number of stations:—

PRESSURE VARIATION FROM NORMAL OF

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	"	"	"	"	"	"	"	"	"
1	+·004	—·026	+·070	—·052	—·014	—·013	+·014	—·011	—·004
2	+·008	—·074	+·034	—·019	—·004	—·002	—·025	—·014	—·012
3	—·127	—·139	—·072	—·039	—·041	—·051	—·033	—·047	—·069
4	—·089	—·084	—·085	—·038	—·019	—·014	+·005	—·020	—·043
5	—·048	—·088	...	+·005	+·004	—·008	+·018	—·017	—·019
6	—·063	—·106	...	—·016	+·002	—·014	+·027	—·015	—·026
7	—·047	—·061	...	—·033	—·005	+·005	+·035	+·009	—·014
8	+·005	—·013	...	+·002	+·022	+·028	+·024	+·027	+·014
9	+·028	—·067	...	+·076	+·032	+·025	—·006	+·035	+·018
10	—·012	—·175	...	+·028	+·051	+·001	—·034	+·016	—·018
11	—·034	—·101	...	—·015	+·020	—·060	—·051	—·026	—·038
12	—·016	—·073	...	—·072	—·012	—·103	—·042	—·059	—·054
13	—·001	—·011	...	—·055	—·025	—·064	—·032	—·062	—·036
14	+·019	—·018	...	—·041	—·024	—·057	—·062	—·082	—·038
15	+·025	—·029	+·067	—·006	+·015	—·013	—·041	—·021	0
16	+·065	—·020	+·097	+·062	+·024	+·001	—·035	—·042	+·019
17	+·035	—·032	+·050	+·038	—·022	—·029	—·062	—·074	—·012
18	—·005	+·002	+·063	+·044	+·003	—·014	—·078	—·039	—·003
19	+·041	—·009	+·060	+·034	+·024	+·012	—·121	+·020	+·008
20	+·075	+·011	+·055	+·048	+·033	+·002	—·027	+·044	+·030
21	—·006	—·087	—·046	+·033	+·009	—·005	—·019	—·004	—·016
22	+·048	—·089	—·004	+·009	+·032	+·038	+·045	+·035	+·014
23	+·049	—·076	+·050	+·049	+·057	+·067	+·038	+·032	+·033
24	+·061	—·068	+·012	+·004	+·018	+·013	—·003	+·012	+·006
25	—·050	—·071	+·006	—·021	+·016	+·017	+·016	+·026	—·008
26	—·009	—·119	+·046	—·013	+·026	+·036	+·033	+·028	+·004
27	—·031	—·137	—·038	—·023	+·032	+·030	—·053	—·056	—·035
28	—·086	—·220	—·110	—·016	+·006	—·014	—·081	—·089	—·076
29	—·036	—·209	—·068	—·100	+·033	—·013	—·062	—·113	—·071
30	—·071	—·190	—·042	—·037	+·039	—·024	—·058	—·122	—·063

The preceding data show that the oscillations of pressure were considerable during the month. The principal minima were recorded on the 3rd, the 12th, the 17th and the 28th, and the principal maxima on the 9th, the 16th and the 23rd, so that the periods of the oscillations averaged about seven days. The mean pressure of the whole area was below the normal on most days and on the 3rd, 12th, 28th and 29th the mean deficiency was considerable.

Magnetic and Solar disturbances.

The following reports have been received dealing with magnetic and solar disturbances:—

Kodaikanal.—The Director of the observatory telegraphed as follows during the month:—

September 26th.—Considerable increase of spot activity since yesterday. Spectra normal. Sky too cloudy for chromospheric observations.

The following is the return of observations of sunspots, prominences, faculæ and magnetic disturbances for the month under review. On 60 per cent. of the days, obser-

vations were impossible owing to the sky being overcast:—

SOLAR PHYSICS OBSERVATORY, KODAIKANAL.

Spots, Prominences, etc.—September 1003.

Date of month.	Spots.		Prominences.		Faculæ (groups).	Magnetic disturbances.	Remarks.
	Large.	Small.	Large.	Small.			
1	...	2	...	1	1 I; 1 III .	Small.	
2	...	3	3	2	1 I; 1 II .	...	
3	...	2	5	2	1 I; 1 II .	...	
4	...	...	w.	w.	3 II . .	Moderate.	
5	...	1	w.	u.	2 II . .	Moderate.	
6	...	...	w	w.	1 I; 2 II .	Small.	
7	...	...	w.	w.	1 I; 1 II; 1 III.	...	
8	...	...	...	...	...	Moderate	S. n. v.
9	...	...	...	...	...	Small	S. n. v.
10	3 groups.		w	u.	1 II . .	Moderate	Not projected cloudy.
11	1	...	w.	u.	...	Small.	
12	1	...	w.	w.	...	Moderate.	
13	1	...	2	...	...	...	
14	1	3	2	1	1 II . .	...	
15	1	8	w.	u.	1 I; 2 II .	...	
16	...	10	w.	w.	1 II; 1 III .	...	
17	...	8	1	...	1 II . .	...	
18	...	2	w.	w.	2 I; 1 II; 1 III.	...	
19	...	3	w.	w.	2 I; 1 II; 1 III.	Moderate.	
20	...	...	w.	u.	1 I; 1 II; 1 III.	Moderate.	
21	...	...	w.	u.	1 I; 2 II .	...	
22	...	...	3	1	1 I; 1 II .	...	
23	...	...	2	1	1 II; 2 III .	Small.	
24	...	4	w.	u.	1 III . .	Small.	
25	1	5	4	3	1 III . .	...	
26	1	5	w.	u.	1 II . .	...	
27	2	7	w.	u.	1 II . .	...	
28	2	3	1	4	2 III . .	...	
29	1	5	4	...	2 III .	Moderate.	
30	...	1	... Cloudy.	4	1 II; 2 III .	...	

NOTE.—The Roman figures under "Faculæ" indicate their relative extent, (I) shows that they were very extensive, (II) that they form a moderately big group and (III) that they consist only of points and streaks.
(w. u.) stands for "Weather unfavourable"; and (S. n. v.) for "Sun not visible."

Colaba, Bombay:—The following notes on the Colaba magnetic records have been received from the Director of that observatory:—

There were 10 days of calm, 13 days of small and 7 days of moderate disturbance.

Movement suspected to be due to seismic disturbance occurred on the 27th at about 7·45 P.M., the strain apparently being relieved at about 2·30 A.M., the next day.

Small period movements, 14 rhythmic and 23 abrupt movements (appearing as if suddenly damped in their propagation), were noted.

The selected quiet days of the month were the 3rd, 7th, 16th, 22nd and 26th.

The following is the record of magnetic disturbances for each day of the month:—

September, 1903.		September, 1903.		September, 1903.	
1	S	11	S	21	S
2	S	12	S	22	C
3	C	13	M	23	M
4	S	14	S	24	S
5	M	15	C	25	C
6	S	16	C	26	C
7	C	17	C	27	S
8	M	18	C	28	S
9	S	19	M	29	M
10	S	20	M	30	C

The magnitudes of the disturbances are determined from horizontal force traces.

C=Calm; S=Small; M=Moderate; G=Great; V. G=Very Great.

Days are reckoned from midnight to midnight.

The means of the observed absolute values of the several elements for the month and for the previous months of this year are as follow:—

Elements.	January, 1903.	February, 1903.	March, 1903.
Declination . . .	0° 18′ 17″ E	0° 8′ 1″ E	0° 17′ 58″ E
Horizontal force . .	C. G. S. units 0·37430.	C. G. S. units 0·37436.	C. G. S. units 0·37442.
Dip	21° 40′·7	21° 40′·3	21° 41′·3
Elements.	**April, 1903.**	**May, 1903.**	**June, 1903.**
Declination . . .	0° 16′ 29″ E	0° 15′ 8″ E	0° 16′ 0″ E
Horizontal force . .	C. G. S. units 0·37431.	C. G. S. units 0·37425.	C. G. S. units 0·37437.
Dip	21° 40′·7	21° 41′·0	21° 42′·0
Elements.	**July, 1903.**	**August, 1903.**	**September, 1903.**
Declination . . .	0° 16′ 36″ E	0° 15′ 29″ E	0° 15′ 26″ E
Horizontal force . .	C. G. S. units 0·37439.	C. G. S. units 0·37418.	C. G. S. units 0·37404.
Dip	21° 43′·7	21° 45′·41	21° 45′·3

The following table gives the ranges of the mean monthly diurnal inequalities of the horizontal force and declination, and Σ Ranges, or sums without regard to sign of all 24 ordinates of the inequalities, from January to September 1903 :—

MONTH.	HORIZONTAL FORCE.		DECLINATION.	
	Range.	Σ Range.	Range in arc.	ΣRange in arc.
	C. G. S.	C. G. S.		
January, 1903	·000275	·001646	1″·37	6″·40
February „	308	2038	1″·19	4″·82
March „	460	2952	2″·12	7″·59
April „	491	3232	3″·45	13″·38
May „	397	2797	3″·91	15″·53
June „	411	2710	4″·64	19″·62
July „	419	2868	4″·62	19″·11
August „	390	2356	4″·74	18″·90
September „	326	1951	5″·06	19″·42

Four very small seismic disturbances were recorded on the 1st, 7th, 8th and 25th.

Mauritius:—The Director of the Royal Alfred Observatory reports that magnetic disturbances were recorded at that observatory on the :—

5th	September	From 12 to 22 hours.
10th	do.	From 9 to 16 „
12th	do.	From 15 to 24 „
13th	do.	From 0 to 1 „
19th	do.	From 9 to 24 „
20th	do.	From 0 to 24 „
23rd	do.	From 9 to 24 „
24th	do.	From 0 to 17 „
27th	do.	From 18 to 24 „
28th	do.	From 0 to 5 „
29th	do.	From 0 to 24 „

Groups of sunspots were observed on the 24th, 25th, 26th, 27th and 28th and individual spots on the 11th, 13th, 14th, 15th, 17th, 28th and 29th. Faculæ were recorded on the 11th, 13th, 15th, 17th to 21st, 26th, 28th and 29th.

Atmospheric Pressure.

The mean atmospheric pressure of the Indian land area was 0·002″ below the normal. The general anomaly was hence the same as that for September 1902 to the general conditions of which month the general pressure conditions of the month under review exhibited some resemblance.

The mean pressure of the month exceeded the normal along the foot of the Himalayas from the south-east Punjab to Assam, over Bengal, the north-east of the Peninsula, the greater part of the Bay and the whole of Burma. It was below the normal in all other parts of the Indian land area. The largest opposite variations were +0·036″ at Narayanganj and −0·035″ at Colombo. The distribution of the mean actual barometric pressure of the month is shown in Plate I. Pressure was lowest within an area overlying the northern half of the Indus valley. From this region the usual monsoon trough of low pressure extended east-south-eastward down the Gangetic plain as far as south-west Bengal. From these areas pressure increased south-eastward and was highest, and over 29·85″, in the south of Tenasserim, and the south-east of the Bay. Pressure ranged from 29·640″ at Mooltan to 29·859″ at Mergui so that the total range of pressure was 0·219″ which was somewhat more than usual.

The relatively low pressures noticed on the north-west frontier of India did not apparently extend over the countries to the westward, as apparently over Persia and indeed as far west as Egypt the mean pressure of the month of September was about normal. Over the Gulf of Aden pressure, on the mean of the month, was in trifling defect, while in the south-east trades region the variations of pressure were irregular. This is shown below :—

STATION.	Mean pressure variation, September, 1903.
	″
Seychelles	−·014
Zanzibar	+·014
Mauritius	−·005

Reverting to the Indian land area the observations show that, relatively to the general condition, *viz.*,—0·002″, pressure was in excess over Burma, Assam, Bengal, the greater part of the Bay, the north-east of the Peninsula and along the foot of the Himalayas as far west as Umballa. The positive anomalies exceeded 0·020″ over the greater part of Bengal, Cachar, around the head of the

Bay and over part of central and lower Burma. The following gives comparative data:—

STATION.	Variation from normal of mean 8 A. M. pressure of September, 1903.	Pressure anomaly, September, 1903.
	"	"
Narayanganj	+·036	+·038
Bassein	+·028	+·030
Silchar	+·028	+·030
Dinajpur	+·026	+·028
Cuttack	+·026	+·028
Purnea	+·025	+·027
False Point	+·025	+·027
Bogra	+·024	+·026
Thayetmyo	+·024	+·026
Mymensingh	+·023	+·025
Calcutta	+·023	+·025
Jessore	+·022	+·024
Gopalpur	+·022	+·024
Mergui	+·022	+·024
Toungoo	+·022	+·024
Berhampore	+·020	+·022
Akyab	+·019	+·021

Elsewhere pressure was in local defect. The deficiency amounted to 0·020" or more, locally at Peshawar, at several of the coast stations of the Peninsula and over Ceylon. This is shown below:—

STATION.	Variation from normal of mean 8 A. M. pressure of September, 1903.	Pressure anomaly, September, 1903.
	"	"
Colombo	—·035	—·033
Salem	—·027	—·025
Surat	—·027	—·025
Negapatam	—·026	—·024
Calicut	—·023	—·021
Bombay	—·023	—·021
Veraval	—·022	—·020
Peshawar	—·022	—·020

The mean pressure of the month was more or less above the average at all the hill stations except Srinagar, Cherat, Chaman, Mount Abu and Wellington, but the variations in most cases were comparatively unimportant. In most parts of the country except the north-east the vertical pressure anomalies were positive and between Leh and Lahore and Quetta and Jacobabad the anomaly was considerable. The following gives data for ten pairs of stations:—

HILL STATION.	Variation from normal pressure, September, 1903.	PLAIN STATION.	Variation from normal pressure, September, 1903.	Vertical pressure anomaly (Hill-Plain).
	"		"	"
Leh	+·039	Lahore	—·006	+·045
Quetta	+·034	Jacobabad	—·004	+·038
Murree	+·008	Peshawar	—·022	+·030
Simla	+·019	Ludhiana	—·008	+·027
Chakrata	+·011	Roorkee	+·007	+·004
Ranikhet	+·022	Bareilly	+·007	+·015
Darjeeling	+·006	Dhubri	+·018	—·012
Mount Abu	—·008	Deesa	—·021	+·013
Pachmarhi	+·004	Seoni	—·002	+·006
Wellington	—·014	Coimbatore	—·016	+·002

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

(1) The mean pressure of the whole Indian area was very nearly normal.

(2) Relatively to the general condition (*viz.*, —·002") pressure was in slight excess over the eastern and north-eastern parts of the Indian land area and in slight defect over the remainder of the country.

(3) Pressure was approximately normal over the countries to the westward of the north-west frontier.

(4) Pressure varied slightly and irregularly from the normal in the south-east trades region.

(5) The vertical pressure anomalies were generally positive in the north-west and generally negative in the north-east of India.

Barometric depressions and cyclonic storms of the month.

The weather was somewhat disturbed during the first half of the month, but the disturbances were of exceedingly slight intensity and of very little importance.

Feeble land formed depression of the 5th and 6th:—On the 5th the barometer was rising over the whole of the Indian land area, but the increase of pressure was less over the Central Provinces than in surrounding regions while the winds exhibited a feeble cyclonic circulation around a centre lying between Hazaribagh and Sutna. The observations of the following day, the 6th, showed that a shallow depression had formed within this area. An irregular cyclonic circulation of the winds prevailed around this region and moderately heavy rain had fallen. By the morning of the 7th the depression had become small and ill-defined and by the 8th had passed northward to the neighbourhood of Benares where it filled up during the day. It had very little effect on the weather, but occasioned some heavy falls of rain over the Central and United Provinces where the following amounts exceeding 5″ in 24 hours were registered during the existence of the storm:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Sambalpur . .	Padampur . .	6th September	5·63
Ghazipur . .	Muhammadabad .	Do. Do. .	5·04
Jhansi . . .	Mau . . .	7th Do. .	6·66

Feeble cyclonic storm of the 9th to 15th:—On the 9th the barometer was falling slightly at the head of the Bay where the wind was northerly at Saugor Island, westerly at False Point, south-easterly at Akyab and southerly at Chittagong. Light rain was falling in Orissa and moderate rain at Akyab. On the 10th pressure was still giving way slowly over deltaic Bengal while it was rising slightly in surrounding regions. There had, however, been very little development of the depression which was apparently very shallow at this time and was lying over the Sunderbuns. The rainfall continued moderately heavy at Akyab, but was light in Bengal and Orissa.

September 11th.—The following gives 8 A.M. data for the storm area:—

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.			
	″	″	″				Inches.	
Chittagong .	29·722	+·001	—·011	SE	8	9	0·29	Showery.
Barisal .	·620	—·034	—·087	SSW	6	10	3·13	Dust storm.
Narayanganj	·699	+·004	—·008	SE	15	10	0·27	Gale.
Jessore .	·587	—·071	—·104	SSE	8	10	1·66	
Berhampore	·634	—·061	—·052	NNE	4	10	0·14	Raining.
Bogra. .	·675	—·033	—·019	E	8	10	...	Gale.
Burdwan .	·618	—·059	—·067	NE	3	10	0·35	Drizzling.
Calcutta .	·614	—·047	—·066	SW	3	10	0·52	Do.
Hazaribagh	·662	—·011	—·004	Calm	4	1		
Ranchi .	·663	—·016	+·001	Calm	3	3		
Chaibassa .	·659	—·016	0	Calm	1	4		
Balasore .	·655	—·023	—·014	Calm	2	8	0·99	Raining.
Saugor Island.	·647	—·012	—·023	WNW	8	10	0·10	Thunder.

The barometer had fallen slightly to briskly over the delta of Bengal and a small depression had been developed, with an abnormal depression of the barometer of 0·104″ at Jessore. A fairly well-marked cyclonic circulation of the winds prevailed around the storm centre and moderately heavy rain was falling in some places.

September 12th:—The following gives 8 A.M. data for the storm area:—

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.			
	″	″	″				Inches	
Balasore .	29·667	+·012	—·004	SSW	4	8	1·35	Raining.
Hazaribagh.	·589	—·073	—·100	NNW	11	10	1·16	Do.
Ranchi .	·621	—·042	—·064	WNW	6	10	0·91	Showery.
Chaibassa .	·634	—·025	—·034	Calm	1	8	1·42	Do.
Gaya . .	·644	—·026	—·029	NW	4	10	0·47	Raining.
Patna . .	·690	+·001	+·012	NE	9	10	0·03	Showery.
Benares .	·680	+·028	+·014	Calm	1	8	0·03	

Pressure had increased briskly to rapidly over east and lower Bengal, and the depression, which lay over Jessore on the 11th, had advanced west-north-westward to the neighbourhood of Hazaribagh where the barometer read 0·100″ below the normal. The winds were very irregular around the depression and the rainfall was only moderate in the neighbourhood of the depression though it was heavy over lower Bengal.

September 13th.—The following gives 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.	Remarks.
	″	″	″				Inches.	
Ranchi .	29·657	+·036	—·028	S	11	9	1·72	Continuous rain.
Hazaribagh	·649	+·060	—·035	S	16	10	1·64	Showery.
Gaya . .	·634	—·010	—·038	E	10	8	1·28	Do.
Patna . .	·667	—·023	—·011	ESE	14	8	0·86	Do.
Gorakhpur .	·654	—·070	—·021	ENE	2	10	0·01	Do.
Lucknow .	·684	—·013	+·010	N	1	5	1·98	
Cawnpore .	·686	—·004	+·021	NNE	3	10	0·04	Showery.
Allahabad .	·606	—·091	—·065	NNE	7	10	0·08	Do.
Benares .	·546	—·134	—·124	E	5	10	2·44	Do.
Sutna .	·651	—·043	—·031	WNW	3	10	0·81	Do.
Jubbulpore.	·694	—·016	—·006	WSW	2	10	0·57	Thunder.
Pendra .	·646	—·045	...	SSW	7	6	0·01	
Raipur .	·672	—·009	—·010	SW	4	8	0·09	
Sambalpur.	·676	—·019	—·016	S	5	10	2·68	

The depression had continued to move in a west-north-westerly direction and the centre lay near Benares where pressure was one-eighth of an inch in defect of the normal. The barometer had risen slightly around the head of the Bay while it had fallen over 0·13″ at Benares. The wind circulation around the depression was better defined and the rainfall somewhat heavier.

September 14th.—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.	Remarks.
	″	″	″				Inch.	
Hazaribagh.	29·667	+·018	—·019	S	13	10		
Gaya .	·653	+·019	—·019	ESE	5	5		
Patna. .	·671	+·004	—·009	ESE	11	6		

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.	Remarks.
	″	″	″				Inches	
Benares .	29·560	+·014	—·113	SE	12	10	3·25	
Gorakhpur .	·612	—·042	—·067	ENE	3	10	2·69	Continuous rain.
Bahraich .	·619	—·078	—·058	ENE	2	4	0·37	
Lucknow .	·577	—·107	—·099	N	4	7	0·87	
Cawnpore .	·595	—·091	—·074	N	6	8	1·18	Showery.
Allahabad .	·469	—·137	—·205	WSW	9	10	1·48	Heavy rain.
Jhansi .	·660	—·068	—·034	NW	3	1	...	
Nowgong .	·630	—·081	—·060	NW	2	10	...	
Sutna .	·594	—·057	—·096	WNW	7	10	1·02	Showery.
Jubbulpore.	·657	—·037	—·041	WNW	3	10	0·15	Do.
Saugor .	·686	—·039	—·026	W	5	4	1·61	
Raipur .	·643	—·029	—·039	SW	6	8	0·28	Showery.
Pendra .	·612	—·034	...	SSE	7	4	0·03	

The depression had moved very slowly west-north-westward and was central slightly to the north of Allahabad. It had intensified somewhat and the barometer at Allahabad marked 0·205″ below the normal. Rain was concentrated around the depression and the following amounts exceeding 4″ in 24 hours were reported from the United Provinces:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 14th September 1903.
		Inches.
Jaunpur	Kutahan	7·75
Sultanpur	Kadipur	6·52
Mirzapur	Robertsganj . . .	6·38
Bara Banki . . .	Haidargarh . . .	5·75
Mirzapur . . .	Chakia	5·15
Azamgarh	Deogaon	5·06
Basti	Khalilabad . . .	4·70

September 15th.—The following gives 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.	REMARKS.
	"	"	"				Inches	
Cawnpore.	29·591	—·004	—·084	S	9	10	0·30	Showery.
Lucknow .	·628	+·051	—·057	SE	9	10	2·45	Continuous rain.
Allahabad	·679	+·210	+·003	SSW	5	8	0·28	Showery.
Sutna .	·672	+·078	—·015	WSW	11	8	0·18	Do.
Nowgong.	·683	+·053	—·014	WNW	2	10	0·18	Do.
Jhansi .	·698	+·038	—·002	WSW	6	2	...	
Agra .	·686	+·016	—·007	NW	5	6	0·02	
Mainpuri.	·694	+·009	+·009	NNW	16	10	1·05	Showery.

Pressure had increased practically over the whole country more especially at Allahabad where the increase amounted to over 0·20″. The storm had filled up considerably and had continued to move slowly west-north-westward. It was central near Cawnpore where the barometer marked 0·084″ below the normal. Rain had been heavy in the neighbourhood of the centre, and the following falls exceeding 5″ in 24 hours were recorded over the United Provinces :—

DISTRICT.	Station.	Rainfall during 24 hours preceding 8 A.M. of 15th September, 1903.
		Inches.
GORAKHPUR . . .	Maharajganj . . .	12·25
FYZABAD . . .	Fyzabad . . .	11·71
BASTI	Harraiya . . .	10·37
SULTANPUR . . .	Kadipur . . .	9·52
FYZABAD . . .	Akbarpur . . .	8·10
GONDA . . .	Gonda . . .	7·13
FYZABAD . . .	Bikapur . . .	7·10
BASTI	Domariaganj . . .	7·00
BAHRAICH . . .	Kaisarganj . . .	7·00
BARA BANKI . . .	Fatehpur . . .	6·38
GONDA . . .	Tarabganj . . .	5·96
	Utraula . . .	5·90
BASTI	Bansi . . .	5·73

The storm completely filled up during the day.

Feeble depression of the 15th to 21st.—On the 15th the barometer was rising everywhere, but a shallow depression had been developed over the north-west of the Bay off the Circars coast. The wind was north-easterly along the Orissa and Circars coasts, but the rainfall was not heavy. On the 16th pressure was giving way slowly over the east of the Peninsula and the depression was apparently crossing the coast as the wind was south-westerly at Waltair. Light to moderate rain was falling within the depression area. On the morning of the 17th the barometer was falling slightly to briskly over the Peninsula and the depression had passed inland and was central over the south-eastern districts of the Central Provinces where pressure was in considerable defect. The winds were irregularly cyclonic around the depression and moderate rain was falling over the Deccan and south India. The storm moved west-north-westward during the day and at 8 A.M. on the 18th was central to the south of Chanda, where pressure was at least 0·10″ below the normal. The irregular cyclonic circulation of the winds around the depression continued and moderately heavy rain was falling at some central stations. The following falls exceeding 2″ in 24 hours were recorded over the Deccan and the Central Provinces :—

DISTRICT.	Station.	Rainfall during 24 hours preceding 8 A.M. of 18th September, 1903.
		Inches.
INDUR	Indur	4·50
HYDERABAD . . .	Bolarum . . .	3·57
WARANGAL . . .	Hanumkonda . .	3·28
GULBARGA . . .	Gulbarga . . .	2·50
CHHINDWARA . . .	Chhindwara . .	2·50
SATARA JAGHIRS . .	Jath	2·42
SEONI	Seoni	2·32
SHOLAPUR . . .	Sangola . . .	2·20
NANDED	Nanded . . .	2·09

The storm continued its march west-north-westward during the 18th and, on the following morning the 19th, the centre apparently lay over Gujarat though its actual position could not be accurately defined. Moderate rain was falling over the west of the Peninsula while the winds in that region were very irregular. Pressure at 8 A.M. was over 0·12″ below the normal at Surat and Veraval. The storm moved very little during the next 24 hours and the centre at 8 A.M. on the 20th lay apparently between Bhuj, Dwarka and Rajkot where the wind directions were northerly, north-north-westerly, and south-easterly respectively and where pressure was about 0·10″ below the normal. A strong

south-south-east wind was reported from Bombay. Rain was falling generally over Gujarat, the heaviest falls (over 2″ in 24 hours) having been as follows :—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 20th September, 1903.
		Inches.
Kathiawar	Manikvada.	3·99
Broach	Broach	3·30
	Ankleshvar.	3·09
Kaira	Thasra	2·34
Rewa Kantha	Rajpipla	2·34
	Baria	2·32
Kathiawar	Dhoraji	2·05

The storm apparently passed through lower Sind during the 20th, and rain was reported from Kurrachee and Hyderabad on the 21st. The heaviest falls in this region were :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kurrachee	Shahbandar	20th Sept.	1·55
	Tatta	" "	0·67
	Jerruck	21st "	0·98

The weather was quiet from the 22nd to the 27th, but on the latter day the barometer was falling briskly at the head of the Bay, and on the following morning, the 28th, a shallow depression was shown over the Sunderbuns. Pressure at 8 A.M. was nearly one-eighth of an inch below the normal at Balasore and Burdwan. An irregular cyclonic circulation of the winds prevailed around the depression, but the force was low. The observations of the 29th showed that the depression had drifted slowly westward and had intensified somewhat, the barometer reading 0·146″ below the normal at Balasore. A strongish southerly wind was blowing at Saugor Island where 5·38″ of rain had fallen. The depression continued to move westward during the 29th and at 8 A.M. on the following day was central about 100 miles to the south-west of Sambalpur where pressure was at least 0·18″ below the normal. The winds were cyclonic around the depression and the south-easterly wind at Saugor Island was blowing strongly. The storm advanced into the Central Provinces on the 1st and 2nd October where it filled up.

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.

Killa Drosh :—Light snow occurred on the 9-10th September on peaks about 8,000 feet above the Observatory, the depth being between 1 and 2 inches.

II.—Kashmir and Punjab Himalayas.

Kashmir :—Light snow fell on the top of the Afferwata mountain on the night of the 11th.

III.—United Provinces Himalayas.

Almora :—Snow fell as follows :—

Malla Johar.

10th September 1903	1 foot
16th ditto.	2 feet
Total.	3 feet

Malla Danpur.

9th to 11th September	6 ins.
13th do.	4 "
25th & 26th do.	6 "
Total.	1 ft. 4 ins.

In the Malla Johar the snowfall was less and in the Malla Danpur greater than in the previous year.

Summary of Special Storm Reports.

The number and severity of the local storms during the month were about normal. The following gives a statement of the chief local storms of which reports were received during the month :—

September 6th.—A slight storm passed over Saugor (C. P.) between 4-15 and 4-45 P.M.

September 7th.—A thunderstorm occurred at Simla. It commenced from west at 0-58 P.M. and continued till 3-20 P.M. Heavy rain accompanied the storm.

Between 10 A.M. and 4 P.M. a storm passed over Srinagar with rain and hurricane winds.

September 9th.—A thunderstorm passed over Cherat between 2-10 P.M. and 5-40 P.M. with heavy rain and squally winds.

" *10th.*—A thunderstorm passed over Simla from west. It commenced at 11-50 A.M. and continued for half an hour during which time heavy rain fell.

" *13th.*—A thunderstorm with lightning occurred at Nagpur at 3-15 P.M.

A thunderstorm was reported at Simla between 3 P.M. and 3-15 P.M.

A storm passed over Allahabad on 13th and 14th September. It gave showers of rain and gusty winds and thunder and lightning were observed during the night.

" *14th*—A thunderstorm came up from north over Simla between 1-5 P.M. and 2-20 P.M. Light rain fell.

September 23rd.—A duststorm passed over Jodhpur at 2-42 P.M. railway time. The dust rose first in the west and north-west. Light rain fell.

" *24th.*—A thunderstorm was experienced at Allahabad between 1-45 P.M and 3-30 P.M. A smart shower fell at 2 P.M.

" *25th*—A duststorm advanced from north-west over Allahabad. It commenced at 2-20 P.M. and lasted one hour. The thunder was loud but there was very little rain. Storms of this character are very rare at this season.

Earthquake.—A slight shock of earthquake occurred at Silchar on the 1st at 9-15 P.M.

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

Arabian Sea.—Between the 1st and 6th winds were much more northerly than usual over the south-east of the Arabian Sea, but elsewhere ordinary south-westerly monsoon winds were experienced. From the 7th to the 11th normal monsoon winds prevailed generally, but on the 12th the force fell suddenly and the directions became exceedingly variable. Variable and abnormal south-easterly winds continued—more particularly over the north of the Arabian Sea—till the 15th when the wind became westerly and north-westerly though it still remained light. On the 19th normal winds were re-established and south-westerly to westerly winds continued till the close of the month. The force during these eleven days was, however, continuously low.

The following gives the accounts of the weather experienced between Aden and Bombay by the mail steamers.

The mail steamer *Arabia* left Aden on August 31st and up to Long. 52° E. experienced moderate to light variable winds and a southerly swell, thence to Long. 71° E. a moderate to fresh monsoon, cloudy weather, a considerable but decreasing sea and swell and frequent passing rain squalls, thence to arrival gentle north-westerly and south-westerly winds and passing showers.

The mail steamer *Peninsular* left Aden on the 7th September and up to Long. 52° E. experienced moderate to light variable winds and a southerly swell, thence to Long. 67° E. a fresh to strong monsoon, passing clouds and considerable south-west sea and swell, thence to arrival moderate to light winds from west and south-west, passing clouds and occasional passing showers.

The mail steamer *Persia* left Aden on the 14th and up to Long. 57° E. experienced light to gentle north-easterly and south-easterly winds and a southerly swell, thence to arrival light to gentle westerly and north-westerly winds and occasional light airs from south-west, passing clouds, south-west swell and a light rain squall.

The mail steamer *Oriental* left Aden on the 21st and up to Long. 55° E. experienced light easterly and southerly winds and slight southerly swell, thence to Long. 63° E. moderate to gentle monsoon and south-west swell, thence to arrival light westerly and north-westerly winds, passing clouds and occasional light showers.

These extracts show that a moderate to fresh monsoon was experienced over the centre of the Arabian Sea up to the 13th by the two first vessels, light to gentle variable winds between the 14th and 20th and a moderate to gentle monsoon between the 21st and 27th.

The mean air movement over the Arabian Sea was more or less below the normal on twenty days during the month, the weakness having been most pronounced on the 7th, (2·7), the 13th, 14th and 17th (2·6) and on the 26th, (2·5). The wind was strongest (4·1) on the 9th. On the mean of the whole month the air movement was 3·3, the normal force being 3·5.

Bay of Bengal:—Southerly and south-south-westerly winds prevailed throughout the whole Bay between the 1st and the 6th. On the 7th, north-westerly winds appeared off the Circars coast and irregular cyclonic winds were reported over the head of the Bay between the 8th and the 11th. On the 12th, the slight storm, which had occasioned these winds, passed inland and southerly winds were re-established over the Bay. These winds continued unsteadily until the 14th, when easterly and irregularly cyclonic winds reappeared over the head of the Bay and continued during the 15th and 16th. The storm which occasioned these winds passed inland during the 16th and between the 17th and 20th ordinary southerly and south-westerly winds prevailed generally over the Bay.

Feeble cyclonic conditions again appeared over the north-west of the Bay on the 21st, and continued during the 22nd when southerly winds again set in and southerly to south-westerly or even westerly winds held until the 27th. On the 28th, another feeble cyclonic whirl appeared, this time in the extreme north, and the winds were affected by this storm during the 29th. On the 30th, normal southerly and south-westerly winds were again general.

The following gives extracts from the logs of vessels traversing the Bay of Bengal during the month:—

The S. S. *Zibenghla* left Rangoon on the 4th, with a moderate breeze, cloudy weather and slight sea and expe-

rienced to about Long. 90° E. rain showers, slight swell and moderate sea; thence to arrival on 6th a moderate breeze, cloudy weather and slight sea. The wind was south-westerly throughout.

The S. S. *Bihara* left Rangoon on the 7th, and experienced up to Long. 92° E, moderate south-westerly winds and sea, and frequent rain which was occasionally heavy; thence to arrival on the 9th, cloudy weather, slight sea and moderate south-west winds.

The S. S. *Purnea* left Rangoon on the 11th, andexperienced throughout the voyage light breezes, and smooth sea with an occasional rain squall. The winds were very variable.

The S. S. *Malda* left Rangoon on the 14th, and experienced, throughout the voyage, almost continuous rain which was at times heavy; light to moderate south-westerly winds and a moderate sea.

The S. S. *Malacca* left Colombo on the 13th, and experienced to Lat. 8° N. a fresh to moderate south-westerly wind and generally fine weather; thence to Lat. 12° N. a gentle breeze with occasional rain squalls, thunder and lightning; thence to Lat. 17° N. light winds, overcast to cloudy sky, thence to arrival at Saugor on 17th, moderate breezes, occasional rain squalls and variable winds.

The preceding data show that only moderate south-westerly winds were experienced over the Bay, but that the weather was very unsettled and rainy.

As over the Arabian Sea the air movement over the Bay of Bengal was feebler than usual. It exceeded its normal force only on one day, *viz.*, the 27th, and was less than usual on all other days. The feebleness of the air movement was most marked on the 3rd (2·8); the 4th (2·7); the 12th (2·6); the 16th (2·8); the 18th (2·7); the 21st (2·6) and the 22nd (2·3).

On the mean of the month the air movement over the Bay was 3·1, the normal force being 3·7.

Equatorial Belt.—The winds in the west of the equatorial belt were unusually southerly in direction between the 5th and the 13th, but at other times ordinary south-east trade winds prevailed steadily over this region. Further to the eastward, however, between Longs. 65° E. and 80° E. the wind's direction was much less steady, north-westerly winds prevailing from the 1st to the 6th, westerly winds to the 8th and north-westerly to north-easterly winds from the 9th to the 12th. Between the 17th and the 20th north-westerly winds were also experienced and variable light winds from the 21st to the close of the month.

Temperature of the Air.

Over the greater part of the country the mean temperature conditions varied by only small amounts from the normal. The rainfall of the month, except in the north-west, was fairly normal and rain continued to about the average date, so that the main condition affecting temperature at this season of the year having been approximately normal, the variations of temperature from the average were correspondingly slight.

The mean maximum or day temperature of the month exceeded the normal in four small areas, *viz.*, the greater part of the north-west dry area; the Bombay coast districts and the Bombay Deccan; the Burma coast; and north and west Bengal. The variations from the normal in most of these areas were slight or small, but were larger in north-west India than elsewhere. The excess amounted to 1°·0 or more at the following stations in the different areas:—

Area.	Station.	Mean maximum temperature. Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
		°	°	°
1st Area	Jacobabad	107·0	103·5	+3·5
	Kurrachee	92·0	88·8	+3·2
	Rawalpindi	96·2	93·6	+2·6
	Hyderabad (Sind)	100·0	97·5	+2·5
	Mooltan	102·6	100·3	+2·3
	Pachpadra	99·1	97·2	+1·9
	Peshawar	97·8	96·0	+1·8
	Deesa	94·2	92·8	+1·4
	Montgomery	102·9	101·7	+1·2
	Bikaner	99·6	98·5	+1·1
2nd Area	Poona	85·4	84·4	+1·0
	Belgaum	79·9	78·9	+1·0
3rd "	Mergui	85·7	84·4	+1·3
	Tavoy	85·0	84·0	+1·0
4th "	Gaya	92·6	91·0	+1·6
	Hazaribagh	85·8	84·7	+1·1
	Dhubri	86·2	85·1	+1·1

Over practically the whole of the remainder of the Indian land area the mean maximum temperature of the month was lower than usual and the variations were moderate to considerable (exceeding 2°) at the following stations:—

Station.	Mean maximum temperature. Actual, September 1903.	Normal, September	Variation of actual from normal, September 1903.
	°	°	°
Trichinopoly	91·3	95·5	—4·2
Madura	91·9	95·3	—3·4
D. I. Khan	97·5	100·5	—3·0
Coimbatore	86·7	89·6	—2·9

Station.	Mean maximum temperature. Actual, September 1903.	Normal, September	Variation of actual from normal, September 1903.
	°	°	°
Nowgong	87·7	90·4	—2·7
Indore	82·9	85·4	—2·5
Khandwa	85·6	88·1	—2·5
Madras	90·5	93·0	—2·5
Salem	88·9	91·3	—2·4
Negapatam	90·1	92·5	—2·4
Mainpuri	90·7	93·1	—2·4
Hoshangabad	85·9	88·1	—2·2
Jubbulpore	85·3	87·4	—2·1
Lucknow	90·0	92·1	—2·1

The various storms in the early part of the month occasioned a good deal of rain along their tracks. This rain exercised the ordinary influence in reducing the day temperature, which fell to 10° or more below the normal at the following places between the 1st and 3rd, when a depression lay over Central India and heavy rain fell in the Central Provinces; between the 6th and 9th when a shallow depression lay over, and occasioned heavy rain over the Gangetic plain; between the 10th and 12th when a storm gave widespread rain to the extreme north-west; and the 11th to the 15th when a depression passed from the head of the Bay to the United Provinces and gave heavy rain along its track:—

Date.	Station.	Maximum temperature. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
1st September	Malegaon	76·8	87·5	—10·7
3rd "	Khandwa	74·2	86·3	—12·1
3rd "	Ahmednagar	74·3	85·7	—11·4
3rd "	Indore	73·8	83·8	—10·0
6th "	Hoshangabad	76·7	86·7	—10·0
7th "	Silchar	79·4	89·5	—10·1
8th "	Neemuch	73·5	86·4	—12·9
9th "	Indore	73·3	84·4	—11·1
10th "	Lahore	88·4	98·7	—10·3
10th "	Indore	74·3	84·5	—10·2
11th September	Ludhiana	80·1	94·7	—14·6
11th September	Khushab	87·8	100·2	—12·4
11th September	Sialkot	84·6	96·0	—11·4
11th September	Deesa	81·0	91·7	—10·7
11th September	Montgomery	91·8	102·1	—10·3
12th "	Lahore	78·3	98·9	—20·6
12th "	Sialkot	75·6	96·1	—20·5
12th "	D. I. Khan	84·8	101·0	—16·2
12th "	Khushab	84·2	100·2	—16·0
12th "	Ludhiana	81·1	94·8	—13·7
12th "	Rawalpindi	80·4	94·1	—13·7
12th "	Jaipur	81·2	94·2	—13·0
12th "	Sirsa	86·3	99·0	—12·7
12th "	Peshawar	84·1	96·5	—12·4
12th "	Umballa	81·0	93·2	—12·2
12th "	Mooltan	89·8	100·4	—10·6
12th "	Burdwan	79·3	89·8	—10·5
12th "	Montgomery	91·8	102·1	—10·3
13th "	D. I. Khan	88·3	100·9	—12·6
13th "	Roorkee	78·8	91·1	—12·3
13th "	Lahore	87·4	99·0	—11·6
13th "	Sirsa	87·8	99·0	—11·2
13th "	Khushab	89·3	100·2	—10·9
13th "	Umballa	83·0	93·3	—10·3
14th "	D. I. Khan	90·3	100·9	—10·6
15th "	Bareilly	79·3	90·5	—11·2

The mean actual maximum temperature of the month exceeded 90° over north-west India and the Gangetic plain and amounted to 100° or more at the four following stations:—

Station.	Mean maximum temperature. Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
	°	°	°
Jacobabad	107·0	103·5	+3·5
Montgomery	102·9	101·7	+1·2
Mooltan	102·6	100·3	+2·3
Hyderabad (Sind)	100·0	97·5	+2·5

The mean actual maximum temperature likewise exceeded 90° over the Madras coast (Nellore 94°·4, Tinnevelly 96°·3) and Deccan (Cuddapah 92°·0) and upper Burma (Mandalay 91°·9) while it was below 85° over the west of the Peninsula and in Mysore.

The following table gives the highest maximum temperature recorded in each division or province during September 1903 with the date and station, together with the highest temperatures previously recorded at those stations in September :—

Province or division.	Station.	Highest maximum temperature recorded in September 1903.	Date on which recorded.	Highest maximum temperature recorded in September previous to 1903.	Year in which recorded.
		°		°	
Burma	Toungoo	98·9	21st	97·7	1898
Assam	Dibrugarh	93·7	11th	96·2	1902
Bengal	Rangpur	94·7	15th	96·2	1900
Orissa	Cuttack	93·4	26th and 27th.	97·9	1899 and 1901
Bihar	Gaya	95·7	24th	100·7	1877
Chota Nagpur	Chaibassa	92·6	24th	95·9	1899
United Provinces of Agra and Oudh.	Agra	99·0	30th	107·7	1877
Punjab	Mooltan	110·4	3rd	111·4	1898
North-West Frontier Province.	Peshawar	107·0	3rd	106·0	1900
Sind	Jacobabad	111·8	2nd	115·3	1877
Rajputana	Pachpadra	107·5	26th	110·8	1887
Gujarat	Ahmedabad	100·8	19th	105·3	1896 and 1901
Central India	Neemuch	93·0	25th	101·0	1899
Central Provinces.	Chanda	93·7	13th	98·7	1899
Berar	Akola	93·4	16th, 18th and 28th	104·2	1899
West Coast	Bombay	88·0	16th and 17th.	91·0	1896
Bombay Deccan	Sholapur	93·7	13th	98·7	1899
Mysore	Mysore	89·1	5th and 6th.	92·1	1899
Madras Coast	Nellore	100·3	6th	106·4	1899
Madras Deccan	Cuddapah	98·2	8th	103·2	1899
South India	Tinnevelly	100·3	2nd and 28th.	103·4	1899

The above shows that in nearly all parts of the country the maximum temperatures of the month under review were in no way remarkable.

The mean maximum temperature of the month was normal or below the normal at most of the stations on the outer ranges of the north-west Himalayas while it was generally above the average at the stations on the inner ranges and at Darjeeling and Quetta. The following gives comparative data for those stations at which the variations amounted to 1°·5 or more :—

Hill Station.	Mean maximum temperature.		
	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
	°	°	°
Gilgit	90·8	86·7	+4·1
Cherat	88·5	85·8	+2·7
Kailang	71·7	69·2	+2·5
Leh	72·2	70·3	+1·9
Quetta	86·9	85·4	+1·5
Darjeeling	65·6	64·1	+1·5

At the central and southern hill stations the variations of the mean day temperature were unimportant.

The mean minimum or night temperature of the month was generally above the normal except over the south coasts of the Peninsula and in parts of lower Bengal and of Burma. Within these areas the mean night temperature was generally lower than usual, but the variations were small and unimportant except at Toungoo where the variation was —1°·5. Over the remainder of the Indian land area, owing, at least in part, to the increased cloudiness of the sky, the mean night temperature exceeded the normal. The excess was greatest in the north-west, but was also considerable in lower Tenasserim. The following gives data for those stations at which the excess was more than 2° :—

Station.	Mean minimum temperature.		
	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
	°	°	°
Lahore	77·6	72·6	+5·0
Sialkot	78·5	73·8	+4·7
Rawalpindi	72·4	68·9	+3·5
Sirsa	78·6	75·7	+2·9
Ludhiana	77·6	74·8	+2·8
Deesa	76·4	73·9	+2·5
Montgomery	78·5	76·1	+2·4
Kurrachee	79·3	76·9	+2·4
Pachpadra	77·5	75·2	+2·3
Mooltan	79·9	77·6	+2·3
Sutna	76·8	74·6	+2·2
Mergui	74·4	72·2	+2·2
Bhuj	76·7	74·6	+2·1
Ajmer	75·7	73·6	+2·1
Roorkee	75·4	73·3	+2·1
Peshawar	72·2	70·1	+2·1

At the hill stations the mean night temperature exceeded the normal except at Leh and in Baluchistan and the variations were +2° or more at the stations for which comparative data are given beow :—

Hill Station.	Mean Minimum temperature.		
	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
	°	°	°
Srinagar	59·6	53·0	+6·6
Kailang	44·0	42·0	+2·0
Chakrata	59·0	57·0	+2·0

The mean temperature of the month was above the normal over north-west India except at D. I. Khan, the variation amounting to +2° or more at the following stations:—

Station.	Mean daily temperature.		
	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
	°	°	°
Rawalpindi	84·4	81·3	+3·1
Kurrachee	85·7	82·9	+2·8
Jacobabad	92·4	89·8	+2·6
Sialkot	87·2	84·8	+2·4
Mooltan	91·3	89·0	+2·3
Pachpadra	88·3	86·2	+2·1
Hyderabad (Sind)	88·9	86·8	+2·1
Peshawar	85·0	83·0	+2·0
Deesa	85·3	83·3	+2·0

The mean temperature of the month was below the normal over the south of the Peninsula, the variation amounting to over —1°·0 at the following places :—

Station.	Mean daily temperature.		
	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
	°	°	°
Trichinopoly	83·2	85·6	—2·4
Madura	83·6	85·4	—1·8
Madras	83·4	85·1	—1·7
Negapatam	83·2	84·6	—1·4
Coimbatore	79·0	80·2	—1·2

Elsewhere over the plains the variations from the normal were small and unimportant. At most of the Kashmir hill stations the mean temperature of the month was in considerable excess (Srinagar+3°·9) but at the remaining hill stations the heat was about normal.

The chief features of the mean temperature conditions of the month were as follows:—

(1) Increased temperature, both by day and night, over north-west India and Kashmir.

(2) Diminished temperature by day and increased temperature by night over the central parts of the country.

(3) Diminished temperature, both by day and night, over parts of the south of the Peninsula.

(4) Small variations, both by day and night, in other parts of the plains of India.

The following table gives complete mean temperature data of the month for the 57 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	85·1	74·6	79·9	10·5	17·4	+0·9	+1·1	—0·2
	Lower Burma (Deltaic)	85·2	77·0	81·1	8·3	15·8	—0·1	+1·1	—1·2
	Central do.	90·2	74·7	82·5	15·5	24·4	+0·8	—1·1	+1·9
	Upper do.	90·9	75·7	83·3	15·2	23·1	—0·7	+0·3	—1·0
	Arakan	85·5	77·5	81·5	8·0	13·7	—1·1	—0·5	—0·6
Bengal and Assam	Eastern Bengal	86·9	77·5	82·2	9·4	16·7	—0·8	—0·2	—0·6
	Assam (Surma)	88·2	76·2	82·2	12·0	19·2	—1·6	—0·2	—1·4
	Do. Hills	73·8	63·1	68·4	10·7	17·2	...	...	...
	Do. (Brahmaputra)	87·8	76·6	82·3	11·2	18·6	+0·4	+0·8	—0·4
	Deltaic Bengal	88·6	78·3	83·5	10·4	17·7	—0·2	—0·3	+0·1
	Central do.	88·7	77·8	83·3	10·9	18·8	—0·3	—0·3	0
	North do.	87·9	77·0	82·5	10·9	19·8	+0·1	+0·5	—0·4
	Bengal Hills	63·4	52·3	57·9	11·1	19·2	+1·5	+1·0	+0·5
	Orissa	88·2	78·7	83·4	9·5	16·8	—0·7	+0·2	—0·9
	Chota Nagpur	87·1	74·5	80·8	12·6	19·2	0	+0·6	—0·6
	South Bihar	91·0	78·1	84·6	12·9	20·2	+0·8	+0·2	+0·6
	North do.	89·6	78·6	84·1	11·0	18·8	+0·1	+0·5	—0·4

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)	90·3	78·1	84·2	12·3	18·5	−1·0	+0·9	−1·9
	Oudh (South)	90·0	77·7	83·9	12·3	20·5	−2·1	+1·2	−3·3
	Do. (North)	90·0	77·4	83·7	12·6	23·1	−1·0	+1·2	−2·2
	United Provinces (Central)	90·5	77·4	84·0	13·2	23·2	−1·9	+1·3	−3·2
	Do. (West)	92·7	78·1	85·4	14·6	24·2	−3·3	+1·8	−2·1
	Do. (Submontane, East).	89·4	77·3	83·4	12·1	21·5	−1·1	?	?
	Do. (Submontane, West).	87·6	74·6	81·1	13·0	21·5	−1·1	+1·6	−2·7
	Do. (Hills)	69·5	58·9	64·2	10·5	17·0	−0·6	+1·6	−2·2
Punjab	Punjab (South-East)	92·4	78·6	85·5	13·8	25·4	−0·6	+1·6	−2·2
	Do. (South)	95·0	77·7	86·4	17·4	28·9	−0·6	+2·9	−3·5
	Do. (Central)	97·0	77·6	87·3	19·4	32·2	−1·9	+5·0	−6·9
	Do. (Submontane)	94·4	76·0	85·2	18·4	30·3	−0·1	+3·1	−3·2
	Do. (Hills)	76·7	53·2	65·0	23·5	39·0	+1·6	+1·8	−0·2
	Do. (West)	101·4	78·6	90·2	22·7	37·4	+0·8	+2·1	−1·3
N.-W. F. Province	N.-W. F. Province	97·7	73·9	85·8	23·8	37·1	−0·6	+1·4	−2·0
Bombay and Malabar Coast Districts (Madras).	Malabar	82·9	74·4	78·7	8·4	13·6	−0·9	−0·2	−0·7
	Madras (South Central)	87·8	72·3	80·1	15·5	23·2	−2·7	+1·0	−3·7
	Coorg	71·7	62·4	67·1	9·3	14·9	−0·5	+0·5	−1·0
	Mysore	81·8	66·9	74·4	14·9	21·9	−0·6	+1·1	−1·7
	Konkan	83·9	76·4	80·2	7·6	12·5	+0·7	+1·0	−0·3
	Bombay Deccan	84·6	69·1	76·9	15·5	23·8	+0·3	+0·9	−0·6
	Hyderabad (North)	84·8	70·6	77·7	14·2	21·7	...	...	...
	Khandesh	86·2	70·0	78·2	16·2	26·7	−0·4	+0·9	−1·3
Central Provinces and Berar.	Berar	87·7	73·3	80·5	14·5	23·2	−1·1	+0·9	−2·0
	Central Provinces (West)	86·8	74·0	80·7	12·2	20·9	−1·7	+1·1	−2·8
	Do. (Central)	85·7	73·2	79·5	12·5	19·8	−1·5	+0·8	−2·3
	Do. (East)	87·0	74·7	80·9	12·3	17·0	−0·6	+0·1	−0·7
Bombay (North)	Gujarat	89·1	77·0	83·0	12·2	23·0	−1·2	+1·1	−2·3
	Kathiawar and Cutch	89·1	76·4	82·8	12·7	20·4	−0·2	+1·7	−1·9
	Sind	99·7	78·3	89·0	21·4	34·8	+3·1	+1·9	+1·2
	Baluchistan Hills	88·7	51·9	70·3	36·8	54·6	+0·7	−1·2	+1·9
Rajputana and Central India.	Central India (East)	86·1	74·1	80·1	12·0	21·0	−1·9	+1·5	−3·4
	Rajputana (East), Central India (West)	91·7	75·7	83·7	16·0	26·5	0	+1·8	−1·8
	Do. (West)	98·4	78·3	88·4	20·0	32·9	+1·5	+1·8	−0·3
Madras	East Coast (North)	88·1	78·6	83·4	9·6	16·6	−1·4	+0·4	−1·8
	Hyderabad (South)	86·8	72·8	79·9	13·9	22·9	−0·4	+1·2	−1·6
	Madras (Central)	90·9	74·2	82·6	16·7	25·6	+0·1	+0·3	−0·2
	East Coast (Central)	92·3	77·8	85·1	14·6	23·9	−0·4	+0·2	−0·6
	Do. (South)	90·7	75·5	83·1	15·2	25·6	−2·7	−0·4	−2·3
	Madras (South)	92·2	76·2	83·6	16·1	25·0	−2·5	−0·1	−2·4

The preceding data show that the mean maximum temperature of the month averaged over 100°, in the west Punjab (101°·4) and 95° or over, in the south Punjab (95°·0), the central Punjab (97°·0), the North-west Frontier Province (97°·7), Sind (99°·7) and west Rajputana (98°·4), while it averaged 83°·9 in the Konkan. The mean minimum temperature averaged 69°·1 in the Bombay Deccan. Owing to the generally high night temperatures the mean daily range of temperature was, over the greater part of the country, less than usual.

The following is a brief summary of the chief changes and features of the temperature conditions of the month:—

Between the 1st and the 7th the weather, over a large part of the country, was influenced by two slight shallow depressions which were shown over the more central parts of India. Accompanying these depressions showers occurred over the Peninsula, heavy showers over the more central divisions of India, and steady but not heavy rain over north-east India. In consequence the mean temperature was generally low during this interval over Burma, north-east India, and the central parts of the country. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	1st Sept.	2nd Sept.	3rd Sept.	4th Sept.	5th Sept.	6th Sept.	7th Sept.
	°	°	°	°	°	°	°
Burma	+1·1	+0·6	+0·4	−0·2	+0·6	+0·1	−1·0
Assam	−1·6	+0·1	−1·5	−1·8	−0·7	−0·8	−1·7
Bengal	−2·3	−0·3	+0·7	+0·3	−0·3	+0·5	−0·6
Orissa	−0·9	−0·5	+0·8	+0·6	−0·5	+0·2	−0·7
Bihar	−0·5	−1·2	+0·5	−0·8	−0·4	−0·6	+0·8
Chota Nagpur	−0·3	−1·0	+1·2	+0·7	+0·3	+1·3	+0·8
Gujarat	−0·1	−0·3	−1·6	−1·3	−0·4	+0·1	+0·2
Central India	+2·9	−0·3	−2·4	+1·3	−0·6	−1·5	−1·6
Central Provinces	+0·2	−2·4	−1·8	−2·5	−2·1	−3·2	−2·2
Berar	−1·9	−3·3	−2·9	−1·4	−2·0	−4·4	−3·5

No rain, however, extended at this time into north-west India and over this area the mean temperature was steadily in excess of the normal. The following gives data for the north-west divisions:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	1st Sept.	2nd Sept.	3rd Sept.	4th Sept.	5th Sept.	6th Sept.	7th Sept.
	°	°	°	°	°	°	°
United Provinces of Agra and Oudh.	+1·9	+0·5	+0·8	+1·1	+0·1	−2·8	−0·8
Punjab	+4·5	+4·8	+4·1	+3·5	+4·0	+3·2	+2·5
North-West Frontier Province.	+2·8	+3·7	+4·3	+4·3	+5·0	+4·6	+4·0
Sind	+3·3	+3·2	+2·0	+1·4	−0·2	−0·3	+1·4
Rajputana	+5·5	+4·4	+3·6	+3·4	+3·2	+2·0	+1·2

The hottest days were the 2nd to the 5th during which period day temperatures over 8° higher than the average were recorded at the following places on the following dates:—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
2nd September	Cherat	96·4	86·1	+10·3
	Mooltan	109·9	100·0	+ 9·9
	Rawalpindi	102·5	93·4	+ 9·1
	Bikaner	106·1	97·7	+ 8·4
3rd „	Mooltan	110·4	100·1	+10·3
	Peshawar	107·0	97·3	+ 9·7
	Bikaner	106·1	97·8	+ 8·3
4th „	Cherat	95·4	86·1	+ 9·3
	Mooltan	109·4	100·2	+ 9·2

In Baluchistan the excess of temperature was even more marked than over north-west India. The following gives data for the seven days:—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	1st Sept.	2nd Sept.	3rd Sept.	4th Sept.	5th Sept.	6th Sept.	7th Sept.
	°	°	°	°	°	°	°
Baluchistan	+3·6	+2·6	+3·5	+5·2	+5·5	+5·2	+5·9

Over the Peninsula, as mentioned above, the weather was showery during this week, but except at times in the extreme south and in the Dacca the mean temperature was generally above the normal. This is shown below:—

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

During the 8th, 9th and 10th showery weather prevailed more or less over the whole Indian area. The rainfall was heaviest over Burma and the central parts of India, and the temperature variations showed that a long arm of relatively low temperature extended from Burma across the head of the Bay and through the central parts of India as far west as Rajputana, while at the same time a small area of low temperature was shown over south India. The following gives temperature data for the divisions in these regions:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	8th Sept.	9th Sept.	10th Sept.
	°	°	°
Burma	−1·6	−1·8	−1·6
Orissa	−2·4	−1·7	−1·0
Central Provinces	−2·0	−2·7	−2·0
Berar	−0·5	−0·7	−2·1
Central India	−2·8	−4·6	−2·9
Rajputana	−0·6	0	−0·8
South India	−2·0	−2·7	−5·2

On the 10th, 11th and 12th an extensive fall of rain occurred over north-west India and Kashmir. This rainfall reduced temperature to below the normal over the plains and hills of north-west India and Baluchistan and lower temperatures than usual were experienced over the whole of this large area until the 18th. Rain continued to fall over southern India and Burma, keeping temperature low over those areas, while at the same time a small depression, which formed over the head of the Bay or deltaic Bengal during the 10th, occasioned heavy rain over Bengal and the Gangetic plain. In consequence of this disturbed weather the mean temperature between the 12th and the 18th was generally lower than usual over the greater part of northern India, Burma and the south of the Peninsula while it was generally high, relatively to the normal, over Sind, Gujarat, Berar and the Deccan.

The following gives temperature variation data for all divisions from the 12th to the 18th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	12th Sept.	13th Sept.	14th Sept.	15th Sept.	16th Sept.	17th Sept.	18th Sept.
	°	°	°	°	°	°	°
Burma	+0·2	+1·1	+1·0	−0·3	−0·6	−0·6	+0·7
Assam	+0·9	+2·8	+2·3	+1·5	+1·0	+0·6	+2·9
Bengal	−3·4	−0·3	+1·4	+2·3	+1·0	−1·0	−1·3
Orissa	−0·3	−2·1	+0·5	+0·9	+0·6	−2·6	−1·5
Bihar	+0·4	−3·0	+0·1	+2·0	+2·1	+0·9	+0·3
Chota Nagpur	+0·2	−4·2	−2·1	+0·1	+0·5	−0·8	−1·8
United Provinces of Agra and Oudh.	−0·6	−2·6	−2·8	−4·3	−3·8	−0·9	+0·6
Punjab	−8·7	−6·4	−3·8	−1·7	−0·9	−2·1	−0·5
North-West Frontier Province	−10·0	−7·1	−5·5	−3·7	−3·7	−2·8	−1·0
Sind	+2·5	+0·8	+2·1	+0·9	+0·5	+2·0	+2·9
Rajputana	−4·7	−3·7	−2·8	−0·6	0	−0·9	+0·7
Gujarat	+0·3	+0·6	+1·6	+1·7	+2·0	+2·9	+3·4
Central India	−0·8	−0·8	−1·9	−1·3	−0·9	+0·8	+2·2
Central Provinces	0	+1·5	+0·7	−0·6	+0·6	+0·8	+1·0
Berar	+1·5	+2·9	+2·7	+0·7	+2·7	+3·6	+2·8
West Coast	+0·7	+1·0	+0·8	+0·4	−0·1	−0·3	+0·4
Bombay Deccan	+2·5	+3·4	+2·3	+1·5	+2·4	+2·0	+0·6
Mysore	+0·4	0	+0·3	+0·1	−2·1	−1·0	−0·6
Madras Coast	−1·1	−0·2	−0·7	−1·2	−4·4	−2·7	−2·6
Madras Deccan	+2·6	+2·0	+1·4	−0·5	−1·0	−1·5	−3·7
South India	−3·3	−2·0	−1·5	−0·8	−2·0	−2·8	−1·8

The reduction of temperature was most marked in the day temperatures and at the following places on the following dates the day temperature was more than 10° below the normal:—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
12th September	Lahore	78·3	98·9	−20·6
	Sialkot	75·6	96·1	−20·5
	Dera Ismail Khan	84·8	101·0	−16·2
	Khushab	84·2	100·2	−16·0
	Rawalpindi	80·4	94·1	−13·7
	Ludhiana	81·1	94·8	−13·7
	Jaipur	81·2	94·2	−13·0
	Sirsa	86·3	99·0	−12·7
12th September	Peshawar	84·1	96·5	−12·4
	Umballa	81·0	93·2	−12·2
	Mooltan	89·8	100·4	−10·6
	Burdwan	79·3	89·8	−10·5
	Montgomery	91·8	102·1	−10·3
13th "	Dera Ismail Khan	88·3	100·9	−12·6
	Roorkee	78·8	91·1	−12·3
	Lahore	87·4	99·0	−11·6
	Sirsa	87·8	99·0	−11·2
	Khushab	89·3	100·2	−10·9
	Umballa	83·0	93·3	−10·3
14th "	Dera Ismail Khan	90·3	100·9	−10·6
15th "	Bareilly	79·3	90·5	−11·2
16th "	Mainpuri	76·3	93·2	−16·9
	Bareilly	78·3	90·5	−12·2
	Cawnpore	81·8	92·7	−10·9
	Nellore	84·3	94·8	−10·5
17th "	Sirsa	85·8	99·0	−13·2
	Delhi	80·7	93·2	−12·5
18th "	Hyderabad (Deccan)	75·3	86·4	−11·1

The excessive heat in Sind and Gujarat was strongly marked on the 16th, 17th and 18th and the day temperature was more than 6° above the normal at the following places on these days :—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
17th September	Hyderabad, Sind	104·6	97·4	+7·2
	Bhuj	98·3	92·2	+6·1
18th "	Hyderabad Sind	105·1	97·5	+7·6
	Ahmedabad	99·2	91·8	+7·4
	Kurrachee	95·9	88·7	+7·2
	Bhuj	99·3	92·2	+7·1
	Surat	94·7	88·3	+6·4

After the 18th the rains practically ceased over upper India though occasional light local showers were received

until near the close of the month. In consequence temperature rose in the north-west and the mean temperature was above the normal over this region from the 19th till the close of the month. The following gives 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 Sept.	22nd Sept.	24th Sept.	26th Sept.	28th Sept.	30th Sept.
	°	°	°	°	°	°
Further Kashmir . .	+0·3	+1·7	+2·3	+6·3	+7·1	+10·6
United Provinces of Agra and Oudh.	+2·0	—0·4	+0·9	+2·0	+1·0	+ 3·0
Punjab . . .	+2·0	+4·0	+4·0	+5·2	+4·3	+ 4·4
North-West Frontier Province.	—0·8	+0·7	+2·3	+3·3	+3·3	+ 4·0
Sind	+6·4	+4·5	+4·1	+2·8	+2·4	+ 0·9
Rajputana . . .	+2·0	+2·2	+2·0	+3·1	+0·7	+ 2·4
Gujarat . . .	+0·6	—0·5	+0·4	+1·1	+0·1	+ 0·1

The preceding data show that at the commencement of this period the area of greatest excess of temperature lay over Sind and north Gujarat, but that in Kashmir temperature was also in excess. The Sind area of excess gradually advanced northward reaching upper Sind by the 22nd and 23rd, the southern Punjab by the 24th and the north Punjab by the 25th, it then coalesced with the area of excess over the hills and from the 26th onward to the close of the month the largest variations from the normal were shown at the Kashmir hill stations. The following table gives, from the 19th to the 25th, a statement showing for each day the two stations which, in north-west India, exhibited the largest variations of temperature from the normal:—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
19TH SEPTEMBER .	Hyderabad Sind . . .	+ 8·6
	Kurrachee	+ 6·4
20TH ,, .	Kurrachee	+ 8·9
	Hyderabad, Sind . . .	+ 7·3
21ST .	Hyderabad	+ 5·1
	Jacobabad	+ 5·0
22ND ,, .	Jacobabad	+ 6·9
	Montgomery	+ 5·7
23RD ,, .	Jacobabad	+ 7·1
	Montgomery	+ 5·2
24TH ,, .	Mooltan	+ 6·8
	Rawalpindi	+ 6·3
25TH ,, .	Sialkot	+ 7·4
	Rawalpindi	+ 7·0

Over the Peninsula the temperature was unsteady during the period under review. Rain continued almost daily in the extreme south and the mean temperature, though unsteady, was generally lower than usual in that area, but over the Deccan the rainfall was uncertain and the mean temperature above the normal on some days and low on others. The following gives comparative data for the Peninsular divisions for each alternate day from the 19th to the 29th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	19th Sept.	21st Sept.	23rd Sept.	25th Sept.	27th Sept.	29th Sept.
	°	°	°	°	°	°
West Coast . . .	—0·2	+0·1	+1·0	—0·4	+1·2	+0·5
Bombay Deccan . .	—2·0	—1·1	+0·9	+0·1	+2·0	0
Mysore . . .	—1·7	+1·4	—1·0	—3·1	—0·6	+0·5
Madras Coast . .	—2·0	—1·0	—1·5	—1·8	+0·9	+0·7
Madras Deccan . .	—2·7	+0·7	—0·3	—0·4	+1·5	+0·4
South India . . .	—0·7	—1·2	—1·7	—2·7	—0·9	0
Central Provinces .	—0·5	+0·7	—0·7	+1·8	+0·5	+1·4
Berar	—0·3	—0·2	—2·6	+2·0	+1·2	+0·7

In the United Provinces the mean temperature was also unsteady owing to the uncertain character of the rainfall. The following gives comparative temperature data for each alternate day from the 20th to the 30th and shows generally that the temperature was unsteady but that the variations were moderate or small:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	20th Sept.	22nd Sept.	24th Sept.	26th Sept.	28th Sept.	30th Sept.
	°	°	°	°	°	°
United Provinces of Agra and Oudh.	+2·0	—0·4	+0·9	+2·0	+1·0	+3·0

In north-east India the rainfall was scattered, and on the whole light, between the 20th and 24th and the mean temperature rose and was generally above the normal on those

days. On the 25th, however, rain became more general and the temperature fell briskly to below the normal. On the 28th a slight depression appeared over deltaic Bengal and rain became heavy and so continued during the 29th. The mean temperature was thus generally lower than usual from the 25th to the end of the month though the mean variations were not generally large on any day. The following gives comparative data for each alternate day from the 20th to the 30th for the Bengal and Assam divisions:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M of					
	20th Sept	22nd Sept.	24th Sept.	26th Sept.	28th Sept.	30th Sept.
	°	°	°	°	°	°
Assam . . .	−0·5	+1·7	−1·5	−2·8	+0·2	+1·2
Bengal . . .	+0·5	+1·4	+1·3	−1·6	−1·2	−1·7
Orissa . . .	−0·7	+1·6	+1·6	+1·4	+0·1	−4·3
Bihar	+0·9	+0·9	+2·3	−2·7	+0·3	+0·1
Chota Nagpur . .	+1·3	+1·6	+3·3	+0·5	+1·1	−1·8

In Burma also the temperature conditions were unsteady. Temperature was generally higher than usual from the 20th to the 22nd. It then fell to below the normal over central and upper Burma and so continued till the close of the month while on the coast and in Tenasserim it was steadily excessive. The following gives comparative data for each alternate day from the 20th to the 30th for this province:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	20th Sept.	22nd Sept.	24th Sept.	26th Sept.	28th Sept.	30th Sept.
	°	°	°	°	°	°
Burma . . .	+1·2	+1·2	+0·7	+0·3	−1·5	+0·6

At the extra-Indian stations the variations of the mean temperature from the normal were generally small and unimportant but at Kashgar (+2·8°), at Baghdad (+1·2°) and at Kabul (+1·0°) there was some excess and at Teheran (−2·1°); at the Seychelles (−1·8°) and at Mauritius (−1·0°) there was some deficiency. At the remaining stations the variations were less than 1·0°. The following gives comparative data for the extra-Indian stations:—

Station.	Mean daily temperature.		
	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
	°	°	°
Trincomalee	83·1	83·9	−0·8
Colombo	82·3	81·5	+0·8
Kabul	70·2	69·2	+1·0
Kashgar	72·0	69·2	+2·8
Ispahan	72·0	72·9	−0·9
Teheran	75·8	77·9	−2·1
Bushire	87·4	86·7	+0·7
Jask	86·8	87·3	−0·5
Muscat	85·3	85·4	−0·1
Baghdad	88·0	86·8	+1·2
Aden	88·4	87·9	+0·5
Perim	89·3	89·0	+0·3
Zanzibar	78·0	77·7	+0·3
Seychelles	77·2	79·0	−1·8
Mauritius	68·4	69·4	−1·0

Winds.

The mean wind direction at Port Blair was slightly more westerly than usual while the mean steadiness was above, and the mean velocity in defect of the normal. The following gives data for this station:—

Station.	Mean steadiness.			Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual percentage, September 1903.	Normal percentage, September.	Variation of actual from normal, September 1903.	Actual, September 1903.	Normal, September.	Westerly deflection.	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
				°	°				
Port Blair .	78	74	+4	S 63 W	S 52 W	+11	196	228	−32

On the other hand, at Diamond Island and Cocos Island the wind was more southerly than the average. This is shown below:—

Station.	Mean wind direction.		
	Actual, September 1903.	Normal, September.	Southerly Deflection.
	°	°	
Diamond Island . . .	S 32 W	S 45 W	+13
Cocos Island	S 26 W	S 44 W	+18

The increased westing in the wind noticed at Port Blair was also observable at Akyab, Chittagong and False

Point, while the reverse tendency was shown in the mean wind direction at Saugor Island. At all these stations the wind, on the mean of the month, was steadier than usual, while the velocity was also generally above the normal. The following gives comparative data :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1903.	Normal percentage, September.	Variation of actual from normal, September 1903.	Actual, September 1903.	Normal, September.	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
				°	°			
Akyab . .	67	42	+25	S 8 W	S 8 E	72	74	— 2
Chittagong . .	42	37	+ 5	S 5 W	S 22 E	123	102	+21
False Point . .	70	37	+33	S 24 W	S 20 W	209	205	+ 4
Saugor Island .	65	49	+16	S 3 E	S 2 W	285	257	+28

At Calcutta the wind, on the mean of the month, was more southerly than usual while the steadiness was above and the velocity below the normal. At Hazaribagh and Darbhanga similar abnormal conditions were exhibited. The following gives data:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1903.	Normal percentage, September.	Variation of actual from normal, September 1903.	Actual, September 1903.	Normal, September.	Southerly deflection.	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
				°	°				
Calcutta .	52	42	+10	S 15 E	S 23 E	+ 8	63	98	—35
Hazaribagh	30	10	+20	S 24 E	S 52 E	+28	158	178	—20
Darbhanga	55	49	+ 6	S 68 E	S 81 E	+13	35	96	—61

At Allahabad an abnormal east-north-east wind was reported instead of the usual north by west wind, but at this station also the steadiness was greater than usual though the velocity was low. This is shown below :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1903.	Normal percentage, September.	Variation of actual from normal, September 1903.	Actual, September 1903.	Normal, September.	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
				°	°			
Allahabad . .	32	13	+19	N 72 E	N 8 W	71	128	—57

At the stations in the upper sub-Himalayas the principal features of the circulation were the increased easting in the wind's direction and the increased steadiness of the wind. These are shown below :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.	
	Actual percentage, September 1903.	Normal percentage, September.	Variation of actual from normal, September 1903.	Actual, September 1903.	Normal, September.
				°	°
Dehra Dun . .	53	20	+33	S 3 W	N 75 W
Roorkee . . .	33	7	+26	S 30 E	S 14 W
Meerut . . .	27	19	+ 8	S 75 E	N 49 W
Lahore . . .	8	7	+ 1	N 25 E	N 55 E
Ludhiana . . .	30	14	+16	S 12 E	N 44 W

The wind, on the mean of the month, was about normal at Kurrachee, but varied irregularly from the average in the upper Indus valley. In Rajputana the wind was more westerly than usual but the velocity was low.

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 1903.	Normal percentage, September.	Variation of actual from normal, September 1903.	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
Bay Islands . . .	75	74	+ 1	196	228	—32
Burma . . .	53	49	+ 4	78	115	—37
Bengal . . .	53	43	+10	157	152	+ 5
Bihar	55	49	+ 6	35	96	—61
Chota Nagpur . .	30	10	+20	158	178	—20
Orissa . . .	70	37	+33	209	205	+ 4
United Provinces of Agra and Oudh.	36	15	+21	44	62	—18
North-West Frontier Province.	38	51	—13	28	73	—45
Punjab . . .	19	11	+ 8	45	41	+ 4
Rajputana . . .	42	48	— 6	98	154	—56
Sind	72	66	+ 6	200	214	—14

On the whole the winds were steadier but lighter than usual over the whole of this area. The only important abnormal features in the wind's direction over this area were the increased westing over the Bay, the increased southing in Bengal, and the increased easting in the upper sub-Himalayas.

The wind's direction was approximately normal over the Deccan. This is shown below :—

STATION.	MEAN WIND DIRECTION.	
	Actual, September 1903.	Normal, September.
	°	°
Belgaum	S 87 W	S 78 W
Sholapur	N 57 W	N 69 W
Akola	N 67 W	N 59 W
Buldana	N 47 W	N 47 W
Khandwa	N 45 W	N 66 W
Nagpur	S 86 W	N 52 W
Hyderabad Deccan	N 78 W	N 71 W

The steadiness, as in other parts of India, was above the average while the velocity was low—at some stations considerably below the normal. The following gives data :—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1903.	Normal percentage, September.	Variation of actual from normal, September 1903.	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
Belgaum	84	75	+ 9	308	385	−77
Sholapur	80	67	+13	219	245	−26
Akola	87	68	+19	146	155	− 9
Buldana	80	68	+12	163	200	−37
Khandwa	75	67	+ 8	138	154	−16
Nagpur	32	37	− 5	78	147	−69
Hyderabad Deccan	70	61	+ 9	105	150	−45

On the west coast the wind's direction and steadiness, on the mean of the month, were about normal, but while the velocity was below the average at Bombay it was above at Karwar. The following gives data for these two stations :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1903.	Normal percentage, September.	Variation of actual from normal, September 1903.	Actual, September 1903.	Normal, September.	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
				°	°			
Bombay	55	52	+ 3	N 88 W	N 84 W	218	267	−49
Karwar	79	78	+ 1	N 69 W	N 80 W	104	58	+46

The wind was lighter than usual over southern India, but the direction and steadiness were, on the mean of the month, nearly normal. This is shown below:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1903.	Normal percentage, September.	Variation of actual from normal, September 1903.	Actual, September 1903.	Normal, September.	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
Salem	48	69	−21	S 70° W	S 63° W	66	82	−16
Chitaldroog	85	78	+ 7	N 78 W	N 87 W	163	228	−65
Bangalore	73	84	−11	N 71 W	S 85 W	165	167	− 2
Hassan	85	79	+ 6	N 85 W	N 79 W	72	91	−19
Mysore	67	68	− 1	S 88 W	N 87 W	205	266	−61
Madras	42	52	−10	S 75 W	S 36 W	108	149	−41
Bellary	78	75	+ 3	N 67 W	N 78 W	219	223	− 4

The following gives comparative data of the mean velocity and steadiness of the winds over the Peninsular divisions :—

PROVINCE OR DIVISION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1903.	Normal percentage, September.	Variation of actual from normal, September 1903.	Actual, September 1903.	Normal, September.	Variation of actual from normal, September 1903.
Central Provinces	54	52	+ 2	108	151	−43
Berar	84	68	+16	155	188	−33
Bombay Deccan	82	71	+11	264	315	−51
Madras Deccan	74	68	+ 6	162	187	−25
West Coast	67	65	+ 2	161	163	− 2
Mysore	78	77	+ 1	151	188	−37
Madras Coast	42	52	−10	108	149	−41
South India	48	69	−21	66	82	−16

Very variable winds prevailed at the northern and north-western hill stations. At Quetta the mean wind direction was about normal, but the steadiness and velocity were lower than usual. In Kashmir and the north-west Himalayas the winds varied irregularly from the normal while in the eastern Himalayas the principal abnormal feature was the west-south-west wind at Darjeeling where in September the ordinary direction is south-easterly. At the central hill stations the wind blew from about north-north-west and at the southern hill stations from between north-west and west-north-west. The direction was hence somewhat more northerly than at the neighbouring plains stations.

At Aden and Perim the winds were light and unsteady and the directions varied irregularly from the normal. The following gives data for these two stations :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September, 1903.	Normal percentage, September.	Variation of actual from normal, September, 1903.	Actual, September, 1903.	Normal, September.	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
				°	°			
Aden . . .	42	50	— 8	S 39 E	S 23 E	153	220	—67
Perim . . .	7	28	—21	N 17 E	N 42 E	228	276	—48

The south-east trades were on the whole stronger and steadier than usual. At all three stations in this area the direction was more southerly than usual. The following gives comparative data :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September, 1903.	Normal percentage, September.	Variation of actual from normal, September, 1903.	Actual, September, 1903.	Normal, September.	Actual, September, 1903.	Normal, September	Variation of actual from normal, September, 1903.
				°	°			
Zanzibar . .	75	63	+12	S 1 W	S SE	167	138	+29
Seychelles . .	84	90	— 6	S 28 E	S 41 E	296	292	+ 4
Mauritius . .	...	...	...	S 67 E	S 71 E	305	286	+19

Humidity and Cloud.

The air was damper than usual, *i.e.*, the mean absolute humidity exceeded the average over nearly the whole country. The only exceptions were parts of Burma and of lower and north Bengal, the Malabar district of Madras and one or two stations in the Bombay Deccan, where the amount of vapour present in the air was below the normal.

The mean relative humidity of the air was less than the average in three small areas. The first included parts of Tenasserim and of lower and central Burma. The variations in this area were, however, small and of little importance. The following gives data for the contained stations :—

STATION.	RELATIVE HUMIDITY.		
	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
	%	%	
Toungoo	89·0	90·5	—1·5
Rangoon	92·0	93·5	—1·5
Moulmein	91·0	92·4	—1·4
Tavoy	92·0	92·5	—0·5
Minbu	85·0	85·1	—0·1

The second area included the Brahmaputra valley and north Bengal. In this area also the variations were small, as is shown below :—

STATION.	RELATIVE HUMIDITY.		
	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
	%	%	
Dhubri	90·0	91·6	—1·6
Mymensingh	90·0	91·3	—1·3
Sibsagar	94·0	94·8	—0·8
Jalpaiguri	90·0	90·7	—0·7
Dinajpur	89·0	89·7	—0·7

The third area covered the south of the western desert and here also, with the doubtful exception of Pachpadra, the variations were small. The following gives data :—

STATION.	RELATIVE HUMIDITY.		
	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
	%	%	
Pachpadra.	69·0	76·1	—7·1
Hyderabad (Sind)	65·0	67·5	—2·5
Kurrachee	80·0	81·1	—1·1

In addition the mean relative humidity of the month was in defect locally at Montgomery and Rawalpindi. This is shown below :—

Station.	Relative Humidity.		
	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
	%	%	
Montgomery	55·0	58·6	−3·6
Rawalpindi	69·0	71·7	−2·7

Over the whole of the remainder of the Indian land area the mean relative humidity was in excess of the normal. The areas of greatest excess covered the central and east Punjab, the Gangetic plain, Central India, Gujarat and the Madras coast and Deccan. The excess amounted to 8 or more at the following large number of stations :—

Station.	Relative Humidity.		
	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
	%	%	
Neemuch	93·0	77·9	+15·1
Khushab	72·0	59·8	+12·2
Jhansi	86·0	74·5	+11·5
Lahore	77·0	66·5	+10·5
Trichinopoly	82·0	71·5	+10·5
Mainpuri	87·0	77·6	+9·4
Cocanada	89·0	79·8	+9·2
Bellary	79·0	70·0	+9·0
Delhi	78·0	69·2	+8·8
Meerut	84·0	75·5	+8·5
Negapatam	83·0	74·7	+8·3
Sialkot	78·0	70·0	+8·0
Kurnool	86·0	78·0	+8·0

At nearly all the hill stations both the mean absolute and relative humidities were in excess, but at Srinagar and Quetta the air was slightly drier than usual, and at Gilgit both the absolute and relative humidities were in large defect. The following gives data for the hill stations :—

Hill Station.	Absolute Humidity.			Relative Humidity.		
	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
	"	"	"	%	%	
Chaman	·341	·269	+·072	40·0	29·6	+10·4
Chakrata	·506	·450	+·056	92·0	82·7	+ 9·3
Simla	·456	·397	+·059	85·0	76·4	+ 8·6
Wellington	·471	·429	+·042	80·0	71·4	+ 8·6
Leh	·217	·176	+·041	55·0	47·5	+ 7·5
Mussooree	·516	·472	+·044	91·0	84·3	+ 6·7
Pachmarhi	·669	·627	+·042	89·0	82·6	+ 6·4
Ranikhet	·543	·485	+·058	87·0	81·8	+ 5·2
Mount Abu	·583	·551	+·032	83·0	79·6	+ 3·4
Cherat	·478	·468	+·010	59·0	58·3	+ 0·7
Darjeeling	·490	·474	+·016	95·0	94·4	+ 0·6
Srinagar	·514	·468	+·046	87·0	87·3	− 0·3
Quetta	·318	·330	−·012	49·0	50·4	− 1·4
Gilgit	·335	·385	−·050	40·0	51·3	−11·3

At Aden the mean vapour tension was in slight excess and the mean relative humidity in slight defect, while at Perim both the mean abolute and relative humidities were in excess of the average. The following gives data:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
	"	"	"	%	%	
Aden	·948	·932	+·016	73·0	74·5	− 1·5
Perim	·992	·964	+·028	76·0	74·2	+ 1·8

In the south-east trades region the variations in humidity were irregular. At Zanzibar and Mauritius both the mean absolute and relative humidities were in defect, while at the Seychelles both were in excess. This is shown below :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
	"	"	"	%	%	
Zanzibar	·708	·727	−·019	75·0	78·0	− 3·0
Seychelles	·759	·753	+·006	79·0	75·0	+ 4·0
Mauritius	·485	·514	−·029	70·0	72·0	− 2·0

The above shows that practically over the whole of the Indian land area the air was damper than usual, but that in surrounding regions, for example Persia, Arabia, and the south-east trades region, the variations were more or less irregular.

The increased dampness of the air was accompanied with a generally increased cloudiness of the sky. There were, however, certain regions where the mean cloud amount was less than usual. Of these the most important was the Bay area around the coasts of which there was a very remarkable deficiency of cloud amount. The following gives comparative data:—

Station.	Mean cloud amount.		
	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
Gopalpur	4·0	6·6	−2·6
Balasore	5·1	7·0	−1·9
Nellore	5·4	7·2	−1·8
Tavoy	5·7	7·5	−1·8
Cocanada	5·8	7·4	−1·6
Mergui	5·8	7·1	−1·3
Barisal	6·1	7·2	−1·1
Diamond Island	6·4	7·4	−1·0
Madras	6·0	6·7	−0·7
Akyab	7·2	7·8	−0·6
Trincomalee	2·5	3·0	−0·5
Saugor Island	8·0	8·2	−0·2

The area of diminished humidity over the Brahmaputra valley and north Bengal was also an area of diminished cloud amount. This is shown below:—

Station.	Mean cloud amount.		
	Actual, September, 1903.	Normal, September.	Variation of actual from normal, September 1903.
Jalpaiguri	5·2	7·0	−1·8
Bogra	5·2	7·0	−1·8
Sibsagar	7·7	8·7	−1·0
Dhubri	7·1	7·5	−0·4
Purnea	5·6	6·0	−0·4

There were also small areas of diminished cloud amount over south Madras, the Bombay Deccan, the Central Provinces, and lower Sind. The following gives comparative data for the stations in these areas:—

Area.	Station.	Mean cloud amount.		
		Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
South Madras.	Trichinopoly	4·7	6·0	−1·3
	Coimbatore	5·0	5·3	−0·3
	Madura	4·9	5·2	−0·3
Bombay Deccan	Poona	6·0	7·2	−1·2
	Bijapur	6·3	7·3	−1·0
	Ratnagiri	6·0	6·5	−0·5
Centrl Provinces.	Seoni	3·5	4·5	−1·0
	Nagpur.	6·1	6·4	−0·3
	Chanda	6·0	6·1	−0·1
Lower Sind	Kurrachee	3·4	5·0	−1·6

Over practically the whole of the remainder of the Indian land area the sky was on the mean of the month more cloudy than usual. The increased cloudiness of the sky was in most marked excess over the Gangetic plain, Central India, the west of the Central Provinces, Gujarat, south-west Bengal, the Malabar and south Konkan coasts, part of Mysore, and part of lower Burma. The following gives comparative data for those stations at which the excess amounted to 1·5 or more:—

Station	Mean cloud amount.		
	Actual September 1903.	Normal, September.	Variation of actual from normal, September, 1903.
Neemuch	6·7	3·4	+3·3
Gorakhpur	7·8	4·5	+3·3
Rajkot	7·4	4·8	+2·6
Cawnpore	6·4	4·0	+2·4
Cochin	8·4	6·0	+2·4
Khandwa	7·3	5·2	+2·1
Salem	8·0	5·9	+2·1
Sutna	7·9	5·9	+2·0

Station.	Mean cloud amount. Actual September, 1903.	Normal, September.	Variation of actual, from normal. September, 1903.
Mysore	9·5	7·5	+2·0
Umballa	4·6	2·7	+1·9
Trivandrum	8·7	6·8	+1·9
Hazaribagh	8·6	6·7	+1·9
Dehra Dun	6·6	4·8	+1·8
Calicut	8·1	6·3	+1·8
Ranchi	7·5	5·7	+1·8
Bassein	8·6	6·9	+1·7
Meerut	4·6	3·0	+1·6
Amraoti	7·6	6·0	+1·6
Akola	7·4	5·8	+1·6
Indore	7·9	6·3	+1·6
Rangoon	8·5	7·0	+1·5
False Point	8·6	7·1	+1·5
Bareilly	5·3	3·8	+1·5

At the hill stations the variations of the mean cloud amount from the normal were irregular. At Darjeeling, Leh, Gilgit, Cherat, and in Baluchistan the mean cloud amount was less than usual, while on the contrary, at the stations on the outer ranges of the north-west Himalayas, as well as at the central and southern hill stations the sky was more cloudy than the normal. The following gives comparative data:—

Hill Station.	Mean cloud amount. Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903
Leh	1·9	3·6	−1·7
Gilgit	2·7	3·5	−0·8
Darjeeling	7·7	8·5	−0·8
Cherat	1·6	1·9	−0·3
Quetta	0·1	0·2	−0·1
Chaman	0·1	0·2	−0·1
Srinagar	3·3	3·3	0
Murree	2·6	2·5	+0·1
Chakrata	4·7	3·7	+1·0
Simla	5·5	4·0	+1·5
Mount Abu	6·2	4·6	+1·6
Pachmarhi	8·4	6·6	+1·8
Ranikhet	6·9	4·9	+2·0
Mussooree	6·7	4·5	+2·2
Wellington	8·2	5·6	+2·6

In Ceylon the sky was, on the mean of the month, more cloudy than usual on the west side and less cloudy than usual on the east side of the island. This is shown below:—

Station.	Mean cloud amount. Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
Colombo	6·9	6·0	+0·9
Trincomalee	2·5	3·0	−0·5

In southern Persia the sky, on the mean of the month was clearer than usual and this was also the case in Arabia. At Perim the deficiency was large, as is shown below:—

Station.	Mean cloud amount. Actual, September, 1903.	Normal, September.	Variation of actual from normal, September, 1903.
Perim	1·0	3·8	−2·8
Jask	0·5	1·5	−1·0
Aden	3·4	3·9	−0·5
Muscat	0·7	1·0	−0·3

In the south-east trades region the sky was more cloudy than usual. This is shown below:—

Station.	Mean cloud amount. Actual, September, 1903.	Normal September.	Variation of actual from normal, September, 1903.
Zanzibar	5·6	4·8	+0·8
Seychelles	6·3	5·6	+0·7
Mauritius	6·4	5·6	+0·8

The mean cloud amount of the month was greatest over

Burma and eastern and southern India and amounted to 8·5 or more at the following stations:—

STATION.	Mean cloud amount, September, 1903.
Mysore	9·5
Silchar	8·9
Lashio	8·7
Trivandrum	8·7
Yamethin	8·6
Bassein	8·6
False Point	8·6
Hazaribagh	8·6
Mangalore	8·6
Hassan	8·6
Rangoon	8·5
Chitaldroog	8·5

The sky was clearest in the extreme north-west and was practically clear of cloud or the mean cloud amount was less than 1·0 at the following places:—

STATION.	Mean cloud amount, September, 1903.
Dera Ismail Khan	0·8
Mooltan	0·6
Pachpadra	0·3
Quetta	0·1
Chaman	0·1

Rainfall.

The general rainfall of India for the month of September was in excess of the normal. A series of small and slight cyclonic storms was formed over the Bay during the month and thence progressed westward or north-westward into the Central Provinces or the Gangetic plain occasioning moderately heavy rain over north-east and central India. At the same time the weather was very disturbed and rainy over the Peninsula though, except between the 15th and the 21st, that area was not directly affected by the different storms of the month. The rains continued till about the normal date over north-west India where they ceased about the 18th.

The following gives a brief statement of the principal periods of most general rainfall:—

1st.—The 1st to the 4th, when a shallow depression lay over the central parts of the country;

2nd.—The 6th to the 15th, when storms occasioned general rain over north-east and north-west India;

3rd.—The 17th to the 20th, when a storm passed from the north-west of the Bay across the head of the Peninsula to Sind;

4th.—The 22nd to the 24th, when constant rain fell over southern India; and

5th.—The 28th to the 30th, when a small storm passed from the head of the Bay through Orissa to the Central Provinces.

The following table gives comparative rainfall data for the 57 rainfall divisions of India:—

PROVINCE.	DIVISION.	NUMBER OF RAINY DAYS.		RAINFALL.		
		Average actual, September 1903.	Average normal, September.	Average actual, September 1903.	Average normal, September.	Variation of actual from normal September 1903.
				Inches.	Inches.	Inches.
BURMA	Tenasserim	25·4	22·8	33·11	30·66	+2·45
	Lower Burma (Deltaic)	20·0	19·6	15·37	15·67	−0·30
	Central do.	14·0	13·9	8·05	8·52	−0·47
	Upper do.	10·5	10·0	8·33	7·48	+0·85
	Arakan	20·7	18·6	23·54	19·24	+4·30
BENGAL AND ASSAM	Eastern Bengal	16·2	13·3	12·86	11·52	+1·34
	Assam (Surma)	19·2	15·5	20·03	15·71	+4·32
	Do. (Hills)	19·2	17·0	13·69	18·11	−4·42
	Do. (Brahmaputra)	13·1	12·9	11·21	11·25	−0·04
	Deltaic Bengal	13·4	11·7	12·10	9·26	+2·84
	Central do.	10·7	11·6	8·35	10·18	−1·83
	North do.	12·3	13·3	15·44	17·29	−1·85
	Bengal Hills	18·3	17·0	14·04	19·29	−4·65
	Orissa	15·3	12·1	11·24	9·93	+1·31
	Chota Nagpur	11·9	10·5	8·31	8·31	0
	Bihar (South)	8·6	8·7	7·03	7·61	−0·58
	Do. (North)	7·9	9·3	6·25	10·43	−4·18

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, September, 1903.	Average normal, September.	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.
				Inches.	Inches.	Inches.
United Provinces of Agra and Oudh.	United Provinces (East)	12·0	8·0	11·57	6·79	+4·78
	Oudh (South)	8·7	7·3	7·13	6·46	+0·67
	Do. (North)	9·7	7·2	11·71	7·40	+4·31
	United Provinces (Central)	8·8	6·6	6·49	5·55	+0·94
	Do. do. (West)	4·6	4·7	3·24	4·33	—1·09
	Do. do. (East Submontane)	10·2	7·7	12·19	8·05	+4·14
	Do. do. (West do.)	8·5	6·3	8·17	6·91	+1·26
	Do. do. (Hills)	12·9	8·9	11·70	7·97	+3·73
Punjab	Punjab (South-East)	3·6	3·6	2·56	3·82	—1·26
	Do. (South)	2·7	2·9	2·97	2·40	+0·57
	Do. (Central)	2·7	2·4	3·22	1·92	+1·30
	Do. (Submontane)	4·9	3·7	7·25	3·54	+3·71
	Do. (Hills)	8·3	6·6	6·94	6·07	+0·87
	Do. (West)	1·0	1·1	0·83	0·80	+0·03
N.-W. F. Province	North-West Frontier Province	2·5	·2·1	2·24	1·36	+0·88
Bombay and Malabar Coast Districts (Madras).	Malabar	18·3	14·0	11·35	9·30	+2·05
	Travancore	17·0	...	12·00	...	...
	Madras (South Central)	12·0	6·6	8·83	4·73	+4·10
	Coorg	17·0	...	7·61	...	...
	Mysore	12·2	7·4	8·35	4·83	+3·52
	Konkan	16·9	16·0	11·25	13·50	—2·25
	Bombay Deccan	8·1	8·6	5·20	5·90	—0·70
	Hyderabad, North	10·3	10·5	7·35	8·30	—0·95
	Khandesh	9·6	8·9	5·75	6·59	—0·84
Central Provinces and Berar.	Berar	9·7	8·0	5·32	5·94	—0·62
	Central Provinces (West)	12·5	9·8	9·07	8·63	+0·44
	Do. (Central)	13·0	10·0	10·44	8·11	+2·33
	Do. (East)	12·9	9·9	9·24	7·75	+1·49
Bombay (North)	Gujarat	11·9	7·4	8·00	6·61	+1·39
	Kathiawar and Cutch	6·7	5·0	4·10	4·41	—0·31
	Sind	0·4	0·7	0·27	0·47	—0·20
	Baluchistan Hills	0·2	0·3	0·11	0·14	—0·03
Rajputana and Central India.	Central India (East)	11·1	7·8	10·08	6·28	+3·80
	Rajputana (East), Central India (West)	6·6	5·0	5·37	4·03	+1·34
	Rajputana (West)	3·1	2·3	2·05	2·08	—0·03
Madras	East Coast (North)	11·8	10·0	9·02	7·58	+1·44
	Hyderabad (South)	9·8	10·3	8·51	6·85	+1·66
	Madras (Central)	11·3	7·5	8·03	5·30	+2·73
	East Coast (Central)	8·5	6·8	5·42	4·43	+0·99
	Do. (South)	13·0	6·8	10·76	5·34	+5·42
	Madras (South)	7·2	3·5	4·38	2·15	+2·23

The preceding data show that in twenty out of the fifty seven divisions the rainfall of the month was lighter than usual. These divisions included lower and central Burma, the hills and Brahmaputra divisions of Assam, the central, north and hill divisions of Bengal, both the Bihar divisions, the west of the United Provinces

the south-east Punjab, the greater part of the Bombay Presidency, Berar, west Rajputana and Baluchistan. The deficiency was generally small, but was more than 20% in the divisions for which data are given below :—

DIVISION.	RAINFALL. Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Assam Hills	13·69	18·11	—4·42	—24
Bengal ,,	14·64	19·29	—4·65	—24
North Bihar	6·25	10·43	—4·18	—40
United Provinces (West)	3·24	4·33	—1·09	—25
South-East Punjab	2·56	3·82	—1·26	—33
Sind	0·27	0·47	—0·20	—43
Baluchistan Hills	0·11	0·14	—0·03	—21

The month's rainfall was exactly normal in the Brahmaputra valley and in Chota Nagpur.

Over the whole of the remainder of India, the rainfall was in excess of the normal. The excess was large over the Peninsula, and parts of northern India, and amounted to more than 50% in the following divisions :—

DIVISION.	RAINFALL. Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	inches.	Inches.	Inches.	
United Provinces, East	11·57	6·79	+4·78	+ 70
North Oudh	11·71	7·40	+4·31	+ 58
United Provinces, East Submontane.	12·19	8·05	+4·14	+ 51
Central Punjab	3·22	1·92	+ 1·30	+ 68
Punjab Submontane	7·25	3·54	+3·71	+105
North-West Frontier Province	2·24	1·36	+0·88	+ 65
Madras, South-Central	8·83	4·73	+4·10	+ 87
Mysore	8·35	4·83	+3·52	+ 73
Central India, East	10·08	6·28	+3·80	+ 61
Madras, Central	8·03	5·30	+2·73	+ 52
East Coast, South	10·76	5·34	+5·42	+101
Madras South	4·38	2·15	+2·23	+104

The total rainfall of the month was light, averaging less than 1·00″ in the following divisions :—

DIVISION.	RAINFALL. Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
West Punjab	0·83	0·80	+0·03	+ 4
Sind	0·27	0·47	—0·20	—43
Baluchistan Hills	0·11	0·14	—0·03	—21

The fifth figure column of the table on pages 398 and 399 shows that the general rainfall of the whole Indian region (excluding the hill districts) was 1·13″ above the normal.

In the Tenasserim and Arakan divisions of Burma rain fell practically daily throughout the month, while in lower and central Burma rain fell daily until about the 17th, after which the weather was showery till the close of the month. In upper Burma rain was much less continuous, the principal periods of rainfall having been from the 1st to the 7th, from the 18th to the 22nd, and from the 25th to the 29th; the remaining days of the month having been fair with scattered showers. The only heavy falls of rain in 24 hours were recorded in Tenasserim and Arakan where at the following stations on the following dates amounts exceeding 6 inches in 24 hours were recorded :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
AMHERST	Amherst	2nd September	6·70
SANDOWAY	Sandoway	3rd ,,	6·15
MYINGYAN	Taungtha	6th ,,	6·42
THATON	Thaton	8th ,,	6·45
AKYAB	Akyab	28th ,,	6·47
MERGUI	Maliwun	30th ,,	6·04

The general rainfall of the whole province for the month was about normal, as is shown below :—

DIVISION.	RAINFALL. Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Tenasserim	33·11	30·66	+2·45	+ 8
Lower Burma (Deltaic)	15·37	15·67	—0·30	— 2
Central Burma	8·05	8·52	—0·47	— 6
Upper	8·33	7·48	+0·85	+11
Arakan	23·54	19·24	+4·30	+22

In the Surma valley of Assam there were three periods of general rain, *viz.*, between the 1st and the 10th, the 14th and the 19th, and the 24th and the 28th. The fall was heavy about the 5th and 6th, and again at the end 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.
Cachar . .	Dewan . . .	5th September	4·90
	Silchar . . .	6th „	5·65
	Barkhola . . .	„ „	4·70
	Badarpur . . .	„ „	4·23
	Bikrampur . .	18th „	5·42
	Do. . . .	24th „	4·15
	Barkhola . . .	„ „	4·13
	Manierkhal . .	27th „	4·50
Sylhet . . .	Maulvi Bazar . .	„ „	4·25
Cachar . . .	Koyah . . .	28th „	5·40

In the Brahmaputra valley the rainfall was lighter and the periods of general rainfall shorter, extending generally from the 1st to the 6th, from the 15th to the 20th, and from the 24th to the 27th. In this region the heaviest rainfall was generally recorded during the last rainy period, as is shown by the following record of the falls exceeding 4 inches in 24 hours:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Darrang . .	Boreli	20th Sept.	4·05
Lakhimpur . .	Pathalipam . . .	24th „	5·50
Goalpara . .	Dhubri . . .	„ „	4·50
	Marnai . . .	25th „	5·30
Darrang . .	Orangajuli . . .	„ „	4·10

In the Khasi and Jaintia hills the rainfall was much lighter than usual, the month's rainfall at Cherra Poonjee having been 14″ instead of the normal 54″, but in the Naga and Lushai hills the rainfall generally exceeded the average. The following gives comparative data for the eight plains districts of Assam :—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	21·60	14·64	+6·96	+48
Sylhet	18·61	16·69	+1·92	+12
Goalpara	15·38	16·67	—1·29	— 8
Kamrup	10·83	8·63	+2·20	+25
Darrang	11·27	10·61	+0·66	+ 6
Nowgong . . .	12·03	10·18	+1·85	+18
Sibsagar	9·01	10·41	—1·40	—13
Lakhimpur . . .	11·33	13·89	—2·56	—18

The rainfall of Bengal was, to a certain extent, determined by the two depressions which formed during the month at the head of the Bay. The influence of these depressions was only felt over a limited area, so that while lower Bengal and Orissa generally reported heavier rain than usual, the remaining divisions received a short supply.

In south-west Bengal general rain was received on the 11th and 12th, between the 17th and 19th, and between the 25th and the 30th. The only heavy falls were registered on the 12th, when the following amounts exceeding 5 inches in 24 hours were recorded:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 12th September, 1903.
		Inches.
24-Parganas . . .	Budge-Budge . . .	6·72
Howrah	Howrah	6·57
Midnapore	Kukrahaty . . .	6·21
24-Parganas . . .	Basirhat	6·11
Khulna	Kalaroa	6·00
24-Parganas . . .	Diamond Harbour . .	5·83
	Barasat	5·54
Midnapore . . .	Contai	5·37
	Tamluk	5·23
24-Parganas . . .	Dum Dum . . .	5·18

The following gives comparative rainfall data for the different districts in this division :—

DISTRICT.	RAINFALL.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burdwan	9'54	8'40	+1'14	+14
Birbhum	10'93	10'95	—0'02	0
Bankura	9'37	8'70	+0'67	+ 8
Midnapore	15'57	9'69	+5'88	+61
Hooghly	12'64	8'85	+3'79	+43
Howrah	13'03	9'45	+3'58	+38
24-Parganas	13'74	10'04	+3'70	+37
Calcutta	14'02	10'40	+3'62	+35
Nadia	11'35	8'48	+2'87	+34
Murshidabad	8'81	9'35	—0'54	— 6
Jessore	10'03	8'45	+1'58	+19
Khulna	7'69	9'55	—1'86	—19

The month's rainfall was thus in considerable to large excess in Midnapore, Hooghly, Howrah, 24-Parganas, Calcutta and Nadia and about normal in the remaining districts.

North Bengal received general rain between the 1st and the 6th, the 16th and the 21st and the 23rd and the 27th and light widely scattered showers at other times. The rainfall was heavy on the 3rd and 4th and on the 19th and 25th when the following amounts exceeding 5″ in 24 hours were recorded:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
COOCH BEHAR.	Mickliganj	3rd September	5'78
	Dinhatta	4th ,,	5'95
JALPAIGURI	Alipur Duar	19th ,,	5'22
DARJEELING	Kurseong	25th ,,	6'65
RAJSHAHI	Boalia	,, ,,	5'50

The following gives comparative data for the different districts in this division:—

DISTRICT.	RAINFALL.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rajshahi	9'11	10'50	—1'39	—13
Dinajpur	8'72	13'03	—4'31	—33
Jalpaiguri	20'02	23'00	—2'98	—13
Darjeeling	14'64	19'29	—4'65	—24
Cooch Behar	25'34	21'60	+3'74	+17
Rangpur	10'58	14'10	—3'52	—25
Bogra	6'53	10'95	—4'42	—40
Pabna	8'55	9'49	—0'94	—10

The rainfall was thus generally short of the normal, more particularly in Dinajpur, Darjeeling, Rangpur and Bogra.

On the 1st there was general rain over east Bengal, but between the 2nd and the 5th the weather was fine to showery. On the 6th general rain re-commenced and continued till the 12th. Two days of fairly fine weather then occurred after which, on the 15th, general rain again set in and practically continued till the close of the month. The rainfall was not generally heavy, as is shown by the following comparative data for the contained districts :—

DISTRICT.	RAINFALL.			
	Average. actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dacca	12'73	9'05	+3'68	+41
Mymensingh	12'69	12'73	—0'04	0
Faridpur	8'97	8'28	+0'69	+8
Backergunge	12'70	11'35	+1'35	+12
Tippera	11'10	9'49	+1'61	+17
Noakhali	18'66	14'15	+4'51	+32
Chittagong	13'41	12'24	+1'17	+10

The above shows that the month's rainfall exceeded the normal in Dacca and Noakhali, but was about normal elsewhere.

The weather was showery over Bihar throughout the month with more or less general rain between the 4th and the 7th, the 12th and the 15th, and the 25th and 26th.

The heaviest falls of rain were registered generally on the 5th and 6th and 12th and 13th when small cyclonic storms were passing through west Bengal and on the 25th and 26th when the weather was disturbed over north-east India generally. The following is a record of the falls exceeding 4″ in 24 hours :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Monghyr	Jamalpur	4th September	4·07
Champaran	Ramnagar	5th ,,	5·50
Saran	Sripur	,, ,,	4·50
Darbhanga	Madhubani	6th ,,	6·20
Malda	Malda	12th ,,	4·62
Sonthal Parganas	Sahibganj	18th ,,	6·60

The following gives comparative data for the different districts in this division :—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Patna	4·53	7·20	−2·67	−37
Gaya	6·61	6·55	+0·06	+1
Shahabad	9·22	6·96	+2·26	+32
Saran	3·58	8·20	−4·62	−56
Champaran	6·35	9·93	−3·58	−36
Muzaffarpur	4·84	8·17	−3·33	−41
Darbhanga	7·71	10·06	−2·35	−23
Monghyr	6·13	9·57	−3·44	−36
Bhagalpur	5·96	10·19	−4·23	−42
Purnea	9·60	15·43	−5·83	−38
Malda	6·97	11·54	−4·57	−40
Sonthal Parganas	6·66	11·10	−4·44	−40

The month's rainfall thus exceeded the normal in Shahabad, was normal in Gaya and less than normal elsewhere. Over considerable portions of the Saran, Champaran, Muzaffarpur, Patna, and Monghyr districts and in part of the Sonthal Parganas, the total fall of the month was less than 5″ and in places less than 3″.

The periods of most general rain in Orissa were the 1st and 2nd, the 7th to the 10th, the 12th and 13th, the 16th to the 19th and the 26th to the 30th. These periods of rainfall coincided generelly with the appearance and passage of the depressions noticed in preceding sections and the following falls exceeding 3″ in 24 hours were registered during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Orissa Tributary Mahals.	Baisinga	8th September	3·25
	Kunjabongar	,, ,,	3·15
Balasore	Baliapal	12th ,,	3·72
	Jellasore	,, ,,	3·25
	Balasore	13th ,,	3·30
Puri	Gop	28th ,,	3·64
Orissa Tributary Mahals.	Narsingpur	,, ,,	3·06
Balasore	Akhyapada	29th ,,	3·41
Orissa Tributary Mahals.	Dhenkanal	,, ,,	3·22
Balasore	Jellasore	30th ,,	4·25
	Balasore	,, ,,	3·40
	Baliapal	,, ,,	3·02

The following gives comparative data for the districts in this division :—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuttack	10·83	10·19	+0·64	+ 6
Balasore	14·35	11·13	+3·22	+29
Puri	9·38	9·84	−0·46	− 5

The month's rainfall was thus above the normal in Balasore and about normal elsewhere.

In Chota Nagpur the rainfall conditions were generally similar to those reported from Bihar. The weather was more or less showery throughout the month with general rain on the 12th and 13th and between the 26th and the

end of the month. The following were the heaviest falls, exceeding 3″ in 24 hours, recorded :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
CHOTA NAGPUR TRIBUTARY STATES.	Gangpur	4th September	3·08
PALAMAU	Nagarutari	8th ,,	3·04
CHOTA NAGPUR TRIBUTARY STATES.	Gangpur	12th ,,	4·25
SINGHBHUM	Baharagura	,, ,,	4·08
PALAMAU	Panki	13th ,,	4·40
RANCHI	Lohardaga	,, ,,	3·97
PALAMAU	Husainabad	,, ,,	3·63
	Balumath	,, ,,	3·10
HAZARIBAGH	Barhi	14th ,,	3·21
MANBHUM	Jhalda	28th ,,	3·57

The following gives comparative data for the districts in this division :—

DISTRICT.	RAINFALL.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hazaribagh	6·76	8·37	—1·61	—19
Ranchi	7·75	8·30	—0·55	— 7
Palamau	7·83	7·65	+0·18	+ 2
Manbhum	7·29	8·36	—1·07	—13
Singhbhum	8·92	8·17	+0·75	+ 9

The month's rainfall was practically normal throughout the division.

Over Oudh and the United Provinces the weather was very disturbed and unsettled from the 1st to the 15th with very general rain on the 5th and 6th and the 13th to 15th. After the latter date the weather cleared considerably and with the exception of bursts of showery weather on the 22nd, 25th and 26th was fairly fine till the close of the month. Very heavy rain was received from the small depression which traversed the United Provinces between the 13th and 15th, the following having been the largest falls (exceeding 6″) in 24 hours :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches
JHANSI	Mau	7th September	6·66
MEERUT	Meerut	12th ,,	7·11
	Hapur	,, ,,	6·80
SAHARANPUR	Kuankhera	,, ,,	6·40
JAUNPUR	Kutahan	14th ,,	7·75
SULTANPUR	Kadipur	,, ,,	6·52
MIRZAPUR	Robertsganj	,, ,,	6·38
GORAKHPUR	Maharajganj	15th ,,	12·25
FYZABAD	Fyzabad	,, ,,	11·71
BASTI	Harraiya	,, ,,	10·37
SULTANPUR	Kadipur	,, ,,	9·52
FYZABAD	Akbarpur	,, ,,	8·10
GONDA	Gonda	,, ,,	7·13
FYZABAD	Bikapur	,, ,,	7·10
BASTI	Domariaganj	,, ,,	7·00
BAHRAICH	Kaisarganj	,, ,,	7·00
BARA BANKI	Fatehpur	,, ,,	6·38
BIJNOR	Dhampur	22nd ,,	6·60
DERA DUN	Rajpur	,, ,,	6·50
FARRUKHABAD	Digri	25th ,,	6·23

The following gives comparative rainfall data for the different divisions :—

DIVISION.	RAINFALL.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
United Provinces East	11·57	6·79	+4·78	+70
South Oudh	7·13	6·46	+0·67	+10
North Oudh	11·71	7·40	+4·31	+58
United Provinces Central	6·49	5·55	+0·94	+17
Ditto West	3·24	4·33	—1·09	—25
Ditto East Submontane.	12·19	8·05	+4·14	+51
Ditto West Submontane.	8·17	6·91	+1·26	+18
Ditto Hills	11·70	7·97	+3·73	+47

The preceding data show that the month's rainfall was in local defect in the west division, but was more or less in excess in all the remaining divisions; more particularly

in the east and east submontane districts (except Ballia), for which comparative data are given below:—

Division.	District.	Rainfall. Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
		Inches.	Inches.	Inches.	
United Provinces East.	Ghazipur	11·49	6·60	+4·89	+ 74
	Benares	15·66	6·71	+8·95	+ 133
	Jaunpur	13·79	7·57	+6·22	+ 82
	Mirzapur	11·43	7·08	+4·35	+ 61
	Allahabad	9·10	6·29	+2·81	+ 45
United Provinces East Submontane.	Gorakhpur	11·81	8·49	+3·32	+ 39
	Basti	16·79	8·64	+8·15	+ 94
	Azamgarh	11·63	7·49	+4·14	+ 55
	Ballia	6·20	7·11	—0·91	— 13

There was only one burst of general rainfall in the Punjab, *viz.*, between the 10th and the 13th, but showers were received in different parts of the province during the first week and again about the 16th and 17th. The rain, which fell about the middle of the month, extended to all parts of the province, though it was much lighter in the west division than elsewhere. The fall was generally heaviest on the 11th and 12th, when very heavy falls were registered in the submontane and north-west divisions. The following is a record of the amounts exceeding 4″ in 24 hours and shows the extent and intensity of the rainfall:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kangra	Nurpur	3rd September	4·22
Amritsar	Buggeh	11th ,,	5·65
Gujranwala	Gujranwala Sadar Kachehri.	,, ,,	5·58
Gujrat	Sadar (Gujrat)	,, ,,	5·25
Hissar	Bhiwani	,, ,,	5·10
Rohtak	Salhawas	,, ,,	5·00
Amritsar	Amritsar	,, ,,	4·93
Gurdaspur	Gurdaspur	,, ,,	4·66
Hissar	Hansi	,, ,,	4·52
Gurdaspur	Tibri	,, ,,	4·25
Hoshiarpur	Dasuya	,, ,,	4·22
Amritsar	Raya	12th ,,	9·80
Hoshiarpur	Dasuya	,, ,,	9·68
Gurdaspur	Batala	12th Sept.	9·10
	Gurdaspur	,, ,,	8·92
	Shakargarh	,, ,,	8·62
	Tibri	,, ,,	7·50
	Pathankot	,, ,,	7·20
	Aliwal	,, ,,	7·10
	Madhupur	,, ,,	6·90
Sialkot	Zafarwal	,, ,,	6·21
Amritsar	Buchar	,, ,,	4·50
Kangra	Nurpur	,, ,,	4·27

The following gives comparative data for all the districts in the Punjab and shows that in the north-western and submontane districts the normal fall was largely exceeded:—

District.	Rainfall. Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hissar	4·49	2·22	+2·27	+ 12
Ferozepore	1·81	1·89	—0·08	— 4
Mongtomery	0·18	0·98	—0·80	— 82
Gurgaon	2·21	3·68	—1·47	— 40
Rohtak	2·82	3·45	—0·63	— 18
Delhi	1·72	4·34	—2·62	— 60
Karnal	3·74	4·03	—0·29	— 7
Lahore	1·67	1·90	—0·23	— 12
Umballa	7·92	4·73	+3·19	+ 67
Ludhiana	4·63	3·69	+0·94	+ 25
Jullundur	5·23	4·24	+0·99	+ 23
Hoshiarpur	8·02	4·33	+3·69	+ 85
Gurdaspur	13·41	4·09	+9·32	+228
Amritsar	6·83	2·32	+4·51	+194
Simla	3·96	4·73	—0·77	— 16
Kangra	8·63	6·57	+2·06	+ 31
Gujranwala	4·56	2·05	+2.51	+122
Sialkot	6·49	2·51	+3·98	+159
Gujrat	7·41	2·44	+4·97	+204
Jhelum	3·08	1·89	+1·19	+ 63

District.	Rainfall. Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rawalpindi	3·52	2·93	+0·59	+ 20
Mianwali	2·07	0·77	+1·30	+169
Shahpur	1·18	1·16	+0·02	+ 2
Jhang	1·11	0·85	+0·26	+ 31
Dera Ghazi Khan	0·45	0·34	+0·11	+ 32
Muzaffargarh	0·29	0·45	−0·16	− 36
Mooltan	0·17	0·62	−0·45	− 73

In the North-West Frontier Province there was only one burst of general rain. It occurred somewhat earlier than in the Punjab, *viz.*, between the 8th and the 12th. The rainfall was, relatively to the normal, as heavy as in the Punjab, and the following falls exceeding 2″ in 24 hours were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kohat	Hangu	8th September	2·55
Hazara	Haripur	9th ,,	2·10
Malakand	Malakand	10th ,,	3·65
Kohat	Kohat	,, ,,	2·28
Dera Ismail Khan	Dera Ismail Khan	11th ,,	4·10
Kohat	Kohat	,, ,,	3·85
Hazara	Mansahra	,, ,,	2·01

The following gives comparative data for the whole province:—

Division.	Rainfall. Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
North-west Frontier Province	2·24	1·36	+0·88	+65

In Baluchistan the only rainfall recorded was some showers in Zhob and Thal Chotiali on the 7th and 8th and the general rainfall was slightly lighter than usual. This is shown below:—

Province.	Rainfall. Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Baluchistan Hills	0·11	0·14	−0·03	−21

Jummoo had very showery weather between the 1st and the 7th, and the whole of Kashmir received a general burst of rain between the 8th and the 12th. The latter fall, as was the case in the Punjab, was remarkably heavy and general, and while it lasted the following amounts exceeding 3″ in 24 hours were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jummoo	Akhnur	2nd September	4·40
	Golabgarh	8th ,,	10·04
	Meerpore	,, ,,	3·03
	Golabgarh	9th ,,	9·06
	Sri Ranbir Singh Pora	10th ,,	4·65
	Golabgarh	,, ,,	3·40
	Sambha	11th ,,	8·35
	Riasi	,, ,,	6·70
	Kathua	,, ,,	6·61
	Ramnagar	,, ,,	6·42
	Jasmairgarh	,, ,,	6·02
	Akhnur	,, ,,	4·10
	Bisalee	,, ,,	3·90
	Sri Ranbir Singh Pora	,, ,,	3·61
	Jummoo	12th ,,	4·93

So far as can be judged from the limited information available, the rainfall of the month was largely in excess of the normal.

Western Rajputana received general rain between the 7th and the 12th and a few showers in the latter half of the month. The month's rainfall was about normal, as is shown below:—

Division.	Rainfall. Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
West Rajputana	2·05	2·08	−0·03	−1

In eastern Rajputana there was a general burst of rain between the 6th and the 12th and showers at the commencement of the month and between the 21st and 24th. The principal rainfall period, *viz.*, that between the 6th and 12th, was due to small storms over the western desert which determined a flow of moist winds from the Arabian Sea into Rajputana. During this period the following falls exceeding 4″ in 24 hours were registered:—

State.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kotah	Baran	6th September	7·70
	Sangod	„ „	7·59
Jhalawar	Chaoni	„ „	6·85
	Jhalrapatan	„ „	5·21
Kotah	Shergarh	„ „	4·92
	Chechat	„ „	4·91
	Mandana	„ „	4·82
	Khanpur	„ „	4·68
	Bakani	7th „	7·70
	Iklera	„ „	6·45
Jhalawar	Dug	„ „	4·96
	Jhalrapatan	„ „	4·75
	Chaoni	„ „	4·42
Banswara	Banswara	8th „	6·97
Kusalgarh	Kusalgarh	„ „	5·16
Partabgarh	Partabgarh	„ „	4·30
Jhalawar	Pachpahar	„ „	4·10
Kotah	Mandana	9th „	4·93
Jaipur	Chomu	12th „	4·17

The month's rainfall was very irregularly distributed as is shown by the following comparative data for some of the larger states:—

State.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jaipur	4·71	3·17	+1·54	+ 49
Alwar	2·12	3·77	−1·65	− 44
Bharatpur	3·43	4·59	−1·16	− 25
Dholpur	3·33	4·61	−1·28	− 28
Karauli	5·15	4·31	+0·84	+ 19
Kotah	11·99	3·84	+8·15	+212
Ajmer Merwara	4·27	3·71	+0·56	+ 15
Udaipur	5·25	5·40	−0·15	− 3
Sirohi	2·87	5·39	−2·52	− 47

In Central India practically daily rain occurred until the 12th after which date there were occasional showers till the close of the month though in Bundelkhand the rainfall was lighter and less general than in other portions of the agency. The heaviest rainfall occurred during the first half of the month when the following amounts exceeding 4″ in 24 hours were recorded:—

State.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Bhopal Agency	Narsinghgarh	2nd September	4·46
	Maksudangarh	„ „	4·23
	Khilchipur	3rd „	4·75
Bundelkhand	Dhurwai	4th „	4·12
Bhopal Agency	Ashta	6th „	4·84
Gwalior	Sitamau	9th „	5·36
Bundelkhand	Chundla	14th „	5·92
	Ajaigarh	„ „	5·89

The general rainfall was considerably heavier than the average, as is shown by the following comparative data for the larger states:—

State.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Indore	12·29	7·46	+ 4·83	+65
Rutlam	12·33	7·65	+ 4·68	+61
Bhopal Agency	13·16	7·01	+ 6·15	+88
Gwalior	9·93	5·34	+ 4·59	+86
Nagode	11·00	6·96	+ 4·04	+58
Maihar	7·31	6·49	+ 0·82	+13
Rewah	8·83	7·14	+ 1·69	+24
Bundelkhand	7·89	6·66	+ 1·23	+18

In Berar the weather was only showery throughout the month, the principal periods of rainfall occurring between the 1st and the 6th, the 18th and the 23rd and the 26th and

the 30th. The total rainfall was about normal. This is shown below :—

DIVISION.	RAINFALL.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Berar . . .	5·32	5·94	—0·62	—10

The rainfall was somewhat heavier over the Central Provinces than in Berar—more particularly in the central and eastern divisions. The heaviest falls occurred generally about the commencement of the month when small shallow depressions existed over the central districts, but occasional moderate falls of rain were registered during the passage, across the head of the Peninsula, of the depression of the 17th to 21st. Amounts exceeding 4″ in 24 hours were recorded at the following places on the following dates :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
BILASPUR . . .	Mungeli . .	1st September	4·60
FEUDATORY STATES .	Deogarh (Bamra) .	„ „ .	4·03
HOSHANGABAD . .	Sohagpur . .	2nd „	4·96
MANDLA . . .	Tikaria . . .	„ „ .	4·75
HOSHANGABAD . .	Pachmarhi . .	„ „ .	4·68
SAUGOR . . .	Khurai . . .	„ „ .	4·65
DAMOH . . .	Hatta . . .	„ „ .	4·52
HOSHANGABAD . .	Hoshangabad .	„ „ .	4·15
SAUGOR . . .	Saugor. . .	4th „ .	5·13
SAMBALPUR . . .	Padampur . .	6th „ .	5·63
JUBBULPORE . . .	Sihora . . .	„ „ .	4·30
DAMOH	Damoh . . .	„ „ .	4·05
FEUDATORY STATES .	Jagdalpur . .	22nd „ .	6·00
SAMBALPUR . . .	Saraipali . .	30th „ .	5·07
FEUDATORY STATES .	Sarangarh . .	„ „ .	4·10

The following gives comparative rainfall data for the three divisions of the Central Provinces :—

DIVISION.	RAINFALL.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Central Provinces, West .	9·07	8·63	+0·44	+5
„ „ Central .	10·44	8·11	+2·33	+29
„ „ East .	9·24	7·75	+1·49	+19

In the Nizam's dominions the weather was showery up to the 15th. General rain then set in and continued more or less until the close of the month. The heaviest falls were generally recorded on the 18th and 27th when the following amounts exceeding 3″ in 24 hours were registered :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
INDUR	Indur . . .	18th September	4·50
HYDERABAD . . .	Bolarum . .	„ „ .	3·57
WARANGAL . . .	Hanumkonda . .	„ „ .	3·28
NALDRUG . . .	Dharasheo . .	24th „ .	3·68
IBRAHIMPATAM . .	Shamshabad . .	27th „ .	3·59
GULBARGA . . .	Gulbarga . .	„ „ .	3·27
IBRAHIMPATAM . .	Sandanali . .	„ „ .	3·12

The month's rainfall was about normal in the more northern division and was heavier than usual in the southern division. The following gives data :—

DIVISION.	RAINFALL.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hyderabad, North .	7·35	8·30	—0·95	—11
Hyderabad, South . .	8·51	6·85	+1·66	+24

In Mysore the rainfall was very heavy. The weather was fairly fine between the 1st and the 7th and again on the 18th and 19th, but at other times the rain was

continuous. Amounts of 3″ or more in 24 hours were recorded at the following places on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kolar	Mulbagal	13th September	4·70
Bangalore	Dodballapur	,, ,,	3·41
Shimoga	Tirthahalli	14th ,,	3·00
Chitaldroog	Molakalmuru	23rd ,,	3·00
Kolar	Mulbagal	24th ,,	6·60
	Gudibanda	,, ,,	3·17
Bangalore	Dodballap	27th ,,	3·37
Tumkur	Maddagiri	,, ,,	3·00
Bangalore	Devanhalli	29th ,,	3·29

The following gives comparative data for the province :—

Division.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Mysore	8·35	4·83	+3·52	+73

Over the greater part of the Bombay Presidency the month's rainfall was normal or lighter than usual. In the Konkan practically daily rainfell up to the 20th after which the weather was showery. The heaviest rainfall generally occurred either about the 1st or 2nd or between the 14th and 20th and the following were the falls exceeding 3″ in 24 hours during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kolaba	Pen	1st September	4·52
Thana	Umbargaon	2nd ,,	3·70
	Dahanu	,, ,,	3·35
	Mokhada	3rd ,,	3·35
	Dahanu	,, ,,	3·11
North Kanara	Ankola	14th ,,	3·30
	Bhatkal	15th ,,	3·35
Kolaba	Matheran	,, ,,	3·25
		19th ,,	3·03
Thana	Thana	,, ,,	3·06
North-Kanara	Kumta	20th ,,	4·08

The general rainfall was less than the normal, as is shown by the following data for the contained districts :—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North Kanara	8·69	9·40	—0·71	—8
Savantvadi	9·53	12·87	—3·34	—26
Ratnagiri	9·15	14·21	—5·06	—36
Kolaba	14·03	18·17	—4·14	—23
Thana	13·46	12·92	+0·54	+4

In the Karnatak there was a general burst of rain between the 14th and the 20th (due in part to the depression which crossed the head of the Peninsula) and showery weather occurred towards the end of the month. Very few heavy falls of rain were recorded and the month's rainfall was about normal. The following gives district data :—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dharwar	3·67	4·11	—0·44	—11
Bijapur	8·08	6·75	+1·33	+20
Belgaum	4·42	4·61	—0·19	—4

In the south Deccan the incidence of rainfall was similar to that in the Karnatak, the principal rainfall period occurring between the 15th and the 20th. On the 16th Khandala reported a fall of 5·80″, but this was the only very heavy fall. The following gives data for the districts :—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from nomal.
	Inches.	Inches.	Inches.	
Satara	5·36	6·71	—1·35	—20
Sholapur	8·64	7·98	+0·66	+ 8
Poona	3·49	6·66	—3·17	—48

In Khandesh the weather was very showery,—more particularly between the 1st and the 4th, the 9th and the 14th, the 19th and 20th and the 23rd and the 28th. There were few heavy falls of rain and the general rainfall of the month was normal except in Ahmednagar where it was in slight defect. The following gives district data :—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ahmednagar	4·23	6·46	−2·23	−35
Nasik	7·08	8·18	−1·10	−13
Khandesh	5·66	5·59	+0·07	+1

Gujarat received general rain between the 1st and the 4th, the 8th and the 13th, on the 19th and 20th and on the 24th. The most general rain was registered on the 19th and 20th, when the depression noticed above lay over the province. The following falls exceeding 3″ in 24 hours were recorded during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Surat	Pardi	2nd September	5·35
Surat Agency	Bansda	,, ,,	3·75
Surat	Chikli	,, ,,	3·68
	Balsar	,, ,,	3·18
Surat Agency	Bansda	3rd ,,	5·98
	Dharampur	,, ,,	3·05
Broach	Jambusar	9th ,,	3·33
Surat Agency	Bansda	10th ,,	5·32
Broach	Broach	20th ,,	3·30
	Ankleshvar	,, ,,	3·09
Surat	Jalalpur	24th ,,	4·40
	Chikli	,, ,,	3·39
		26th ,,	4·74

The following gives comparative data for the districts :—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Surat	12·02	8·42	+3·60	+43
Broach	7·26	5·90	+1·36	+23
Kaira	5·38	5·32	+0·06	+1
Panch Mahals	8·93	6·68	+2·25	+34
Ahmedabad	3·52	4·80	−1·28	−27

In Kathiawar the weather was showery, more or less throughout the month, with general and moderately heavy rain on the 19th and 20th. The following shows the principal falls (exceeding 2·50″) :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
Rewa Kantha	Rajpipla (Nandod)	9th September	2·80
Mahi Kantha	Idar	12th ,,	3·34
Kathiawar	Manikvada (Jetalsar)	20th ,,	3·99

The following gives data for the division :—

Division.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Kathiawar and Cutch	4·10	4·41	−0·31	−7

In Sind the only important rainfall was in the Kurrachee district on the 20th and 21st. The rainfall of the division was lighter than usual, as is shown below :—

Division.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Sind	0·27	0·47	−0·20	−43

In the Malabar district of Madras the rainfall was generally lght and partial during the first seven days but thereafter steady rain set in and continued till the

close of the month. The following amounts exceeding 4″ in 24 hours were registered during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Travancore	Karunagapally	3rd September	6·02
	Thadupuzha	8th ,,	4·45
	Thiruvellah	12th ,,	4·32
South Canara	Baindur	15th ,,	4·06
Travancore State	Parur	27th ,,	7·24
South Canara	Udipi	,, ,,	4·70
Travancore State	Thadupuzha	,, ,,	4·02

The general rainfall of the month was slightly above the normal, as is shown by the following comparative data for the two districts :—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Malabar	9·57	7·66	+1·91	+25
South Canara	15·82	12·23	+3·59	+29

In south Madras the rainfall was heavy but unevenly distributed. The most general rain was received on the 23rd and 10th, 28th and the principal falls exceeding 3 inches in 24 hours were registered on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Madura	Sivaganga	6th Sept.	3·25
	Do.	23rd ,,	3·02
	Tiruchuli	30th ,,	3·57

The following gives comparative data for the two districts :—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madura	5·78	3·14	+2·64	+84
Tinnevelly	2·29	1·19	+1·10	+92

In south-central Madras the weather was very unsettled and showery with some heavy falls of rain at places in the Salem district. The following gives the amounts exceeding 3″ in 24 hours registered during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Coimbatore	Kodumudi	3rd Sept.	3·57
Salem	Ravakotta	25th ,,	5·25
	Krishnagiri	26th ,,	3·86
	Denkanikota	,, ,,	3·23
	Dharmapuri	27th ,,	4·35
	Vaniyambadi	28th ,,	3·95
Coimbatore	Kollegal	29th ,,	3·41
Salem	Rasipuram	,, ,,	3·25

The general rainfall of the division was nearly twice as heavy as usual, as is shown by the following data for the districts :—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Salem	10·14	6·04	+4·10	+ 68
Coimbatore	6·20	3·01	+3·19	+106

In central Madras the weather was fairly fine between the 1st and the 11th and on the 20th and 21st, but was very showery at other times. The rainfall was less heavy

than in the south-central division, but the following amounts exceeding 3″ in 24 hours were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Anantapur	Dharmavaram	13th Sept.	3·17
Cuddapah	Proddatur	15th ,,	3·17
	Sidhout	22nd ,,	3·94
Anantapur	Yadiki	,, ,,	3·60
Kurnool	Owk	23rd ,,	4·57
	Nandyal	,, ,,	3·28
Anantapur	Gooty	25th ,,	3·02
Cuddapah	Madanapalle	29th ,,	6·50

The general rainfall, relatively to the normal, was almost as heavy as in the more southern division, as is shown by the following comparative data for the contained districts:—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah	7·65	5·20	+2·45	+47
Anantapur	8·35	5·01	+3·34	+67
Bellary	7·21	5·20	+2·01	+39
Kurnool	9·08	5·80	+3·28	+57

In the north division of the east coast showery weather prevailed during the greater part of the month with a burst of general rain between the 16th and the 19th. Most of the heaviest falls of rain during the month were recorded during this period, as is shown by the following statement which gives the amounts exceeding 4 inches in 24 hours:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ganjam	Surada	1st Sept.	6·21
	Udayagiri	,, ,,	4·21
Godavari	Chintalapudi	15th ,,	4·72
Kistna	Chinna Ganjam	16th ,,	4·32
Godavari	Ellore	17th ,,	4·50
	Ramachandrapuram	,, ,,	4·40
	Peddapuram	,, ,,	4·20

The general rainfall was slightly heavier than usual, as is shown by the following comparative data for the different districts:—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	9·77	7·88	+1·89	+24
Vizagapatam	9·16	7·63	+1·53	+20
Godavari	9·01	7·29	+1·72	+24
Kistna	7·46	6·04	+1·42	+24

The central division of the east coast received more or less general rain between the 14th and 19th and experienced showery weather at other times. There were no very heavy falls of rain reported but the total rainfall slightly exceeded the normal. This is shown below:—

District.	Rainfall.			
	Average actual, September, 1903.	Average normal, Septebmer.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Nellore	5·42	4·43	+0·99	+22

In the south division of the east coast the weather was exceedingly unsettled and rainy throughout the month and the following amounts exceeding 4 inches in 24 hours were registered on the following dates:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
South Arcot	Tittagudi	6th Sept.	4·87
Trichinopoly	Musiri	,, ,,	4·45
	Kulittalai	,, ,,	4·05
North Arcot	Tiruvettiyur	13th ,,	4·08
South Arcot	Srimushnam	15th ,,	4·50
North Arcot	Venkatagirikota	23rd ,,	7·90
	Ambur	,, ,,	5·50
Tanjore	Tirukattupalli	,, ,,	4·85
Pudukkottai State	Pudukkottai	,, ,,	4·83
Chingleput	Vadasemmanjeri	,, ,,	4·75
Pudukkottai State	Alangudi	,, ,,	4·55
North Arcot	Wandiwash	,, ,,	4·50
	Vellore	26th ,,	4·36
South Arcot	Tindivanam	29th ,,	5·18

The total rainfall of the month was twice as heavy as usual, as is shown by the following comparative data for the contained districts :—

District.	Rainfall.			
	Average actual, Sept., 1903.	Average normal, Sept.	Variation of actual from normal, Sept., 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madras	9·66	4·79	+4·87	+102
Chingleput	8·83	5·54	+3·29	+59
North Arcot	11·30	5·95	+5·35	+90
South Arcot	11·07	5·92	+5·15	+87
Tanjore	12·48	4·44	+8·04	+181
Trichinopoly	9·63	4·89	+4·74	+97

The following gives a comparative statement of the rainfall of September 1903 at the extra-Indian stations. Ceylon and the western islands participated in the excess which prevailed over the Peninsula and the rainfall of Trincomalee, Colombo, Minicoy and Amini Divi was in large to very large excess. On the other hand, Kashgaria, Afghanistan, Persia, Asiatic Turkey and Arabia were practically rainless throughout the month, though at Ispahan there had been a local fall of 0·40″. At Perim also there was a fall of 0·06″ on the 16th and of 0·74″ on the 18th, which was unusual at this season of the year. In the south-east trades region the rainfall was irregularly distributed. At the Seychelles the total fall was lighter than usual while at both Zanzibar and Mauritius there was some excess. The following gives data :—

Station.	Rainfall			
	Average actual, September, 1903.	Average normal, September.	Variation of actual from normal, September, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee	10·48	4·56	+5·92	+130
Colombo	7·93	4·82	+3·11	+65
Amini Devi	8·99	5·54	+3·45	+62
Minicoy	11·50	5·97	+5·53	+93
Kashgar	0	0·43	−0·43	−100
Kabul	0	0·03	−0·03	−100
Meshed	0	0·02	−0·02	−100
Teheran	0	0·14	−0·14	−100
Ispahan	0·40	0	+0·40	...
Bushire	0	0	0	0
Jask	0	0	0	0
Muscat	0	0	0	0
Baghdad	0	0	0	0
Aden	0	0·13	−0·13	−100
Perim	0·80	0·01	+0·79	...
Zanzibar	2·23	2·03	+0·20	+10
Seychelles	3·90	5·37	−1·47	−27
Mauritius	1·72	1·31	+0·41	+31

Crop Report.

Madras.—The rainfall was general to heavy throughout the month, and at the close of the month, though the crops were in good condition generally, they had been damaged by heavy rain in parts of Godavari, Kistna, Tanjore and South Canara.

Bombay.—Rain fell during the month over the Peninsular divisions of the Bombay Presidency, but only very light rain was received in parts of Thar and Parkar, Ahmedabad, the Panch Mahals and Surat. The rainfall was generally sufficient, but more rain was needed in parts of Ahmedabad and Khandesh. The crops were suffering from insufficient moisture in parts of Kurrachee, and Larkana and from excessive rain in parts of Surat, Thana, Ahmednagar, Sholapur, Bijapur and Belgaum, but were generally in good condition elsewhere.

Bengal.—The rainfall during the month was general and in places moderately heavy, but at the close of the month more rain was still needed in Dinajpur and Purnea and also in parts of Nadia, Muzaffarpur, Darbhanga, Monghyr, Bhagalpur, and the Sonthal Parganas. The winter rice crop was doing well generally and the preparation of lands for the spring crops was in progress. Fodder and water were generally sufficient.

United Provinces.—Rain was general and heavy over nearly the whole of the United Provinces, but at the close of the month more rain was still needed in Garhwal and in parts of Muttra and Agra. Ploughing was retarded in Sultanpur, Fyzabad, and Allahabad on account of the heavy rainfall, but sowings had commenced in ten districts. The standing crops had been injured by rain in seven districts.

Punjab.—General rain fell during the first half of the month, but only scattered showers during the latter half. At the close of the month the condition and prospects of the standing crops were generally good. The crops had been damaged during the month by locusts in parts of Hissar, Ferozepore, Lahore and Mooltan; by excessive rain in low-lying lands in Amritsar; by floods in parts of Ferozepore and Lahore and by hail in parts of Rawalpindi.

Burma.—The rainfall was general and well-distributed during the month and prospects improved largely in the affected districts. About the middle of the month Yamethin received fair rain which dispelled apprehensions of famine or even scarcity in that district. Ploughing was resumed in the dry zone tract where it had been temporarily suspended on account of the drought.

Central Provinces.—The rainfall was unevenly distributed during the month. Partial breaks did good to the crops in some districts while some damage to crops resulted from continuous and excessive rain in the Saugor, Damoh, Seoni, Narsingpur, Betul and Raipur districts and by grasshoppers in Nimar and Raipur. Harvesting of early millets and the preparation of land for spring sowings had been generally retarded and a break with sunshine was urgently wanted at the close of the month.

Assam.—During the month moderate rain fell in all districts. The transplanting of late and harvesting of early rice were nearly completed at the close of the month while the plucking and manufacture of tea and the sowing of pulse continued. The cutting of jute continued in Goalpara, Kamrup, and the Garo hills. The outturn of early rice was good except in Kamrup, and of jute good in Sylhet and Goalpara and fair in Kamrup and the Garo hills. The prospects of tea and sugarcane were fair to good except in Kamrup.

Mysore.—The general prospects at the close of the month were good.

Coorg.—Cardamom picking continued. Water and fodder were ample.

Berar.—Standing crops were in a satisfactory condition at the close of the month and the preparation of the land for the spring crops continued.

Hyderabad.—The autumn harvest commenced and continued during the month, but the standing autumn crops suffered in several places owing to heavy rain about the close of the month.

Rajputana.—General rain fell during the first three weeks, but very little during the last week of the month. The harvest prospects were generally satisfactory except in Jhalawar. The harvest had commenced at the close of the month in Alwar and Ajmer-Merwara. Some injury to standing crops was reported from various quarters owing to locusts or excessive rain.

Central India.—The rainfall, though partial in Bhopal and Malwa, was sufficient everywhere. Crops at the close of the month were in good condition in Gwalior, Bhopal, Bundelkhand, and Baghelkhand and fair in Malwa, Bhopawar and Indore, but had been slightly damaged by vermin and rain in parts of Malwa, Bhopawar and Indore.

Kashmir.—In Kashmir at the close of the month the weather was bright and the condition of the standing crops good.

North-west Frontier Province.—Excellent rain fell during the first week of the month and was very beneficial to the standing crops and to spring cultivation. An excellent autumn crop was practically assured by this rainfall and a very large area, it was anticipated, would be sown for spring crops. No rain fell subsequently, but at the close of the month the prospects of the standing crops were good.

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 232 Stations in India, Burma, etc., in September, 1903.

Table

Abstract of Observations taken at 8 A.M. at 232 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.				+·015								85·7	+0·2	75·8	+0·6	80·8	+0·4	9·9					17·3
1	Tenasserim and Bay Islands.	Car Nicobar	25	29·829		29·782	29·870	19th	29·786	11th	·084	78·3	86·2		75·2		80·7		11·0	92·5	22nd	73·3	14th	19·2
		Port Blair	61	29·825	+·006	29·817	29·876	18th & 26th	29·780	13th	·096	79·6	84·7	−0·4	76·9	+0·4	80·8	0	7·8	87·8	1st	74·6	16th	13·2
		Mergui	96	29·631	+·022	29·859	29·882	23rd	29·779	2nd	·103	77·6	85·7	+1·3	74·4	+2·2	80·1	+1·8	11·3	90·6	7th	73·4	6 days	17·2
		Tavoy	26	29·890	+·003	29·847	29·945	15th	29·835	30th	·110	77·2	85·0	+1·0	74·4	+0·7	79·7	+0·9	10·6	88·7	25th	73·0	22nd	15·7
		Moulmein	94	29·786	+·007	29·818	29·860	25th	29·722	2nd	·138	77·2	84·5	+0·4	75·0	+0·5	79·8	+0·5	9·5	90·5	20th	71·3	8th	19·2
2	Lower Burma	Rangoon*	57	29·822	+·013	29·817	29·895	25th	29·753	13th	·142	78·6	85·0	−0·7	76·8	+0·9	80·9	+0·1	8·2	89·1	21st	71·9	17th	17·2
		Bassein	27	29·844	+·028	29·807	29·907	23rd	29·784	13th	·123	79·7	85·8	+0·3	76·9	+1·1	81·4	+0·7	8·9	90·2	23rd	75·1	3rd	15·1
		Diamond Island	41	29·823	+·011	29·799	29·887	25th	29·752	13th	·135	80·9	84·9	+0·1	77·3	+1·5	81·1	+0·8	7·6	87·4	24th & 25th.	73·6	6th	13·8
3	Arakan	Akyab	20	29·817	+·019	29·780	29·916	23rd	29·739	3rd	·177	79·8	85·5	−1·1	77·5	−0·5	8·15	−0·8	8·0	88·9	14th	75·2	7th & 28th.	13·7
3	Central Burma	Toungoo	183	29·684	+·022	29·811	29·767	23rd	29·592	2nd	·175	79·5	89·7	+0·7	74·1	−1·5	81·9	−0·4	15·6	98·9	21st	70·6	9th	28·3
	II.—Burma Inland				+·013								90·9	−0·4	75·6	+0·1	83·2	−0·2	15·3					22·7
3	Central Burma	Thayetmyo	130	29·725	+·024	29·796	29·811	23rd	29·614	3rd	·167	80·9	90·7	+0·8	75·3	−0·7	83·0	+0·1	15·4	94·5	14th	74·0	3 days	20·5
4	Upper Burma	Minbu	165	29·680	+·014	29·789	29·761	19th	29·588	3rd	·173	80·7	90·0	−0·9	77·5	+0·6	83·8	−0·2	12·5	92·7	3rd & 14th.	75·6	12th	17·1
		Yamethin	657	29·193	+·008	29·803	29·283	23rd	29·102	2nd	·181	78·7	91·5	−0·2	74·6	−0·2	83·1	−0·2	16·9	97·3	3 days	72·2	23rd	25·1
		Monywa		29·564		29·783	29·640	19th	29·480	3rd	·160	81·3	91·8		74·0		82·9		17·8	97·8	3rd	70·8	8th & 10th.	27·0
		Mandalay	250	29·584	+·010	29·783	29·666	23rd	29·498	3rd	·168	81·2	91·9	−0·9	77·1	+0·2	84·4	−0·4	14·8	98·5	5th	73·6	8th	24·9
		Bhamo	381	29·447	+·011	29·785	29·524	19th	29·370	2nd	·154	78·2	89·2	−0·9	75·1	+0·6	82·1	−0·2	14·1	94·5	23rd	73·1	1st & 28th	21·4
4(a)	Burma Hill Stations.	Maymyo		26·392			26·488	22nd	26·335	4th	·153	70·5	77·8		65·4		71·6		12·4	83·0	13th & 14th.	62·8	12th, 19th & 21st.	20·2
		Lashio		27·082	+·008		27·166	19th	26·988	3rd	·178	72·6	83·2	−1·4	68·5	+1·2	75·9	−0·1	14·7	89·0	14th	66·0	21st	23·0
	III.—Assam				+·017								87·9	−0·3	76·6	+0·5	82·3	+0·1	11·3					18·7
7	Surma	Silchar	104	29·731	+·028	29·788	29·840	18th	29·646	3rd	·194	79·5	88·2	−1·6	76·2	−0·2	82·2	−0·9	12·0	91·5	22nd	72·3	15th	19·2
8	Brahmaputra	Sibsagar	333	29·486	+·006	29·777	29·584	19th	29·391	3rd	·190	79·5	87·7	−0·4	76·9	+0·7	82·3	+0·2	10·8	92·2	11th & 22nd.	74·0	27th	18·2
		Dhubri	115	29·687	+·018	29·757	29·790	19th	29·586	3rd	·204	80·4	86·2	+1·1	77·9	+0·9	82·0	+1·0	8·3	90·2	13th & 15th.	73·7	21th	16·5
		Gauhati	195	29·622		29·772	29·718	18th	29·518	3rd	·200	80·9	89·2		77·1		83·2		12·1	92·5	3 days	75·0	23rd & 25th.	17·5
		Tezpur	252	29·566		29·779	29·661	19th	29·460	3rd	·201	79·2	88·2		76·7		82·5		11·5	93·1	10th	73·9	3 days	19·2
		Dibrugarh	353	29·466		29·779	29·560	19th	29·374	3rd	·186	78·5	87·9		74·6		81·3		13·3	93·7	11th	72·0	1st & 17th.	21·7
	IV.—Bengal and Orissa				+·020								88·0	−0·4	77·8	0	82·9	−0·2	10·3					17·9
6	East Bengal	Chittagong	87	29·725	+·010	29·760	29·826	19th	29·638	4th	·188	79·8	86·1	−0·7	75·9	−0·4	81·0	−0·6	10·2	89·5	15th & 2nd.	72·6	29th	16·9
		Noakhali	43	29·767		29·757	29·874	18th	29·684	4th	·190	80·0	85·9		77·0		81·5		8·9	90·2	15th	73·9	11th	18·2
		Comilla	36	29·782		29·766	29·868	18th	29·697	3rd	·191	79·5	87·4		76·1		81·8		11·3	92·3	22nd	73·8	11th & 12th	18·5
		Sirajganj	49	29·757		29·756	29·871	19th	29·664	3rd	·207	80·5	87·0		78·6		82·8		8·4	90·8	15th	75·2	27th	15·6
		Narayanganj	26	29·787	+·026	29·762	29·904	19th	29·694	4th	·210	80·8	87·4	−1·1	78·6	−0·3	83·0	−0·7	9·8	91·1	22nd	75·3	27th	15·8
		Barisal	13	29·782†	+·014†	29·740†	29·897	19th	29·675	3rd	·222	81·2	87·1	−1·4	77·7‡	−0·6‡	82·4‡	−1·0	9·4	91·3	21st	73·6	11th	17·7
		Mymensingh	59	29·750	+·023	29·761	29·858	19th	29·658	3rd	·200	81·0	87·1	0	78·0	+0·5	82·6	+0·3	9·1	92·2	15th	75·1	25th	17·1
		Faridpur	46	29·755		29·749	29·871	19th	29·657	11th	·214	81·2	87·4‡		77·9		82·6‡		9·5	90·3	22nd	74·9	3 days	15·4
9	Deltaic Bengal	Jessore	33	29·755	+·022	29·735	29·871	19th	29·607	11th	·264	81·4	88·6	−0·8	77·7	−0·8	83·2	−0·8	10·9	92·0	15th & 25th.	75·2	12th & 26th.	16·8
		Calcutta	21	29·757	+·023	29·724	29·886	19th	29·647	11th	·239	81·7	87·8	+0·1	77·7	−0·3	82·8	−0·1	10·1	91·9	22nd	72·9	12th & 13th.	19·0
		Saugor Island	25	29·739	+·017	29·709	29·866	19th	29·655	29th	·211	82·3	88·3	+0·1	79·9	+0·2	84·1	+0·2	8·4	91·9	23rd	74·1	12th	17·8
		Krishnagar	47	29·737		29·733	29·854	19th	29·573	11th	·281	81·1	89·9		78·1		84·0		11·8	92·3	15th	75·0	12th	17·3
		Midnapore	149	29·614		29·710	29·735	19th	29·529	4th	·206	81·4	88·6		78·0		83·3		10·6	92·3	25th	74·7	12th & 13th.	17·6

* Observation of 29 days. † Mean of 28 days. ‡ Mean of 29 days.

Note 1.—When a query is inserted against any reading or in the returns of any

Note 2.—The divisional means of the figure columns

I.

in India, Burma, etc., in September, 1903.

WIND DIRECTION. NUMBER OF WINDS FROM									WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 30th September.	Variation from normal of period, 1st May to 30th September 1903.					
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	57	58
														92	−0·1	·907	+·005	7·4	−0·2				20·68	21·28	−0·15					I.—Burma Coast and Bay Islands.		
2				4	7	9	2		S 24° W	2·9	2·9			95		·914		8·6		21			18·46				55·67		3·50	Car Nicobar.	TENASSERIM AND BAY ISLANDS.	1
5					2	11	8	4	S 70° W	7·3	8·2	9·3	−12	92		·926		7·3		23			13·34	19·42	− 6·08	83·02	81·90	− 1·88	2·55	Port Blair. (a)		
16	2				4	5	1	2	S 55° W	1·9	1·7	1·5	+13	94	+1·8	·877	+·019	5·8	−1·3	23	23·40	−0·40	31·79	28·07	+ 3·72	128·50	139·09	−10·59	4·35	Mergui,†		
26						2	1	1	S 77° W	1·3				92	−0·5	·865	−·001	5·7	−1·8	27	24·10	+2·90	27·76	31·88	− 4·12	164 18	191·93	−27·75	4·96	Tavoy.		
21		1			2	4	2		S 45° W	1·7	1·9	2·8	−32	91	−1·4	·847	−·033	8·3	+1·1	23	21·90	+1·10	29·92	27·52	+ 2·40	188·15	169·89	+18 26	4·00	Moulmein.		
12		1	1	7	4	4			S 19° E	4·8	4·0	3·8	+ 5	92	−1·5	·910	−·005	8·5	+1·5	19	19·70	−0·70	14·29	15·84	− 1·55	78 54	85·41	− 6·87	2·04	Rangoon .	LOWER BURMA.	2
5	1	2		7	3	8	1	3	S 9° W	3·3		3·4	− 3	93	+0·3	·918	+·026	8·6	+1·7	16	20·80	−4·80	10·12	15·89	− 5·77	86·34	98·24	−11·90	2·13	Bassein.		
4	2		1	5	6	10	1	1	S 18° W	5·5		6·8	−19	86	+0·1?	·924	+·033	6·4	−1·0	21	18·90	+2·10	17·61	17·33	+ 0·28	102·80	100·18	+ 2·62	3·64	Diamond Island.		
	1	12	1	13	3				S 82° E	3·1	3·0	3·0	0	91	+1·8	·955	−·004	7·2	−0·6	22	13·80	+8 20	30·71	22·18	+ 8·56	208·43	173·47	+34·96	6·47	Akyab .	ARAKAN.	5
8	1			9	8	3		1	S 13° E	3·3	3·3	2·8	+18	89	−1·5	·906	−·008?	7·2	−1·0	17	17·50	−0·50	12·74	11·56	+ 1·18	73·62	68 56	+ 5·06	2·23	Toungoo .	CENTRAL BURMA.	3
														87	+1·7	·896	+ ·017	6·6	0				5·62	6·57	−0·95					II.—Burma Inland.		
	1	1		9	16	2		1	S 13° E	3·2		4·7	− 32	87	+3·1	·925	+·049	6·1	−1·4	7	11·70	−4·70	4·27	6·07	− 1·80	29 83	29·84	+ 0·05	1·82	Thayetmyo.	CENTRAL BURMA.	3
2				24	3			1	S 40° E	6·5	7 7			85	−0·1	·903	+·022	6·6	+1·0	9	9·30	−0·30	3·62	5·46	− 1·84	20·90	25·45	− 4·55	0·61	Minbu .	UPPER BURMA.	4
13	1			9	7				S 21° E	8·7	9·1			88	+1·3	·861	−·003	8·6	P	11	10·30	+0·70	6·35	6·65	− 0·30	19·74	28·19	− 8·45	1·60	Yamethin.		
14	1			10	3	1		1	S 32° E	2·2	2·5			84		·899		7·8		11	8·90	+2·10	7·91	6·31	+ 1·60	17·42	22·34	− 4·92	2·59	Monywa.		
	1			5	19	4		1	S	13·2	13·3			86	+3·4	·907	+·014	3·2	P	9	8·80	+0·20	5·94	5·62	+ 0·32	19·76	24·00	− 4·24	3·80	Mandalay.		
16	2	2	1		1	2	3	3	N 53° W	1·6	1·9			91	+0·3	·882	+·003	7·1	+0·5	13	11·50	+1·50	5·65	9·31	− 3·66	48·44	65·05	−16·61	0·81	Bhamo.		
29		1							N 45° E	0·5				92		·685		6·9		16	15·20	+0·80	10·93	9·06	+1·87	45·73	41·28	+ 1·45	3·11	Maymyo .	BURMA HILL STATIONS.	4(a)
	6	10	6	2	1	1	2	2	N 42° E	3·0				92	+0·1	·758	+·026	8·7	+0·7	17			8·81	6·92	+ 1·89	52·88	51·30	+ 1·58	1·61	Lashio.		
														91	−0·4	·925	+·020	7·5	−0·4				12 37	11·92	+0·45					III.—Assam.		
29				1					S 45° E	1·2	2·1	2·7	− 22	92	+1·3	·933	+·009	8·9	+0·2	18	15·30	+2·70	24·61	13·95	+10·66	89 01	91·87	− 2·86	5·65	Silchar .	SURMA .	7
16	1	4		7		2			S 68° E	1·6	1·5	2·5	− 40	94	−0·8	·955	+·024	7·7	−1·0	10	14·50	−4·50	8·60	11·95	− 3·35	89·45	71·82	+17·63	2 05	Sibsagar .	BRAHMAPUTRA .	9
1	3	6	6	6	5	2	1		S 74° E	3·1	3·7	3·2	+ 16	90	−1·6	·939	+·028	7·1	−0·4	14	11·90	+2·10	13·40	14·61	− 1·21	90·10	81·99	+ 8·11	4·50	Dhubri.		
12	2	6	2	3	2	1		4	N 65° E	1·5	1·7			86		·911		7·0		12	10·00	+2·00	8·90	7·49	+ 1·41	53·28	49·86	+ 3·42	3·58	Gauhati.		
10		3	5	6	2	1	3		S 63° E	1·6	1·7			93		·931		7·5		10	12·50	−2·50	6·91	8·58	−1·61	49·03	57·04	− 8·01	1 54	Tezpur.		
10	7	4	4		2	1		2	N 29° E	0·2	0·2			90		·881		6·9		12	14·90	−2·90	11·76	14·91	- 3·15	80·87	88·79	− 7·92	3·34	Dibrugarh.		
														89	+1·3	·951	−·002	6·6	0				11·99	11·33	+0·66					IV.—Bengal and Orissa.		
		4	3	15	5	3			S 43° E	5·3	5·3	4·5	+18	90	+1·6	·917	−·010	8·0	+0·7	19	13·06	+5·94	13·52	11·08	+ 2·44	65·42	79·65	−14·53	2·36	Chittagong.	EAST BENGAL .	6
	2	2	7	8	5	4	2		S 42° E	3·8	4·0			91		·934		6·6		22	15·48	+6·52	21·79	15·54	+ 6 25	82·09	94·92	−12·83	4·65	Noakhali.		
2	1		2	13	11			1	S 30° E	3·8	3·2			92		·920		6·5†		15	13·28	+1·72	7·89	11·11	− 3·22	69·80	72·88	− 3·08	1·43	Comilla.		
12		1	4	5	5	3			S 31° E	1·9	2·0			92		·956		6·7		7	11·61	−4·61	6·31	9·08	− 2·77	38·23	50·76	−12·48	2·34	Sirajganj.		
4		2	9	7	3	3	1	1	S 56° E	5·6*	4·8	4·6	+ 4	92	+3·8	·970	−·001	7·8	0	14	11·83	+2·17	12·24	8·57	+ 3·67	52·59	54·97	− 2·38	2·48	Narayanganj		
4	2	2	1	7	9	3	1	1	S 18° E	2·5				89	+1·3	·952	−·025	6·1	−1·1	16	14·35	+1·65	12 31	10·74	+ 1·60	57·82	62·26	− 4·44	3·13	Barisal.		
6			8	10	3	2		1	S 50° E	2·8	2·5			90	−1·3	·953	−·011	7·3	+0·2	11	15·03	−4·03	11·68	12·83	− 1·15	101·33	72·80	+28·53	3·30	Mymensingh.		
5			7	9	6	3			S 36° E	3·6	3·0			90		·964		4·8		12	11·78	+0·22	8·75	9·09	− 0·34	48·10	54·69	− 6·59	2·76	Faridpur .		
9		3	3	9	6				S 50° E	2·3	2·2	3·4	− 35	92	+2·5	·986	−·015	7·9	+0·8	15	11·94	+3·06	10·58	8·28	+ 2·30	46 52	51·35	− 4·83	2·59	Jessore .	DELTAIC BENGAL	10
3		2	5	9	4	7			S 30° E	2·7		4·5	− 40	89	+1·6	·970	+·013	7·9	+1·2	12	13·38	−1·38	14 02	8·91	+ 5·11	42 77	50·59	− 7·82	6·35	Calcutta.		
2	1	1	4	6	9	3	3	1	S 13° E	11·9		10·1	+ 18	88	+0·2	·978	−·006	8·0	−0·2	17	13·29	+3·71	12·74	11·30	+ 1·44	44·52	58·04	−13·52	5·38	Sangor Island.		
3		2	3	11	8	1	2		S 34° E	2·6	2·8			91		·975		7·1		11	10·45	+0·55	11·99	7·97	+ 4·02	43·66	45·01	− 1·35	2·51	Krishnagar.		
8	3	3	2	4	8	1		1	S 45° E	2·6	2·3			89		·954		4·7		13	12·13	+0·87	10·57	9·39	+ 1·18	36·99	50·66	−13·67	3·10	Midnapore.		

station, the data for that station are not utilized in calculating the Provincial variations.

Nos. 42, 43 and 45 are derived only from the data available.

(a) Wind variable 6.

Table

Abstract of Observations taken at 8 A.M. at 232 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	293	29·439?		29·688?	29·563	19th	29·357	4th	·206	81·0	89·0		77·4		83·2		11·6	93·1	24th	73·9	13th	19·2
		Raniganj	334	29·436		29·721	29·551	22nd	29·333	28th	·218	79·7	89·4		77·1		83·3		12·3	92·9	4 days	73·9	22nd	19·0
		Burdwan	99	29·674	+·012	29·721	29·803	19th	29·571	11th	·232	81·1	88·7	−1·0	78·2	−0·7	83·5	−0·9	10·5	91·9	15th	73·8	13th	18·1
		Naya Dumka	489	29·275		29·723	29·393	22nd	29·177	3rd	·216	80·6	88·4		77·0		82·7		11·4	92·5	24th & 25th.	74·4	12th	18·1
		Berhampore	67	29·713	+·020	29·729	29·838	19th	29·612	3rd	·226	81·3	88·9	0	78·0	−0·5	83·5	−0·3	10·8	92·3	16th & 24th.	74·3	12th	18·0
		Rampur Boalia.	70	29·713		29·733	29·833	19th	29·622	11th	·211	82·2	88·4		78·4		83·4		10·0	91·6	15th	73·1	26th	18·5
		Malda	72	29·689		29·713	29·801	19th	29·590	3rd	·211	82·3	88·5		78·2		83·4		10·3	93·1	16th	72·0	24th	21·1
		Bogra	61	29·724	+·024	29·738	29·833	19th	29·637	4th	·196	81·4	88·5	+0·1	77·9	+0·4	83·2	+0·3	10·6	93·2	15th	75·2	21st & 25th.	18·0
12	North Bengal	Dinajpur	123	29·671	+·026	29·749	29·776	19th	29·577	3rd	·199	81·1	88·1	−0·1	77·2	−0·2	82·7	−0·2	10·9	92·8	16th	74·0	21st	18·8
		Rangpur	123	29·685		29·763	29·795	19th	29·570	3rd	·225	81·3	88·5		77·4		82·9		11·1	94·7	15th	73·8	21st & 26th.	20·9
		Jalpaiguri	284	29·509	+·016	29·752	29·608	19th	29·407	3rd	·201	79·6	87·5	+0·3	76·4	+1·1	82·0	+0·7	11·1	92·9	15th	74·1	3 days	18·8
		Cooch Behar	156	29·647		29·760	29·750	18th	29·541	3rd	·209	80·2	87·4		77·0		82·3		10·4	93·4	15th	72·6	16th	20·8
17	North Bihar	Purnea	125	29·657	+·025	29·737	29·757	18th & 19th	29·552	3rd	·205	81·1	88·8	−0·1	77·8	+0·4	83·3	+0·2	11·0	92·2	4 days	73·1	26th	19·1
14	Orissa	Balasore	50	29·713	+·007	29·705	29·840	19th	29·617	3rd	·223	82·0	88·0	−0·9	78·0	+0·2	83·0	−0·4	10·0	90·9	26th & 27th.	74·8	11th	16·1
		False Point	21	29·751	+·025	29·714	29·860	19th	29·666	3rd	·194	82·4	87·2	−0·7	78·5	+0·4	82·9	−0·2	8·7	90·5	25th, 26th & 28th.	73·1	28th	17·4
		Cuttack	80	29·687	+·026	29·709	29·797	19th	29·610	3rd	·187	81·5	89·8	−0·4	78·1	0	84·0	−0·2	11·7	93·4	26th & 27th.	75·2	29th & 30th.	18·2
		Puri	24	29·750		29·713	29·856	22nd	29·670	3rd	·186	83·3	87·6†		80·0		83·8†		7·6	91·2	24th	75·6	17th	15·6
	V.—Gangetic Plain and Chota Nagpur.				+·004								89·7	−0·6	77·4	+0·8	83·6	+0·1	12·2					20·1
15	Chota Nagpur	Hazaribagh	2,007	27·747	0	29·701	27·855	22nd	27·628	12th	·227	76·5	85·8	+1·1	73·1	+0·9	79·4	+1·0	12·7	88·7	4 days	71·3	30th	17·4
		Ranchi	2,128	27·633	+·004	29·705	27·738	22nd	27·561	4th	·177	75·7	84·4	0	72·4	+0·7	78·4	+0·4	12·0	88·2	24th	69·9	30th	18·3
16	South Bihar	Daltonganj	730?	29·007		29·693	29·130	22nd	28·902	13th	·228	80·2	91·6		76·2		83·9		15·4	95·1	5th & 11th.	73·5	13th	21·6
15	Chota Nagpur	Purulia		28·939		29·702	29·058	22nd	28·840	12th	·218	80·1	89·2†		76·1		82·7†		13·1	92·5	4 days	72·9	13th	19·6
		Chaibassa	760	28·990	+·013	29·700	29·105	19th	28·915	4th	·190	80·1	88·8	−1·1	76·3	+0·2	82·6	−0·5	12·5	92·6	24th	71·0	5th	21·6
16	South Bihar	Gaya	375	29·372	+·011	29·700	29·500	22nd	29·273	3rd	·227	82·9	92·6	+1·6	77·9	+0·1	85·3	+0·9	14·7	95·7	24th	74·8	13th.	20·9
		Dehri	351	29·380		29·685	29·510	22nd	29·280	3rd	·230	82·6	90·6		78·6		84·6		12·0	93·3	5 days	70·9	13th	23·3
		Patna	183	29·576	+·013	29·711	29·690	22nd	29·473	3rd	·217	83·1	89·8	−0·1	79·3	+0·2	84·5	+0·1	10·5	93·5	11th	76·7	13th	16·8
		Arrah	190	29·559		29·701	29·673	22nd	29·454	3rd	·219	82·7	90·4		78·6		84·5		11·8	93·5	5 days	73·6	14th	18·9
		Buxar	239	29·497		29·692	29·618	22nd	29·392	3rd	·226	82·1	89·6?		77·9		83·8?		11·7?	92·5	11th & 12th.	73·1	6th	19·4
17	North Bihar	Bhagalpur	160	29·605		29·718	29·711	22nd	29·499	3rd	·212	82·9	89·9		78·2		84·1		11·7	94·2	16th	75·1	26th	19·1
		Darbhanga	166	29·602	+·017	29·722	29·701	18th	29·488	3rd	·213	82·4	88·5	+0·2	79·4	+0·6	84·0	+0·4	9·1	93·3	17th	75·0	25th	18·3
		Muzaffarpur	178	29·587		29·718	29·695	22nd	29·471	3rd	·224	82·4	88·9		79·0		83·9		9·9	93·7	16th	75·7	25th	18·0
		Motihari	224	29·551		29·734	29·655	18th	29·423	3rd	·232	81·6	90·0		78·5		84·3		11·5	95·4	16th	75·0	6th	20·4
		Chapra	181	29·562		29·697	29·679	22nd	29·453	3rd	·226	82·4	91·1		78·8†		84·9†		12·3	94·4	11th & 17th.	76·6	22nd & 26th.	17·8
18	United Provinces (East).	Benares	267	29·454	−·010	29·676	29·584	22nd	29·322	13th	·262	82·1	90·2	−0·8	77·6	+0·2	83·9	−0·3	12·6	93·6	25th	73·7	22nd	19·9
		Allahabad	309	29·417	−·005	29·680	29·556	22nd	29·204	14th	·352	83·0	90·4	−1·1	78·5	+1·6	84·5	+0·3	11·9	93·1	28th & 30th.	76·1	4 days	17·0
23	United Provinces (East Sub-montane).	Gorakhpur	257	29·486	+·009	29·700	29·608	22nd	29·374	3rd	·234	81·8	89·4	−1·1	77·3	?	83·4	?	12·1	93·5	10th	72·0	5th	21·5
19	South Oudh	Lucknow	368	29·358	−·004	29·684	29·488	22nd	29·237	3rd	·251	81·9	90·0	−2·1	77·7	+1·2	83·9	−0·5	12·3	93·8	12th	73·3	16th	20·5
20	North Oudh	Bahraich	401	29·333	+·007	29·696	29·471	22nd	29·228	3rd	·243	82·0	90·0	−1·0	77·4	+1·2	83·7	+0·1	12·6	94·1	9th & 10th.	71·0	15th	23·1
21	United Province (Central).	Cawnpore	416	29·305	−·005	29·675	29·434	22nd	29·183	3rd	·251	81·8	90·8	−1·6	77·8	+1·2	84·3	−0·2	13·0	95·3	30th	72·5	16th	22·8
		Mainpuri	516	29·218	+·008	29·694	29·335	22nd	29·101	3rd	·234	80·8	90·7	−2·4	77·1	+1·2	83·9	−0·6	13·6	97·3	30th	72·0	16th	25·3

† Mean of 29 days.

Note 1.— When a query is inserted against any reading or in the returns of any

Note 2.—The divisional means of the figure columns

I—*continued.*

in India, Burma, etc., in September 1903—continued.

WIND DIRECTION. Number of winds from									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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 Sept. 1903.	Normal rainfall for period, 1st May to 30th Sept.	Variation from normal of period 1st May to 30th Sept. 1903.			
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	57	58
19			3	6		1		1	S 56° E	2·7†	3·1†			88		·928		6·5		10	12·53	— 2·53	6·78	8·77	— 1·99	34·17	47·51	-13·34	2·88	Bankura .	CENTRAL BENGAL	11
23	1		2	3	1				S 63° E	1·4				91		·931		6·5		13	11·61	+ 1·39	9·87	7·60	+ 2·27	33·65	48·46	-14·81	3·23	Raniganj.		
11			3	3	6	2	1		S 41° E	2·0	2·0	3·1	-35	90	+5·2	·959	+·029	7·8	+0·8	14	12·10	+ 1·90	7·96	8·59	— 0·63	44·84	48·59	- 3·75	2·67	Burdwan.		
2	1	2	6	10	8	1			S 47° E	3·0	3·3			88		·918		8·0		11	13·30	— 2·30	6·88	10·01	— 3·13	34·71	51·12	-16·41	2·16	Naya Dumka		
8		2	4	3	8	3	2		S 15° E	2·9	2·7	3·7	-27	91	+1·0	·968	-·008	8·4	+1·0	11	12·48	— 1·48	11·76	9·72	+ 2·04	36·94	46·89	- 9·95	2·77	Berhampur.		
14		1	2	7	4	2			S 31° E	2·9	2·9			88		·972		5·6		14	12·36	+ 1·64	15·20	10·38	+ 4·82	43·66	48·61	- 4·95	5·45	Rampur Boalia.		
		3	7	9	8	3			S 43° E	5·7	5·2			86		·954		5·7		9	11·45	— 2·45	8·78	10·86	— 2·08	34·56	45·94	-11·38	4·62	Malda.		
14			10	1	1	4			S 58° E	2·6	2·3			89	+0·2	·958	-·004	5·2	-1·8	12	12·10	— 0·10	6·07	12·11	— 6·04	52·39	57·31	- 4·92	1·80	Bogra.		
	1	5	9	7	6	1	1		S 66° E	2·1	2·0			89	—0·7	·943	0	7·5	+0·7	13	12·56	+ 0·44	7·70	14·00	— 6·30	55·40	64·01	- 8·61	2·53	Dinajpur.	NORTH BENGAL .	12
11		2	7	3	3	1	3		S 60° E	2·6	2·8			89		·949		4·5		11	13·55	— 2·55	14·75	14·16	+ 0·59	73·18	73·51	— 0·33	4·06	Rangpur.		
	3	9	4	10	1	1		2	N 82° E	0·5	0·6			90	—0·7	·912	+·009	5·2	—1·8	14	14·75	— 0·75	23·63	20·03	+ 3·60	114·56	113·18	+ 1·38	6·62	Jalpaiguri.		
14			10	1	1	3	1		S 63° E	1·2	1·3			91		·942		7·5		15	14·34	+ 0·66	29·63	21·82	+ 7·81	128·93	115·23	+13·70	4·50	Cooch Behar		
10		3	7	10					S 73° E	2·1	1·8	2·0	- 10	90	+0·5	·960	+·006	5·6	—0·4	11	11·40	— 0·40	5·70	14·22	— 9·12	42·46	58·57	—16·11	1·35	Purnea .	NORTH BIHAR .	17
9	1				7	11	1	1	S 38° W	3·3				86	?	·951	—·023	5·1	—1·9	17	13·87	+ 3·13	19·54	12·06	+ 7·46	53·53	52·39	+ 1·14	3·41	Balasore .	ORISSA . .	14
2		1		1	7	13	5	1	S 41° W	8·4	8·7	7·9	+10	86	+0·8	·951	—·009	8·6	+1·5	15	12·90	+ 2·10	8·91	11·11	— 2·20	42·39	50·21	— 7·82	3·00	False Point.		
15		1	2			9	3		S 49° W	1·5		8·4	-82	85	+3·5	·921	+·027	6·3	+0·3	19	13·00	+ 6·00	14·09	9·57	+ 4·12	52·17	49·69	+ 2·48	2·55	Cuttack.		
13	1	1			2	12	1		S 45° W	11·9	11·2			87		·998		6·0		11	12·18	—1·18	8·04	10·07	— 2·03	33·36	43·04	— 9·68	1·81	Puri.		
														86	+4·4	·930	+·047	5·6	+1·0				7·69	7·22	+0·47					V.—Gangetic Plain and Chota Nagpur.		
2	4	1	2	3	8	9	2		S 18° W	7·5	6·6	7·0	- 6	83	?	·767	+·002	8·6	+1·9	12	11·97	+ 0·03	7·62	8·88	— 1·26	34·31	47·33	-13·02	1·64	Hazaribagh.	CHOTA NAGPUR	15
4	1	2	3	2	8	6	3	1	S 10° W	5·6	6·6			89	+5·6	·790	+·040	7·5	+1·8	11	13·66	— 2·66	6·44	9·01	— 2·57	35·39	48·53	-13·14	1·72	Ranchi.		
24	1		3	2					S 84° E	3·0	2·5			84		·872		3·2		11	10·48	+ 0·52	6·14	7·54	— 1·40	20·18	39·30	-19·12	1·81	Daltonganj.	SOUTH BIHAR .	16
5	1	3	4	6	4	2	2	3	S 51° E	2·3	2·8			87		·894		5·3		12	11·61	+ 0·39	8·01	8·14	— 0·13	32·56	45·66	-13·10	2·47	Purulia.	CHOTA NAGPUR.	15
21	1	2	1	1	2	1	1		S 45° E	0·8	0·7			87	+2·1	·899	+·013	4·8	—1·0	11	12·00	— 1·00	9·22	7·36	+ 1·86	36·79	44·32	- 7·53	2·10	Chaibassa.		
4		5	5	6	5	1	3	1	S 53° E	3·7	3·0	2·3	+30	83	+1·4	·930	+·044	5·2	—0·6	12	9·13	+ 2·87	9·55	6·98	+ 2·57	26·79	42·24	-15·45	2·56	Gaya .	SOUTH BIHAR .	16
6	1	1	9	6	3	3	1		S 54° E	6·3	5·6			85		·951		5·6		9	8·94	+ 0·06	10·33	6·46	+ 3·87	28·58	38·37	- 9·79	2·73	Dehri.		
1		5	13	7	1		1	2	S 87° E	5·7	6·5	2·9	+124	87	+4·3	·966	+·056	6·9	+0·8	8	9·29	— 1·29	4·74	6·93	— 2·19	19·44	42·64	-23·20	1·74	Patna.		
6		7	1	13	1	1	1		S 65° E	2·7	2·6			87		·965		1·7		12	9·29	+ 2·71	6·16	8·23	— 2·07	23·54	40·50	-16·96	1·70	Arrah.		
1			24	2	1		2		S 85° E	3·5	3·3			87		·954		6·2		7	9·03	— 2·03	9·21	6·93	+ 2·28	31·73	36·26	- 4·53	3·08	Buxar.		
11		4	5	8	1	1			S 69° E	2·9	2·7			84		·950		5·7		7	9·39	— 2·39	4·67	8·48	— 3·81	25·05	43·03	-17·98	1·50	Bhagalpur .	NORTH BIHAR .	17
22			4	4					S 67° E	1·2		3·6	-67	87	+0·6	·973	+·032	6·3	+1·2	8	9·27	— 1·27	8·52	8·70	- 0·18	36·35	45·38	- 9·05	2·88	Darbhanga.		
8			10	10	1			1	S 66° E	4·0				89		·994		3·4		8	8·94	— 0·94	3·10	8·17	- 5·07	29·87	40·36	-10·49	0·94	Muzaffarpur		
		6	20	2		1		1	N 83° E	5·0	4·8			87		·942		4·9		6	8·97	— 2·97	3·07	9·62	— 6·55	41·73	45·89	-4·16	0·80	Motihari.		
3			17	7	1	1		1	S 74° E	3·4	3·0			88		·974		6·1		6	8·35	— 2·35	4·12	7·22	— 3·10	22·26	35·99	-13·73	1·86	Chapra.		
13		2	7	3	1	3	1		S 62° E	2·7	3·1	3·9	-21	87	+2·6	·947	+·038	6·0	+0·8	14	8·40	+ 5·60	20·19	6·03	+14·16	35·11	36·40	- 1·29	3·25	Benares .	UNITED PROVINCES (EAST).	13
2	1	3	9	4	3	4	4		S 52° E	3·5	2·9	5·3	-45	86	+5·6	·960	+·071	5·8	+0·3	10	7·40	+ 2·60	6·12	5·16	+ 0·96	29·28	36·05	— 6·77	1·48	Allahabad.		
7	4	11	4	2	1	1			N 51° E	1·2		2·1	-43	88	+4·4	·955	+·050	7·8	+3·3	11	8·60	+ 2·40	13·38	8·08	+ 5·30	51·57	45·50	+ 6·07	4·36	Gorakhpur	UNITED PROVINCES (EAST SUB-MONTANE).	23
11	2	4	6	7					S 90° E	1·6	1·7	2·3	-39	87	+5·7	·950	+·073	4·9	0	8	8·10	— 0·10	7·42	5·39	+ 2·03	34·01	35·47	— 1·46	2·45	Lucknow .	SOUTH OUDH .	19
12		1	10	5	1	1			S 71° E	1·9	1·8			86	+9·0	·943	+·038	4·7	+0·7	9	7·40	+ 1·60	10·57	6·58	+ 3·99	49·97	43·72	+ 6·25	4·10	Bahraich .	NORTH OUDH .	2
6	1	2	9	3	4	1	3	1	S 65° E	2·7				87	+7·4	·952	+·077	6·4	+2·4	10	6·70	+ 3·30	7·18	5·14	+ 2·04	19·78	32·46	-12·68	2·17	Cawnpore .	UNITED PROVINCES (CENTRAL).	21
6	3	3	7	4	3	1		3	N 86° E	3·8	3·8			87	+9·4	·916	+·083	5·4	+1·2	9	6·70	+ 2·30	3·50	3·74	—0·24	18·02	27·78	- 9·76	1·05	Mainpuri.		

station, the data for that station are notutilized in calculating the Provincial variations.

Nos. 41, 43 and 45 are derived only from the data available.

Table

Abstract of Observations taken at 8 A.M. at 232 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.				−·003								92·6	−0·7	76·3	+2·6	84·5	+1·0	16·3					27·0
24	United Provinces (West Sub-montane).	Bareilly	568	29·158	+·007	29·691	29·273	22nd	29·053	3rd	·220	80·9	89·6	−0·9	76·8	+1·0	82·2	+0·1	12·8	93·9	26th & 30th.	71·6	16th	22·3
		Dehra Dun	2,233	27·536	+·005	29·718	27·642	18th	27·443	3rd & 4th.	·199	74·6	83·6	−0·7	71·6	+1·6	77·6	+0·5	12·0	87·5	10th	67·5	15th	20·0
		Roorkee	899	28·835	+·007	29·704	28·960	22nd	28·722	3rd	·238	79·4	89·5	−1·8	75·4	+2·1	82·5	+0·2	14·1	93·2	22nd	71·1	15th	22·1
22	United Provinces West.	Meerut	738	28·980	−·003	29·684	29·100	22nd	28·867	3rd	·233	79·9	91·5	−0·3	76·4	+1·8	84·0	+0·8	15·1	95·6	1st & 26th.	72·3	15th & 25th.	23·3
26	South-East Punjab.	Delhi	718	28·997	−·008	29·678	29·105	19th	28·871	3rd	·234	82·2	92·4	−0·6	78·3	+1·6	85·5	+0·5	13·8	97·7	30th	72·3	16th	25·4
28	Central Punjab.	Lahore	702	28·999	−·006	29·667	29·132	18th	28·867	3rd	·265	83·7	97·0	−1·9	77·6	+5·0	87·3	+1·6	19·4	104·4	27th	72·2	13th	32·2
27	South Punjab	Sirsa	662	29·016	−·009	29·669	29·156	19th	28·917	3rd	·239	84·6	98·3	−0·6	78·6	+2·9	88·5	+1·2	19·7	104·8	2nd	71·6	23rd	33·2
		Patiala	818	28·896		29·679	29·020	18th	28·773	3rd	·247	82·4	91·7		76·7		81·3		15·0	98·0	27th	73·4	11th	24·6
29	Punjab Sub-montane.	Ludhiana	812	28·900	−·008	29·680	29·025	18th	28·773	3rd	·252	81·2	93·3	−1·6	77·6	+2·8	85·5	+0·6	15·7	99·0	2nd & 28th.	73·1	10th & 29th.	25·9
		Sialkot	830	28·876	−·004	29·675	29·013	18th	28·760	4th	·253	82·1	95·8	+0·1	78·5	+4·7	87·2	+2·4	17·3	102·7	26th, 27th & 29th.	70·1	12th	32·6
		Umballa	892	28·832	+·005	29·691	28·949	18th	28·708	3rd	·241	80·7	92·2	−1·5	75·4	+1·5	83·8	0	16·8	97·5	26th	71·2	13th	26·3
		Rawalpindi	1,674	28·050	−·018	29·689	28·182	18th	27·921	4th	·261	80·2	96·2	+2·6	72·4	+3·5	84·4	+3·1	23·8	102·5	2nd	66·1	11th	36·4
	VII.—Indus Valley and North-West Rajputana.				−·013								99·4	+1·3	77·6	+1·8	88·6	+1·6	21·8					35·4
32	N.-W. Frontier Province.	Peshawar	1,110	28·610	−·022	29·700	28·749	18th	28·446	4th	·303	81·3	97·8	+1·8	72·2	+2·1	85·0	+2·0	25·6	107·0	3rd	65·9	12th	1·1
		D. I. Khan	590	29·105	−·015	29·614	29·250	18th	28·952	3rd & 4th.	·298	82·3	97·5	−3·0	75·5	+0·6	86·5	−1·2	22·0	103·2	2nd, 3rd & 5th.	70·1	11th	33·1
31	West Punjab	Khushab	612	29·089	−·008	29·661	29·218	18th	28·930	4th	·288	83·3	98·6*	−1·1*	77·5	+1·7	88·5*	+0·3	21·1	107·3	27th	69·9	11th	37·4
		Montgomery	558	29·135	−·007	29·653	29·266	18th & 19th.	28·975	3rd	·291	88·5	102·9	+1·2	78·5	+2·4	90·7	+1·8	24·4	109·8	2nd	70·5	12th	39·3
		Mooltan	420	29·254	−·018	29·610	29·397	19th	29·093	3rd	·304	85·3	102·6	+2·3	79·9	+2·3	91·3	+2·3	22·7	110·4	3rd	75·0	11th & 12th.	35·4
47	Sind	Jacobabad	186	29·511	−·004	29·657	29·614	19th	29·363	3rd	·251	85·0	107·0	+3·5	77·7	+1·7	92·4	+2·6	29·3	111·8	2nd	71·7	15th & 16th.	40·1
		Hyderabad	96	29·618	−·015	29·667	29·708	23rd	29·507	3rd	·201	83·7	100·0	+2·5	77·8	+1·6	88·9	+2·1	22·2	105·2	19th	73·5	16th & 18th.	33·7
		Kurrachee	30	29·732	−·018	29·713	29·834	23rd	29·634	11th	·190	82·4	92·0	+3·2	79·3	+2·4	85·7	+2·8	12·7	106·4	20th	75·7	16th, 18th.	30·7
51	West Rajputana	Bikaner	771	28·946	−·015	29·680	29·030	22nd	28·817	2nd	·213	85·4	99·6	+1·1	80·5	+1·3	90·1	+1·2	19·1	106·1	2nd & 3rd	73·0	13th	33·1
		Pachpadra	380	29·371	−·006	29·707	29·457	23rd	29·280	3rd	·177	83·7	99·1	+1·9	77·5	+2·3	88·3	+2·1	21·6	107·5	26th	73·8	17th	33·7
		Jodhpur	782	28·961		29·723	29·045	23rd	28·832	2nd	·213	82·4	95·4		77·0		86·7		13·4	102·2	1st & 2nd	70·3	12th	31·9
	VIII.—East Rajputana, Central India and Gujarat.				−·014								89·8	−0·9	75·9	+1·5	82·9	+0·3	13·9					23·4
50	East Rajputana	Jaipur	1,431	28·330	−·013	29·717	28·418	22nd	28·219	3rd	·199	81·2	93·4	−0·8	75·5	+1·9	84·5	+0·6	17·9	98·2	3rd, 5th & 6th.	68·6	14th	29·6
		Bharatpur	585	29·136		29·682	29·231	19th	29·009	3rd	·222	81·9	94·1		77·5		85·9		16·6	98·4	4 days	71·2	28th	27·2
		Kotah	819	28·910		29·730	29·045	22nd	28·787	3rd	·258	81·5	90·2		76·7		83·5		13·5	96·0	30th	72·1	14th	23·9
		Sambhar	1,254	28·496	−·003	29·710	28·586	22nd	28·389	2nd	·197	81·4	93·6	−0·1	75·8	+0·7	84·7	+0·3	17·8	93·5	3rd	70·5	13th	29·0
		Ajmer	1,611	28·149	−·018	29·721	28·245	22nd	28·039	3rd	·206	79·3	90·3	−0·5	75·7	+2·1	83·0	+0·8	14·6	95·4	1st	69·6	14th	25·8
		Udaipur	1,925	27·862		29·740	27·952	22nd	27·751	2nd	·201	77·9	86·0		72·0		79·0		14·0	90·0	1st, 25th & 26th.	66·3	14th	23·7
		Deesa	466	29·314	−·021	29·735	29·409	26th	29·232	3rd	·177	81·4	94·2	+1·4	76·4	+2·5	85·3	+2·0	17·8	99·1	19th & 25th.	72·5	10th & 18th.	26·6
46	Kathiawar and Cutch.	Bhuj	395	29·385	−·012	29·733	29·486	26th	29·294	3rd	·192	81·9	92·6	+0·5	76·7	+2·1	84·6	+1·3	15·9	99·3	18th & 19th.	73·9	30th	25·4
		Jamnagar	61	29·725		29·732	29·819	26th	29·645	11th	·174	82·0	91·1		76·2		83·6		14·9	97·1	19th	73·2	29th	23·9
		Rajkot	429	29·369	−·015	29·753	29·475	26th	29·294	3rd	·181	79·2	90·8	−0·6	74·1	+1·7	82·5	+0·6	16·7	97·9	19th	71·3	29th	26·6
		Veraval	18	29·800	−·022	29·760	29·899	26th	29·704	19th	·195	80·2	83·3	−0·5	77·6	+1·3	80·5	+0·4	5·7	86·1	18th, 27th & 30th.	75·3	30th	10·8
		Dwarka	37	29·758		29·740	29·857	26th	29·674	3rd	·183	81·5	86·2		78·5		82·4		7·7	87·9	5 days	74·7	20th	13·2
		Bhavnagar Para	55	29·759	?	29·758	29·861	26th	29·667	19th	·194	80·9	90·8	?	75·6	+0·1	83·2	?	15·2	96·6	18th & 19th.	74·0	4th & 7th.	22·6
49	Central India	Nowgong	757	28·971	−·014	29·687	29·095	22nd	28·844	3rd	·251	79·7	87·7	−2·7	76·5	+1·5	82·1	−0·6	11·2	92·0	26th & 30th.	73·5	13th	18·5
		Indore	1,823	27·971	−·002	29·754	28·080	22nd	27·863	2nd	·217	74·6	82·9	−2·5	70·7	+0·6	76·8	−1·0	12·2	88·8	17th & 18th.	67·1	9th	21·7
		Neemuch	1,630	28·149	−·009	29·744	28·215	22nd	28·053	3rd	·192	76·2	86·4	−1·5	72·4	+1·5	79·4	0	14·0	93·0	25th	66·7	14th	26·3
45	Gujarat	Surat	39	29·773	−·027	29·755	29·873	26th	29·641	19th	·232	80·9	87·6	−0·9	76·5	+1·0	82·0	+0·1	11·1	94·7	18th	74·5	25th	20·2
		Ahmedabad	163	29·628	?	29·739	29·726	26th	29·558	2nd	·168	81·9	90·6	−1·5	77·4	+1·2	84·0	−0·2	13·2	100·3	19th	75·1	9th	25·7

*Mean of 20 days.

Note 1.—When a query is inserted against any reading or in the returns of any

Note 2.—The divisional means of the figure columns

I—*continued.*

in India, Burma, etc., in September, 1903—continued.

WIND DIRECTION. Number of winds from									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 30th September.	Variation from normal of period, 1st May to 30th September, 1903.			
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	57	58
														81	+6·6	·861	+·105	3·8	+0·9				5·31	4·49	+2·00							
14		1	10	3	1	1			S 76° E	1·1	1·0	3·0	−67	89	+ 6·6	·935	+·089	5·3	+1·5	10	6·73	+3·27	12·94	7·01	+5·93	31·00	43·63	−12·63	3·12	Bareilly .	VI.—Upper Sub-Himalayas, United Provinces (West Sub-Montane).	24
19				4	2	4	1		S 7° W	1·0		1·1	− 9	89	+ 6·3	·772	+·075	6·6	+1·8	17	10·20	+6·80	14·06	9·74	+4·32	56·87	80·95	−24·08	3·24	Dehra Dun.		
4		1		19	3	1		2	S 39° E	2·7		2·0	+25	88	+6·8	·877	+·092	4·7	+1·1	7	5·70	+1·30	7·10	6·04	+1·06	35·63	37·87	−2·24	2·20	Roorkee.		
13			9	4		1	3		S 66° E	0·8	0·8	2·1	−62	84	+8·5	·868	+·099	4·6	+1·6	5	5·00	0	8·16	5·30	+2·86	24·17	28·04	−3·87	7·11	Meerut .	United Provinces West.	2
9		2	2	10			6	1	S 39° E			3·8		78	+6·8	·874	+·129	3·0	−0·2	5	4·10	+0·90	2·57	3·61	−1·04	11·67	21·74	−13·07	0·65	Delhi .	South-East Punjab.	26
9	1	1	4	6	5		3	1	S 36° E	1·8		2·0	−10	77	+10·5	·894	+·160	2·1	+0·7	2	2·30	−0·30	2·25	1·99	+0·26	13·07	16·16	−3·09	1·18	Lahore .	Central Punjab	28
4		2	4	5	2	7	3	3	S 11° W	4·1	3·7	3·6	+ 3	70	+6·0	·817	+·091	2·1	0	2	3·20	−1·20	0·88	1·74	−0·86	13·15	12·25	+0·90	0·57	Sirsa .	South Punjab.	27
2			2	17	4	1	1		S 34° E	4·3	4·4			83		·920		4·6		5			4·43			13·94			1·96	Patiala.		
10		1	1	16		1	1		S 45° E	2·1	1·9	1·1	+73	82	+7·0	·875	+·121	2·9	−0·2	3	3·40	−0·40	5·78	3·61	+2·17	20·88	22·86	−1·98	2·16	Ludhiana .	Punjab (Sub-Montane).	29
8		6	11	4	1				N 89° E	2·1		1·6	+31	78	+8·0	·857	+·117	2·6	+0·4	6	3·30	+2·70	8·15	2·83	+5·32	34·74	24·64	+10·10	2·85	Sialkot.		
22			2	6					S 56° E	1·6				88	+6·4	·923	+·121	4·6	+1·9	6	3·90	+2·10	6·51	4·24	+2·27	24·81	26·94	−2·13	3·13	Umballa.		
26		1	1	1	1				S 67° E	1·7	1·6	1·3	+23	69	−2·7	·722	+·057	2·7	+0·8	5	4·20	+0·80	2·93	3·23	−0·30	18·38	23·94	−5·56	1·18	Rawalpindi.		
														68	+1·2	·793	+·063	1·7					1·41	0·76	+0·65						VII.—Indus Valley and North-West Rajputana		
19	3	2				1	1	4	N 25° W	1·3	1·4	3·1	−55	64	+0·9	·690	+·057	1·1	0	3	1·40	+1·60	1·13	0·52	+0·61	4·81	5·59	−0·78	0·86	Peshawar .	N.-W. Frontier Province.	32
20	2	6		2					N 50° E	0·6	0·6	1·7	−65	74	+ 6·2	·814	+·083	0·8	+0·2	2	1·00	+1·00	4·26	0·28	+3·98	16·99	5·28	+11·71	4·10	D. I. Khan.		
2	3	13	10	1				1	N 58° E	7·0	6·0			72	+12·2	·819	+·110	1·1	0	1	1·60	−10·60	1·58	0·54	+1·04	10·52	10·29	+0·23	1·58	Khushab .	West Punjab.	31
3		2	1	3	10	11			S 9° W	5·9	5·5			55	− 3·6	·738	+·036	1·2	0	0	1·30	−1·30	0·14	0·87	−0·73	7·42	7·75	−0·33	0·08	Montgomery		
6	1		1	13	3	6			S 22° E	1·4	1·7	2·8	−39	67	+ 1·9	·802	+·053	0·6	0	1	0·70	+0·30	0·12	0·32	−0·20	6·56	5·67	+0·89	0·12	Mooltan.		
9		2	1	9	8	1			S 30° E	3·0	3·1	3·1	0	73	+ 4·2	·888	+·105	1·5	+0·9	0	0·50	−0·50	0	0·07	−0·07	2·77	2·67	+0·10	0	Jacobabad.	Sind.	47
	1			1	4	2		2	S 5° W	10·8	11·2	12·5	−10	65	−2·5	·742	+·025	2·1	+0·5	1	0·80	+0·20	0·13	0·41	−0·28	5·07	6·07	−1·00	0·13	Hyderabad.		
					12	16			S 75° W	10·4	13·0	14·9	−13	80	− 1·1	·880	+·029	3·4	−1·6	1	0·60	+0·40	0·12	0·51	−0·39	3·68	6·65	−2·97	0·12	Kurrachee.		
4			3	1	1	9	10	2	S 63° W	6·6		5·6	+18	64	+ 1·2	·782	+·043	2·7	+0·3	3	1·90	+1·10	2·30	0·94	+1·36	10·00	10·03	−0·03	1·40	Bikaner .	West Rajputana	51
	1		1		12	13	3		S 29° W	8·6	7·5	P.	+23	69	− 7·1	·794	P	0·3	P	2	2·50	−0·50	1·34	2·11	−0·77	9·62	12·42	−2·80	1·22	Pachpadra.		
														69		·770		4·3					4·43	1·75	+2·68					Jodhpur.		
3	3	1		1	1	12	9		S 69° W	4·9	4·4			83	+5·9	·863	+·074	5·2	+1·1	4	2·50	+1·50	5·10	4·36	+1·18	19·81	12·26	+7·55	1·62		VIII.—East Rajputana, Central India and Gujarat	
4	2	2	3	1	1	2	8	7	N 60° W	3·0		5·2	−42	75	+2·2	·805	+·083	4·8	+1·2	7	4·90	+2·10	9·71	3·56	+1·15	22·81	24·26	−1·45	1·96	Jaipur .	East Rajputana	50
15		1	4	3	1	1	5		S 18° E	2·8	2·6			88		·958		3·9		7			4·31			18·22			1·40	Bharatpur.		
2	1	1	1			7	11	7	N 85° W	5·3	4·2			78		·836		3·8		10	5·10	+4·90	8·40	5·16	+3·24	35·05	28·61	+ 6·44	2·80	Kotah.		
4	3	1	2	1	3		11	5	N 73° W	5·4		7·2	−25	72	+ 2·7	·774	+·045	3·3	+0·4	6	3·80	+2·20	6·35	2·80	+3·55	23·58	19·14	+ 4·44	2·73	Sambhar.		
4		1		1		7	10	7	W	6·6	5·9	5·0	+18	80	+5·2	·801	+·067	4·0	+0·9	3	4·10	−1·10	1·29	2·33	−1·04	17·77	20·09	− 2·32	0·60	Ajmer.		
15	1		1	1	1	2	5	4	N 85° W	3·1	2·7			79		·756		5·2		10	6·10	+3·90	5·34			26·39			1·78	Udaipur.		
	2	1	1	5	1	11	6	3	S 55° W	5·2		8·5	−39	79	+ 2·9	·846	+·068	5·3	+0·3	4	3·73	+0·27	3·31	3·98	−0·67	19·43	23·33	− 3·90	1·25	Deesa.		
	2		1			10	6	11	N 82° W	11·8	9·9	11·3	−12	82	+ 6·6	·884	+·098	5·1	+0·7	2	2·00	0	2·69	1·68	+0·41	16·18	13·71	+ 2·47	1·05	Bhuj .	Kathiawar and Cutch.	46
				1	9	14	5	1	S 39° W	13·1	15·9			82		·897		4·6		1			1·45			26·64			1·32	Jamnagar.		
				1	1	10	16	2	S 73° W	7·2	7·1	8·5	−16	89	+ 7·4	·886	+·075	7·4	+2·6	6	5·10	+0·90	3·62	3·96	−0·34	22·92	27·13	−4·21	1·52	Rajkot.		
				1	4	6	13	6	S 77° W	11·3	11·3	8·6	+31	90	+ 5·3	·920	+·068	6·5	+0·8	9	4·60	+4·40	3·60	1·99	+1·61	21·17	16·78	+7·39	1·42	Veraval.		
		1		2	1	11	10	5	S 74° W	10·7				85		·927		5·6		2			2·21			25·13			1·73	Dwarka.		
		1				14	9	6	S 79° W	6·0	5·6			81	P	·855	P	6·1	+0·4	10	7·80	+2·20	4·67	4·43	+0·44	23·69	18·70	+4·99	1·00	Bhavnagar Para.		
5	1	1	6		2	3	10	2	S 82° W	1·7	1·7	2·4	−29	88	+6·6	·896	+·075	6·0	+1·1	10	7·00	+3·00	8·58	5·24	+3·34	35·65	41·43	−5·78	2·81	Nowgong .	Central India .	49
	4		1				4	21	N 44° W	6·6	5·3	4·8	+10	91	+ 5·4	·790	+·042	7·9	+1·6	12	8·80	+3·20	12·29	7·68	+4·61	45·44	31·18	+14·26	3·05	Indore.		
3		1	1			7	14	4	S 86° W	8·7	7·8	10·2	−24	93	+15·1	·847	+·106	6·7	+3·3	9	6·50	+2·50	9·41	5·11	+4·30	33·18	28·69	+4·49	3·12	Neemuch.		
3	4	1		2	4	3	7	6	N 83° W	4·6	4·3	9·2	−53	85	+ 1·9	·902	+·041	6·6	+0·9	15	7·00	+8·00	8·45	7·01	+1·44	40·07	41·73	−1·66	1·55	Surat .	Gujarat.	45
	1	2	1	1	3	6	6	10	N 84° W	2·8	4·6			83	+ 4·9	·863	+·069	5·8	0	8	5·80	+2·20	2·64	4·77	−2·13	26·26	31·79	−5·53	0·68	Ahmedabad		

station, the data for that station are not utilized in calculating the Provincial variations.

Nos. 41, 43 and 45 are derived only from the data available.

Table

Abstract of Observations taken at 8 A.M. at 232 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	P	29·679	29·277	22nd	29·050	3rd	·227	83·5	93·8	P	79·7	P	86·8	P	14·1	99·0	30th	73·9	16th	25·1
21	United Provinces Central.	Jhansi	858	28·884	−·006	29·699	28·999	22nd	28·752	3rd	·247	80·6	90·1	−1·6	77·2	+1·4	83·7	−0·1	12·9	95·7	30th	74·1	15th	21·6
	IX.—Deccan				−·007								86·1	−0·8	72·5	+1·0	79·3	+0·1	13·7					21·7
38	Bombay Deccan	Belgaum	2,539	27·330	−·009	29·812	27·407	22nd	27·273	17th	·134	70·7	79·9	+1·0	66·2	+0·9	73·1	+1·0	13·7	83·3	13th	63·9	20th & 21st.	19·4
		Sholapur	1,590	28·246	−·015	29·793	28·333	22nd	28·168	18th	·165	75·4	87·2	−1·2	71·1	+0·7	79·2	−0·3	16·1	93·7	13th	67·6	4th	26·1
		Poona	1,840	28·005	−·018	29·799	28·094	22nd	27·925	19th	·169	74·5	85·4	+1·0	69·8	+1·2	77·6	+1·1	15·6	90·5	13th & 17th.	65·9	21st	24·6
		Bijapur	1,948	27·901	−·014	29·797	27·990	22nd	27·842	18th	·158	74·6	85·9	0	69·5	P	77·7	P	16·4	90·4	8th	66·3	20th	24·1
40	Khandesh	Malegaon	1,430	28·385	−·009	29·773	28·479	22nd	28·306	19th	·173	77·1	87·1	−0·8	71·6	+1·4	79·4	+0·3	15·5	93·4	17th	68·0	21st	25·4
		Ahmednagar	2,152	27·700	−·006	29·798	27·790	26th	27·621	19th	·169	74·4	85·3	+0·1	68·4	+0·4	76·9	+0·3	16·9	90·4	15th	62·5	21st	27·9
41	Berar	Akola	930	28·863	−·007	29·745	28·977	22nd	28·783	3rd	·194	79·1	88·6	−0·5	73·3	+0·6	81·0	+0·1	15·3	93·4	16th, 18th & 28th.	63·8	15th	24·6
		Amraoti	1,215	28·573	+·001	29·747	28·682	22nd	28·492	3rd	·190	77·1	86·8	−1·6	73·2	+1·1	80·0	−0·3	13·6	92·2	15th, 17th & 18th.	70·5	11th	21·7
42	Central Provinces, West.	Khandwa	1,044	28·736	−·013	29·741	28·853	22nd	28·655	2nd	·198	77·0	85·6	−2·5	73·7	+0·5	79·7	−1·0	11·9	92·2	18th	71·6	9th	20·6
		Hoshangabad	1,006	28·770	−·006	29·741	28·887	22nd	28·646	3rd	·241	77·2	85·9	−2·2	75·2	+1·9	80·6	−0·2	10·7	91·2	18th & 30th.	71·2	9th	20·0
		Nagpur	1,025	28·750	+·011	29·733	28·844	26th	28·668	3rd	·176	78·8	88·8	−0·5	74·8	+1·0	81·8	+0·3	14·0	93·6	30th	71·6	9th	22·0
43	Central Provinces, Central.	Chanda	634	29·158	+·011	29·738	29·249	22nd	29·083	17th	·166	79·4	88·9	−0·2	75·5	+1·0	82·2	+0·4	13·4	93·7	13th	73·5	3rd & 26th.	20·2
		Seoni	2,033	27·742	−·002	29·715	27·838	26th	27·640	3rd	·198	75·5	83·8	−1·8	71·7	+1·1	77·8	−0·4	12·1	88·3	29th & 30th.	69·0	9th & 15th.	19·3
		Jubbulpore	1,327	28·418	−·008	29·705	28·518	22nd	28·291	3rd	·224	76·8	85·3	−2·1	73·2	+0·4	79·3	−0·9	12·1	89·9	25th & 26th.	70·6	9th & 15th.	19·3
		Saugor (*a*)	1,807	27·961	P	29·728	28·072	22nd	27·831	3rd	·241	75·9	84·7	−1·9	72·2	+0·7	78·5	−0·6	12·5	89·4	5 days.	69·1	22nd	20·3
49	Central India	Sutna	1,040	28·687	−·008	29·686	28·794	22nd	28·565	2nd	·229	79·4	87·3	−0·7	76·8	+2·2	82·1	+0·8	10·5	91·4	30th	74·1	8th & 14th.	17·3
44	Central Provinces, East.	Raipur	970	28·782	+·001	29·702	28·875	22nd & 23rd.	28·692	2nd	·183	79·1	87·4	−0·8	75·1	+0·3	81·3	−0·3	12·3	90·6	14th, 26th & 29th.	73·3	1st & 2nd.	17·3
		Pendra	2,123P	27·721P		29·694P	27·826	22nd	27·636	2nd	·190	75·6	81·6		71·9		78·3		12·7	87·8	27th	70·1	10th	17·7
		Sambalpur	486	29·273	−·001	29·709	29·376	23rd	29·188	30th	·188	81·1	88·9	−0·4	77·2	−0·1	83·1	−0·3	11·7	91·6	4 days	75·6	6 days	16·0
39	Hyderabad (North).	Aurangabad	1,905	27·903*		29·752*	28·011	22nd	27·810	6th	·201	75·4	85·2		69·5		77·3		15·7	89·3	16th	63·7	8th	25·6
		Indur		28·482			28·521	7th	28·375	19th	·146	77·0	85·8		72·1		79·0		13·7	90·8	15th	63·2	17th	17·6
		Bidar	2,165	27·690		29·797	27·776	26th	27·597	6th	·179	74·7	83·5		70·3		76·9		13·2	89·0	13th	67·0	3rd	22·0
53	Hyderabad (South).	Gulbarga	1,503	28·332	−·011	29·791	28·409	22nd	28·250	18th	·159	75·8	87·0	−0·6	71·7	+0·8	79·4	+0·1	15·3	92·4	11th	67·8	3rd	24·6
		Raichur	1,326	28·506	−·013	29·790	28·595	22nd	28·422	17th	·173	76·6	87·7	0	72·8	+0·6	80·3	+0·3	14·9	92·1	4 days	69·6	20th	22·5
		Hyderabad (Deccan).	1,690	28·124	−·016	29·765	28·195	20th	28·024	18th	·171	76·2	85·6	−1·1	72·7	+1·9	79·2	+0·4	12·9	91·9	13th	69·2	3rd	22·7
		Secunderabad	1,787	27·997	−·008	29·735	28·108	23rd	27·926	18th	·182	72·6	86·6	+0·3	71·9	+1·5	79·3	+0·9	14·7	92·6	13th	68·5	3rd	24·1
		Hanumkonda	871	28·918		29·737	29·003	23rd	28·804	17th	·199	78·6	86·9		75·1		81·1		11·8	91·0	13th, 26th & 27th.	70·3	22nd	20·7
	X.—West Coast				−·020								83·5	−0·1	75·5	+0·4	79·5	+0·2	8·0					13·0
37	Konkan	Bombay	37	29·811	−·023	29·788	29·900	26th	29·718	19th	·182	80·1	85·2	+0·7	77·2	+0·7	81·2	+0·7	8·0	88·0	16th & 17th.	73·5	19th, & 24th.	14·5
		Ratnagiri	110	29·762	P	29·811	29·842	22nd	29·693	19th	·149	79·3	84·9	+0·7	75·4	+1·0	80·3	+0·9	9·5	86·3	6 days	72·9	20th,	13·4
		Mormugao	60	29·829	−·016	29·824	29·901	22nd	29·780	14th	·121	79·2	84·2	+0·7	76·3	+1·2	80·2	+1·0	7·9	85·5	12th, 29th & 30th.	73·9	17th, & 19th.	11·6
		Goa	199									79·4	82·2	P	77·8	P	80·1	P	4·4	85·5	24th	75·0	19th, & 20th.	10·5
		Karwar	44	29·844	−·017	29·820	29·904	24th	29·776	18th	·128	78·5	83·2	+0·5	75·1	+1·2	79·1	+0·9	8·1	86·0	27t	73·5	3rd, 14th & 24th.	12·5
33	Malabar	Cochin	10	29·910	−·021	29·849	29·985	23rd	29·872	17th	·113	77·7	83·8	−0·8	74·2	−0·3	79·0	−0·6	9·6	87·3	21st	70·7	21st	16·6
		Calicut	27	29·884	−·023	29·841	29·968	23rd	29·827	30th	·141	77·0	82·8	−1·5	74·9	+0·5	78·9	−0·5	7·9	84·8	19th, 21st & 29rd.	72·2	18th	12·6
		Mangalore	65	29·846	−·020	29·843	29·918	23rd	29·795	30th	·123	77·1	82·0	−1·3	74·0	−0·1	78·1	−0·7	8·0	84·7	27th	71·9	11th	12·8
		Trivandrum	198	29·710	−·020	29·840	29·771	23rd	29·648	4th	·123	77·0	82·8	−0·1	74·6	−0·7	78·7	−0·4	8·2	84·5	6th	72·0	30th	12·5
	XI.—South India				−·011								89·0	−1·4	74·3	+0·4	81·6	−0·5	14·7					23·3
57	Madras (South)	Pamban	37	29·831		29·795	29·895	23rd	29·763	29th	·132	82·8	89·9		78·5		84·2		11·4	93·3	5th	74·2	10th & 21st.	19·1
		Tinnevelly	168	29·698	−·019	29·795	29·759	22nd	29·653	4th	·106	84·2	96·3	−1·5	78·7	+0·1	87·5	−0·7	17·6	100·3	2nd & 28th,	74·4	10th	25·9
		Madura	447	29·414	−·007	29·798	29·476	26th	29·352	29th	·124	80·7	91·9	−3·4	75·1	−0·2	83·6	−1·8	16·8	97·5	2nd	72·0	10th	25·5
		Periyakulam	945	28·918			28·977	23rd	28·855	29th	·122	78·2	90·8		72·3		79·2		18·5	98·2	5th	68·8	18th.	29·4

* Mean of 29 days.

(*a*) Observations of 29 days.

Note 1.—When a query is inserted against any reading or in the returns of any

Note 2.—The divisional means of the figure columns

I—*continued.*

in India, Burma, etc., in September, 1903—continued.

WIND DIRECTION. NUMBER OF WINDS FROM										Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 30th September.	Variation from normal for period, 1st May to 30th September, 1903.				
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	57	58
1	1	3		7		13		5	S 39° W	4·9	5·8	4·1	+41	79	+5·2	·906	+·099	4·4	+0·9	3	4·80	−1·80	1·32	4·23	− 2·91	15·85	26·43	−1	0·72	Agra	UNITED PROVINCES WEST.	22
5		4	3	2	1	6	4	5	S 87° W	3·2	3·6	3·2	+13	86	+11·5	·896	+·094	1·8	P	11	6·80	+4·20	7·79	5·89	+ 1·90	26·25	36·09	− 9·84	2·80	Jhansi	UNITED PROVINCES CENTRAL.	21
														84	+3·1	·778	+·029	6·3	+0·5				8·63	7·57	+1·00					IX.—Deccan.		
9						4	15	2	S 86° W	12·5		16·7	−25	91	+1·7	·682	+·025	7·9	+0·4	10	9·10	+0·90	2·69	4·83	− 2·14	39·08	39·89	− 0·81	0·64	Belgaum	BOMBAY DECCAN	38
	1					2	8	19	N 60° W	7·6	9·2	9·9	− 7	80	+1·8	·707	+·032	7·8	+0·5	12	9·50	+2·50	12·81	8·77	+ 4·04	38·00	24·41	+13·59	2·91	Sholapur,		
						1	24	5	N 84° W	11·6		11·4	+ 2	81	+0·2	·696	+·017	6·0	−1·2	3	8·10	−5·10	1·43	5·00	− 3·57	17·54	21·42	− 3·88	0·62	Poona,		
2	2				1	5	12	8	N 82° W	8·6	8·4			81	P	·699	−·001	6·3	−1·0	10	9·70	+0·30	6·44	7·61	− 1·17	21·57	17·44	+ 4·13	1·13	Bijapur,		
	1	1				7	16	5	N 89° W	7·0	8·1	7·6	+ 7	80	+2·7	·760	+·051	6·2	+0·6	10	7·80	+2·20	5·90	6·90	− 1·00	23·88	20·62	+ 3·26	1·48	Malegaon	KHANDESH	40
8	2	1				2	9	8	N 66° W	8·9	10·9			79	P	·677	−·008	7·2	+1·3	11	9·80	+1·20	6·30	6·98	− 0·68	28·85	18·13	+10·72	1·37	Ahmednagar,		
	2	1				1	14	12	N 65° W	6·3	6·2	5·8	+ 7	82	+1·5	·810	+·049	7·4	+1·6	8	8·40	−0·40	3·61	6·52	− 2·91	28·72	29·00	− 0·28	0·75	Akola	BERAR	41
	1	1	1	1	1	7	14	4	S 84° W	7·2	6·4	4·4	+45	86	+1·0	·801	+·023	7·6	+1·6	9	7·30	+1·70	4·48	6·26	− 1·78	38·82	30·03	+ 8·79	1·23	Amraoti,		
			1	1		3	6	19	N 62° W	5·6		6·2	−10	87	+4·9	·804	+·041	7·3	+2·1	16	7·70	+8·30	10·01	6·58	+ 3·43	29·79	28·68	+ 1·11	1·79	Khandwa	CENTRAL PROVINCES, WEST.	42
		2		1		27			S 42° W	1·8	1·8	2·5	−28	89	+2·2	·835	+·021	7·3	+1·2	14	10·50	+3·50	15·70	9·66	+ 6·04	46·22	48·49	− 2·27	4·15	Hoshangabad,		
2	4	1	2	1	3	4	8	5	N 81° W	4·1	3·2	6·1	−48	84	+3·7	·833	+·041	6·1	−0·3	8	10·30	−2·30	5·05	9·04	− 3·99	52·14	44·00	+ 8·14	1·36	Nagpur,		
23				1			6		S 82° W	0·6	0·5	4·1	−88	85	+4·6	·855	+·045	6·0	−0·1	18	11·30	+6·70	10·76	9·48	+ 1·28	56·75	49·88	+ 6·87	2·00	Chanda	CENTRAL PROVINCES CENTRAL.	43
	6	4		2	3	4	3	8	N 45° W	5·0	4·2	3·9	+ 8	88	+4·1	·781	+·013	3·5	−1·0	13	11·90	+1·10	13·22	9·51	+ 3·71	57·28	49·72	+ 7·56	3·21	Seoni,		
	1	2	1	2	5	5	16	4	S 69° W	3·0	2·6	3·4	−24	92	+7·8	·850	+·052	6·7	+1·2	14	9·80	+4·20	9·47	7·90	+ 1·57	47·13	54·58	− 7·45	2·35	Jubbulpore,		
	1	2	1	4	2	4	11	4	S 78° W	6·6	5·9	3·3	+79	86	+2·7	·777	+·014	6·1	+0·6	16	9·70	+6·30	16·78	7·31	+ 9·47	40·74	44·84	− 4·10	5·13	Saugor,		
2		6	9	3	1	2	4	3	N 76° E	2·9	2·6	6·5	−60	88	+7·7	·890	+·073	7·9	+2·0	11	8·70	+2·30	10·15	6·10	+ 4·05	30·83	40·55	− 9·72	1·75	Sutna	CENTRAL INDIA	49
3	1	1	4			15	5	1	S 55° W	5·4	6·5	5·9	+10	89	+5·5	·870	+·038	6·9	+0·4	14	10·60	+3·40	9·46	7·39	+ 2·07	37·86	46·12	− 8·26	2·29	Raipur	CENTRAL PROVINCES, EAST.	44
																							8·17			43·60‡			1·26	Pendra.		
4	4	3	1	5	8	2		3	S 34° E	5·8	4·9			89		·739		6·4		14												
	1			8	6	11	3	1	S 18° W	4·4	4·3	2·2	+95	84	+1·9	·894	+·006	6·0	0	12	11·80	+0·20	10·07	8·76	+ 1·31	41·95	62·18	−17·23	2·68	Sambalpur,		
1	1					1	21	6	N 80° W	10·5	10·4			81		·714		5·0		8	9·60	−1·60	3·38	7·24	− 3·86	27·83	26·30	+ 1·53	0·95	Aurangabad	HYDERABAD (NORTH).	39
5		6				3		16	N 35° W	5·3	4·4			81		754		5·9		11	10·30	+0·70	12·13	8·29	+ 3·84	40·64	35·05	+ 5·59	4·50	Indur		
1	8	1			2	3	7	8	N 54° W	4·2	3·5			82		·708		4·8		10	11·90	−1·90	7·17	9·21	− 2·04	36·86	33·14	+ 3·72	1·93	Bidar,		
5	3	1				2	5	14	N 53° W	6·9	6·6			84	+3·6	·751	+·040	7·5	+0·7	15	11·20	+3·80	15·54	9·33	+ 6·21	44·37	26·26	+18·11	3·27	Gulbarga	HYDERABAD (SOUTH).	53
	1					10	9	10	N 88° W	9·4	8·9			81	+1·0	·745	+·020	3·6	P	7	9·80	−2·80	6·51	8·44	− 1·93	24·83	24·33	+ 0·50	1·95	Raichur,		
14							12	4	N 79° W	5·0	4·9			83	+0·1	·751	+·017	6·5	0	9			8·92	6·04	+ 2·88	36·34	25·74	+10·60	2·10	Hyderabad (Deccan).		
2	7	1				1	5	14	N 41° W	6·4		7·0	− 9	83		·739		4·5		11	10·00	+1·00	6·33	6·04	+ 0·29	33·78	25·74	+ 8·04	2·45	Secunderabad.		
4	2			1	2	2	10	9	N 76° W	6·6	5·6			83		·830		6·3		12	10·30	+1·70	10·42			57·01			3·28	Hanumkonda		
														89	+1·5	·865	+·016	7·8	+1·2				10·06	9·20	+0·86					X.—West Coast.		
	1	3	5	5	2	3	9	2	S 33° W	9·0		11·7	−23	88	+1·2	·911	+·031	8·1	+0·8	15	14·00	+1·00	9·02	11·75	− 2·73	78·41	72·21	+ 6·20	1·59	Bombay	KONKAN	37
8	1	5	6	3		1	3	3	N 56° E	7·1	7·0	8·2	−15	89	+1·9	·885	+·026	6·0	−0·5	16	15·60	+0·4	8·26	12·52	− 4·26	98·43	102·14	− 3·71	1·20	Ratnagiri,		
11	3				1	3	2	19	N 58° W	7·0†				92	+1·4	·922	+·037	7·1	+1·3	17			9·93	8·34	+ 1·59	99·84	85·01	+14·83	3·27	Mormugao,		
7	5	5	4			4	3	2	N 2° E					89	+0·1	·894	+·024	8·3	+0·9	17			8·49	8·37	+ 0·12	107·67	91·24	+16·43	1·09	Goa,		
20	1	1	1			1	6		N 79° W	4·5				89	P	·851	+·028	7·1	+1·0	14	15·10	−1·10	8·97	12·76	− 3·79	133·46	113·71	+19·75	3·60	Karwar,		
7	6	10	1	1		1	1	3	N 20° E	5·3				87	+1·3	·830	−·015	8·4	+2·4	22	14·20	+7·80	18·39	8·98	+ 9·41	105·85	85·04	+20·81	3·49	Cochin	MALABAR	33
11	4	1				2	2	10	N 43° W	3·9§	4·9§			90	+1·8	·836	+·004	8·1	+1·8	17	12·20	+4·80	9·48	6·13	+ 3·35	101·62	94·37	+ 7·25	2·77	Calicut,		
27	1	1						1	N	1·3*		2·1	−46	92	+1·8	·858	+·013	8·6	+1·0	21	16·90	+4·10	15·29	10·32	+ 4·97	123·25	111·49	+11·76	2·60	Mangalore,		
	18							12	N 18° W	7·8				86	+2·5	·801	−·002	8·7	+1·9	8	7·10	+0·90	2·73	3·63	− 0·90	37·28	36·14	+ 1·14	0·48	Trivandrum,		
														82	+5·5	·813	+·046	6·6	+0·1				7·97	4·89	+3·08					XI.—South India.		
9	2	1	1		3	6	2	6	S 88° W	9·7	10·3			78		·882		4·8		6	2·20	+3·80	2·46	1·31	+ 1·15	6·19	2·96	+ 3·23	1·18	Pamban	MADRAS (SOUTH).	57
	2					6	14	8	N 82° W	7·6	7·3			60	P	·707	−·010	6·0	+0·6	4	2·00	+2·00	1·33	1·30	+ 0·03	2·99	3·98	− 0·99	0·82	Tinnevelly,		
8	9	1	1					11	N 19° W	2·4	2·8	3·4	−18	74	+6·2	·782	+·045	4·9	−0·3	14	6·10	+7·90	9·54	4·99	+ 4·55	19·64	14·64	+ 5·00	2·28	Madura,		
19	5	1	1	2		1		1	N 27° E	2·5	2·8			78		·750		5·1		6	4·50	+1·50	2·36	2·57	− 0·21	7·29	8·92	− 1·63	0·41	Periyakulam,		

station, the data for that station are not utilized in calculating the Provincial variation.
Nos. 41, 43 and 45 are derived only from the data available.

† Mean of 26 days.

‡ Since 23rd June 1903.

§ Mean of 16 days.

Table

Abstract of Observations taken at 8 A.M. at 232 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
24	Madras (South Central).	Salem	940	28·941	−·027	29·826	28·998	22nd	28·889	17th	·109	77·8	88·9	−2·4	73·3	+1·4	81·1	−0·5	15·6	93·2	3rd	68·4	23rd	24·8
		Coimbatore	1,348	28·525	−·016	29·828	28·585	20th, 22nd & 26th.	28·476	17th	·109	74·6	86·7	−2·9	71·3	+0·6	79·0	−1·2	15·4	90·9	6th	69·3	10th, & 11th.	21·6
35	Coorg	Mercara	3,781	26·208	−·003		26·264	22nd & 23rd.	26·151	17th	·113	65·4	71·7	−0·5	62·4	+0·5	67·1	0	9·3	76·0	28th	61·1	5 days	14·9
36	Mysore	Chitaldroog	2,405	27·483	−·012	29·820	27·574	22nd	27·418	17th	·156	72·2	82·5	−1·0	68·7	+1·2	75·6	+0·1	13·8	86·1	5th & 28th.	67·4	4th, 19th, & 20th.	18·7
		Bangalore	3,021	26·898	−·021	29·846	26·965	22nd	26·842	30th	·123	70·2	80·8	−1·1	66·2	+0·9	73·6	−0·1	14·6	85·8	7th	63·8	19th & 26th.	22·0
		Hassan	3,091	26·840	−·018	29·850	26·902	22nd	26·785	17th	·117	71·0	80·5	+0·7	65·4	+1·3	73·0	+1·0	15·1	84·9	7th	62·8	4th	22·1
		Mysore	2,518	27·398	−·018	29·848	27·465	22nd	27·346	30th	·119	71·3	83·4	−1·1	67·2	+0·8	75·3	−0·2	16·2	89·1	5th & 6th.	64·5	19th	24·6
	Madras, (East Coast, South).	Negapatam	31	29·814	−·026	29·774	29·888	26th	29·745	29th	·143	79·7	90·1	−2·4	76·2	−0·3	83·2	−1·4	13·9	96·8	6th	72·5	21st	24·3
		Cuddalore	12	29·832	?	29·773	29·903	26th	29·766	29th	·137	81·3	90·1	−1·8	75·8	+0·1	83·0	−0·9	14·3	96·7	3rd	70·7	21st	26·0
		Trichinopoly	255	29·606	−·015	29·795	29·676	26th	29·543	29th	·133	79·2	91·3	−4·2	75·1	−0·6	83·2	−2·4	16·2	97·6	2nd	72·4	6th	25·2
		Madras	22	29·806	−·021	29·759	29·876	26th	29·738	14th	·138	81·1	90·5	−2·5	76·2	−0·8	83·4	−1·7	14·3	96·5	8th	71·5	20th	25·0
		Vellore	707	29·128		29·777	29·199	8th	29·066	17th	·133	79·4	91·4		74·2		82·8		17·2	98·4	6th	71·0	27th	27·4
55	Madras, (East Coast, Central).	Nellore	71	29·747	−·004	29·752	29·831	26th	29·659	17th	·172	82·4	94·4	−0·2	77·6	−0·1	86·0	−0·2	16·8	100·3	6th	73·6	16th	26·7
		Masulipatam	15	29·790	+·004	29·740	29·885	26th	29·715	17th	·170	82·3	90·2	−0·5	77·9	+0·5	84·1	0	12·3	94·6	6th & 12th.	73·6	15th & 18th.	21·0
54	Madras, (Central).	Cuddapah	433	29·407	−·016	29·781	29·506	22nd	29·336	17th	·170	80·0	92·0	−0·5	75·1	−0·7	83·6	−0·6	16·9	98·2	8th	71·1	15th & 16th.	27·1
		Kurnool	945	28·879	−·019	29·772	28·957	22nd	28·808	18th	·149	77·7	89·5	+0·3	73·8	+0·7	81·7	+0·5	15·7	93·7	14th	70·4	3rd.	23·3
		Bellary	1,475	28·375	−·010	29·800	28·479	22nd	28·301	17th	·178	77·3	91·2	+0·6	73·6	+0·9	82·4	+0·8	17·6	97·0	8th	70·7	20th	26·3
52	Madras, (East Coast, North).	Cocanada	26	29·767	+·005	29·728	29·863	26th	29·664	17th	·199	82·3	89·7	?	79·0	+0·9	84·4	?	10·7	94·6	11th	75·0	18th	19·6
		Waltair (Vizag.)	226	29·551	+·013	29·721	29·653	26th	29·465	17th	·188	82·2	87·8	?	76·0	?	82·9	?	9·8	91·4	10th	75·4	17th & 18th.	16·0
		Gopalpur	21	29·753	+·022	29·714	29·852	19th	29·685	3rd	·167	82·9	86·9	−1·4	78·7	+0·4	82·8	−0·5	8·2	89·7	28th	75·5	1st	14·2
	XII.—Hill Stations.																							
													87·7		46·2		67·0		41·5	97·4	7th	38·0	12th	59·4
48	Baluchistan	Pishin										65·7	86·9	+1·5	48·2	−1·3	67·6	+0·1	38·7	94·6	7th	39·3	12th	55·3
		Quetta	5,502	24·637	+·034		24·748	19th	24·512	3rd	·236													
		Kalat										66·6	87·2	+2·0	29·3	−10·2	58·3	−4·1?	57·9	96·3	5th	17·4	12th	78·9
		Chaman	4,311	25·636	−·012		25·741	19th	25·508	4th	·233	74·1	91·5	−0·1	61·2	−1·1	76·4	−0·6	30·3	101·2	5th	52·1	11th	49·1
30	Punjab	Leh	11,503	19·769	+·039		19·889	19th	19·640	11th	·249	51·7	72·2	+1·9	41·1	−0·4	56·7	+0·8	31·1	78·1	7th	34·9	16th	43·2
		Srinagar	5,204	24·824	−·022		24·946	19th	24·682	5th	·264	63·4	80·5	+1·1	59·6	+6·6	70·1	+3·9	20·9	89·2	3rd & 6th.	54·2	12th	35·0
		Gulmarg		21·882			21·978	19th	21·758	11th	·220	56·5	64·2		44·6		51·4		19·6	72·1	4th	38·3	15th	33·8
		Sonemarg		21·832?			21·923	30th	21·737	21st	·186	46·9	67·2		43·3		55·3		23·9	79·9	7th	37·6	16th	42·3
		Skardu		22·831			22·992	20th	22·678	10th	·314	63·1	81·6		55·3		68·4		26·3	91·6	5th	49·7	13th	41·9
		Dras		20·844			20·956	19th	20·712	11th	·244	53·8	71·4		42·2		56·8		29·2	82·4	5th & 7th.	34·6	12th	47·8
		Gilgit	4,890	25·054			25·202	10th	24·894	11th	·308	74·7	90·8	+4·1	66·3	+1·8	78·6	+3·0	24·5	102·5	6th & 7th.	57·1	12th	45·4
		Chitral		24·573			24·675	24th	24·500	16th & 17th.	·175	67·0	89·6		57·8		73·8		31·8	101·2	6th	52·0	28th	49·2
		Killa Drosh										69·5	89·8		66·2		78·0		23·6	100·4	6th	54·1	10th	46·3
		Murree	6,333	23·838	+·008		23·945	18th	23·718	11th	·227	65·0	74·1	+0·3	57·8	−1·0	66·0	−0·4	16·3	79·8	3rd & 4th,	47·4	12th	32·4
		Kailang	10,087	20·982			21·098	21st	20·897	3rd	·201	53·6	71·7	+2·5	44·0	+2·0	57·9	+2·3	27·7	80·0	7th	37·5	16th	42·5
		Poo											78·6		56·1		67·4		22·5	85·0	2nd	51·3	15th	33·7
		Simla	7,224	23·116	+·019		23·199	18th	23·032	3rd	·167	61·0	65·5	−0·6	57·9	+1·5	61·7	+0·5	7·6	68·4	1st	55·1	16th	13·3
	N.-W. Frontier Province.	Para Chinar	6,000	24·445			24·585	20th	24·332	11th	·253	70·8	84·1		60·1		72·1		24·0	90·5	2nd & 5th.	52·0	18th	38·5
		Cherat		25·642	−·001		25·757	18th	25·525	4th	·232	73·6	88·5	+2·7	67·2	+1·3	77·9	+2·0	21·3	99·4	21st	55·0	11th & 12th.	44·4

Note 1.—When a query is inserted against any reading or in the returns of any station,

Note 2.—The divisional means of the figure columns

1—*continued.*

in India, Burma, etc., in September, 1903—continued.

WIND DIRECTION. Number of winds from									Wind resultant.	Wind Velocity.				Hygrometry, 8 A.M.				Cloud.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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 30th September, 1903.	Normal rainfall for period, 1st May to 30th Septembe.	Variation from normal of period, 1st May to 30th September, 1903.			
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	57	58
8	2				2	12	6		N 60° W	3·1	2·8	3·7	−24	85	+5·5	·811	+·040	8·0	+2·1	13	8·70	+4·30	9·81	6·55	+ 3·26	36·73	25·48	+11·25	1·77	Salem .	Madras (South Central).	31
1			1		3	22	3		S 43° W	2·2	2·0	6·6	−70	90	+5·9	·778	+·030	5·0	−0·3	10	3·20	+6·80	3·11	1·32	+ 1·79	12·12	7·60	+ 4·52	1·30	Coimbatore.		
2	1						18	9	N 73° W	5·0	4·7	7·9	−41	95	+2·8	·604	+·030	9·1	+0·6	22	18·00	+4·00	9·24	10·48	− 1·24	112·92	110·32	+ 2·60	1·33	Mercara .	Coorg . .	35
						7	16	7	W	7·8	6·8			85	−3·0	·675	+·032	8·5	+0·4	13	6·90	+6·10	7·19	4·71	+ 2·48	25·51	17·72	+ 7·79	1·44	Chitaldroog.	Mysore . .	36
	1					7	14	8	N 88° W	8·0	7·0	6·7	+ 4	88	+2·5	·660	+·028	8·4	+0·5	13	9·60	+3·40	18·71	6·23	+12·48	34·09	22·92	+11·17	3·94	Bangalore.		
		1				6	15	8	N 85° W	3·3	2·9			86	+4·3	·653	+·048	8·6	+0·4	15	7·40	+7·60	9·16	4·68	+ 4·48	36·85	22·08	+14·77	1·75	Hassan.		
	1					17	10	2	S 68° W	7·9	8·5			86	+3·4	·654	+·019	9·5	+2·0	16	7·70	+8·30	8·14	5·60	+ 2·54	28·52	18·03	+10·49	1·33	Mysore.		
13						3	14		S 83° W	3·6	3·2	5·2	−38	83	+8·3	·854	+·034	6·5	+0·8	16	5·60	+10·40	15·29	3·45	+11·84	26·00	12·10	+13·90	2·27	Negapatam.	Madras (East Coast, South).	56
25						2	2	1	S 80° W	1·7	2·1			84	+2·2?	·902	+·022?	7·3	+1·3	9	6·60	+2·40	6·96	6·21	+ 0·75	18·45	17·35	+ 1·10	2·64	Cuddalore.		
17						4	8	1	S 80° W	4·3		7·1	−39	82	+10·5	·819	+·069	4·7	−1·3	12	5·90	+6·10	8·92	3·91	+ 5·01	23·21	14·01	+ 9·20	2·50	Trichinopoly.		
			1	1	3	17	7	1	S 50° W	4·6		6·5	−29	85	+7·3	·300	+·058	6·0	−0·7	13	10·70	+2·30	9·66	5·01	+ 4·65	26·68	17·48	+ 9·20	2·51	Madras.		
														80		·801		4·7		17	8·60	+8·40	14·26	6·14	+ 8·12	27·34	20·67	+ 6·67	4·36	Vellore.		
12	1	4	1	2		2	1	7	N 18° W	2·3	2·3			77	+1·1	·851	+·002	5·4	−1·8	8	5·60	+2·40	3·26	4·35	− 1·09	16·09	12·81	+ 3·28	0·75	Nellore .	Madras (East Coast, Central)	55
2		1			1	3	1	22	N 54° W	5·1				87	+2·8?	·965	+·058	7·8	+0·8	14	9·40	+4·60	9·68	5·89	+ 3·79	39·94	24·53	+15·41	1·98	Masulipatam.		
9				1		6	7	7	W	5·1	4·9	6·4	−23	80	+5·8	·816	+·044	7·3	+0·1	12	8·30	+3·70	9·14	5·93	+ 3·21	31·35	20·95	+10·40	1·53	Cuddapah.	Madras (Central)	54
	1					4	11	14	N 72° W					86	+8·0	·818	+·084	7·3	+0·4	10	9·20	+0·80	6·27	6·60	− 0·33	25·19	21·80	+ 3·39	2·28	Kurnool.		
1	2					10	9	8	N 88° W	6·6				79	+9·0	·747	+·095	7·6	+0·2	9	6·90	+2·10	4·60	4·62	− 0·02	14·19	12·38	+ 1·81	1·31	Bellary.		
1						3	15	11	N 78° W	8·7	9·2	9·3	− 1	89	+9·2	·994	+·134	5·8	−1·6	15	9·00	+6·00	8·71	5·89	+ 2·85	34·12	22·92	+11·20	1·76	Cocanada .	Madras (East Coast, North).	52
15	2	1				5	6	1	S 89° W	3·3	2·8			82	+1·2	·900	+·018	7·6	+0·3	10	8·80	+1·20	5·71	8·01	− 2·30	20·41	24·16	− 3·75	1·16	Waltair (Vizag.).		
3		2	1			23	1		S 45° W	8·4																			3·40	Gopalpur.		
4	10				5	3	4	4	N 57° W	11·0	10·8	7·2	+50	88	+2·6	·931	+·052	4·0	−2·6	8	9·90	−1·90	8·83	7·14	+ 1·69	32·47	31·09	+ 1·38				
																														XII.—Hill Stations.		
																				0	0·10	−0·10	0	0·01	− 0·01	0·62	0·46	+ 0·16	0	Pishin.	Baluchistan .	48
29		1							N 45° E	1·0	1·1	3·5	−69	49	−1·4	·318	−·012	0·1	−0·1	0	0·20	−0·20	0	0·13	− 0·13	1·04	2·32	− 1·28	0	Quetta.		
	6		4		19		1		S 13° E					36		·238				0	0·10	−0·10	0	0	0	0·52*	1·65	− 1·13	0	Kalat.		
	1	3	7	9	3	5	2		S 43° E	7·1	7·8			40	+10·4	·341	+·072	0·1	−0·1	0	0	0	0	0	0	0·55	0·28	+ 0·27	0	Chaman.		
		14	13		2	1			N 72° E	1·7				55	+ 7·5	·217	+·041	1·9	−1·7	0	0·50	−0·50	0·03	0·20	− 0·17	0·92	1·53	− 0·61	0·02	Leh .	Punjab . .	30
5	2			7	8	4	1	3	S 5° W	3·1	2·9			87	−0·3	·514	+·046	3·3	0	5	3·30	+1·70	3·54	1·11	+ 2·43	18·24	10·41	+ 7·83	1·75	Srinagar.		
									S 71° E	2·9	3·3			82		·379		3·1		5			4·96			29·12			2·85	Gulmarg.		
21		2	3	2	1	1			N 85° E	3·0	2·7			95		·309		2·7		6			4·30			29·38			2·05	Sonemarg .		
7		5	12	4			1	1	N 27° E	4·6	4·6?			60		·344		2·0		2	0·40	+1·60	0·48	0·21	+ 0·27	5·78	2·93	+ 2·85	0·25	Skardu.		
10	6	6	3		2		1	2	S 45° W	5·6	4·5			61		·253		2·2		2	2·00	0	1·95	0·87	+ 1·08	7·62	5·46	+ 2·16	1·49	Dras.		
23	1	1		1	2		1	1	S 52° E	2·7	2·4			40	−11·3	·335	−·050	2·7	−0·8	1	1·10	−0·10	0·46	0·25	+ 0·21	2·71	2·35	+ 0·36	0·36	Gilgit.		
25			2	2		1			Calm	2·4	2·3			70		·458		1·2		3			3·10			10·49			2·00	Chitral.		
29			1						N 45° E					52		·377		1·0		3			1·38			9·49			1·05	Killa Drosh.		
25	1	1	1		1		1		N 14° W	5·0	5·4	5·4	0	71	+6·1	·445	+·064	2·6	+0·1	6	8·00	−2·00	9·78	5·62	+ 4·16	35·72	37·58	− 1·86	1·83	Murree.		
18	5	1		1	1		1	3	S 32° W	1·5				73		·300		3·2		2			1·50	1·67	−0·17	8·32	8·32	0	0·79	Kailang.		
	3	3	1	3	7	8	3	2	S 45° W									3·6		1			0·15	0·45	− 0·30	2·63	3·02	− 0·39	0·13	Poo.		
21		2	1	1	1	1	3		N 22° E	2·1	2·0	1·7	+18	85	+8·6	·456	+·059	5·5	+1·5	11	8·70	+2·30	6·93	5·87	+ 1·06	43·17	51·29	− 8·12	1·39	Simla.		
9	12	1		2	6				N 58° E	5·7	5·2			47		·353		8·3		2	5·30	−3·30	1·30	2·63	− 1·33	13·13	12·46	+ 0·67	0·99	Para Chinar	N.-W. Frontier Province.	
14	3	5	4	1	2			1	S 27° W	2·6	2·4			59	+0·7	·478	+·010	1·6	−0·3	2			3·41	1·80	+ 1·61	12·03	11·83	+ 0·20	2·15	Cherat .		
15	4			2	5	2	2																								

* Rainfall for July not received.

he data for that station are not utilized in calculating the provincial variations.

Nos. 41, 43 and 45 are derived only from the data available.

Table

Abstract of Observations taken at 8 A.M. at 232 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
25	United Provinces	Chakrata	7,022	23·269††	+·011††		23·354	19th	23·191	3rd	·163	61·3	67·2	−1·5	59·0	+2·0	63·1	+0·3	8·2	70·5	17th & 28th.	55·8	12th	14·7
		Mussooree	6,705	23·540	+·018		23·620	19th & 22nd.	23·458	3rd	·162	62·6	68·1	−0·5	59·4	+1·9	63·7	+0·7	8·7	70·3	10th.	56·9	12th & 13th.	13·4
		Ranikhet	6,069	24·084	+·022		24·169	22nd	23·998	4th	·171	65·0	72·7	+0·1	60·9	+0·9	66·8	+0·5	11·8	76·5	1st	57·0	15th & 16th.	19·5
		Muktesar	7,600	22·850			22·930	19th	22·773	3rd	·157	61·5	69·8		56·4		63·1		13·4	73·1	29th	52·8	16th	20·3
13	Bengal	Yatung	10,480										61·2		48·1		54·6		13·1	66·1	7th	41·9	7th & 12th	24·2
		Darjeeling	7,376	23·035	+·006		23·102	18th	22·952	3rd	·150	59·9	65·6	+1·5	56·5	+1·0	61·1	+1·3	9·1	69·2	9th & 15th.	55·1	4 days	14·1
8	Assam Hill Tracts.	Shillong	4,920	25·118			25·194	18th	25·037	3rd	·157	67·8	74·7		61·7		68·2		13·0	78·6	9th	58·5	13th	20·1
		Cherra Poonjee	4,309	25·664			25·748	18th	25·586	4th	·162	66·9	72·8		64·4		68·6		8·4	77·3	13th & 14th.	63·0	29th & 30th.	14·3
	Central India	Mount Abu	3,945	25·975	−·008		26·056	26th	25·885	3rd	·171	69·0	75·2	−0·1	63·7	+1·1	70·5	+0·5	9·5	80·7	19th	61·4	10th	19·3
		Pachmarhi	3,528	26·367	+·004		26·457	26th	26·258	3rd	·199	70·6	76·5	−0·7	67·2	+0·9	71·9	+0·1	9·3	81·6	30th	64·2	15th	17·4
	South India	Wellington	6,200	24·218	−·014		24·268	22nd	24·183	14th	·085	63·5	70·5	−0·8	57·1	+1·3	63·9	+0·3	13·4	75·2	2nd	51·7	18th & 19th.	23·5
		Kodaikanal	7,688	22·802			22·852	26th	22·766	17th	·086	56·7	62·2		52·9		56·2		9·3	66·0	28th	50·8	11th	15·2
		Ootacamund	...	23·036			23·089	22nd	22·967	30th	·122	57·4	63·4		52·8		58·1		10·6	68·0	21st	49·3	18th & 19th.	18·7
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·857	?	29·795	29·920	26th	29·806	12th	·114	79·7	89·8	−1·4	76·4	−0·2	83·1	−0·8	13·4	94·5	2nd	73·5	10th	21·0
		Colombo	40	29·875	−·035	29·840	29·940	23rd	29·801	4th	·139	81·2	87·3	+1·3	77·2	+0·2	82·3	+0·8	10·1	89·0	4th, 21st & 26th	72·5	22nd	16·5
	Persia	Meshed	3,104									69·6			54·3	+0·1						41·9	1st	
		Teheran	...	25·862§			26·050	14th	25·585	3rd	·465	73·2	89·2	−1·5	62·3	−2·6	75·8	−2·1	26·9	101·4	4th	50·5	29th	50·9
		Ispahan‖	...	24·334§			24·450	14th	24·120	4th	·330	68·5	87·5	−3·0	56·5	+1·3	72·0	−0·9	31·0	97·8	3rd	49·6	19th	48·2
		Bushire	14	29·720	−·009	29·693	29·842	24th	29·527	3rd	·315	86·5	94·2	−0·1	80·5	+1·4	87·4	+0·7	13·7	102·0	19th	75·5	20th	26·5
		Bahrein	30	29·712¶			29·831	26th	29·564	4th	·267	87·6¶	95·4¶		84·2¶		89·8¶		11·2	104·7	19th	77·8	30th	26·9
		Jask**	...	29·772	+·007		29·848	26th	29·614	4th	·234	86·8	93·2	−0·2	80·4	−0·7	86·8	−0·5	12·8	101·3	23rd	75·7	24th	25·6
	Arabia	Muscat	20	29·676?	−·079?	29·643?	29·779	20th	29·545	10th	·234	85·4	87·0	−0·2	83·5	+0·1	85·3	−0·1	3·5	91·3	29th	80·1	14th & 15th.	11·2
		Baghdad	220	29·676	+·003	29·869	29·872	23rd	29·502	3rd	·370	80·2	102·8††	+0·9	73·1	+1·5	88·0††	+1·2	29·7	108·6	10th	64·6	30th	44·0
		Bussrah	...	29·738			29·885	23rd	29·521	3rd	·364		98·2		74·0		86·2		24·2	104·9	1st	61·9	30th	43·0
		Aden	94	29·732	−·005	29·757	29·814	23rd	29·634	1st	·180	86·9	93·6	0	83·2††	+1·0	88·4††	+0·5	10·4	96·8	26th	78·3	1st	18·5
		Perim	201	29·610	+·001	29·741	29·686	25th & 29th.	29·524	4th	·162	87·3	94·4	−0·5	84·1	+1·0	89·3	+0·3	10·3	99·3	6th & 26th.	81·2	18th & 22nd.	18·1
	Afghanistan	Kabul	...									61·3	90·2	+3·0	50·0	−1·0	70·2	+1·0	40·2	98·1	6th	42·8	13th	55·3
	Central Asia	Kashgar	4,255	25·587‡‡			25·800	15th	25·410	9th	·390	65·1	85·8	+4·2	58·2	+1·4	72·0	+2·8	27·6	97·1	8th	51·3	29th	45·8
	Arabian Sea Islands.	Amini Devi	13	29·914	−·013	29·855	29·979	23rd	29·861	18th	·118	80·6	85·0	+0·1	77·0	−0·3	81·0	−0·1	8·0	88·3	16th	73·2	29th	15·1
		Minicoy‖	7	29·940		29·872	30·007	23rd	29·830	14th	·117	80·8	85·4	+0·1						87·1	14th			
	Africa	Zanzibar	73	30·076	+·011	30·076	30·123	10th	30·037	3rd	·086	76·2	82·2	+0·2	73·7	+0·3	78·0	+0·3	8·5	85·0	18th	70·8	4th	14·2
		Do. Dunga	...	30·017			30·082	11th	29·966	3rd	·116	74·2	83·5		68·8		76·2		14·7	86·5	18th & 19th.	66·4	11th & 12th.	20·1
	Straits Settlements.	Penang (*a*)	20	29·905		29·850	29·963	19th	29·819	2nd	·144	80·6	88·5		73·6		81·1		14·9	90·0	5 days	72·0	11th & 13th.	18·0
		Singapore (*a*)	10	29·930		29·861	29·996	25th	29·888	12th	·108	83·4	87·1		74·7		80·9		12·4	89·6	20th	72·5	17th	17·1

†† Mean of 29 days. † Mean of 15 days. ‡ Wind variable 1.

‖ Observations of 29 days. ¶ Mean of 28 days.

(*a*) 9 hours observation.

Note 1.—When a query is inserted against any reading or in the returns of any station, § Aneroid uncorrected.

Note 2.—The divisional means of the figure columns Nos. 41, 43 and 45 are derived

I—*concluded.*

in India, Burma, etc., in September 1903—concluded.

WIND DIRECTION. Number of winds from										Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 30th September.	Variation from normal of period 1st May to 30th September 1903.			
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	57	8
10	8	3		3	4	1		1	N 35° E	6·7	8·0	47	+ 70	92	+ 9·3	·506	+·056	4·7	+1·0	8	8·30	−0·30	9·27	6·10	+ 3·17	65·72	56·55	+ 9·17	4·90	Chakrata .	UNITED PROVINCES	25
5	3	5	9	1		1	5	1	N 49° E					91	+ 6·7	·516	+·044	6·7	+2·2	16	10·30	+5·70	15·01	9·26	+ 5·75	71·31	83·10	−11·79	3·74	Mussooree.		
17		2	1	1		5	3	1	S 62° W	2·2	2·5	1·9	+32	87	+ 5·2	·543	+·058	6·9	+2·0	14	8·20	+5·80	5·22	7·00	− 1·78	129·80	43·94	−14·14	0·99	Ranikhet.		
10	1		3	9	1	1	1	4	S 51° E	5·9	5·5			88		·483		6·8		7			4·02			24·80			1·57	Muktesar.		
																				12	14·13	− 2·43	4·60	6·63	− 2·02	40·03	37·88	+ 2·15	0·89	Yatung .	BENGAL . .	13
																													1·86	Darjeeling.		
8	2	4	2	3	1	2	6	2	N 45° W	3·2	3·0	3·0	0	95	+ 0·6	·490	+·016	·7†	−0·3	19	17·71	+ 1·29	10·33	18·95	− 8·62	87·58	111·83	−24·25	1·86	Darjeeling.		
														85		·582		6·4		17	17·50	− 0·50	10·67	13·67	− 3·00	81·98	65·58	+16·40	2·31	Shillong .	ASSAM HILL TRACTS.	8
19	1		1	1		2		6	N 51° W	1·0	1·1			93		·622		8·2		21	18·80	+ 2·20	13·48	51·49	−38·01	348·74	374·47	−25·73	2·04	Cherra Poonjee.		
2	2	9	4	3	2	3	3	2	N 59° E	2·6	3·0			83	+3·4	·583	+·032	6·2	+1·6	8	8·00	0	4·89	9·12	− 4·23	47·15	59·76	−12·31	2·45	Mount Abu	CENTRAL INDIA.	
	4	3	1	2	1	11	5	3	S 80° W	8·2	8·3	73	+14	89	+ 6·4	·669	+·042	8·4	+1·8	19	13·80	+ 5·20	21·45	14·09	+ 7·36	77·95	71·30	+6·65	4·68	Pachmarhi.		
1	1	2	2	2		2	6	14	N 53° W	8·3	8·5	56	+52	80	+8·6	·471	+·042	8·2	+2·6	15	10·10	+4·90	13·73	5·40	+ 8·35	34·51	20·28	+14·23	3·50	Wellington	SOUTH INDIA.	
14	6			5	1	1	1	2	N 10° E	2·1		3·5	−40	88		·403		7·4		20	12·40	+7·60	9·73	6·70	+ 3·03	39·38	27·06	+12·32	1·22	Kodaikanal.		
	4				2		2	22	N 45° W	13·1				88		·415		7·5		17	10·10	+6·90	8·35	4·44	+ 3·91	57·39	27·19	+30·20	1·15	Ootacamund		
10	2	1		1		3	9	4	N 77° W	4·7	4·4																			XIII.—Extra India.		
														85	+5·5	·868	+·003	2·5	−0·5	9			10·48	4·56	+5·92	22·51	15·14	+7·37	2·86	Trincomalee	CEYLON.	
1					29				S 45° W					85	+7·2	·906	+·054	6·9	+0·9	11			7·93	4·82	+3·11	46·57	32·90	+13·67	2·74	Colombo.		
			1	1		12	11	2	S 71° W	9·6		8·7	+10	55		·398		1·1		0			0	0·02	−0·02	3·73	1·01	+2·72	0	Meshed .	PERSIA.	
														39		·310		1·4		0			0	0·14	−0·14	1·06	0·97	+0·09	0	Teheran ‡		
9		4	3	3	4	6			S 27° E	2·8	3·6			58		·408		0·6		1			0·40	0	+0·40	0·72	0·17	+0·55	0·40	Ispahan.		
24	1						3	1	N 63° W	1·5¶	1·9¶																					
7	4	8	1	3	1			6	N 23° E	9·1	10·8	77	+40	73	+9·7	·915	+·089	0·5		0			0	0	0	0	0	0	0	Bushire.		
	14	2			3	5	1	5	N 30° W					¶ 78		¶ 1·027				0			0			0			0	Bahrein.		
5	1		13					1	N 82° E	10·7	8·9			69	−4·4	·859	−·066	0·5	−1·0	0			0	0	0	0	0·13	−0·13	0	Jask.		
6				8	1			15	N 51° W	3·5	3·6			75	−2·0	·926	−·004	0·7	−0·3	0			0	0	0	0·03	0·40	−0·37	0	Muscat.	ARABIA.	
12	9	1			1	1	2	4	N 24° W	2·9	3·8			44		·459		0·7		0			0	0	0	0	0·33	−0·33	0	Baghdad .		
																				1			0·46			1·28			0·46	Bussrah.		
1	2	7	3	5		9	1	2	S 60° E	8·3	6·7	8·5	−21	73	−16	·918	+·016	3·4	−0·5	0			0	0·13	−0·13	0·05	0·50	−0·45	0	Aden.		
	1	3	5	2	2	8	4	5	S 68° W	9·5	9·6			76		·992		1·0		1			0·80	0·01	+0·79	1·27	0·84	+0·43	0·74	Perim.		
		2	3	7	8	9		1	S 7° E					42		·211		0·3	+0·3	0			0	0·03	−0·03	3·90	1·16	+2·74	0	Kabul .	AFGHANISTAN.	
														55		·335		0·7		0			0	0·43	−0·43	0	3·01	−3·01	0	Kashgar .	CENTRAL ASIA.	
29									Calm	1·7	1·5			84		·877		9·4		13			8·99	5·54	+3·45	51·76	37·73	+14·03	2·25	Amini Devi.	ARABIAN SEA ISLANDS.	
1	3						7	19	N 51° W					82		·857		6·6		11			11·50	5·97	+5·53	43·79	34·12	+9·67	2·91	Minicoy.		
	3	1					5	20	N 45° W	8·5¶	9·0¶			85		·770		6·2		5			2·23	2·03	+0·20	15·63	18·36	−2·73	1·09	Zanzibar .	AFRICA.	
1			7	16	6				S 2° E	7·7	7·3			91		·777		5·7		7			3·40			20·36			1·58	Do. Dunga		
20			2	1	7				S 30° W	5·3	5·1							1·7		9			13·43			46·34			5·76	Penang .	STRAITS SETTLEMENTS.	
4		8		5	5			2	N 59° E	5·5								5·4		11			4·87			34·76			1·46	Singapore .		
		1	2	12	5	3	4	3	S 14° E																							

the data for that station are not utilized in calculating the provincial variations.

** Observations of 20 days.

‡‡ Aneroid corrected.

only from the data available.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 64 Stations in India, Burma, etc., in September, 1903.

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 Sea-level 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	29·838	29·741	·097	29·792	+·012	29·784	84·6	76·9	7·7	86·9	74·6	12·3	82·3	82·6	79·9	+0·4	75·2	79·5	78·7	77·8
	Rangoon	57	·841‡	·730¶	·114	·788	+·024	·781¶	85·0‡	76·7‡	8·3	89·3	71·9	17·4	81·2‡	81·3‡	79·3‡	+0·6	74·3‡	78·1‡	77·7‡	76·7
	Diamond Island	41	·839	·734	·105	·789	+·006	·761	84·6	77·2	7·4	87·2	73·6	13·6	82·4	81·8	79·8	+1·0	74·6	78·6	77·9	77·0
	Cocos Island	119	·756	·653‡	·103	·707	P	·756‡	86·9‡	77·6	9·3	90·2	74·6	15·6	83·9	83·0‡	80·9‡	+1·6	74·5			
	Akyab	20	·833	·718	·115	·760	+·019	·743	85·3	77·6	7·7	88·9	75·2	13·7	82·1	83·1	80·7	-0·7		79·8	79·7	
Bengal and Orissa.	Chittagong	87	·733	·610	·123	·676	−·001	·711	86·3	75·9	10·4	89·7	72·7	17·0	82·7	83·6	80·2	-0·1	75·2	78·8	79·2‡	77·7
	Calcutta (Alipore)	21	·771	·651	·120	·713	+·028	·680	87·8	77·8	10·0	91·9	72·8	19·1	84·2	84·2	82·4	-0·1	76·4	79·9	79·6	78·6
	Saugor Island	25	·756	·643	·113	·702	+·022	·671	88·3	79·8	8·5	91·8	74·2	17·6	84·4	85·5	83·0	+0·4	77·1	80·6	80·7	79·5
	False Point	21	·766	·658	·108	·714	+·018	·677	87·1	78·5	8·6	90·5	73·1	17·4	85·0	84·8	81·8	0	76·8	80·1	79·7	78·9
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·762	27·656	·106	27·713	+·003	·648	85·5	73·1	12·4	88·7	71·5	17·2	80·3	81·0	77·9	+0·9	71·8	74·0	73·8	73·2
	Darbhanga	166	29·620	29·489	·131	29·560	+·019	·678	88·5	79·4	9·1	93·1	75·0	18·1	85·3	87·0	83·1	+0·3	77·7	80·5	80·8	79·7
	Allahabad	309	·430	·312	·118	·374	−·002	·634	90·4	78·4	12·0	93·0	75·9	17·1	86·2	87·5	83·2	0	76·2	80·9	81·1	79·4
Upper Sub-Himalayas.	Dehra Dun	2,233	27·551	27·463	·088	27·499	−·003	·676	83·5	71·6	11·9	87·3	67·3	20·0	78·2	80·4	76·5	-0·4	70·0	74·0	75·2	73·1
	Roorkee	899	28·847	28·740	·107	28·787	−·007	·644	89·4	75·4	14·0	93·2	71·1	22·1	83·3	86·9	81·5	-0·3	74·5	78·1	78·8	77·1
	Meerut	738	·996	·892	·104	·935	−·005	·630	91·5	76·4	15·1	95·4	72·3	23·1	84·1	86·6	83·2	+0·4	74·9	77·7	78·9	77·2
	Lahore	702	29·016	·914	·102	·959	−·008	·614	97·1	77·6	19·5	104·4	72·2	32·2	85·4	95·4	86·7	+2·8	74·6	79·8	80·8	78·4
	Ludhiana	812	28·916	·819	·097	·862	−·008	·630	93·6	77·6	16·0	99·0	73·1	25·9	86·5	91·0	83·8	+0·3	75·1	77·9	78·4	77·1
N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.	Peshawar	1,110	·626	·505	·121	·560	−·022	·627	97·5	72·2	25·3	107·0	66·0	41·0	88·5	95·2	84·1	+2·1	66·9	74·8	75·4	72·4
	Jacobabad	186	29·523	29·413	·110	29·462	−·002	·600	107·0	77·6	29·4	112·0	71·5	40·5	94·6	103·9	91·3	+2·6	73·9	82·9	86·6	81·1
	Kurrachee	30	·743	·661	·082	·704	−·015	·694	92·0	79·3	12·7	106·3	75·7	30·6	87·7	87·4	84·3	+2·7	75·0	78·9	79·5	77·8
E. Rajputana, C. India and Gujarat.	Jaipur	1,431	28·340	28·238	·102	28·285	−·008	·654	93·5	75·5	18·0	98·3	68·6	29·7	86·4	89·5	82·9	+1·0	72·5	76·8	76·2	75·2
	Udaipur	1,925	27·873	27·781	·092	27·827		·687	86·0	72·0	14·0	90·1	66·3	23·8	81·8	83·0	78·3		69·5	74·1	73·9	72·5
	Deesa	466	29·324	29·205	·119	29·263	−·018	·676	94·3	76·4	17·9	100·9	72·5	28·4	86·6	92·8	84·4	+2·5	73·9	77·6	77·5	76·4
	Jamnagar	61	·740	·640	·100	·690		·697	91·2	76·0	15·2	97·1	73·2	23·9	86·3	87·8	82·7		73·8	78·3	78·7	76·9
Deccan.	Belgaum	2,539	27·335	27·235	·100	27·287	−·013	·741	79·9	66·2	13·7	83·2	63·8	19·4	74·8	75·6	71·5	+1·2	66·0	70·3	70·7	69·0
	Sholapur	1,590	28·250	28·113	·137	28·192	−·013	·716	87·2	71·1	16·1	93·7	67·7	26·0	79·6	85·1	77·9	+0·3	69·2	72·5	73·6	71·8
	Akola	930	·866	·745	·121	·806	−·005	·684	88·9	73·3	15·6	93·6	68·8	24·8	83·4	84·8	80·0	+0·2	71·9	76·5	76·1	74·8
	Buldana	2,132	27·691	27·581	·110	27·637	−·006	·698	82·4	60·9	12·5	86·7	67·4	19·3	77·3	79·9	75·5	0	68·6	72·4	72·7	71·3
	Khandwa	1,041	28·748	28·629	·119	28·690	−·008	·687	85·8	73·7	12·1	92·2	71·6	20·6	80·2	82·8	78·3	−0·7	71·8	75·5	76·1	74·5
	Nagpur	1,025	·760	·636	·124	·699	+·021	·671	89·0	74·8	14·2	93·6	71·6	22·0	83·0	85·1	80·9	+0·6	73·4	76·6	76·6	75·5
	Do. (Sanitary Commr.'s Office)	1,013	·762	·643	·119	·704		·667	88·6	74·8	13·8	92·8	71·5	21·3	83·2	85·2	80·9		73·2	77·0	77·7	76·0
	Hyderabad (Deccan).	1,690	·130	·011	·119	·076	−·005	·696	85·7	72·7	13·0	91·9	69·1	22·8	80·0	83·4	78·6	+1·0	71·3†	74·1	75·6	73·7
West Coast.	Bombay	3	29·823	29·728	·095	29·773	−·013	·750	85·4	77·2	8·2	88·1	73·3	14·8	81·7	83·0	80·7	+1·0	75·2	78·2	78·1	77·2
	Karwar	44	·854	·759	·095	·303	−·017	·779	83·2	75·1	8·1	86·0	73·5	12·5	80·5	81·3	78·7	+1·0	73·3	77·1	77·6	76·0

†† Mean of 26 days. † Mean of 27 days. ‡ Mean of 29 days.

II.

at 64 Stations in India, Burma, etc., for September, 1903.

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 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
																									%	%						
·852	·974	·933	·920	+·027	92	87	84	88	+ 1	7·2	7·1	7·2	−0·1					3	4	26	22	5	S 63° W	S 52° W	78	74	196*	228	13·34	2·55	Port Blair	Burma Coast and Bay Islands.
·822‡	·922‡	·900‡	·881	−·012	89‡	87‡	84‡	87	− 2	9·0‡	8·7‡	8·9	+0·7	18	1	2	3	13	11	8	2		S 19° E	S 23° W	33	49	43*	89	13·20	2·04	Rangoon	
·823	·931	·909	·888	+·017	88	84	84	85	− 2	6·0	7·2	6·6	−0·9	5				9	14	19	8	5	S 32° W	S 45° W	59	55	120*	182	17·61	3·64	Diamond Island	
·813					86					6·5	6·5	6·5	−0·9		3	1		3	23	24	3	2	S 26° W	S 44° W	71	74		447	7·04	1·71	Cocos Island	
	·989	·971				90	85			6·5	6·7	6·6	−0·6			4	1	10	22	21		2	S 8° W	S 8° E	67	42	72*	74	30·74	6·47	Akyab	
·866	·936	·939‡	·914	−·002	97	84	81‡	87	+ 1	7·1	6·8	7·0	+0·1		2	4	2	17	10	16	4	5	S 5° W	S 22° E	42	37	123*	102	13·52	2·36	Chittagong	Bengal and Orissa.
·892	·965	·950	·936	−·007	94	82	81	86	0	8·1	8·3	8·2	+0·9	5	1	2	8	14	14	14		2	S 15° E	S 23° E	52	42	63	98	14·02	6·35	Calcutta (Alipore)	
·897	·998	·986	·960	−·016	88	85	81	85	− 1	8·2	8·7	8·5	+1·4		3	1	3	13	26	11	2	1	S 3° E	S 2° W	65	49	285	257	12·74	5·38	Saugor Island	
·901	·963	·949	·939	+·010	92	80	79	84	0	8·3	8·4	8·4	+1·4	2	1		2	4	23	20	7	1	S 24° W	S 20° W	70	37	209*	205	8·91	3·00	False Point	
·764	·762	·745	·757	+·003	94	74	71	80	− 4	9·4	10·0	9·7	+1·7	1	4	4	8	12	15	7	2	7	S 24° E	S 52° E	30	10	158*	178	7·62	1·61	Hazaribagh	Gangetic Plain and Chota Nagpur.
·928	·982	·971	·960	+·025	92	80	76	83	+ 1	5·9	5·1	5·5	+0·2	24			18	18					S 68° E	S 81° E	55	49	35	96	8·52	2·88	Darbhanga	
·876	·984	·977	·946	+·061	90	79	75	81	+ 2	7·6	7·4	7·5	+2·2	3	6	8	19	7	3	3	5	6	N 72° E	N 8° W	32	13	71*	128	6·12	1·48	Allahabad	
·720	·793	·812	·775	+·077	92	82	78	84	+ 6	6·5	7·0	6·8	+2·0	5			2	22	7	15	7	2	S 3° W	N 75° W	53	20	23	25	14·06	3·21	Dehra Dun	Upper Sub-Himalayas.
·847	·895	·878	·873	+·105	96	79	69	81	+ 9	5·1	3·6	4·4	+0·6	10		2	2	26	5	2	4	9	S 30° E	S 14° W	33	7	65	48	7·10	2·20	Roorkee	
·853	·872	·862	·862	+·100	94	75	64	78	+ 8	5·4	4·0	4·7	+1·0	23	2	1	14	12			6	2	S 75° E	N 49° W	27	19	17*	46	8·16	7·11	Meerut	
·822	·893	·857	·857	+·143	86	65	53	68	+11	2·7	2·1	2·4	+0·9	18	3	5	10	6	1		12	5	N 25° E	N 55° E	8	7	43	50	2·25	1·18	Lahore	
·843	·849	·814	·835	+·080	89	68	57	71	+ 5	3·2	3·7	3·5	+0·5	1		3	1	32			19	4	S 12° E	N 44° W	30	14	47*	31	5·78	2·16	Ludhiana	
·604	·703	·642	·650	+·058	76	52	39	56	+ 2	0·9	1·6	1·3	−0·4	18	11	13	4		3		4	7	N 11° E	N 39° E	38	51	28*	73	1·13	0·86	Peshawar	N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.
·793	·971	1·032	·932	+·242	83	60	48	64	+12	1·2	0·6	0·9	+0·3	18	1	1	1	14	20	5			S 15° E	S 32° E	55	45	76*	72	0	0	Jacobabad	
·816	·869	·905	·863	+·022	81	67	70	73	− 4	2·4	2·6	2·5	−1·3	1					2	29	27	1	S 66° W	S 67° W	88	87	323*	356	0·12	0·12	Kurrachee	
·769	·805	·791	·771	+·088	86	64	55	68	+ 4	4·6	6·1	5·4	+1·4	3	5	7	5	2	2	8	15	13	N 62° W	N 39° W	35	43	74	108	4·71	1·96	Jaipur	E. Rajputana, C. India and Gujarat.
·688	·755	·727	·723		88	69	66	74		5·3	5·4	5·4		12	3	4	3	2	4	12	12	8	S 83° W		32		66*		5·34	1·78	Udaipur	
·805	·825	·757	·796	+·073	89	66	59	68	+ 2	5·4	4·7	5·1	+0·3		3	2	2	5	5	16	16	11	S 74° W	S 69° W	49	53	122	200	3·31	1·25	Deesa	
·806	·862	·860	·843		90	69	66	75		5·6	5·3	5·5			1	1	1	1	6	23	20	2	S 60° W		67		380*		1·45	1·32	Jamnagar (a)	
·639	·688	·692	·673	+·032	99	80	78	86	+ 1	7·7	8·4	8·1	+0·6		2					16	32	10	S 87° W	S 78° W	84	75	308	385	2·69	0·64	Belgaum	Deccan.
·690	·711	·683	·694	+·032	90	71	57	73	+ 3	8·0	8·7	8·4	+0·4		3	2				7	10	38	N 57° W	N 69° W	80	67	218*	245	12·81	2·91	Sholapur	
·768	·821	·785	·791	+·052	94	72	67	78	+ 4	7·3	8·1	7·7	+1·1	1	2					2	28	29	N 67° W	N 59° W	87	68	146*	155	3·61	0·75	Akola	
·684	·737	·716	·713	+·033	93	79	71	81	+ 3	8·3	7·1	7·7	+1·1		7	1			1	2	23	26	N 47° W	N 47° W	80	68	163*	200	6·75	1·52	Buldana	
·765	·824	·816	·802	+·061	91	80	74	82	+ 7	7·9	7·6	7·8	+2·3		2	3	2	2		3	4	44	N 45° W	N 66° W	75	67	138	154	10·01	1·79	Khandwa	
·804	·838	·813	·818	+·051	93	74	68	78	+ 3	6·4	7·5	7·0	−0·3	4	6	6	3	3	6	9	19	4	S 86° W	N 52° W	32	37	78*	147	5·05	1·36	Nagpur	
·800	·850	·862	·837		92	75	71	79		6·9	7·2	7·1		21		7		4		21		7	S 56° W		23		26*		7·37	1·66	Do. (Sanitary Commr.'s Office)	
·748†	·773	·793	·771	+·036	92†	76	70	80	+ 2	6·6	7·5	7·1	+0·8	15							33	12	N 78° W	N 71° W	70	61	105*	150	8·92	2·1	Hyderabad (Deccan)	
·847	·927	·905	·893	+·028	91	85	80	85	0	8·1	7·1	7·6	+0·2		3	1	4	4	3	6	28	11	N 88° W	N 84° W	55	52	218	267	9·02	1·59	Bombay	West Coast.
·801	·884	·896	·860	+·043	92	85	84	87	+ 1	5·0	5·8	5·4	−0·3	6	2	1					31	20	N 69° W	N 80° W	79	78	104	58	8·97	3·60	Karwar	

† Mean of 28 days.

(a) Wind variable 5.

* 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.						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	28·913	28·794	·119	28·868			90·6	72·3	18·3	98·2	68·8	29·4	83·7	83·3	79·1		69·8	74·1	74·4	72·9
	Salem	940	·941	·810	·131	·889	−·028	29·761	88·8	73·6	15·2	93·0	68·4	24·6	81·7	85·2	78·9	−0·5	71·4	75·6	76·9	74·6
	Chitaldroog	2,405	27·482	27·363	·119	27·432	−·008	·753	82·5	68·7	13·8	86·1	67·2	18·9	76·4	79·8	74·9	+0·4	67·1	70·6	71·5	69·7
	Bangalore	3,021	26·903	26·784	·119	26·855	−·020	·761	80·8	66·3	14·5	86·1	63·6	22·5	74·3	78·4	72·9	+0·6	65·4	69·5	70·6	68·5
	Hassan	3,091	·847	·742	·105	·806	−·018	·785	80·5	65·4	15·1	84·9	62·8	22·1	75·3	75·0	71·6	+0·9	64·7	69·1	69·2	67·7
	Mysore	2,518	27·399	27·275	·124	27·337	−·018	·765	83·1	67·2	15·9	89·2	64·4	24·8	76·8	79·4	74·2	−0·4	66·3	70·0	71·1	69·1
	Madras	22	29·813	29·687	·132	29·757	−·014	·707	90·3	76·3	14·0	96·3	71·6	24·7	85·0	85·3	82·0	−1·8		78·6	79·3	78·3
	Bellary	1,475	28·377	28·242	·135	28·319	−·021	·722	91·1	73·6	17·5	97·0	70·7	26·3	81·8	86·9	80·6	+0·5	70·0	75·1	77·4	74·2
	Waltair	226	29·563	29·453	·110	29·508		·674	87·9	78·0	9·9	91·5	75·5	16·0	84·7	84·8	82·2		75·4	78·4	78·6	77·5
Hill Station, Baluchistan.	Quetta	5,502	24·644	24·558	·086	24·593	+·037		86·7	48·6	38·1	94·5	39·5	55·0	78·5	83·5	66·9	+0·3	44·3	56·3	57·5	52·7
Hill Stations, Northern India.	Leh	11,503	19·771	19·650	·121	19·719	+·033		72·2	41·1	31·1	78·2	34·9	43·3	61·3	68·9	56·3	+2·5	37·2	46·8	52·1	45·4
	Srinagar	5,204	24·835	24·747	·088	24·783	−·004		80·3	59·3	21·0	89·0	54·0	35·0	69·0	78·6	69·4	+3·7	57·4	65·4	72·5	65·1
	Simla (Ridge)	7,224	23·136	23·075	·061	23·098	+·018		65·4	57·9	7·5	67·4	55·1	12·3	62·8	63·1	60·9	−0·6	56·2	60·1	61·2	59·2
	Chakrata	7,022	·290	·237	·053	·256	+·010		67·3	59·0	8·3	70·5	55·8	14·7	64·4	63·6	62·0	+0·3	58·3	62·6	62·6	61·2
	Ranikhet	6,069	24·096	24·016	·080	24·042	+·012		72·6	60·9	11·7	75·4	57·0	18·4	68·1	68·9	65·6	+0·1	59·7	64·3	65·2	63·1
	Muktesar	7,600	22·870	22·796	·074	22·833			69·7	56·4	13·3	73·1	52·8	20·3	65·0	64·1	61·6		55·4	61·6	61·2	59·4
	Katmandu	4,388	25·647	25·555	·092	25·604	?		81·6	66·9	14·7	85·2	64·7	20·5	75·3	77·0	73·1	−0·5	65·6	69·6	71·0	68·7
	Darjeeling	7,376	23·040	22·989	·051	23·018	+·023		65·7	56·5	9·2	69·4	55·0	14·4	62·8	64·0	60·7	+2·0	56·2	61·3	62·6	60·0
Hill Stations, Central India.	Mount Abu	3,945	25·991	25·917	·074	25·953	−·005		75·3	65·7	9·6	80·7	61·4	19·3	72·3	73·2	70·0	+0·9	62·8	66·9	67·8§	65·9
	Pachmarhi	3,528	26·379	26·289	·090	26·335	+·003		76·6	67·2	9·4	81·6	64·2	17·4	72·7	73·6	70·7	+0·2	66·3	69·3	70·4	68·7
	Chikalda	3,612	·245	·145	·100	·196	−·020		73·9	65·7	8·2	79·2	63·9	15·3	70·4	72·1	68·9	0	64·9	68·8	69·9	67·9
Hill Stations, South India.	Kodaikanal	7,688	22·814	22·734	·080	22·774			62·2	52·9	9·3	66·0	50·8	15·2	59·5	57·3	56·2		51·2	56·2	56·0	54·3
	Ootacamund		23·042	·964	·078	23·003			63·4	52·8	10·6	67·9	49·1	18·8	60·3	58·9	57·0		52·5	57·2	56·8	55·2
	Dodabetta		21·995	21·936	·059	21·966			56·9	48·4	8·5	60·8	41·7	19·1	55·1	53·4	51·8			52·0	51·4	
Extra India.	Aden	94	29·742	29·595	·147	29·662	−·016	·685	93·6	83·2	10·4	96·7	78·4	18·3	89·6	91·8	88·1	+1·0	75·2	81·8	79·6	78·9
	Perim	201	·616	·486	·130	·544	−·010	·674	94·3	84·1§	10·2	99·3	81·2	18·1	90·3	91·3	88·5§	−0·1	75·6	81·5	80·7	79·2
	Minicoy	7	·949	·886	·063	·920		·852	85·3			87·1			82·7	81·9				77·6	77·0	
	Zanzibar	73	30·091§	·975	·116	30·033	+·014	30·032§	82·1	72·7	8·4	85·0	70·8	14·2	77·8§	80·7	77·6	+0·1	68·6	73·6§	72·9	71·8
	Port Victoria (Seychelles)	15	·011	·921	·090	29·966	−·014	29·905	81·3	73·3	8·0	82·5	68·5	14·0	80·0	80·9	77·2	−1·8	71·3	74·0	74·3	73·2
	Mauritius (Pamplemouses)	181				30·005	−·005	30·136				80·5	55·4	25·1			68·4	−1·0				62·7

† Mean of 26 days.

‡ Mean of 27 days.

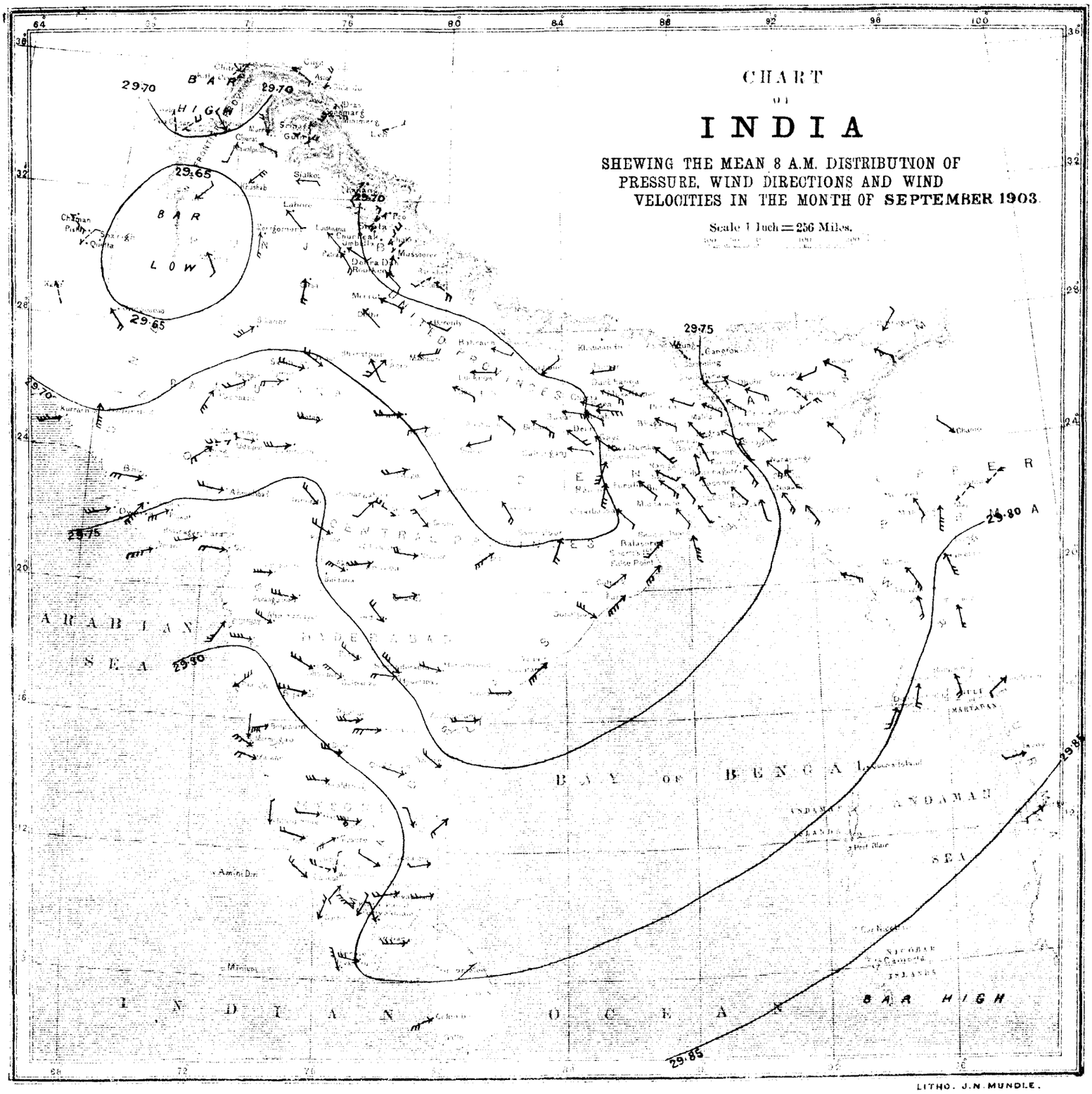
II—*concluded.*

in India, Burma, etc., for September, 1903—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
																									%	%						
·696	·716	·735	·726		88	62	66	73		5·4	9·2	7·3		11	15	3	4	2	12	2	6	5	N 32° W		12		65*		2·36	0·41	Periyakulam	South India.
·742	·811	·821	·791	+·045	90	75	68	78	+ 6	7·6	8·0	7·8	+2·2	14	7				5	20	11	3	S 70° W	S 63° W	48	69	66*	82	9·81	1·77	Salem	
·649	·678	·669	·665	+·073	92	74	66	77	+ 8	7·9	7·3	7·6	−0·1					1		6	31	22	N 78° W	N 87° W	85	78	163*	228	7·19	1·44	Chitaldroog	
·617	·668	·662	·649	+·046	95	79	69	81	+ 5	8·1	8·2	8·2	+1·9		5	1	1		1	8	22	22	N 71° W	S 85° W	73	84	165*	167	18·71	3·91	Bangalore	
·606	·637	·650	·631	+·053	63	73	76	71	− 5	8·1	8·9	8·5	+0·6	1	1					10	33	15	N 85° W	N 79° W	85	79	72*	91	9·16	1·75	Hassan	
·639	·651	·661	·650	+·055	96	71	67	78	+ 7	9·0	9·1	9·1	+1·5	1	2	2	2	1		17	24	11	S 88° W	N 87° W	67	68	205*	266	8·14	1·33	Mysore	
	·892	·921	·923	+·100		75	76	85	+12	5·8	5·7	5·8	−0·3		4	2	4	5	5	14	17	9	S 75° W	S 36° W	42	52	108	149	9·66	2·51	Madras	
·691	·791	·827	·770	+·116	83	72	65	73	+ 9	7·8	8·2	8·0	+0·5		5	1			1	5	24	24	N 67° W	N 78° W	78	75	219*	223	4·60	1·31	Bellary	
·848	·894	·898	·880		89	75	75	80		7·9	8·0	8·0				1	5	7	17	30			S 14° W		73		96		5·71	1·16	Waltair	
·257	·226	·207	·230	−·022	73	23	18	38	− 1	0·2	0·4	0·3	−0·2	31	3	1	1		1	4	6	13	N 61° W	N 60° W	32	42	22*	62	0	0	Quetta	Hill Station Baluchistan.
·193	·200	·251	·215	+·043	73	36	35	48	+ 7	1·5	2·1	1·8	−2·3		1	5	4	3	16	17	14		S 33° W	S 58° W	50	39	42	42	0·03	0·02	Le	Hill Stations, Northern India.
·454	·589	·738	·594	+·101	89	82	75	82	+ 4	2·6	2·4	2·5	−1·1	4	5	2	2	9	6	3	8	21	N 66° W	N 24° W	28	12	73*	76	3·54	1·76	Srinagar	
·437	·495	·522	·485	+·044	90	86	90	89	+11	8·8	9·7	9·3	+3·5	25	15	3		3	12		1	1	N 35° E	N 13° E	7	30	49*	99	6·93	1 39	Simla (Ridge)	
·484	·549	·560	·531	+·059	97	90	94	94	+10	5·1	3·1	4·1	−2·2	6	3	1		9	41				S 9° E	S 73° W	73	37	191*	128	9·27	4·90	Chakrata	
·505	·561	·587	·552	+·044	94	82	83	86	+ 5	7·8	7·6	7·7	+1·7	26	2	2		1		13	16		S 74° W	S 55° W	40	37	60*	52	5·22	0·99	Ranikhet	
·430	·516	·515	·487		94	83	86	88		8·2	8·0	8·1		20	1	1	7	13	5	4	1	8	S 38° E		20		132*		4·02	1·57	Muktesar	
·619	·660	·695	·659	+·028	93	75	75	81	+ 2	5·7	6·6	6·2	−0·1		2	1	17		3		37		S 89° W	N 80° W	32	14	22	17	11·58	2·22	Katmandu	
·450	·528	·557	·512	+·034	98	92	93	94	0	7·3‡	7·0	7·2	−1·1	9	1	2	2	5	4	15	12	10	S 69° W	S 58° E	40	6	73*	85	10·33	1·86	Darjeeling	
·543	·601	·620§	·588	+·041	86	77	77§	80	+ 3	6·7	6·7	6·7	+1·3		4	8	1	5	3	19	14	6	S 74° W	S 73 W	37	34	198*	183	4·89	2·43	Mount Abu	Hill Stations, Central India.
·638	·680	·704	·674	+·050	96	85	85	89	+ 7	8·4	8·9	8·7	+1·5	7	3	10		1		3	6	30	N 37° W	N 59° W	60	45	206*	145	21·45	4·68	Pachmarhi	
·607	·687	·710	·668	+·039	95	92	90	92	+ 3	7·6	7·6	7·6	+0·2	38	9							13	N 29° W	N 23° W	34	66	169*	244	18·92	2·77	Chikalda	
·362	·421	·438	·405		90	83	93	89		7·8	9·6	8·7		1	7	1	1	1	1	1	8	37	N 46° W		75		314		9·73	1·22	Kodaikanal¶	Hill Stations, South India.
·381	·441	·444	·422		95	84	89	89		8·2	9·4	8·8		12	4	2	1		1	7	22	11	N 77° W		55		96*		8·35	1·15	Ootacamund	
	·358	·362				82	83			6·0	8·8	7·4		6	1	2			2	19	21	9	S 80° W		67		238		8·31	0·90	Dodabetta	
·770	·986	·850	·869	+·020	68	71	57	65	− 1	2·1	0·9	1·5	−0·8	5	2	5	10	19	3	14		2	S 39° E	S 23° E	42	50	153*	220	0	0	Aden	Extra India.
·779§	·964	·913	·888	+·041	64§	68	62	65	+ 3	0·4	1·3	0·9	−1·9		2	11	5	13	2	7	6	14	N 17° E	N 42° E	7	28	228*	276	0·80	0·71	Perim	
	·882	·866				79	79			6·3	7·1	6·7			5						14	41	N 52° W		92		214* †		11·50	2·91	Minicoy	
·632	·785§	·709	·708	−·019	76	82§	68	75	− 3	5·8§	5·3	5·6	+0·8	1		1		16	24	15	2		S 1° W	E	75	63	167*	138	2·23	1·09	Zanzibar	
·748	·763	·766	·759	+·006	91	74	72	79	+ 4	6·3	6·2	6·3	+0·7			2		36	18	3	1		S 28° E	S 41° E	84	90	296	292	3·00	1·65	Port Victoria (Seychelles).	
			·485	−·029				70	− 2			6·4	+0·8										S 67° E	S 71° E			305	286	1·72	0·36	Mauritius (Pamplemonses).	

* Corrected. § Mean of 29 days. ‡ Mean of 28½ days. ¶ Wind variable 2.

G. I. C. P. O.—No. 766 Meteor.—10 2·04—385.

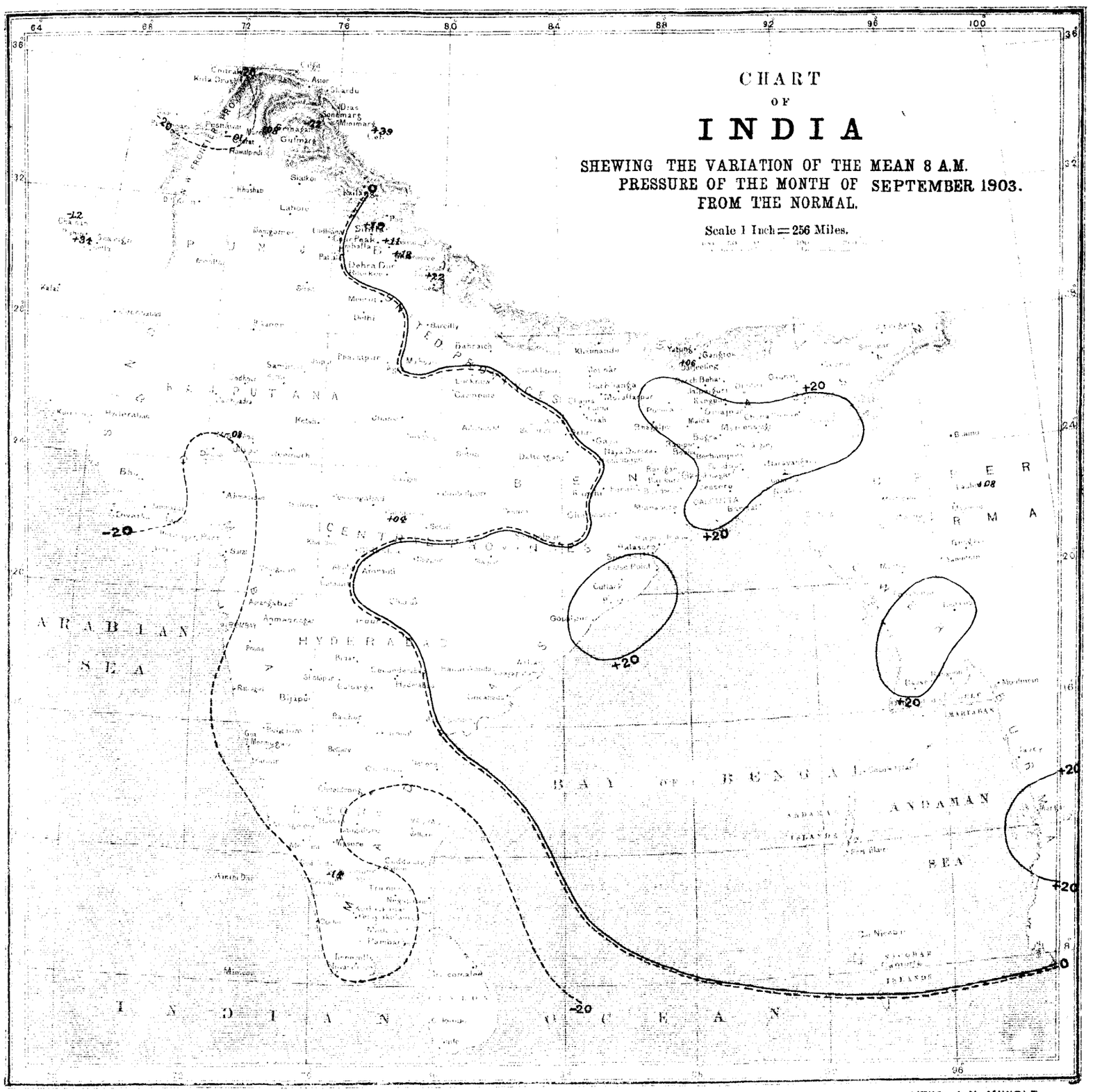


Explanation.

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 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. 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.

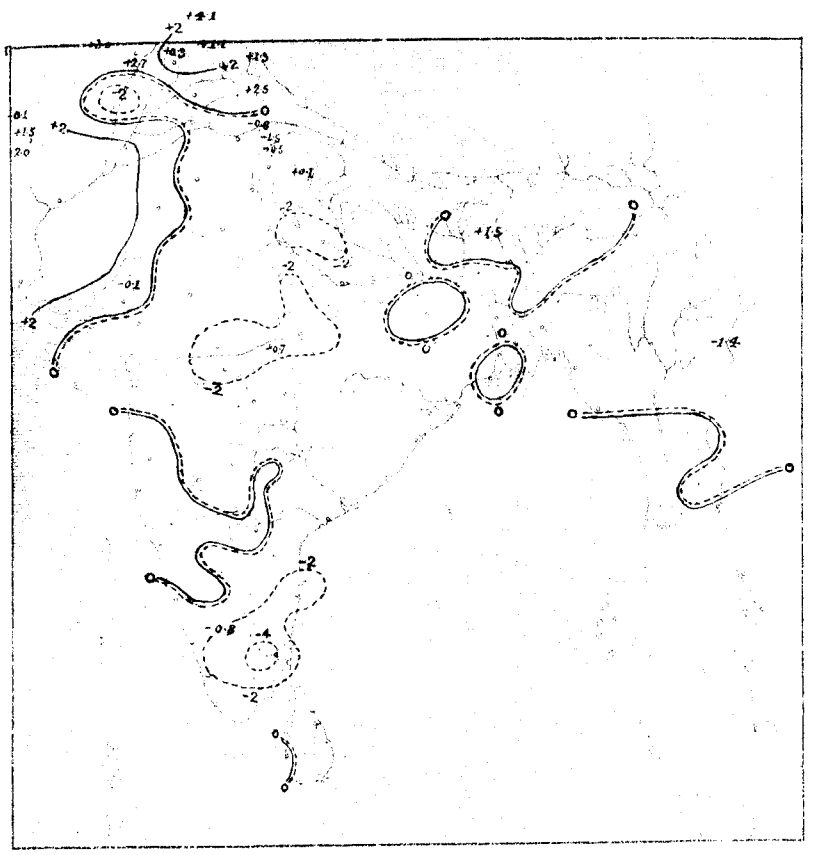
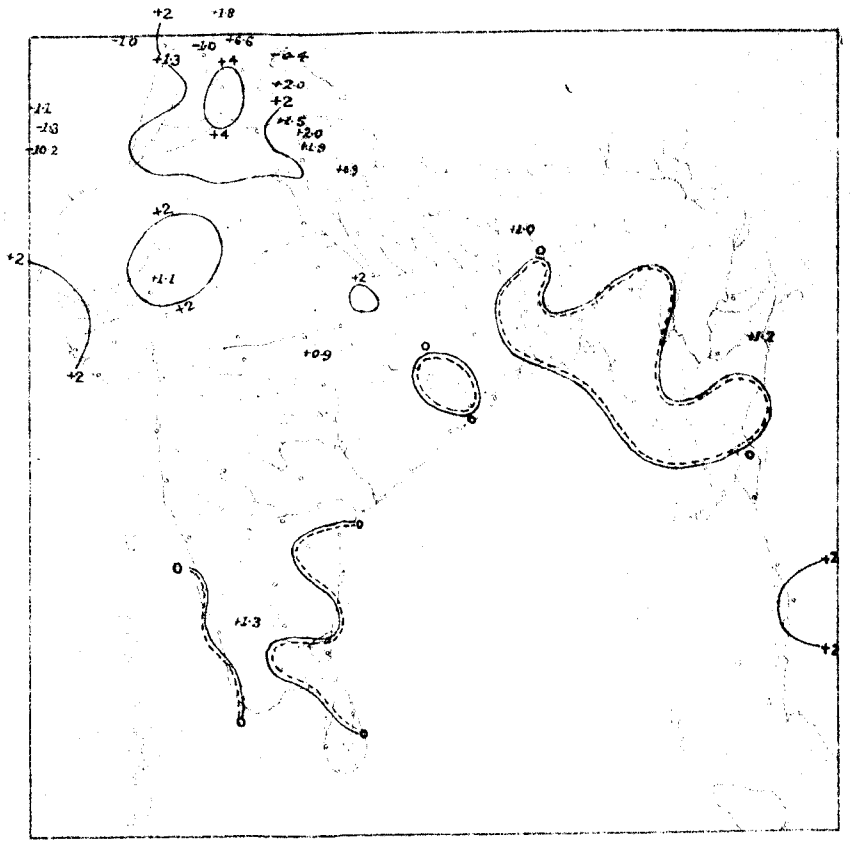


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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 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 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.

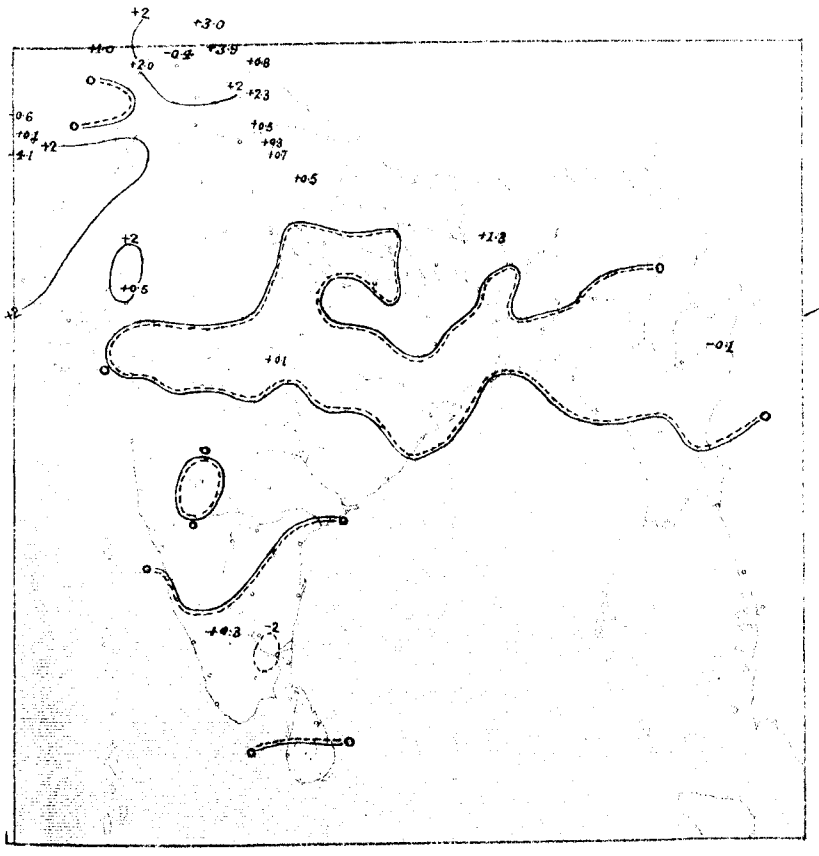
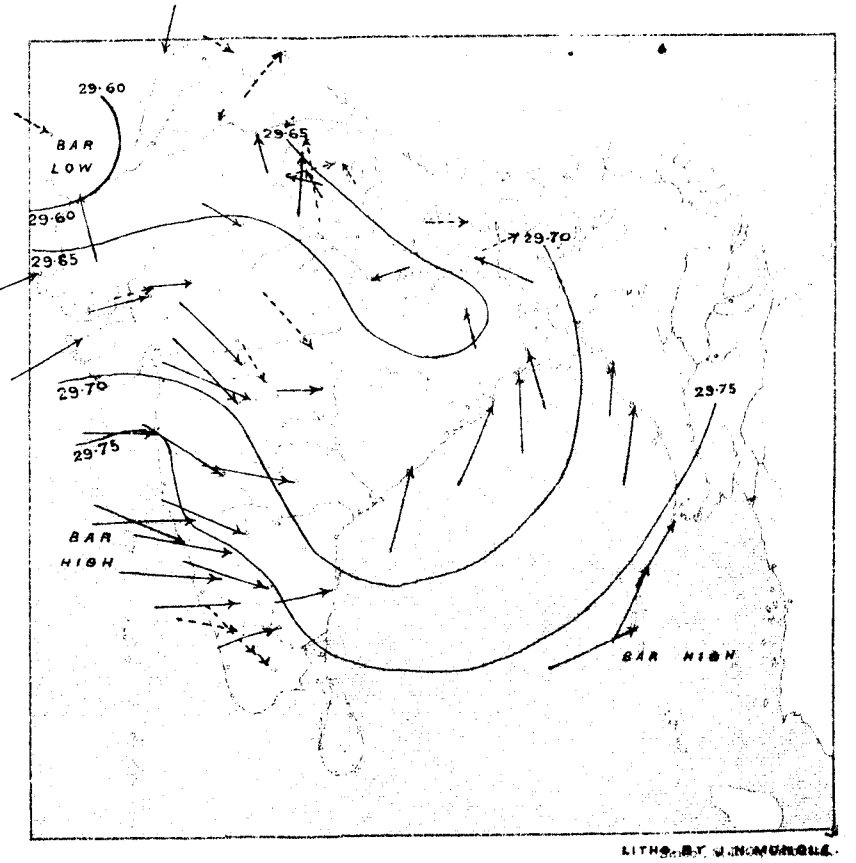


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF SEPTEMBER 1903.



No. 184, Wr. [illegible]

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 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 $\frac{1}{10}$th of an inch being equal to 100 per cent.

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN ABSOLUTE HUMIDITY OF THE MONTH FROM THE NORMAL.

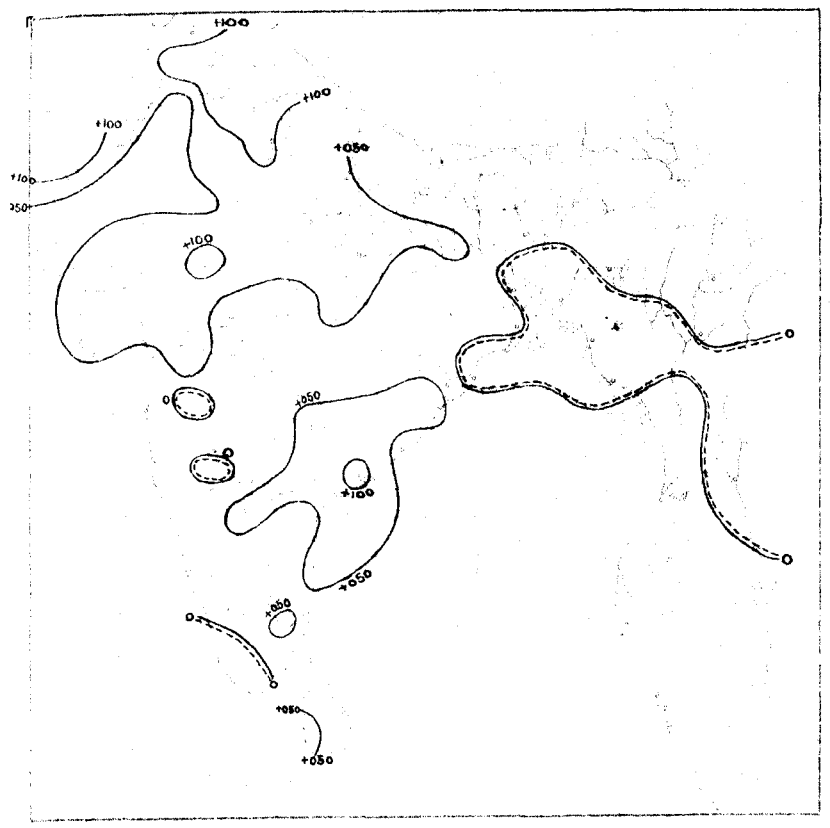
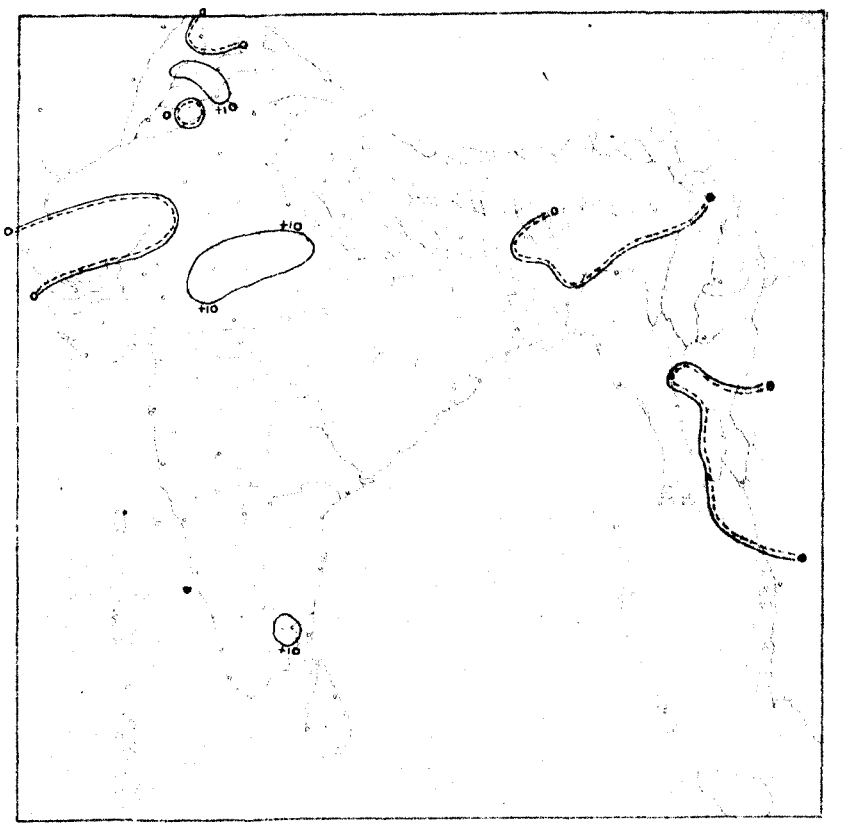


CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN RELATIVE HUMIDITY OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN CLOUD AMOUNT OF THE MONTH FROM THE NORMAL.

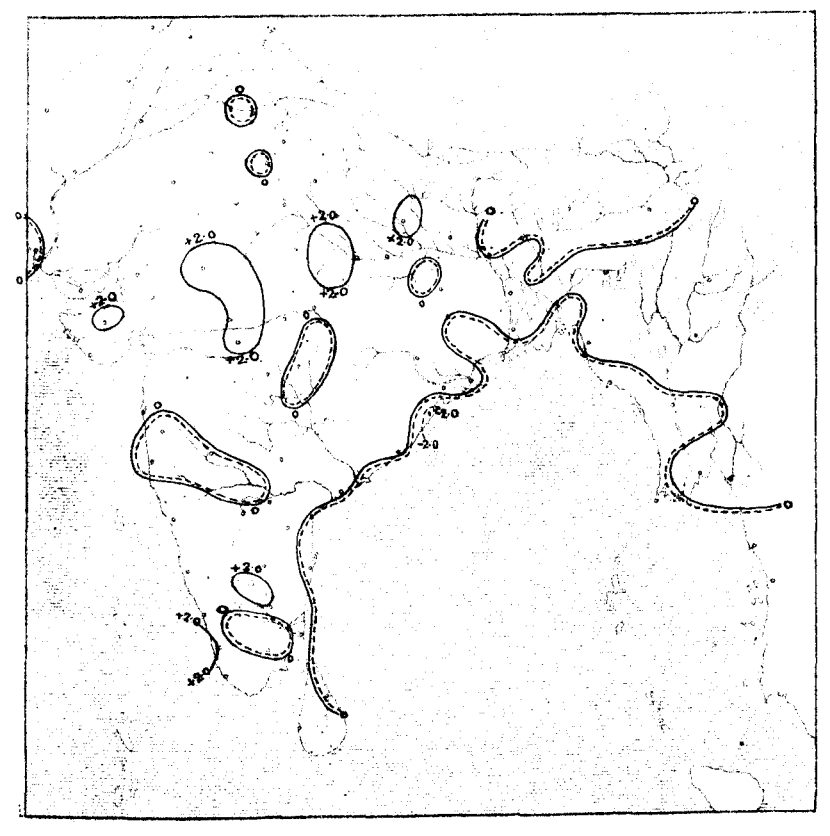
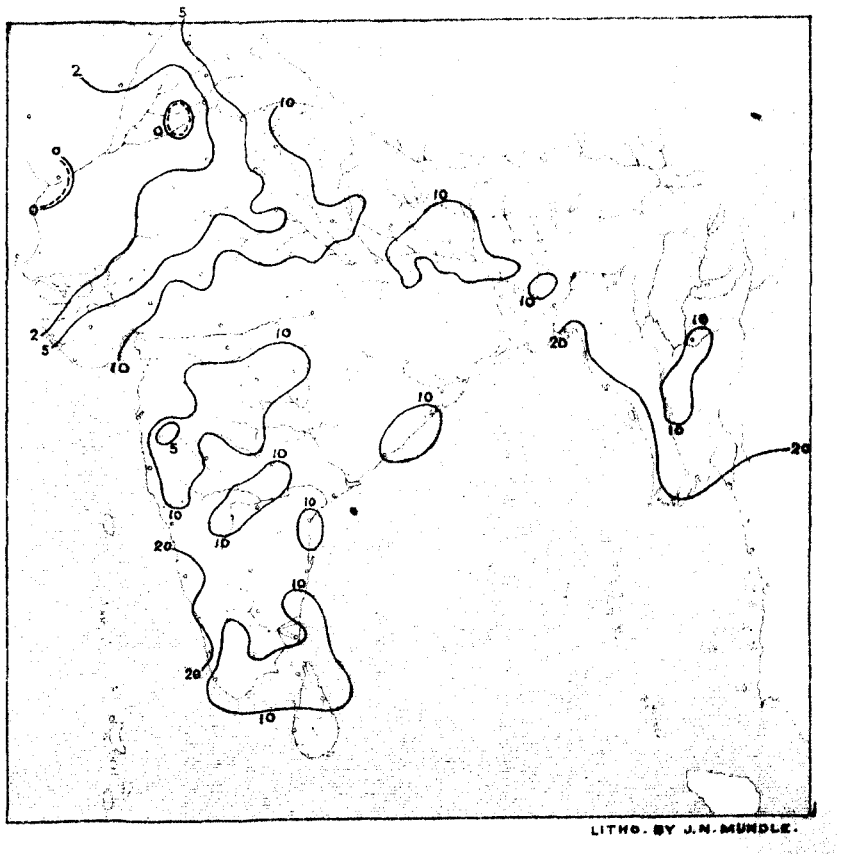


CHART SHEWING THE TOTAL NUMBER OF RAINY DAYS IN THE MONTH OF SEPTEMBER 1903.



LITHO. BY J.N. MUNDLE.

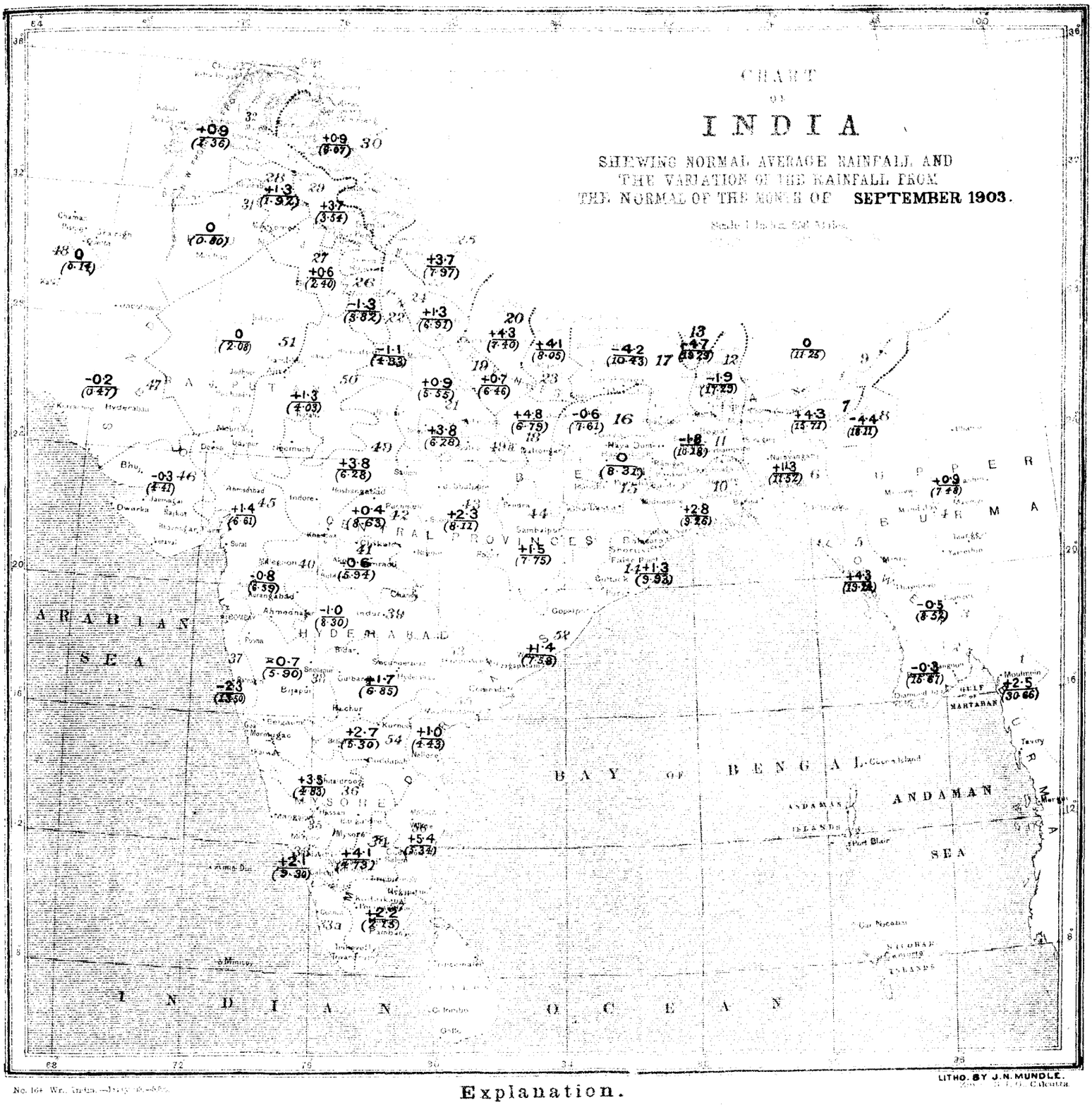
Explanation.

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

A rainy day is one on which 0·10 inch or more of rain is received within 24 hours.

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. G.I.O. Calcutta

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. 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. West Punjab
32. North West Frontier Province
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 and Cutch
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
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, OCTOBER, 1903.

INTRODUCTION.

THIS review of the weather in India during the month of October, 1903, is based on observations taken daily at 8 A.M. at 231 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 64 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, 1903.

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 local storms, begin to appear in north-west India, and the first falls of snow ordinarily take place over the higher peaks of the north-west Himalayas during this month.

The weather over India during the month of October 1903 was exceptional in several respects. This exceptional weather was largely attributable to the absence of monsoon winds over the Arabian Sea, to the remarkable track of the cyclonic storm between the 5th and the 12th, and to the very quiet weather which prevailed between the breaking up of the first and the appearance of the second cyclonic storm of the month. Towards the close of the month meteorological conditions apparently became more settled and the second cyclonic storm followed a fairly normal course.

At the commencement of the month a small and shallow depression lay over the Central Provinces and rain was falling over the greater part of the Peninsula, south-west and west Bengal and the east Gangetic plain. These conditions continued during the 2nd, 3rd and 4th, and during these four days the mean temperature was lower than usual over the Peninsula, the central parts of India and the Gangetic plain. The deficiency of temperature was not generally very large or important over the Peninsula, except in the Madras Deccan

but in the Gangetic plain it was considerable, as is shown by the following comparative data of mean temperature:—

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.
	°	°	°	°
Orissa	−1·5	−1·6	−0·6	−0·2
Bihar	+0·4	+0·6	−0·7	+1·0
Chota Nagpur	−3·1	−1·1	+0·2	+0·8
United Provinces of Agra and Oudh.	+2·0	−2·3	−4·4	−3·4
Central India	+1·4	−0·5	−2·3	−1·6
Central Provinces	+0·2	−0·3	−0·7	−0·4
Berar	+2·1	+0·8	−1·3	−0·6
West Coast	+0·6	−0·3	−2·0	−1·0
Bombay Deccan	+0·1	+0·1	−2·9	−2·7
Mysore	−2·3	−1·1	−2·4	−2·4
Madras Coast	−0·8	−1·2	−1·6	−1·9
Madras Deccan	−1·1	−1·0	−2·6	−3·4
South India	−0·3	−2·0	−1·9	−1·9

During these four days there occurred a fall of rain over Kashmir and part of the Punjab—practically the only rainfall of the month in this area—and the mean temperature, which was very high at the beginning of the month, fell decidedly during the 2nd, 3rd and 4th. The following gives data for Kashmir, the Punjab, the North-west Frontier Province and Baluchistan:—

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.
	°	°	°	°
Kashmir	+6·7	+0·1	+1·1	−1·3
Punjab	+4·8	+3·4	+0·4	+0·4
North-west Frontier Province.	+3·4	+3·2	+2·3	−0·6
Baluchistan	+3·5	−1·6	−2·1	−1·8

On the morning of the 5th a cyclonic storm, which was the most remarkable meteorological feature of the month, was crossing the Orissa and Ganjam coasts. The storm passed north-westward or west-north-westward from Orissa through the east of the Central Provinces and the east of Central India into the west of the United Provinces. Its westward advance then ceased and it retreated first to east and then to south-east till it disappeared over the east of the Central Provinces. The following are the approximate positions of the centre at 8 A.M. on each day:—

DATE.	POSITION OF CENTRE.		Direction of movement.	Rate of movement. Miles in 24 hours.
	Lat. N	Long. E		
October 5th	19° 40′	86° 20′	...	...
Do. 6th	21° 10′	85° 5′	North-west	140
Do. 7th	23° 5′	82° 10′	West-north-west	215
Do. 8th	24° 0′	80° 0′	Ditto	160
Do. 9th	25° 15′	78° 5′	North-north-west	170
Do. 10th	25° 40′	79° 45′	East-north-east	110
Do. 11th	24° 45′	81° 0′	South-east	140
Do. 12th	23° 5′	81° 20′	South-south-east	150

The storm tied itself in a loop over the United Provinces and finally disappeared, after 8 A.M. on the 12th, in approximately the same position it occupied on the 7th. The rainfall accompanying the storm was heavy and continuous, but was somewhat sharply confined to the storm area. The following were the heaviest falls, exceeding 8″ in 24 hours, recorded during the existence of the storm:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
SHAHJAHANPUR	Jalalabad	9th October	8·26
ETAH	Aliganj	10th "	13·34
SHAHJAHANPUR	Shahjahanpur	" "	13·31
HARDOI	Shahabad	" "	12·07
SHAHJAHANPUR	Jalalabad	" "	11·62
FARRUKHABAD	Farrukhabad	" "	10·86
SHAHJAHANPUR	Pawayan	" "	10·83
	Tilhar	" "	10·73
BUDAUN	Dataganj	" "	10·16
HARDOI	Hardoi	" "	9·98
BAREILLY	Faridpur	" "	8·85
KHERI	Muhamdi	" "	8·10

This heavy rainfall reduced temperature to largely below the normal—more particularly over the United Provin-

ces—between the 8th and the 11th. The following gives comparative temperature data for all the divisions in the Peninsula and central and north-east India from the 6th to the 12th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	6th Oct.	7th. Oct.	8th Oct.	9th Oct.	10th Oct.	11th Oct.	12th Oct.
	°	°	°	°	°	°	°
Assam	+1·2	−1·4	+0·6	+0·8	+1·3	+0·8	+1·2
Bengal	−0·8	−2·8	−0·3	−0·5	+0·4	+1·0	+1·2
Orissa	−2·0	−2·7	−3·8	−2·0	−1·8	+1·5	+2·4
Bihar	+0·8	−4·0	−3·0	−0·3	−1·1	+0·6	+1·8
Chota Nagpur	−0·1	−2·0	−2·7	−2·3	−0·6	+1·2	+0·2
United Provinces of Agra and Oudh.	−2·2	+0·6	−2·6	−3·5	−5·5	−4·3	−0·4
Central India	−1·8	−0·1	−1·7	−1·4	−2·2	−3·9	−2·4
Central Provinces	−1·3	−0·9	−2·6	−2·5	−1·4	−1·7	−0·5
Berar	−1·1	−0·7	+1·0	+0·1	−2·4	−3·2	−0·6
West Coast	−0·7	−0·1	−0·4	−0·9	−1·3	−1·5	−1·6
Bombay Deccan	−1·4	−1·8	−0·9	−2·6	−2·0	−1·2	−0·7
Mysore	−3·3	−2·3	−2·1	−2·0	−1·7	−2·4	−1·2
Madras Coast	−1·6	−1·0	−0·2	+1·0	+1·3	+2·4	+2·4
Madras Deccan	−6·4	−5·0	−3·0	−3·1	−1·0	−0·4	−0·2
South India	−0·7	+0·1	+0·2	+0·6	+0·7	+1·3	+0·5

The principal depression of temperature was shown in the day or maximum readings which were over 15° below the normal at the following places on the following dates:—

Date.	Station.	Maximum temperature.		
		Actual, of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
7th October	Hyderabad (Deccan)	72·8	88·7	−15·9
8th "	Cawnpore	77·7	93·0	−15·3
	Lucknow	77·2	92·3	−15·1
9th "	Agra	75·0	94·9	−19·9
	Mainpuri	75·8	94·7	−18·9
	Jhansi	75·6	94·4	−18·8
	Bareilly	74·3	90·9	−16·6
10th October	Agra	73·5	94·8	−21·3
	Bareilly	70·8	90·8	−20·0
	Mainpuri	76·3	94·5	−18·2
	Meerut	74·4	92·3	−17·9
	Delhi	76·2	93·7	−17·5
	Jaipur	80·7	96·8	−16·1
11th "	Jhansi	75·1	94·2	−19·1
	Nowgong	73·0	91·7	−18·7
	Mainpuri	76·3	94·4	−18·1
	Bareilly	73·8	90·7	−16·9
	Agra	78·5	94·7	−16·2
	Lucknow	76·2	92·1	−15·9

The rainfall from this depression did not extend north-westward over the plains of India beyond Delhi and Jaipur, and, though the mean temperature over north-west India fell, in sympathy with the large fall taking place over the central divisions, it was practically never below the normal in this area. The following gives comparative data for north-west India from the 6th to 12th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	6th Oct.	7th Oct.	8th Oct.	9th Oct.	10th Oct.	11th Oct.	12th Oct.
Punjab	+1·4	+2·0	+2·9	+2·1	+2·3	+2·5	+2·7
North-west Frontier Province	+1·1	+2·0	+1·7	+1·8	+1·7	+3·4	+1·0
Sind	+1·7	+2·2	+2·6	+3·4	+2·2	+2·6	+0·9
Rajputana	+1·8	+1·1	+1·9	+0·2	−2·9	+0·4	+1·9

From the 13th to the 25th the weather was very quiet, and, though rain fell over Burma and the south of the Peninsula between those dates, there was no serious or general disturbance of the weather. In consequence the mean temperature was generally higher than usual over the greater part of the country.

On the 25th a storm commenced to develop in the extreme south-west of the Bay and rain fell along the Madras coast with a sudden decrease of temperature. This change is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	23rd Oct.	24th Oct.	25th Oct.	26th Oct.
	°	°	°	°
Madras Coast	+1·7	+0·1	−1·9	−2·0

The storm advanced northward over the south-west of the Bay during the 26th and 27th, but was of very slight intensity on those two days. On the 28th it developed, and a well-marked centre lay over the west of the Bay in about the latitude of Madras. The storm crossed the Madras coast in the neighbourhood of Waltair between 10 A.M. and 4 P.M. of the 29th, and thence passed north-eastward parallel to the coast, and broke up over Orissa on the 31st. General rain accompanied the storm in its progress north-eastward and temperature fell quickly as the rainfall extended, and recovered briskly as the precipitation ceased. The following gives comparative temperature data for the Madras coast and for north-east India from the 28th to the 31st.

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	28th Oct.	29th Oct.	30th Oct.	31st Oct.
	°	°	°	°
Assam	+2·5	+2·8	−0·2	−3·5
Bengal	+1·6	+3·8	−0·9	−0·1
Orissa	−1·4	−1·7	+1·9	+2·6
Bihar	+0·5	+2·3	−0·6	−4·8
Chota Nagpur	−1·9	+2·2	−3·2	−2·6
Madras Coast	−4·1	−6·1	−1·0	+2·3

The principal meteorological features of the month were hence the cyclonic storm with its accompanying heavy rainfall and low temperature of the 5th to 12th, the fine quiet weather and generally high temperature of the 13th to the 25th, and the cyclonic storm, rainy weather, and low temperature of the last four days of the month.

Pressure:—The mean pressure of the Indian land area was below the normal by amounts which averaged 0·054″. Relatively to this general condition pressure exceeded the normal over north Bombay, the west and south of the Peninsula, the south of the Bay, Burma, Assam and part of Bengal, and was in defect over other parts of the country. The excess was greatest over Tenasserim and the deficiency greatest over the east of Central India and of the Central Provinces, though it was also considerable over the North-west Frontier Province. Pressure was in slight defect over the north of the equatorial belt, but was in slight excess at Mauritius.

The barometer, on the mean of the month, was below the normal at the hill stations throughout India, but the pressure deficiency at the level of the hills was generally less than that at the neighbouring plains stations, so that the vertical pressure anomalies were generally positive.

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 October, 1903.	Pressure anomaly, October, 1903.
	″	″
Burma Coast and Bay Islands	−·026	+·078
Burma Inland	−·037	+·017
Assam	−·050	+·004
Bengal and Orissa	−·060	−·006
Gangetic Plain and Chota Nagpur	−·070	−·016
Upper Sub-Himalayas	−·055	−·001
Indus Valley and North-West Rajputana	−·063	−·009
East Rajputana, Central India, and Gujarat	−·057	−·003
Deccan	−·066	−·012
West Coast	−·030	+·024
South India	−·048	+·006

Temperature:—The mean maximum temperature of the month was in slight to considerable excess of the normal over the greater part of north-west India and in slight excess over north-east India. The excess was large in upper Sind (Jacobabad + 4°·5), and at the foot of the north-west Himalayas (Rawalpindi + 4°·8), and moderate in part of north-east India (Dhubri + 2°·2). In practically all other parts of the country the mean maximum temperature was in defect, the deficiency having been greatest over the Gangetic plain (Nowgong − 6°·8 and Lucknow − 5°·7) and moderate over the interior districts of the Peninsula. The mean day temperature was also in defect over Burma, the deficiency amounting to 2° or over at Yamethin, Minbu and Diamond Island.

At most of the hill stations the mean maximum temperature was in excess of the normal.

The mean minimum temperature of the month was below the normal along the west coast, over the Bombay Deccan and Mysore, and over part of central Burma, but was higher than usual elsewhere. The excess was greatest in the north-west and amounted to 5°·7 at Sialkot, to 4°·2 at Lucknow and Mainpuri, to 4°·7 at Ajmer, and to 4°·1 at Lahore.

The mean minimum temperature exceeded the normal at all the Himalayan hill stations except Murree as well as at Mount Abu and at Pachmarhi, but was lower than usual at Quetta and Wellington.

The variations of the mean temperature of the month from the normal exhibited a deficiency of temperature over a broad band of country extending over the United Provinces, the Central Provinces, the Deccan and the west of the Peninsula. Within this broad band the deficiency was generally moderate or slight, but amounted to 2°·4 at Jhansi, to 2°·0 at Nowgong, to 1°·7 at Raipur and Bijapur and to 1°·4 at Ratnagiri. The mean temperature was also lower than usual, though only by small amounts, over Burma.

Over north-west and north-east India and generally along the east coast of the Peninsula the mean temperature exceeded the normal, the excess amounting to 4°·4 at

Rawalpindi and Sialkot, to 3°·2 at Jacobabad and to 3°·1 at Mooltan on the one hand, and to 2° 1 at Silchar on the other.

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

Meteorological Province.	Variation of actual from normal of		
	Mean maximum temperature, October, 1903.	Mean minimum temperature, October, 1903.	Mean daily temperature, October, 1903.
	°	°	°
Burma Coast and Bay Islands	—1·2	+1·0	—0·1
Burma Inland	—1·3	+0·7	—0·3
Assam	+1·3	+1·5	+1·4
Bengal and Orissa	+0·1	+1·3	+0·7
Gangetic Plain and Chota Nagpur	—3·2	+2·4	—0·4
Upper Sub-Himalayas	+0·3	+3·1	+1·7
Indus Valley and North-West Rajputana	+2·2	+2·4	+2·3
East Rajputana, Central India and Gujarat.	—1·3	+2·0	+0·4
Deccan	—2·0	+0·5	—0·7
West Coast	—0·6	—0·3	—0·5
South India	—0·7	+0·2	—0·3

Winds:—The winds in the month of October 1903 were largely modified by the abnormal distribution of pressure. The wind's direction was unusually westerly over the Peninsula and the south of the Bay, while it was, on the other hand, more southerly than the average over the head of the Bay, and more easterly than the average in Chota Nagpur and the Gangetic plain. Pressure differences were somewhat greater than usual and the steadiness of the wind was increased, and the velocity was, on the whole, greater than usual. In the Gulf of Aden the wind direction was normal, but the steadiness and velocity were low, while the south-east trade winds were generally stronger than the average.

Humidity:—The amount of vapour present in the air was slightly less than usual over parts of the west and south of the Peninsula, but was greater than usual elsewhere—most so over the Gangetic plain and over the Indus valley and adjoining districts. The mean relative humidity of the month was approximately normal over the Peninsula and part of north-east India, but was excessive elsewhere. The excess was very large at Sutna (+22) Jacobabad (+19), Cawnpore (+18), Allahabad, Nowgong and Mainpuri (each +17), and Agra (+16). The mean relative humidity was also excessive at most of the outer Himalayan stations, and at Pachmarhi and Wellington, but was less than usual at the stations in the inner Himalayas and at Darjeeling and Mount Abu. In the south-east trades region the mean relative humidity was approximately normal.

The following table gives mean humidity data of the nine meteorological provinces:—

Meteorological Province.	Mean absolute humidity.		Mean relative humidity.	
	Average actual, October, 1903.	Variation of actual from normal, October, 1903.	Average actual October, 1903.	Variation of actual from normal, October, 1903.
	"	"	%	
Burma Coast and Bay Islands	·880	—·008	84	— 1
Bengal and Orissa	·861	+·024	82	+ 1
Gangetic plain and Chota Nagpur.	·722	+·084	76	+ 7
Upper Sub-Himalayas	·531	+·062	60	+ 5
Indus Valley and North-West Rajputana.	·619	+·143	58	+ 7
East Rajputana, Central India, and Gujarat.	·445	+·022	42	— 1
Deccan	·575	—·001	63	0
West Coast	·818	—·010	80	— 2
South India	·677	+·027	75	+ 3

Cloud:—The mean cloud amount of the month was in excess of the normal over the greater part of India and Burma. The excess was large to very large over the central parts of the country and considerable over parts of Burma. It amounted to 4·1 at Sutna, to 3·0 or over at Jubbulpore, Nowgong, Cawnpore, Gorakhpur and Allahabad and to 2·0 or more over west Bengal, Oudh, the east and centre of the United Provinces, the northern districts of the Central Provinces, and at Moulmein. The only important areas of deficiency in the mean cloud amount were north-west India (Pachpadra—1·1), parts of north-east India (Chittagong—1·1) and the Madras coast and the south of the Peninsula (Madura and Trichinopoly each—1·3).

The mean cloud amount was less than usual at the north-western and north-eastern hill stations, but was in excess at the more central stations. At Aden and Perim the sky, on the mean of the month, was clearer than usual and this condition apparently extended as far south as the Seychelles, but at both Mauritius and Zanzibar the mean cloud amount was greater than the average.

The following table gives comparative data of the mean cloud amount for nine meteorological provinces:—

Meteorological Province.	Mean cloud amount.	
	Average actual, October, 1903.	Variation of actual from normal, October, 1903.
Burma Coast and Bay Islands	6·0	+0·5
Bengal and Orissa	5·5	+1·0
Gangetic Plain and Chota Nagpur	5·2	+2·2
Upper Sub-Himalayas	1·0	+0·1
Indus Valley and North-West Rajputana	0·4	—0·6
East Rajputana Central India and Gujarat	1·8	0
Deccan	5·0	+0·9
West Coast	3·6	—0·7
South India	6·9	+0·6

Rainfall:—There was little or no rain over north-west India during the month under review and this absence of rain extended over Kashgar, Baluchistan, Afghanistan, Persia, Asiatic Turkey and Arabia. In all parts of India (except the north-west) and Burma rain was received. The month's fall was excessive in Burma, normal in Assam and was very excessive over Bengal, the United and Central Provinces, Central India, and eastern Rajputana. The month's fall was more than ten times as heavy as usual in the west division of the United Provinces, eight times in the central division, and six times in the two Oudh divisions. The west of the Peninsula received a normal rainfall, but in the east, where the north-east monsoon rains were not established during the month, the total fall was less than usual.

In the south-east trades region the rainfall was considerably short of the normal at the Seychelles and about the average at Zanzibar and Mauritius.

The following gives mean comparative rainfall data of the month for the eleven meteorological provinces of the empire.—

METEOROLOGICAL PROVINCE	RAINFALL.			
	Mean actual for October, 1903.	Mean normal for October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	13·62	8·69	+4·93	+57
Burma Inland	6·78	4·42	+2·36	+53
Assam	5·91	4·41	+1·50	+34
Bengal and Orissa	7·49	5·02	+2·47	+49
Gangetic Plain and Chota Nagpur	9·00	2·63	+6·37	+242
Upper Sub-Himalayas	1·21	0·37	+0·88*	+238
Indus Valley and North-West Rajputana.	0	0·05	−0·05	−100
East Rajputana, Central India and Gujarat.	1·51	0·63	+1·01*	+160
Deccan	5·61	2·73	+2·68*	+98
West Coast	6·86	7·47	−0·61	−8
South India	5·58	7·59	−2·01	−26

* 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:—As is usual at this season of the year the weather was generally fine and quiet over the land area surrounding India to the north, north-west, and west. There was no rain over Kashgaria, Afghanistan, Persia, Asiatic Turkey, and Arabia throughout the month under review and the pressure changes during the month over this large area were generally unimportant. In western Siberia the pressure changes, from day to day, were very large, but they can not be connected satisfactorily with changes occurring over India. On the 1st and 2nd there was an increase of pressure over western Siberia and a decrease over the monsoon area. On the 5th there was an increase—large over western Siberia—which was apparently general over the whole area. This was followed by a general fall of the barometer on the 7th, but, while the fall continued in Siberia during the 8th, 9th, and 10th, a recovery took place on those days over the monsoon area. On the 11th and 12th pressure rose over Siberia while it fell over the monsoon area, and, except on the 20th and 21st, when a general recovery was shown, the barometric changes over the monsoon area during the remainder of the month were generally, though not regularly, the opposite of those in progress over Siberia.

The European charts show that pressure was high over the Mediterranean and Black Sea areas from the 1st to the 8th. Then a depression advanced from the north-west reaching the Black Sea region by the 11th where it disappeared. High pressures were re-established over southern and south-eastern Europe on the 13th and lasted till the 16th. Pressure was low over the Black Sea but high over the Caspian area from the 17th to the 20th and high all over central and south-east Europe and the Caspian region from the 21st to the 29th. On the 30th and 31st a depression was passing eastward along the Mediterranean and breaking down the previously existing high pressures. The barometric movements at Tiflis and Baku agreed fairly closely with the changes in Asiatic Turkey and Persia, but these changes were apparently of the nature of oscillations passing over the whole of that area and the relative distribution of pressure was not thereby disturbed. No barometric depressions advanced into the area under observation and, as is shown in the rainfall section, the weather over the whole of this large area was uninterruptedly fine and rainless throughout the month. In Egypt also the weather during the month was singularly free from disturbance. The valley of the Nile lay on the eastern side of a large anticyclone which oscillated between Morocco and Turkey and the low pressure systems passing around this anticyclone in general passed too far north to affect the weather. Between the 18th and 22nd a centre of low pressure travelled eastward from the Adriatic to the Black Sea giving light warm southerly winds to Egypt, and it is interesting to note that on the 22nd and 23rd there occurred a brisk fall of the barometer over Asiatic Turkey and Persia, though no storm could be traced as entering that region. The mean pressure of Egypt for the month was generally 0·039″ above the normal. Temperature was, on the whole, below the normal especially at night.

The winter northerly and north-easterly winds prevailed in the Delta throughout the month and extended to the Sudan after the 22nd.

In the south-east trades region the meteorological conditions were nearly normal except that the month's rainfall was considerably less than usual at the Seychelles. The following table gives the actual and normal mean wind direction and velocity data together with the rainfall variation for this region:—

STATION.	MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.			
	Actual, October, 1903.	Normal, October, 1903.	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.	Rainfall variation, October, 1903.
	°	°				Inches.
Zanzibar	S 23 E	S 3 E	99	120	−21	+0·04
Seychelles	S 37 E	S 44 E	218	183	+35	−3·40
Mauritius	S 73 E	S 78 E	288	264	+24	+0·02

The preceding data show that the wind was somewhat lighter and more easterly than usual at Zanzibar while it was more southerly and stronger than usual at the Seychelles and Mauritius. The month's rainfall was normal at Zanzibar and Mauritius but was much lighter than usual at the Seychelles.

Pressure was exactly normal at Zanzibar, in trifling defect at the Seychelles, and in trifling excess at Mauritius. This summary shows that the general conditions around the Indian area were approximately normal and that the abnormal conditions of rainfall and pressure over eastern India were probably due to local actions.

The pressure conditions in the south-east trades region, for some time past, have been interesting. Pressure in that area fell to below the normal in April 1902, and has been more or less below ever since. This is shown below :—

Area.	Variation of mean pressure from normal.						
	1902 2nd quarter.	1902 3rd quarter.	1902 4th quarter.	1903 1st quarter.	1903 2nd quarter.	1903 3rd quarter.	1903 October.
South-east Trades Region.	—·015″	—·030″	—·025″	+·003″	—·023″	—·018″	+·001″

The above shows that, except in the first quarter of 1903 when, owing to the extraordinary general excess of pressure in February 1903, the mean pressure was in excess, barometric pressure has been lower than usual from April 1902 to September 1903. The amount of the deficiency was, however, decreasing in the 3rd quarter of 1903 and in October 1903 had apparently disappeared and been replaced by a slight excess.

The following table shows the daily variations of pressure from the normal for various selected stations within the monsoon area :—

PRESSURE VARIATION FROM NORMAL OF

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	″	″	″	″	″	″	″	″	″
1 .	—·057	—·060	0	—·047	+·042	—·011	—·087	—·121	—·043
2 .	—·092	—·149	—·162	—·081	+·008	—·023	—·123	—·125	—·093
3 .	—·142	—·154	—·062	—·086	—·018	—·043	—·090	—·101	—·087
4 .	—·094	—·161	—·075	—·094	—·023	—·037	—·080	—·113	—·085
5 .	—·046	—·144	—·035	—·031	—·013	—·014	—·080	—·099	—·058
6 .	—·037	—·135	—·036	—·024	—·011	—·005	—·048	—·085	—·048

PRESSURE VARIATION FROM NORMAL OF

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	″	″	″	″	″	″	″	″	″
7 .	—·048	—·118	—·062	—·030	—·027	—·028	—·034	—·074	—·053
8 .	—·068	—·175	—·091	—·030	—·041	—·004	—·049	—·037	—·062
9	—·076		—·086	—·015	—·016	+·023	+·017	+·017	—·019
10 .	—·053	·093	—·065	—·007	+·004	+·031	+·028	+·032	—·015
11 .	—·042	—·124	—·081	—·003	—·013	+·022	—·004	—·009	—·032
12 .	—·101	—·098	—·091	—·038	—·024	—·008	—·029	—·021	—·051
13 .	—·080	—·120	—·032	—·052	—·044	—·019	—·023	—·023	—·049
14 .	—·018		—·001	—·065	—·088	—·058	—·041	—·012	—·040
15 .	+·050	—·023	—·010	+·002	—·038	—·029	—·013	+·019	—·005
16 .	+·051	—·052	+·003	+·036	+·019	+·023	—·016	+·003	+·008
17 .	—·044	—·123	—·078	+·008	+·010	+·015	—·066	—·030	—·039
18 .	—·095	—·128	—·116	—·038	—·025	—·026	—·089	—·071	—·074
19 .	—·088	—·165	—·117	—·065	—·075	—·025	—·070	—·066	—·084
20	—·015	—·082	—·038	—·017	—·029	+·026	+·005	0	—·019
21 .	+·054	—·020	—·084	+·031	+·029	+·035	+·016	+·014	+·009
22 .	—·035		—·121	+·029	+·005	+·035	—·045	—·055	—·027
23 .	—·144	—·154	—·171	—·030	+·005	—·043	—·078	—·098	—·089
24 .	—·193	—·141	—·134	—·040	+·005	—·064	—·062	—·072	—·088
25 .	—·034	—·173	—·049	—·030	+·011	—·078	—·023	—·051	—·053
26 .	—·008		—·054	0	+·025	—·043	—·033	—·106	—·031
27 .	—·066	—·161	—·116	—·028	—·011	—·058	—·050	—·105	—·074
28 .	—·038	—·112	—·065	—·028	—·022	—·072	—·031	—·167	—·067
29 .	—·016	—·103	+·032	+·027	+·026	+·014	—·030	—·102	—·019
30 .	+·044	—·095	+·058	+·063	+·029	+·027	—·006	—·018	+·013
31 .	+·071	—·011	+·015	+·071	+·034	+·064	—·009	—·009	+·028

These data show that pressure was in general defect over the greater part of the monsoon area throughout the greater part of the month. The oscillations of pressure were moderate and of short period. Minima were recorded on the 2nd, 8th, 12th, 19th, 23rd, and 27th and maxima on the 6th, 10th, 16th, 21st, 26th, and 31st so that roughly speaking the period of each oscillation was about four or five days only.

It was only on the two last days of the month that any general excess was exhibited.

Magnetic and Solar disturbances.

Kodaikanal.—The Director of the Kodaikanal observatory telegraphed as follows during the month of October 1903 :—

October 3rd :—Very large new spot appeared, 2nd October, eastern limb. Spectrum normal. Chromospheric examination impossible, owing to cloudy sky.

" 6th :—Another very large spot group appeared eastern limb, 5th October, greatly increased to-day. Spectrum observations weak owing to the cloudy sky.

October 26th :—New large spot group just appeared.

" 31st :—On October 30th large new spot on eastern limb ; on 31st another large spot closely following ; both are compact indicating strong local disturbance compared with extensive areas previous two groups. Prominences numerous but small.

The following table gives full information as to spots, faculæ and magnetic disturbances recorded at this observatory during the month under review :—

SOLAR PHYSICS OBSERVATORY—KODAIKANAL.

Spots, Prominences, etc.—October, 1903.

Date of month.	Spots.		Prominences.			Faculæ (groups).	Magnetic disturbances.	Remarks.
	Large.	Small.	Large.	Weather.	Small.			
1	1 group		...	W. U.	...	1 (II)	...	Spots not projected. Cloudy.
2	2 groups		...	W. U.	...	3 (II) ; 1 (III)	Small.	Do.
3	1	3	...	W. U.	...	1 (II)	Small.	
4	1	3	...	W. U.	...	1 (III)	...	
5	3	2	2	...	8	1 (III)	Small.	
6	3	10	...	W. U.	...	1 (I) ; (III)	Small.	
7	2	15	...	W. U.	...	1 (I)	Small.	
8	3	19	3	...	3	1 (II)	Moderate.	
9	8	12	7	...	3	2 (III)	...	
10	8	13	4	...	1	1 (II) ; 1 (III)	Small.	
11	6	15	6	...	2	1 (II) ; 3 (III)	Small.	
12	6	10	5		2	1 (I) ; 1 (II)	Great.	
13	5	12	...	W. U.	...	1 (II)	Great.	
14	6	18	...	...	...	1 (I) ; 1 (II) ; 2 (III)	Moderate.	No big prominence. Sky milky.
15	5	10	...	...	3	2 (I) ; 1 (II)	...	Sky hazy.
16	4	20	...	W. U.	...	3 (I)	...	
17	3	9	...	W. U.	...	1 (I) ; 2 (II) ; 2 (III)	...	
18	2	...	No observation.			2 (I) ; 1 (II) ; 1 (III)	...	Number of small spots uncertain being very near limb.
19	1	3	3	...	...	1 (I) ; 2 (II)	Small.	Sky hazy.
20	1	0	11	...	2	1 (II) ; 1 (III)	...	
21	1	0	...	W. U.	...	...	...	
22	1	7	5	...	1	1 (II)	Small.	Sky hazy.
23	1	1	4	...	2	...	...	
24	1	0	...	W. U.	...	1 (II) ; 1 (III)	...	
25	1	0	No observation.			...	Moderate.	
26	2 groups		...	W. U.	...	2 (II)	Moderate.	Number of spots uncertain being near limb.
27	3	5	...	W. U.	...	...	Small.	
28	1	12	...	W. U.	...	1 (I)	...	
29	3	7	...	W. U.	...	1 (II)	Small.	
30	6	16	5	...	1	1 (II)	Moderate.	
31	6	5	...	W. U.	...	1 (II)	Great.	

NOTE 1.—"W. U." stands for "Weather unfavourable."

NOTE. 2.—The Roman figures under "Faculæ" indicate their relative extent. ; (i) showing that they are very extensive, (ii) that they form a moderately big group and (iii) that they consist only of points and streaks.

The following notes have been supplied by the Director of the Colaba Observatory (Bombay) :—

MAGNETIC DISTURBANCES.

During the month the traces showed 7 calm days, and 18 days of small, 3 days of moderate, 2 days of great, and one day of very great disturbance. The two great disturbances were recorded on the 12th and the 13th and the very great disturbance on the 31st.

The following shows the dates and magnitudes of the magnetic disturbances at Colaba during the month under review :—

October 1903.		October 1903.		October 1903.	
1	S.	11	S.	21	C.
2	S.	12	G.	22	S.
3	C.	13	G.	23	C.
4	S.	14	M.	24	S.
5	S.	15	C.	25	M.
6	S.	16	S.	26	S.
7	S.	17	S.	27	S.
8	M.	18	S.	28	S.
9	C.	19	S.	29	S.
10	C.	20	C.	30	S.
				31	V.G.

The magnitudes of the disturbances are determined from Horizontal Force traces.

C.=Calm; S.=Small; M.=Moderate; G.=Great; V. G.=Very great. Days are reckoned from midnight to midnight.

The selected quiet days of the month were the 3rd, 9th, 15th, 20th and 23rd.

Seismic disturbances were recorded on the 2nd, 10th, 21st, 23rd and 30th, a double disturbance being recorded on the 23rd.

The means of the observed absolute values of the several elements for October and for the previous nine months were as follows :—

Elements.	January, 1903.	February, 1903.	March, 1903.
Declination	0° 18′ 17″ E.	0° 8′ 1″ E.	0° 17′ 58″ E.
Horizontal Force . . .	C. G. S. units. 0·37430	C. G. S. units. 0·37436	C. G. S. units. 0·37442
Dip	21° 40′·7	21° 40′·3	21° 41′·3

ELEMENTS.	April 1903.	May 1903.	June 1903.
Declination	0° 16′ 29″ E.	0° 15′ 8″ E.	0° 16′ 0″ E.
Horizontal Force	C. G. S. units. 0·37431	C. G. S. units. 0·37425	C. G. S. units. 0·37437
Dip	21° 40′·7	21° 41′·0	21° 42′·0

ELEMENTS.	July 1903.	August 1903.
Declination	0° 16′ 36″ E.	0° 15′ 29″ E.
Horizontal Force	C. G. S. units. 0·37439	C. G. S. units. 0·37418
Dip	21° 43′·7	21° 45′·41

ELEMENTS.	September 1903.	October 1903.
Declination	0° 15′ 26″ E.	0° 16′ 48″ E.
Horizontal Force	C. G. S. units. 0·37404	C. G. S. units. 0·37415
Dip	21°45′·3	21°45′·4

The following table gives the ranges of the mean monthly diurnal inequalities of the Horizontal Force and Declination and also Σ ranges or sums without regard to sign of all 24 ordinates of the inequalities for the months from January to October 1903:—

MONTHS.	HORIZONTAL FORCE.		DECLINATION.	
	Range.	Σ Range.	Range in arc.	Σ Range in arc.
	C. G. S.	C. G. S.		
January 1903	·000275	·001646	1′·37	6′·40
February ,,	308	2038	1′·19	4′·82
March ,,	460	2952	2′·12	7′·59
April ,,	491	3232	3′·45	13′·38
May ,,	397	2797	3′·91	15′·53
June ,,	411	2710	4′·64	19′·62
July ,,	419	2868	4′·62	19′·11
August ,,	390	2356	4′·74	18′·90
September ,,	326	1951	5′·06	19′·42
October ,,	·000618	·003186	2′·54	9′·66

The following is an account of the principal features of the—

MAGNETIC STORM OF OCTOBER 31ST TO NOVEMBER 1ST, 1903.

A preliminary small disturbance, with a rise of force, preceded the storm at about 2 A.M., on Saturday the 31st October. About 9 hours later, *i.e.*, at about 11 A. M., the storm began with an abrupt and sudden rise in force equivalent to ·00105 C. G. S. unit. About 15 minutes after the maximum was attained, the force began rapidly to fall, and by leaps and bounds reached its minimum value at about 7-30 P.M.; the total amplitude of the excursion of the needle between the highest and lowest points being equal to ·00825 C. G. S. unit, equivalent to about $\frac{1}{46}$ of the whole force at Colaba. After this the force began to increase, rapidly at first and then gradually; and though the traces evince no signs of active disturbance after 12 noon, November 1st, the normally expected scale value was not reached till the 7th November. The general character of the whole disturbance curve markedly shows the features which are usually noted in the majority of sun-spot and magnetic disturbance curves—a rapid run to maximum of disturbance and a slow and gradual return to the normal.

The following is a note on the disturbance on the telegraph wires as communicated by the Superintendent of Telegraphs, Bombay:—

"Disturbances began at 11 hours (Madras time) and continued till one hour on Sunday morning, the 1st instant. Only the wires running east and west were affected, and not those running north and south. The currents in the wires due to the storm varied, as a rule, from 1 to 6 milliamperes, but occasionally jumped up to ten milliamperes for a few minutes, and they were negative so far as this Office was concerned, up to about 21 hours, when the direction began to vary, and eventually became positive with a strength of about 2·5 milliamperes. Agra and Madras Offices measured as much as 12 milliamperes, and Secunderabad nearly 14 milliamperes."

The Declination and Vertical Force curves, as usual, were not seriously affected. The highest point in the Declination chart was reached at 11-14 A.M., showing a decrease in the easterly Declination of 2′·71 (minutes). The lowest point was attained at 6-29 P.M.—the total range of movement being 20′·16.

The Vertical Force also exhibited similar but even less pronounced movements, which began with a fall in force, the lowest point being reached at 10-54 A.M., while the highest point was attained at 6-31 P.M.—the total range of movement being ·00035 C. G. S.

Mauritius.—The Director of the Royal Alfred Observatory reports that groups of spots were observed on each day between the 3rd and 17th October, and again between the 26th and 30th. Individual spots were also recorded on the 5th and 6th and from the 10th to the 26th. Faculæ were observed between the 4th and the 17th and between the 26th and the 30th.

The magnets were more or less disturbed throughout the month, the times of largest disturbance having been:—

October 11th.—From 17 hours on the 11th to 21 hours on the 14th.

October 29th.—From 14 hours on the 29th to 24 hours on the 31st.

The Director of the Royal Alfred Observatory has not specially mentioned the disturbance which occurred on the last day of the month so that it may have been less remarkable in southern Latitudes than in India.

Atmospheric Pressure.

The mean 8 A.M. pressure of the Indian land area was 0·054″ below the normal. The general anomaly of the whole country was thus in marked contrast with that of October 1902, when the mean variation was +0·077″. The deficiency in the month under review was greater than in the corresponding month of previous

years, the largest negative general anomalies previously recorded in October having been 0·050″ in 1878, 0·041″ in 1882, and 0·033″ in 1894.

Plate I exhibits the actual distribution of pressure, on the mean of the month, over the Indian region. Pressure was low over the Bay area and the east of the Peninsula, and relatively low over the western desert, while it was high along the foot of the north-west Himalayas, over Rajputana, the west of Central India, and the Bombay Deccan, and over Mysore, the south of Ceylon, the south-east of the Bay and Tenasserim. The most important difference between the actual and normal distribution of pressure, omitting the general deficiency, lay in the abnormally westerly position of the Bay area of low pressure. In normal years this area of low pressure covers the greater part of the Bay but only the Madras litoral, while in the month under review the whole of the east of the Bay was excluded, while, on the contrary, the area embraced the whole of the Madras coast, the east of the Central Provinces, west Bengal, and the east of the United Provinces. In consequence there was a very considerable deficiency of pressure over the north-east of the Peninsula and the whole of the central parts of India. The deficiency of pressure shown in the north-west of India extended apparently through Afghanistan into eastern Persia, but disappeared in the west of that country and was replaced by a slight excess in Asiatic Turkey (Baghdad +0·024″). This excess extended westward as far as Egypt where, on the mean of the month, pressure was about 0·039″ above the normal.

In the south of the Indian region the deficiency of pressure, as shown by Plate II, was less than in the more northern regions, and the amount of the deficiency apparently diminished southward and finally disappeared in the south of the south-east trades region, as Mauritius reported an excess of 0·011″.

Compared with the general condition over India, *viz.*, a mean deficiency of 0·054″, pressure was higher than usual over north Bombay, the west and south of the Peninsula, Ceylon, the south and centre of the Bay, Tenasserim, Burma, Assam, and part of Bengal.

The excess was greatest in the south and amounted to over 0·020″ at the stations for which comparative data are given below:—

Province or Division.	Station.	Variation from normal of mean 8 A.M. pressure of October 1903.	Pressure anomaly, October 1903.
		″	″
West and South of the Peninsula.	Trivandrum	—·022	+·032
	Calicut	—·026	+·028
	Tinnevelly	—·027	+·027
	Madura	—·028	+·026
	Cochin	—·028	+·026
	Karwar	—·028	+·026
	Mormugao	—·029	+·025
	Coimbatore	—·031	+·023
	Trichinopoly	—·033	+·021
Ceylon	Colombo	—·030	+·024
Burma	Thayetmyo	—·022	+·032
	Toungoo	—·026	+·028
	Bassein	—·028	+·026
	Rangoon	—·029 ?	+·025 ?
Tenasserim	Mergui	+·002	+·056
	Tavoy	—·015	+·039
	Moulmein	—·029	+·025

Elsewhere over the Indian land area the pressure was lower than usual. The deficiency was considerable to large over the central parts of the country and the north-east of the Peninsula, and considerable in the North-west Frontier Province. The following gives comparative data for those stations at which the deficiency exceeded 0·020″:—

Province or Division.	Station.	Variation from normal of mean 8 A.M. pressure of October 1903.	Pressure anomaly, October 1903.
		″	″
Central parts of the country and north-east of the Peninsula.	Sutna	—·101	—·047
	Jubbulpore	—·097	—·043
	Nowgong	—·097	—·043
	Raipur	—·093	—·039
	Sambalpur	—·089	—·035
	Cawnpore	—·084	—·040
	Benares	—·082	—·028
	Jhansi	—·081	—·027
	Seoni	—·080	—·026
	Allahabad	—·078	—·024
	Ranchi	—·078	—·024
	Saugor	—·078	—·024
	Hoshangabad	—·077	—·023
	Waltair	—·083	—·029
	Cuttack	—·079	—·025
	False Point	—·078	—·024
	Gopalpur	—·075	—·021
	Mooltan	—·077	—·023
	Chaibassa	—·075	—·021
North-West Frontier Province.	Peshawar	—·075	—·021

Pressure was in general defect at the hill stations in India, but at the majority of stations the amount of the deficiency was less than on the neighbouring plains. Consequently the vertical pressure anomalies were generally

positive and in some areas strongly so. The following gives data for ten pairs of stations:—

HILL STATION.	Variation from normal pressure, October 1903.	PLAIN STATION.	Variation from normal pressure, October 1903.	Vertical pressure anomaly (Hill—Plain).
	"		"	"
Quetta	—·006	Jacobabad	—·072	+·066
Leh	—·008	Lahore	—·053	+·045
Murree	—·030	Peshawar	—·075	+·045
Simla	—·022	Ludhiana	—·054	+·032
Chakrata	—·034	Roorkee	—·055	+·021
Ranikhet	—·024	Bareilly	—·060	+·036
Darjeeling	—026	Dhubri	—·051	+·025
Mount Abu	—·047	Deesa	—·050	+·003
Pachmarhi	—·070	Khandwa	—·063	—·007
Wellington	—·032	Coimbatore	—·031	—·001

The following is a brief summary of the chief abnormal features of the pressure distribution during the month under review:—

(1) Pressure was in general defect by amounts averaging 0·054" for the whole country.

(2) Compared with this general condition pressure was in slight to considerable excess over north Bombay, the west and south of the Peninsula, the south-east and centre of the Bay, Burma, Assam and part of Bengal.

(3) Pressure was in relative defect over the north-east of the Peninsula, the central parts of the country and the Indus valley region.

(4) The relative defect was greatest over the east of Central India and the adjacent parts of the Central Provinces.

(5) Pressure was in general defect at the hill stations, but by a smaller amount than at the neighbouring plains stations, so that the vertical pressure anomalies were generally positive.

Barometric depressions and cyclonic storms of the month.

Only two depressions of any importance occurred during the month under review. Both storms were developed over the Bay and in the case of the earlier storm the subsequent track was remarkable.

Cyclonic storm of October 3rd to 12th:—On the 2nd the winds were increasing in force over the Bay blowing from south-west in the south and from south-east and east in the north. The *Collegian* in Lat. 13°46′ N and Long. 85°15′ E reported overcast weather at 8 A.M. and heavy rain at noon; the *Vauxhall Bridge* in Lat. 12°24′ N and Long. 84°35′E reported occasional rain, and the *Satara* in Lat. 11°·36′ N and Long. 84°2 E, reported violent squalls, constant rain, and vivid lightning during the day. The storm apparently formed in the neighbourhood of these vessels probably in about Lat. 16° N and Long. 88° E.

October 3rd.—At 8 A.M. on this day a large area of relatively low pressure overlay the north of the Bay. Within this area the winds were light and variable but were generally south-westerly in the south and south-easterly to easterly in the north. The following gives marine data for the north of the Bay:—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer as corrected by Calcutta Office.	WIND		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	"			
S.S. *Venus*	12 25	84 59	29·744	SW	4	Frequent showers; midnight incessant heavy rain
S.S. *Sutherland*	15 32	86 05	·690	SW	4	Moderate sea and cloudy.
S.S. *Bhundara*	15 51	82 07*	·624	W	6	High head sea and heavy rain.

Noon position.

NAME OF VESSEL.	8 A.M. POSITION.		Barometer as corrected by Calcutta Office.	WIND		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	"			
S.S. *Bharata*	16 10	89 14	29·646	SW by W.	4	Cloudy; noon showery.
S.S. *Vauxhall Bridge*.	16 11	86 09	·650	W by S	4	Slight sea and fine; 4 P.M. showery.
S S. *Elbe*	17 10	88 45	·805			Noon showery.
S.S. *Florican*	17 11	84 51	·635	SW	2	Heavy S. swell and fine; 4 P.M. showery.
S.S. *Maharani*	17 18	92 17	·690	S	3	Dull unsettled; noon occasional showers.
S.S. *Collegian*	17 56	87 01	·605	NW	4	Smooth sea and rainy.
S.S. *Warora*	19 15	86 11*	·634	Calm.	0	4 A.M. hazy.
S.S. *Onda*	19 17	87 18*	608	SE	2	Fine; 8 P.M. heavy rain squalls.
S.S. *Purnea*	19 32	90 02	·629	SE	4	Smooth sea and showery.

* Noon position.

The centre of the depression, which was only of very slight intensity, lay apparently close to the *Collegian* on which vessel a moderate north-west wind and rainy weather were reported.

October 4th.—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.	REMARKS.
	"	"	"					
Akyab	29·705	+·001	−·119	NE	3	5	...	
Chittagong	·683	—·005	−·140	NE	3	4	0·10	Showery.
Barisal	·669	—·015	−·140	NNE	7	2	...	
Calcutta	·683	+·011	−·115	E	3	3	...	
Saugor Island.	·655	+·006	−·137	ENE	9	6	—	
Balasore	·667	—·010	−·140	Calm	3	8	0·15	Raining.
False Point	·641	—·016	−·150	SE	5	8	0·09	
Cuttack	·635	—·032	−·158	ENE	1	7	0·05	
Gopalpur	·620	—·042	−·179	N	5	4	0·09	
Waltair	·599	—·044	−·206	NE	5	10	...	Sea smooth.
Cocanada	·602	—·049	−·202	Calm	2	10	0·39	Sea slight.
Masulipatam	·638	—·019	−·161	WNW	5	10	0·01	Thunder.
Nellore	·676	—·011	−·130	NW	6	10	0·34	
Madras	·712	—·010	−·113	S	6	10	0·07	Sea smooth.

Pressure was decreasing slightly along the Madras coast and the depression which had apparently intensified somewhat, was approaching the coast between Waltair and False Point.

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. *Bhundara*	13 52	81 30	29·695	SW	5	High head sea and dull; cloudy.
S.S. *Florican*	14 54	83 25	·585	SW	8	Heavy sea and frequent heavy squalls.
S.S. *Hohenfels*	15 07	85 43	·546	WSW	5 to 6	
S.S. *Venus*	15 14	86 02	·714	SW	6	Strong sea and heavy squalls and rain.
S.S. *Purnea*	16 17	93 20	·639	S by W	6	Confused S. swell and continuous drizzling rain; noon continuous heavy rain.
S.S. *Bharata*	16 49	83 13	·578	Var.	2	Fine; noon steady rain throughout.
S.S. *Warora*	16 50	83 44	·573	WSW	2	Drizzling rain.
S.S. *Onda*	16 55	86 26	29·578	SSW	4	Heavy S. swell and frequent rain squalls.
S.S. *Shahzada*	18 12	93 12	·691	SSW	2	Occasional rain.
S.S. *Elbe*	18 13	88 57	·775			
S.S. *Lalpoora*	18 41	90 44	·759	SW	2	Moderate swell and cloudy; 4 A.M. light showers.
S.S. *Sutherland*	19 00	87 27	·670	SE	4	Slight sea and occasional rain squalls.
S.S. *Zillah*	19 06	87 16*	...	SE	4	Heavy head sea; 4 P.M. squally.
S.S. *Vauxhall Bridge.*	19 35	87 38	·630	ESE	2	Moderate swell and cloudy, 4 P.M. rain squall.
S.S. *Collegian*	Saugor Island.		·628			4 A.M. showery.
S.S. *Kum Sang*	Hooghly River.		·756	S	2	Fine; 4 P.M. squally.
S.S. *Oolobaria*	Calcutta.		·766			Noon fine.
S.S. *Bangala*	Calcutta.		·661			Midnight light rain squalls.

* Noon position.

The storm centre apparently lay between the *Onda* in Lat. 16°55′ N and Long. 86°26′ E and the coast. The weather was squally with frequent rain over the storm area but the only strong winds were reported from the south of the disturbance where the *Florican* reported south-west winds, force 8.

October 5th.—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.	REMARKS.
	"	"	"				Inches	
Akyab	29·779	+·074	—·048	S	5	10	1·14	Showery.
Chittagong	·724	+·041	—·102	SE	4	10	1·08	Showery.
Barisal	·687	+·018	—·126	ENE	3	6	0·80	
Calcutta	·638	—·045	—·165	E	4	8	0·12	
Saugor Island.	·596	—·059	—·202	ENE	12	9	0·14	
Balasore	·599	—·068	—·213	ENE	7	9	0·55	
False Point	·555	—·086	—·242	E	9	10	0·65	Showery.
Cuttack	·564	—·071	—·234	ENE	4	8	0·28	
Gopalpur	·554	—·066	—·249	NNW	10	9	0·85	Wind variable.
Waltair	·604	+·005	—·207	SW	11	10	1·34	Sea slight.
Cocanada	·613	+·011	—·195	SW	1	10	1·06	Sea smooth.
Masulipatam.	·645	+·007	—·157	W	8	10	0·45	

Pressure had decreased slightly to briskly at the stations around the north-west of the Bay and the storm apparently lay near Gopalpur where the wind was north-north-westerly.

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. *Florican*	13 28	82 47	29·665	SW by S	6	Heavy head sea and cloudy.
S.S. *Warora*	14 07	81 39	·654	SWbyW	6	High rough sea and overcast.
S.S. *Gwalior*	14 31	89 49	·752	SW	6	High SW sea and fine; 4 A.M. short and sharp squalls of wind and rain.
S.S. *Onda*	14 35	85 44	·626	SSW	6	High sea and occasional rain squalls.
S.S. *Bharata*	Cocanada		·573	...	...	Midnight fine.
S.S. *Zillah*	16 58	86 21	...	SSW	6	Heavy head sea and squally.
S.S. *Venus*	17 34	87 32	·594	SW	7	Heavy following sea and continuous heavy rain and heavy squalls.
S.S. *Bangala*	18 30	90 50	·665	S	6	High swell and cloudy; 4 A.M. heavy squalls.
S.S. *Hohenfels*	18 59	87 26	·516	SSW	4	.....
S.S. *Kum Sang*	19 24	89 21	·796	SE	5	Fresh sea and squally.
S.S. *Elbe*	19 51	89 00	·745	...	...	Noon heavy rain squalls.
S.S. *Oolobaria*	Saugor Roads*		·693	E	4	Cloudy.
S.S. *Lalpoora*	Pilot Ridge		·701	NE	5	Cloudy.
S.S. *Shahzada*	Kutubdia		·728	S	3	High S. swell and continuous rain.

* Noon position.

The storm had apparently not changed its position much but had moved somewhat northward and the centre lay between the *Hohenfels* in Lat. 18°59′ N and Long. 87°26′ E and the Orissa coast. The winds were strong to a moderate gale to the south of the disturbance, but the easterly winds to the north were only light to moderate.

October 6th.—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°.	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.	REMARKS.
	″	″	″				Inches	
Waltair	29·576	—·028	—·236	SW	11	7	0·20	Sea smooth.
Gopalpur	·560	+·006	—·247	SW	11	8	0·27	Sea rough.
Cuttack	·541	—·023	—·262	Calm	3	9	2·62	Showery.
False Point	·560	+·005	—·243	WSW	13	10	1·15	Continuous rain.
Balasore	·566	—·033	—·252	S	7	7	0·63	
Saugor Island.	·590	—·006	—·214	SSE	19	10	0·26	Squally and sea rough.
Calcutta	·626	—·012	—·183	ESE	8	10	0·79	Showery.
Chaibassa	·502	—·133	—·307	NE	4	10	1·94	Raining.
Ranchi	·573	—·093	—·248	NE	12	10	1·10	Continuous rain.
Sambalpur	·547	—·048	—·275	NE	7	9	2·17	
Raipur	·597	—·023	—·221	N	7	9	0·04	
Hazaribagh	·583	—·081	—·226	E	10	10	0·98	Showery.

The storm from the Bay crossed the coast during the night of the 5-6th and the centre lay at 8 A.M., about 75 miles to the south of Chaibassa where pressure was upwards of 0·30″ in defect of the normal. The winds exhibited a well-marked cyclonic circulation around the centre. A strong burst of southerly winds had occurred over the Bay, as the storm advanced inland, the wind at Saugor Island blowing at the rate of 30 miles per hour at 8 A.M.

October 7th.—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°.	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.	REMARKS.
	″	″	″				Inches	
Chaibassa	29·591	+·089	—·223	NE	2	8	0·39	Showery.
Ranchi	·596	+·023	—·230	E	15	10	1·62	Continuous rain.
Hazaribagh	·592	+·009	—·219	SSE	12	10	1·68	Showery.
Raipur	·536	—·061	—·296	SW	8	10	0·48	Raining.
Sambalpur	·539	—·008	—·291	SSE	5	10	0·08	
Pendra	·490	—·134	...	NW	13	10	0·43	
Jubbulpore	·581	—·101	—·264	NW	6	10	0·17	
Sutna	·567	—·128	—·269	WNW	6	10	1·38	Continuous rain.
Benares	·579	—·064	—·240	ENE	5	10	1·64	Ditto.
Allahabad	·598	—·079	—·219	ENE	12	10	0·66	

The storm had travelled about 250 miles in a west-north-westerly direction since 8 A.M. on the 6th and the storm centre lay close to Pendra, where probably the deficiency of pressure was about 0·30″. The winds exhibited a well-defined and strong cyclonic circulation, the winds at 8 A.M. blowing at the rate of 22 miles per hour at Ranchi and 20 miles at Hazaribagh and Allahabad.

The rainfall connected with the storm was both heavy and general to the east and north of the depression while hardly any had fallen to the south, west or north-west. This distribution of rain apparently showed that there were no moist winds blowing from the Arabian Sea into India.

October 8th.—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.	REMARKS.
	″	″	″				Inches.	
Raipur	29·598	+·062	—·235	SW	13	9	0·18	
Nagpur	·609	—·014	—·233	W	9	10	0·10	Thunder.
Seoni	·556	—·043	—·285	WSW	9	10	0·12	Showery.
Hoshangabad.	·615	—·069	—·255	SW	1	10	0·14	
Saugor	·533	—·129	—·320	W	14	8	1·79	Drizzling.
Jubbulpore	·489	—·092	—·356	WSW	7	10	3·58	Continuous rain.
Pendra	·551	+·061	...	S	9	10	1·11	Ditto.
Benares	·627	+·048	—·197	E	10	10	1·35	Showery.
Allahabad	·587	—·011	—·234	ENE	20	10	2·02	Gale of wind.
Sutna	·481	—·086	—·356	ENE	9	10	3·61	Continuous rain.
Nowgong	·500	—·145	—·339	E	3	10	3·73	Ditto.
Jhansi	·572	—·119	—·276	NNE	12	10	1·35	Ditto.
Cawnpore	·599	—·057	—·219	NE	12	10	2·88	Drizzling.
Lucknow	·666	—·021	—·159	SE	10	10	1·57	Continuous rain.

The storm had continued to travel in a west-north-westerly direction, but the rate of movement had been low and the centre lay between Sutna and Jubbulpore. The defect of pressure at these two stations amounted to 0·35″. Cyclonic winds continued to circulate around the centre, but the wind velocity was, on the whole, less than on the preceding day. Heavy general rain had fallen within the storm area as well as to the east, north-east, and north of the disturbance, but there was practically no rain over the Peninsula or north-west India. The heaviest falls exceeding 4″ in 24 hours reported on this day were as follows :—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 8th October 1903.
		Inches.
GWALIOR	Ambah	7·00
MANDLA	Dindori (Ramgargh)	5·77
JHANSI	Garotha	4·75
DHOLPUR	Garhi Sandro	4·35
	Dholpur	4·20
	Mania	4·20
FARRUKHABAD	Digre	4·15
SINGHBHUM	Baharagura	4·07
DHOLPUR	Kesarbagh	4·06
CAWNPORE	Bhognipur	4·02

October 9th.—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.	REMARKS.
	″	″	″				Inches	
Jubbulpore	29·692	+·203	—·173	SSW	5	10	0·16	
Hoshangabad.	·702	+·087	—·176	SW	6	10	0·09	
Saugor	·538	+·105	—·227	WSW	14	9	0·49	Drizzling.
Sutna	·633	+·152	—·217	SSE	7	10	2·05	Continuous rain.
Allahabad	·662	+·075	—·167	ENE	13	10	0·66	Showery.
Nowgong	·535	+·035	—·314	S	10	10	1·11	Continuous rain.
Jhansi	·483	—·089	—·368	SW	10	6	4·71	Ditto.
Cawnpore	·578	—·021	—·246	SE	12	10	1·57	Showery.
Lucknow	.622	—·044	—·208	SE	10	10	1·32	Continuous rain.
Mainpuri	·579	—·108	—·246	E	9	10	6·91	Raining.
Agra	·567	—·133	—·281	NE	16	10	3·30	Continuous rain.
Bahraich	·714	—·012	—·117	ESE	14	10	0·18	Showery.

The storm had advanced north-north-westward to the neighbourhood of Jhansi where pressure was 0·37″ below the normal. The cyclonic circulation around the depression was as well-marked as on the preceding day, but the storm area had contracted somewhat and the disturbed weather was less extensive than on the 8th. The rainfall area was also contracting and the rain becoming lighter,

but the following amounts exceeding 5″ in 24 hours had been registered:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 9th October 1903.
		Inches.
Shahjahanpur	Jalalabad	8·26
Mainpuri	Mainpuri	6·86
Aligarh	Hatras	6·60
Jhansi	Lalitpur	6·50
	Narhat	6·50
Mainpuri	Mustafabad	6·44
Bundelkhand	Datia	6·17
Cawnpore	Akbarpur	6·11
Shahjahanpur	Shahjahanpur	6·05
Mainpuri	Gopalpur	6·00
Aligarh	Atrauli	5·96
Etah	Kasganj	5·75
Mainpuri	Karhal	5·54
Etah	Aliganj	5·40
	Etah	5·23
Mainpuri	Bhongaon	5·15
Jhansi	Talbahat	5·13
	Jhansi	5·10

October 10th.—The following gives 8 A.M. data for the storm area :—

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.			
	″	″	″				Inches.	
Jubbulpore	29·746	+·054	—·127	SE	6	10	0·14	
Saugor	·715	+·077	—·157	W	10	7	0·12	
Sutna	·648	+·015	—·213	WSW	7	10	0·05	
Allahabad	·650	—·012	—·185	SSE	5	10	0·52	Showery.
Benares	·658	—·044	—·176	SE	6	4	0·05	
Lucknow	·608	—·014	—·228	E	6	10	1·89	Continuous rain.
Cawnpore	·558	—·020	—·273	SE	9	10	2·79	Showery.
Bahraich	·735	+·021	—·106	ESE	10	10	3·20	Continuous rain.
Mainpuri	·644	+·065	—·191	N	10	10	7·02	Raining.
Bareilly	·716	+·025	—·127	Calm	6	10	6·55	Continuous rain.
Agra	29·696	+·129	—·160	NW	17	10	1·57	Continuous rain
Jhansi	632	+·149	—·233	NW	13	6	0·71	
Nowgong	·590	+·155	—·268	W	7	10	0·26	Drizzling.

The advance of the storm north-westward had ceased and the direction of movement had changed to east or east-north-east. The storm centre lay at 8 A.M. a few miles to the south-west of Cawnpore, while on the previous morning it was shown between Jhansi and Agra. The storm had apparently commenced to fill up, the largest deficiency of pressure having been ·273″ at Cawnpore. The winds continued to exhibit a well-defined cyclonic circulation around the storm, but the contraction in the storm area noticed on the previous day had been maintained and rain was confined to a relatively small area. The falls of rain in the immediate neighbourhood of the storm were, however, very heavy, and the following amounts exceeding 6″ in 24 hours were reported at 8 A.M. on this day:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 10th October.
		Inches.
Etah	Aliganj	13·34
Shahjahanpur	Shahjahanpur	13·31
Hardoi	Shahabad	12·07
Shahjahanpur	Jalalabad	11·62
Farrukhabad	Farrukhabad	10·86
Shahjahanpur	Pawayan	10·83
	Tilhar	10·73
Budaun	Dataganj	10·16
Hardoi	Hardoi	9·92
Bareilly	Faridpur	8·85
Kheri	Muhamdi	8·10
Sitapur	Misrikh	7·32
Bareilly	Nawabganj	7·04
Mainpuri	Mainpuri	7·02
Bareilly	Karor	6·88
Mainpuri	Bhongaon	6·75
Pilibhit	Bisalpur	6·75
Budaun	Budaun	6·74
Farrukhabad	Aligarh	6·42
Mainpuri	Mustafabad	6·26
Bareilly	Aonla	6·03

October 11th.—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.	REMARKS.
	"	"	"				Inches.	
Bahraich	29·735	—·010	—·119	E	4	8	1·75	Continuous rain.
Lucknow	·706	+·098	—·135	NE	4	8	0·15	
Cawnpore	·712	+·154	—·131	NNE	6	9	0·47	Showery.
Nowgong	·738	+·148	—·132	W	7	10	0·29	
Sutna	·658	+·010	—·209	WSW	15	10	0·32	Showery.
Allahabad	·673	+·023	—·171	ESE	5	10	1·22	Continuous rain.
Benares	·675	+·017	—·166	SSW	4	9	0·02	
Gorakhpur	·703	—·012	—·135	NE	2	8	1·21	Showery.
Pendra	·708	—·028	...	SW	8	8	0·01	

The storm had drifted slowly in a south-easterly direction. The centre apparently lay between Sutna and Allahabad where pressure was about 0·20" below the normal. The depression had consequently continued to fill up and the cyclonic circulation of the winds around the centre was becoming weak and ill-defined. The rainfall had, at the same time, decreased both in amount and extent and the reported falls were not remarkable.

October 12th.—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.	REMARKS.
	"	"	"				Inch.	
Allahabad	29·770	+ ·097	—·080	NNE	4	10	0·52	Thunder-storm.
Sutna	·773	+ ·115	—·099	WSW	5	10	0·35	Showery.
Benares	·763	+ ·088	—·085	Calm	1	10	0·02	
Jubbulpore	·761	+ ·027	—·114	WNW	5	10	0·40	Showery.
Pendra	·724	+ ·016	...	S	6	10	0·38	Ditto.
Sambalpur	·783	+ ·037	—·070	SW	3	1	...	
Raipur	·744	+ ·005	—·110	SW	8	6	0·09	

The storm had continued to move south-eastward or south south-eastward, and at 8 A.M. was central near Pendra, where pressure was about 0·10" in defect. The storm had hence, after describing a loop over the Central India plateau and the United Provinces, returned to approximately the same position it had occupied on the 7th. The winds were very light around the storm and the rainfall had decreased to a few light showers. The storm apparently filled up during the day.

The storm was remarkable for its very extraordinary course, for its longevity, and for the very heavy rain it determined to the United Provinces and neighbouring regions. Its track was apparently partly determined by the fact that during its existence there were no monsoon winds over the Arabian Sea, so that there was no rainfall from the western side of India while, on the contrary, the Bay monsoon was blowing strongly and the rainfall, which maintained the storm in existence, was derived from the Bay or eastern side of India. The weather over the United Provinces and the east of Central India was very disturbed and rain fell heavily for over 48 hours without ceasing, while the winds blew with an average velocity of from 20 to 22 miles per hour.

The following gives the approximate positions of the centre at 8 A.M. on each day:—

DATE.	POSITION OF CENTRE. Lat. N.	POSITION OF CENTRE. Long. E.	Direction of movement.	Rate of movement. Miles in 24 hours.
October 5th	19° 40′	86° 20′	...	...
„ 6th	21° 10′	85° 5′	North-West	140
„ 7th	23° 5′	82° 10′	West-north-west	215
„ 8th	24° 0′	80° 0′	Ditto	160
„ 9th	25° 15′	78° 5′	North-north-west	170
„ 10th	25° 40′	79° 45′	East-north-east	110
„ 11th	24° 45′	81° 0′	South-east	140
„ 12th	23° 5′	81° 20′	South-south-east	150

The weather was fine over northern and Central India and showery to rainy over the Peninsula from the 13th to the 24th and after the latter date the second storm of the month made its appearance.

Cyclonic storm of the 25th to 31st October.—The weather was disturbed and rainy over the south of the Bay and the southern half of the Peninsula on the 24th, but the barometer was rising generally. On the 25th the barometer was still rising, but the rain continued in the south and a depression was apparently developing over the south-west of the Bay.

October 25th.—The following gives marine data for the south-west of the Bay:—

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. *R. Dickinson*	4 59	85 19	29·750	WNW	6 to 7	Heavy head sea and overcast.
S.S. *Shirala*	6 10	81 37	·771	NW	4	Fine.
S.S. *Sardinia*	7 06	82 10	·783	Var.	1	Fine.
S.S. *Lawada*	7 09	83 13	·755	SW by W.	3	4 A.M. showery.
S.S. *Chindwara*	Madras.		·774	...	...	4 P.M. fine.
S.S. *Baron Cawdor*	13 26	85 54	·780	NE	...	Heavy rain squalls.
S.S. *Satara*	14 32	85 36	·704	NNE	5	Heavy squalls of wind and rain.
S.S. *Westminster Bridge*	14 44	85 09	·748	ENE	4	Cloudy; 4 P.M. rainy.
S.S. *Ehrenfels*	14 55	82 28	·796	NE	4 to 5	

The preceding data show that north-easterly winds with rainy squally weather prevailed on board the *Baron Cawdor*, the *Satara*, the *Ehrenfels*, and the *Westminster Bridge* off the Madras coast, and south-westerly and westerly winds on the *R. Dickinson* and *Lawada* off the Ceylon coast. The storm was probably developing in about Lat. 9° N. and Long. 83° E., but for this area there was no information available.

October 26th.—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.	Remarks.
	"	"	"				Inch.	
Negapatam	29·762	—·036	—·095	NW	11	8	0·04	
Cuddalore .	·761	—·057	—·094	Calm	1	7	0·03	
Madras .	·761	—·054	—·106	N	7	8	...	Sea rising.
Nellore .	·796	—·032	—·064?	NW	4	3		
Masulipatam	·798	—·040	—·070	N	4	1		
Cocanada .	·797	—·035	—·073	NNW	7	0	...	Sea slight.
Waltair .	·808	—·024	—·069	NE	13	1	...	Sea smooth.
Gopalpur .	·827	—·014	—·058	NNW	10	1	...	

Increasing northerly and north-westerly winds were reported along the Madras coast and the sea was rising at Madras, while pressure had fallen briskly at Madras and Cuddalore. Rain had ceased on the Coromandel coast.

The following gives marine data for the south-west of the Bay:—

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. *R. Dickinson* .	6 34	83 16	29·694	W	6	Heavy W. sea and cloudy; 4 P.M. thick with rain and mist.
S.S. *Shirala* . .	9 55	83 20	·682	NNW	2	Moderate head swell and overcast; 8 P.M. passing squalls and heavy rain.
S.S. *Sardinia* .	11 03	83 51	·675	NW	3 to 2	Showery; noon passing rain squalls.
S.S. *Westminster Bridge.*	12 17	83 43	·638	ESE	5	Moderate following sea and overcast with rain.
S.S. *Nadir* . .	Ma	dras.	·772	NNW	3	Fine but thick haze; midnight heavy rain squalls.
S.S. *Teesta* . .	14 10	81 11	·739	NNW	4	Smooth sea; 4 A.M. fine.
S.S. *Chindwara* .	15 30	80 50	·766	N	5	Moderate sea and fine.

The winds were northerly over this region and the observations gave no indication of the presence of a storm.

October 27th.—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.	Remarks.
	"	"	"				Inches.	
Trincomalee	29·753	—·011	—·089	SW	...	8	0·76	
Negapatam	29·754	—·008	—·104	Calm	3	10	0·30	
Cuddalore .	·758	—·003	—·099?	Calm	1	10	0·05	
Madras .	·763	+·002	—·105	NNW	8	10	1·27	Sea slight.
Nellore .	·762	—·034	—·100	NW	5	10		
Masulipatam	·785	—·013	—·085	N	4	2		
Cocanada .	·782	—·015	—·090	NNE	10	3	...	Sea rising.
Waltair .	·801	—·007	—·079	NE	14	6	...	Sea smooth.
Gopalpur .	·834	+·007	—·054	NNW	9	1		

There had been very little change during the previous 24 hours. The winds remained northerly on the Madras coast but rain had commenced at Madras.

The following gives marine data for the south-west of the Bay:—

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. *R. Dickinson*	5 58	81 59	29·704	WNW	6	Heavy sea and cloudy.
S.S. *Westminster Bridge.*	9 22	82 58	·598	ESE	9	Increasing sea; 4 A.M. cloudy.
S.S. *Shirala* .	13 55	84 57	·696	NE by N.	4	Moderate sea and dull overcast; midnight occasional squalls.
S.S. *Nadir* .	14 10	80 58	·819	NNE	4 to 6	Heavy squalls of wind and rain.
S.S. *Sardinia* .	15 13	85 33	·698	NE by N.	4 to 5	Passing squalls.
S.S. *Puri* . .	15 24	81 26	...	NE	4	Moderate sea; 4 P.M. violent squalls of wind and rain.
S.S. *Chindwara* .	16 35	82 20	·769	NE	6	Moderate sea and fine.

Ordinary north-east and north-north-east winds prevailed over the centre of the Bay, but the *Westminster Bridge* in Lat. 9° 22′ N. and Long. 82° 58′ E. reported a falling barometer, a hard east-south-east gale, and an increasing sea, while Trincomalee reported a south-westerly wind and rain. The storm was hence probably in the neighbourhood of the *Westminster Bridge*.

October 28th.—The following gives 8 A.M. data for the east 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.	Remarks.
	"	"	"				Inches.	
Trincomalee	29·768	+·015	—·076	SW	...	6	0·12	
Negapatam	·735	—·019	—·125	SW	5	10	0·17	
Cuddalore .	·727	—·031	—·132	WSW	1	9	0·51	
Madras .	·703	—·060	—·167	NNW	7	10	1·58	Sea rising.
Nellore .	·719	—·043	—·145	NW	5	10		
Masulipatam	·723	—·062	—·149	N	4	10		
Cocanada .	·736	—·046	—·138	NE	12	10	...	Sea rough.
Waltair .	·733	—·068	—·150	NE	23	10	...	Severe gale.
Gopalpur .	·818	—·016	—·074	NNW	11	9	...	Drizzling.

The barometer had risen in east Ceylon, but had fallen at the Madras coast stations, the fall having been brisk at Madras, Masulipatam, and Waltair. The depression over the Bay had intensified considerably and had moved quickly northward and cyclonic winds were reported from nearly the whole of the Bay area. At Diamond Island the wind had shifted to the south-eastward and at 8 A.M. was blowing at the rate of 23 miles per hour, while equally strong north-easterly winds were reported from the Circars coast. Madras had registered one and a half inches and Cuddalore one-half inch of rain, but otherwise there was little or none reported. The greatest deficiency of pressure was reported from Madras and the storm apparently lay over the west of the Bay off that station :—

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. *R. Dickinson*	6 15	80 11	29·749	W	6	Heavy sea and cloudy.
S.S. *Westminster Bridge.*	6 35	82 16	·648	S	6	Heavy sea; midnight heavy squalls and torrents of rain.
S.S. *Puri* . .	12 50	83 34	·328	SW	9 to 8	Torrents of rain; 4 A.M. terrific squalls of wind and rain.
S.S. *Nadir* . .	15 24	81 43	·660	NNW	6	Heavy squalls of wind and rain.
S.S. *Shirala* .	16 25	86 10	·652	ENE	6	Moderate sea; 4 P.M. thick rainy and squally.
S.S. *Shahzada* .	17 36	91 42	29·792	E	3	Moderate sea and fine; 4 P.M. heavy rain squalls.
S.S. *Bharata* .	Kalinga patam.		·756	...	...	Noon heavy rain
S.S. *Lai Sang* .	18 15	90 10	·788	E	4	Moderate sea and cloudy; 4 P.M. squally.
S.S. *Madura* .	19 11	89 50	·763	ENE	4	Overcast; 4 P.M rainy.
S.S. *Sardinia* .	19 12	87 23	·760	NNE	4 to 5	Light rain.
S.S. *Fundit* .	19 50	87 42*	·830	E	2	Raining; 4 P.M thick heavy rain.
S.S. *Bihara* .	20 40	88 45	·799	NE	5	Slight sea and cloudy.

* Noon position.

The storm had apparently moved quickly northward and intensified and the winds all over the Bay had been drawn into the cyclonic circulation. The storm centre lay apparently in about Lat. 13° 10′ N. and Long. 82° E., so that it had moved quickly in a north by west direction. The nearest ship to the centre was the *Puri* in Lat. 12° 50′ N. and Long. 83° 34′ E., with a pressure (as corrected at Calcutta) of 29·338″. A south-westerly hard gale was blowing on board the *Puri* at 8 A.M. with torrents of rain, and terrific squalls of wind and rain had been experienced at 4 A.M., when pressure was lowest and the barometer marked 29·088″. The following gives the log of this vessel for the 27th and 28th :—

Hour.	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.
			° ′	"			
27th 4 A.M.	*Puri* .	...	...	...	NE	4	Passing showers.
8 A.M.	,, .	15 24	81 26	...	NE	4	Moderate sea.
Noon.	,, .	14 52	80 21	...	NE	4	Cloudy.
4 P.M.	,, .	...	...	29·688	NE	6	Violent squalls of wind and rain, and heavy sea.
8 P.M.	,, .	...	...	·478	NE	6 to 9	Heavy rain.
Midnight.	,, .	...	...	·438	NE	9 to 10	Ditto.
28th 1 A.M.	,, .	...	...	·338	NE	...	..
2 ,,	,, .	...	...	·238	...	...	...

Hour.	Name of vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer as corrected by Calcutta Office.	Wind Direction.	Force.	Weather.
		° ′	° ′	″			
28th 4 A.M.	*Puri* .	...	...	29·088	N	10	Terrific squalls of wind and rain and high cross sea.
7 „	„ .	...	...	·138	...	...	
7·30 „	„ .	...	...	·188	...	...	...
8 „	„ .	12 50	83 34	·338	SW	9 to 8	Torrents of rain.
Noon.	„ .	12 26	84 12	·388	SW	8 to 7	Ditto.
4 P.M.	„ .	...	...	·388	SW	9 to 10	Cloudy and heavy sea.
8 „	„	...	...	·438	SW	9 to 10	Ditto.
Mid-night.	„ .	...	...	·538	SW	9	Heavy sea.

October 29th.—The following gives 8 A.M. data for the east 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.	Remarks.
	″	″	″				Inches	
Negapatam	29·809	+·074	—·050	Calm	2	8	...	
Cuddalore .	·800	+·073	—·060	SSW	2	10	0·01	
Madras .	·769	+·066	—·102	W	11	10	0·36	Sea rising.
Nellore .	·738	+·019	—·129	NW	13	10	1·52	Drizzling.
Masulipatam	·626	—·097	—·248	N	9	10	0·28	Ditto.
Cocanada .	·608	—·128	—·268	NE	26	10	0·21	Sea very rough.
Waltair .	·635	—·098	—·231	NE	26	10	0·38	
Gopalpur .	·745	—·073	—·150	NNW	13	9	1·74	Showery.
Cuttack .	·790	—·042	—·111	Calm	5	10	2·97	Ditto.
False Point .	·791	—·047	—·111	S	15	10	2·55	Ditto.
Balasore .	·840	—·044	—·084	ESE	5	10	5·17	Continuous rain.

The barometer had fallen briskly to rapidly over the Central Provinces and the north Madras coast and the depression from the Bay was approaching the coast in the neighbourhood of Cocanada and Waltair where pressure was about 0·27″ below the normal The winds were cyclonic on the coasts of the Bay and, at Cocanada, were blowing at the rate of 36 miles per hour at 8 A.M. Rain had fallen heavily to the north of the storm. According to the special reports from Waltair the centre of the storm crossed the coast in the neighbourhood of that station during the 29th, and probably about 4 P.M. the wind directions having been as follows :—

8 A.M.	9 A.M.	10 A.M.	2 P.M.	4 P.M.	8 P.M.
NE	NE	NE	ESE	E	S

The following are the 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. *Puri* .	11 13	83 21	...	SW	4	Confused sea and cloudy.
S.S. *Nadir* .	15 06	82 08	29·641	W by S	9	Heavy sea aud heavy squalls; 3 and 4 A.M. squalls at their heaviest wi h incessant rain and vivid lightning.
S.S. *Madura* .	17 06	92 31	·785	SE	5	Rough sea; mid-night light showers.
S.S. *Pundit* .	17 21	86 28	·730	S by W	6 to 7	Overcast; 4 A.M frequent squalls.
S.S. *Bharata* .	Gopalpore.		·659	...	...	2-15 P.M. heavy rain and wind squall from SSE.
S S. *Shirala* .	19 45	87 30	·787	SE	2	Moderate SE swell and showery.
S.S. *Shahzada* .	20 26	88 58	·845	SSE	3	S. sea and cloudy; 1 to 3 A.M. heavy rain squalls.
S.S. *Lai Sang* .	21 35	88 35	·818	E	5	Fresh sea and rainy.

The only ship in the neighbourhood of the storm on this day was the *Nadir*, which in Lat. 15° 6′ N. and Long. 82° 8′ E. had a west by south wind force 9. The following gives the log of this vessel for the 29th :—

Hour.	Name of vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer as corrected by Calcutta Office.	Wind Direction.	Force.	Weather.
		° ′	° ′	″			
29th 1 A.M.	*Nadir* .	...	...	29·500	...	...	...
2 „	„ .	...	...	·410	...	...	Heavy squalls and incessant rain.
3 „	„ .	...	...	·370	...	...	Squalls at their heaviest with incessant rain and vivid lightning.
4 „	„ .	...	...	·360	W	8 to 10	Ditto.
5 „	„ .	...	...	·380	...	...	Squalls decreasing; heavy sea still running.
6 „	„ .	...	...	·520	...	...	Sea going down and wind decreasing.
7 „	„ .	...	...	·590	...	...	...
8 „	„ .	15 06	82 08	·641	W by S	9	Heavy squalls with heavy sea.
9 „	„ .	...	...	·700	...	...	...
10 „	„ .	...	...	·710	...	...	...
11 „	„ .	...	...	·720	...	...	...
Noon.	„ .	15 00	82 12	·720	WSW	5	Heavy rain squalls.
4 P.M.	„ .	...	...	·700	WSW	6	Heavy drizzle and sea still rough but going down.
8 „	„ .	...	...	·740	WSW	4 to 5	Squally with light rain and sea rough.
Mid-night.	„ .	...	...	·780	WSW	4 to 6	Dull overcast and light rain.

The barometer was lowest and the weather at its worst between 3 and 4 A.M. when the squalls were very severe with incessant rain and vivid lightning. The storm had thus continued to move in a north by west or north-west direction.

October 30th.—The following gives 8 A.M. data for the storm area :—

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.	
Masulipatam	29·827	+·201	—·049	WNW	13	10	2·50	
Cocanada	·814	+·206	—·064	SW	16	4	0·69	Sea slight.
Waltair	·799	+·164	—·089	SW	25	10	0·26	Sea smooth.
Gopalpur	·799	+·054	—·099	SSW	26	2	0·62	Showery.
Cuttack	·823	+·033	—·082	SSE	3	7	0·98	Ditto.
False Point	·834	+·043	—·070	S	12	8	...	
Balasore	·848	+·008	—·079	SSW	4	9	2·04	Raining.
Saugor Island.	·853	+·009	—·050	E	10	7	2·07	
Chaibassa	·814	—·058	—·107	ENE	4	9	0·98	
Ranchi	·859	—·045	—·082	ENE	12	10	1·18	Continuous rain.
Pendra	·851	—·014	...	NNW	8	10	0·36	
Sambalpur	·764	—·063	—·162	SE	5	10	0·16	
Raipur	·777	—·046	—·155	N	13	9	0·64	Showery.
Nagpur	·859	—·008	—·084	N	7	10	0·20	
Chanda	·812	—·012	—·106	Calm	1	10	0·01	
Hanumkonda.	·792	+·052	...	NNW	17	9	0·03	
Hyderabad (Dn.).	·826	+·047	—·087	NW	6	4	...	

After crossing the coast at about 4 P.M. on the 29th the storm had recurved very slightly and practically filled up. The centre at 8 A.M., on the 30th, lay over the east of the Central Provinces where pressure was about 0·16″ below the normal. The winds were cyclonic around the centre, but, except on the Circars coast, the velocity was not high. Moderately heavy rain was falling to the north and north-east of the storm. Southerly and south-westerly winds, moderate to strong in force, prevailed over the Bay.

October 31st.—The following gives 8 A.M. data for the storm area :—

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	
Gopalpur	29·817	+·018	—·084	SW	24	1	...	Sea slight
Cuttack	·807	—·016	—·101	WSW	4	5	0·11	
False Point.	·814	—·020	—·093	S	10	8	0·30	Showery.
Balasore	·796	—·052	—·134	S	5	4	1·89	
Saugor Island.	·804	—·049	—·101	SSW	23	10	0·58	Sea slight.
Calcutta	·815	—·069	—·102	SSW	5	10	0·10	
Burdwan	·825	—·073	—·099	Calm	1	10	1·35	Continuous rain.
Sambalpur	·830	+·066	—·106	N	7	10	0·31	
Rnachi	·846	—·013	—·109	N	8	10	1·81	Continuous rain.
Chaibassa	·809	—·005	—·119	NNE	1	10	2·55	Ditto.
Berhampore.	·823	—·100	—·102	Calm	2	10	2·50	Showery.
Bogra	·838	—·109	—·076	NE	8	10	2·91	Drizzling.
Mymensingh.	·863	—·102	—·071	Calm	4	10	4·95	Continuous rain.

The storm had moved slowly east-north-eastward into Orissa and south-west Bengal and had continued to fill up, the largest deficiency of pressure reported on this day having been 0·134″ at Balasore. The winds were cyclonic, but, except at Saugor Island and Gopalpur, were not strong. Heavy rain had fallen over Bengal, the following amounts exceeding 4″ in 24 hours having been registered :—

DISTRICT.	Station.	Rainfall during 24 hours preceding 8 A.M. of 31st October 1903.
		Inches.
MURSHIDABAD	Lalbagh	5·50
MYMENSINGH	Netrokona	5·48
	Mymensingh	4·95
RAJSHAHI	Mahadebpur	4·41
	Naugaon	4·06
MYMENSINGH	Kishorganj	4·03

The storm filled up during the day, but the weather remained disturbed and rainy over Bengal.

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

The following records of snowfall during the month under review have been received :—

I.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Kashmir.*—Gulmarg.—A heavy snowfall occurred on the 1st October on the western mountains down to the Khelanmarg valley.

(2) *Simla District.*—On the hills in the Bushahr district snow fell on three occasions during the month, *viz.*, on the 12th, 14th, and 16th, down to an elevation of 11,000 feet. About half an inch fell on each date.

The accumulation of snow on the higher passes, at the close of the month, was as follows :—

	Feet.
Rupin Pass	6
Bruin „	6
Shatul „	5
Buldar „	6
Runang „	2

The snowfall of the month was about the average.

On the Chur Peak there was a slight fall of snow on the 23rd.

II.—UNITED PROVINCES HIMALAYAS.

(1) *Garhwal.*—There was a snowfall of about 2 feet on the perpetual snowy range on the 12th and 18th October.

(2) *Almorah.*—Snow fell as follows during the month :—

Malla Johar.

1st to 15th October	2 feet.
20th October	1 foot

Malla Danpur.

1st, 3rd, and 4th October 1903	6 ins.
8th, 10th, and 11th do.	1 foot.
13th, 14th, and 18th do.	1 do.
22nd, 23rd and 24th do.	1 do.
	3 ft. 6 ins.

Byans, Chandas, and Darma.

1st October 1903	1 foot.
8th do.	1½ feet.
9th do.	2 do.
11th do.	½ foot.
	5 feet.

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

Utadhura	2 feet.
Ralamdhura	1 foot.
Milamdhura	1 do.
Pindari, Kaphini, Kantela	3½ feet.
Byans, Chandas, Darma	5 do.

Summary of Special Storm Reports.

The following accounts of local storms were received during the month under review :—

October 1st.—A thunderstorm commenced at Simla at 1-53 P.M., and continued till 3-40 P.M. The rainfall amounted to 0·35 inch. The storm passed from SSW to NE.

A thunderstorm passed over Gulmarg, giving rain to the valley and heavy snow to the surrounding peaks. The storm lasted from 1 A.M. to 11 A.M.

„ *2nd.*—A thunderstorm and severe gale passed over Gulmarg between 10 P.M. on the 2nd and 4 A.M. on the 3rd. Light rain fell.

„ *5th.*—A thunderstorm occurred at Nagpur at 3-50 P.M. During half an hour 2·59 " of rain fell.

October 8th.—A thunderstorm occurred at Simla. It came up from south-west at 3-30 P.M. and continued for one hour. A fall of 0·45" of rain was recorded.

A storm passed over Saugor (C. P.) with a high gale of wind and light showers.

„ *13th.*—A thunderstorm occurred at Simla between 4 and 4-30 P.M. It occasioned fresh snow over the hills to the north.

Earthquake.—At about 3 A.M. on the 27th there occurred a shock of earthquake at Gopalpur. Another tremor was felt at 6 P.M. on the 28th, and another at 3 A.M. on the 30th. The shock and tremors were accompanied with a rumbling sound.

HAIL STORM REPORT.

October 28th.—A hail storm occurred over Jowai (Khasi hills, Assam). The storm travelled from west to east and was severe with hail stones of the size of a bullet. Considerable damage was done to the crops.

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

Arabian Sea.—On the 1st the marine observations showed that the winds were more or less light and variable in most parts of the sea except near the west coast of India where moderate to strong north-westerly winds prevailed. These general conditions continued till the 8th when light to moderate south-westerly to westerly winds set in over the greater part of the sea. On the 10th the winds were light and variable over the east of the sea and were southerly in the west. On this and the following day (11th) the winds exhibited an inclination to draw into cyclonic directions over the east of the sea, but the tendency was not maintained and variable irregular winds were generally experienced up to the 13th. On the 14th northerly winds made their appearance over the north and east of the sea, the direction shifting to east over the centre and west, and by the following day, the 15th, north-easterly winds prevailed over the greater part of the sea. These winds were not, however, steady and died down on the 17th, when and for the four succeeding days, light variable winds reappeared. About the 21st northerly and north-easterly winds again commenced in the north and west, but they were still not steady or general, and it was not till quite close to the end of the month that the north-east winds of the cold weather monsoon were established.

The winds over the Arabian Sea, so far as can be determined from the available data, were, on the mean of the month, of the normal strength (2·7 of Beaufort's scale). The force exceeded the normal between the 1st and the 5th, on the 10th and 11th, on the 16th and 17th, on the 24th, 26th, 29th and on the 31st, and was generally lower than usual at other times, more particularly on the 9th when the mean force was 2·3.

Bay of Bengal.—Between the 1st and the 5th a storm was developing and travelling northward over the Bay so that south-westerly winds prevailed in the south, southerly winds in the centre, and south-easterly to easterly winds in the north of the Bay. The storm passed inland on the 5-6th and south-westerly to southerly winds were established over the Bay and continued till the 10th. On the latter date the winds became variable over the greater part of the Bay, but drew into west and north-west in the east. These conditions continued till the 16th on which day the winds were very light and variable throughout the Bay. On the 17th light south-south-westerly winds appeared, but these winds did not hold and between the 18th and 20th light variable breezes with numerous calms were reported. On the 21st northerly and north-easterly winds made their appearance in the north and thence extended over the Bay until the 27th. On the 28th, however, a moderately well-defined cyclonic circulation of the winds was developed over the Bay and a storm was shown off the Madras coast. This storm passed inland during the 29th, and on the 30th and 31st southerly and south-westerly winds prevailed throughout the Bay.

The following are the reports of the weather experienced by steamers which traversed the Bay during October:—

The *Bihara* left Rangoon on the afternoon of the 5th with heavy rain and experienced cloudy weather and moderate south-west winds to Latitude 20° N. Thence to arrival at Saugor Island on the 7th easterly winds and drizzling rain.

The *Bharata* left Rangoon on the 12th and reached Saugor Island on the 14th and experienced throughout the voyage light breezes and generally cloudy weather with occasional rain showers. The winds varied between south-west and north-west.

The *Sunda*, which left Colombo on the 10th and arrived at Saugor Island on the 15th, experienced throughout the voyage moderate to light variable winds and generally fine weather with occasional rain squalls near Latitude 18° N.

On the mean of the month the wind over the Bay of Bengal was 0·1 stronger than usual, the mean wind force having been 3·2, while the normal force is 3·1.

The force exceeded the normal from the 1st to the 9th and was particularly strong on the 5th when the mean force was 4·9. The force then decreased quickly and on the 15th the mean was only 1·5. Thereafter the force slowly increased and had risen to above the normal by the 26th, and so continued till the close of the month. On the 28th the mean force for the whole Bay was again 4·9.

Equatorial Belt:—Steady south-east trade winds prevailed over the west of the Equatorial Belt from the 1st to the 22nd. On the 23rd variable light winds were recorded and on the following day north-westerly and westerly winds were blowing except close to the African coast. From this date onward to the end of the month winds were unsteady in this region varying between south-east and north and north-west on different days. In the centre of the Belt, so far as can be ascertained from the limited information available, westerly and north-westerly winds prevailed more or less throughout the month.

Temperature of the air.

The general temperature conditions of the month were determined by the irregular rainfall distribution. The rainfall was excessive over the central parts of India and of the Peninsula and the heat in those regions was less than

usual while in the north-west of India the month was practically rainless and the temperature above the normal throughout the month.

The mean maximum or day temperature of the month exceeded the normal over the greater part of north-west India as well as at the hill stations in the north-west Himalayas and in Baluchistan. The excess was more than 2° at the stations for which comparative data are given below:—

Station.	Mean maximum temperature.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	°	°	°
Rawalpindi	93·0	88·2	+4·8
Jacobabad	103·1	98·6	+4·5
Mooltan	98·6	95·5	+3·1
Sialkot	95·4	92·3	+3·1
Peshawar	90·8	88·4	+2·4
Hyderabad (S.)	100·2	98·0	+2·2
Gilgit	79·2	73·9	+5·3
Kailang	64·6	60·4	+4·2
Cherat	81·5	78·6	+2·9
Quetta	78·2	74·6	+3·6
Chaman	81·2	78·7	+2·5

The preceding data show that the excess was large over upper Sind and at the stations at the foot of the north-west Himalayas and was actually greatest at Gilgit.

The mean maximum temperature was also higher than usual over part of north-east India, but in this region the excess was much less than in the north-west. The excess was more than 1°·0 at the following stations:—

Station.	Mean maximum temperature.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	°	°	°
Dhubri	86·7	84·5	+2·2
Silchar	90·4	88·7	+1·7
Mymensingh	87·8	86·2	+1·6
Chittagong	88·0	86·5	+1·5

In all other parts of the Indian land area the mean maximum temperature was normal or in defect of the normal. The deficiency was considerable at Diamond Island and in parts of inland Burma, and was 2° or more at the following places:—

Station.	Mean maximum temperature.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	°	°	°
Yamethin	90·3	92·5	−2·2
Minbu	89·2	91·3	−2·1
Diamond Island	84·5	86·5	−2·0

It was in considerable to very large defect over the central parts of India and of the Peninsula—more especially in the Gangetic plain, where the rainfall during the month was very heavy. The deficiency exceeded 4° at the following stations:—

Station.	Mean maximum temperature.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	°	°	°
Nowgong	83·5	90·3	−6·8
Lucknow	85·5	91·2	−5·7
Jhansi	87·4	92·9	−5·5
Cownpore	86·2	91·5	−5·3
Mainpuri	87·9	92·9	−5·0
Allahabad	85·5	90·5	−5·0
Sutna	83·1	87·9	−4·8
Bahraich	85·7	90·1	−4·4
Agra	89·1	93·3	−4·2

There was no generally hot period recorded during the month, and the highest maximum temperatures recorded in the different regions were registered on various dates. The following gives the highest temperatures registered during the month in the different divisions:—

PROVINCE OR DIVISION.	STATION.	Highest maximum temperature recorded in October, 1903.	Date on which recorded.	Highest maximum temperature recorded in October, previous to 1903.	Year in which recorded.
		°			
BURMA . .	Toungoo .	96·9	22nd .	98·7	1899
ASSAM . .	Silchar .	94·0	5th & 6th	97·6	1900
BENGAL . .	Comilla .	93·3	5th .	96·3	1898
ORISSA . .	Cuttack .	92·4	17th .	101·8	1886
BIHAR . .	Daltonganj .	93·6	16th & 18th.	99·1	1899
CHOTA NAGPUR .	Purulia. .	92·0	16th .	94·5	1899
UNITED PROVINCES OF AGRA AND OUDH.	Agra . .	97·0	1st .	107·7	1877
PUNJAB . .	Montgomery.	104·8	2nd .	107·4	1894
NORTH-WEST FRONTIER PROVINCE.	D. I. Khan .	97·2	1st .	105·5	1881
SIND . . .	Jacobabad .	109·3	3rd .	108·9	1899
RAJPUTANA .	Pachpadra .	105·5	4th, 6th & 7th.	109·5	1895 and 1896.
GUJARAT . .	Bhavnagar Para.	101·6	7th .	106·1	1899
CENTRAL INDIA .	Neemuch .	94·0	7th, 19th & 20th.	102·5	1899
CENTRAL PROVINCES.	Khandwa .	95·7	19th .	105·2	1899
BERAR . .	Akola . .	94·4	„ .	104·2	1899
WEST COAST .	Ratnagiri .	94·3	22nd & 26th.	99·1	1888
BOMBAY DECCAN.	Malegaon .	94·9	19th .	104·3	1899
MYSORE . .	Mysore .	87·6	22nd .	90·1	1902
MADRAS COAST .	Nellore. .	97·3	12th & 13th.	102·8	1900
MADRAS DECCAN.	Cuddapah .	97·2	18th & 20th.	102·2	1896 and 1899.
SOUTH INDIA .	Tinnevelly .	101·4	12th .	102·4	1894, 1897, 1899 and 1900.

The preceding data show that except in Sind higher temperatures have been recorded in previous years.

The mean maximum temperature of the month exceeded 100° at Jacobabad (103°·1), Hyderabad (100°·2), Pachpadra (101°·5) and Deesa (?100°·9).

The distribution of the variations of the mean minimum temperature of the month differed considerably from that of the variations of the mean maximum temperature. The mean minimum temperature was slightly lower than usual over the west of the Peninsula, but the variations were less than 1°·0 except at Bombay (—1°·1) and Poona(—1°·2). It was also lower than usual by small amounts in parts of central Burma. In all other parts of the country the mean minimum temperature was higher than usual. The excess was greatest over north-west India and over the Gangetic plain, and in the latter area was probably attributable to the abnormally cloudy condition of the sky. At the following stations the excess was more than 3°·0.

STATION.	MEAN MINIMUM TEMPERATURE. Actual, October, 1903.	Normal, October.	Variation of actual from normal, Octoberr, 1903.
	°	°	°
Sialkot	67·6	61·9	+ 5·7
Lahore	63·2	59·1	+ 4·1
Rawalpindi	59·7	55·8	+ 3·9
Mooltan	67·5	64·4	+ 3·1
Lucknow	69·7	65·5	+ 4·2
Mainpuri	68·8	64·6	+ 4·2
Cawnpore	69·5	65·8	+ 3·7
Bahraich	70·4	67·2	+ 3·2
Meerut	65·5	62·4	+3·1
Ajmer	67·4	63·2	+ 4·2
Pachpadra	68·6	64·9	+ 3·7
Sutna	69·3	65·7	+ 3·6

At all the hill stations, except Quetta, the mean minimum temperature was higher than usual, but the excess was generally less than on the neighbouring plains.

The mean temperature of the month exceeded the normal over north-west and north-east India, but was lower than usual over Burma on the one hand and over the central parts of India and the centre and west of the Peninsula on the other. The variations were not large except in the north-west, where, owing to both the days and nights having been warmer than usual, the excess was considerable. The following gives comparative data for those stations both on the hills and plains where the variation exceeded +2°·5:—

HILL OR PLAIN STATION.	MEAN DAILY TEMPERATURE. Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	°	°	°
Rawalpindi	76·4	72·0	+4·4
Sialkot	81·5	77·1	+4·4
Jacobabad	83·8	80·6	+3·2
Mooltan	83·1	80·0	+3·1
Lahore	79·7	77·1	+2·6
Gilgit	67·0	63·5	+3·5
Srinagar	57·9	54·8	+3·1
Kailang	48·9	46·0	+2·9
Cherat	70·5	67·9	+2·6

The above shows that the area of greatest excess lay along the foot of the north-western Himalayas.

In the Gangetic plain the deficiency in the day temperature was almost balanced by the excess at night, and the mean temperature over this region was normal or in slight defect, while over the centre and west of the Peninsula,

where both the day and night temperatures were lower than usual, the mean temperature was in some defect.

The following gives temperature variation data for the extra-Indian stations :—

STATION.	MEAN TEMPERATURE.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	°	°	°
Trincomalee	82·0	81.9	+0·1?
Colombo	81·3	80·6	+0·7
Amini Divi	81·6	80·8	+0·8
Kashgar	57·9	55·4	+2·5
Teheran	66·7	65·7	+1·0
Ispahan	62·2	60·9	+1·3
Bushire	76·7	79·5	—2·8
Jask	83·3	83·1	+0·2
Muscat	84·1	83·4	+0·7
Baghdad	75·0	77·4	—2·4
Aden	85·1	83·9	+1·2
Perim	87·0	85·8	+1·2
Zanzibar	79·8	79·2	+0·6
Seychelles	77·8	79·1	—1·3
Mauritius	70·3	72·1	—1·8

The variations of temperature at these stations were very irregular. In Celyon the heat was slightly greatest than usual, but in the south-east trades region, with the exception of Zanzibar, there was a marked deficiency of temperature. In Persia and Arabia the heat was, on the whole, greater than usual, though a considerable deficiency was shown at Baghdad and Bushire.

The following summarises the chief abnormal features of the temperature conditions of the month :—

(1) The mean day and mean night temperatures and consequently also the mean temperature were higher than usual on the hills and plains of north-west India.

(2) The mean day temperature was much lower, and the mean night temperature considerably higher, than usual over the Gangetic plain and adjacent regions, so that the mean temperature was normal or in slight defect.

(3) The mean day, mean night, and mean temperatures slightly exceeded the average over north-east India.

(4) The mean day temperature was lower and the mean night temperature higher than usual over the greater part of Burma.

(5) The mean day and the mean temperature were below the normal over the Peninsula where the mean night temperature varied irregularly from the average.

(6) In the south-east trades region the mean temperature was generally in defect.

The following table gives mean temperature data of the month for the 57 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	87·1	75·0	81·1	12·1	19·0	—0·9	+1·3	—2·2
	Lower Burma (Deltaic)	85·9	76·7	81·3	9·1	16·3	—1·7	+0·8	—2·5
	Central do.	90·4	73·8	82·1	16·6	23·9	—0·3	—0·7	+0·4
	Upper do.	89·5	72·8	81·2	16·7	25·1	—1·6	+1·0	—2·6
	Arakan	86·8	77·6	82·2	9·2	14·7	—1·0	+0·9	—1·9
BENGAL AND ASSAM	Eastern Bengal	87·7	75·5	81·6	12·2	21·2	+0·9	+1·9	—1·0
	Assam (Surma)	90·4	74·8	82·6	15·6	23·7	+1·7	+2·5	—0·8
	Do. (Hills)	73·5	59·3	65·4	14·2	24·0	...	...	...
	Do. (Brahmaputra)	86·8	72·3	79·6	14·5	25·6	+1·2	+1·0	+0·2
	Deltaic Bengal	87·6	75·1	81·4	12·4	24·9	+0·4	+0·4	0
	Central do.	87·2	74·3	80·8	12·9	25·2	—0·2	+1·5	—1·7
	North do.	87·4	72·9	80·2	14·6	25·3	+0·6	+1·5	—0·9
	Bengal Hills	58·8	44·9	51·8	13·9	27·2	+1·7	+1·5	+0·2
	Orissa	87·3	75·8	81·6	11·5	23·0	—1·2	+1·1	—2·3
	Chota Nagpur	83·6	69·6	76·6	14·1	27·9	—2·2	+1·4	—3·6
	Bihar (South)	87·3	72·2	79·8	15·1	27·9	—1·3	+1·4	—2·7
	Do. (North)	87·2	73·4	80·3	13·8	26·1	—0·1	+1·4	—1·5
UNITED PROVINCES OF AGRA AND OUDH.	United Provinces (East)	86·1	70·9	78·5	15·2	29·8	—4·2	+3·0	—7·2
	Oudh (South)	85·5	69·7	77·6	15·8	30·6	—5·7	+4·2	—9·9
	Do. (North)	85·7	70·4	78·1	15·3	29·6	—4·4	+3·2	—7·6
	United Provinces (Central)	87·2	69·4	78·3	17·8	32·0	—5·2	+4·0	—9·2
	Do. (West)	89·6	67·9	78·8	21·7	37·7	—2·4	+2·9	—5·3
	Do. (East Submontane).	85·3	71·5	78·4	13·8	27·0	—3·4	+1·5	—4·9
	Do. (West Submontane).	85·4	64·9	75·2	20·5	34·5	—1·6	+2·5	—4·1
	Do. (Hills)	66·1	52·2	59·2	13·9	24·2	—0·1	+0·8	—0·9

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	Punjab (South-East)	90·6	70·1	80·4	20·5	34·3	—1·5	+2·2	—3·7
	Do. (South)	93·9	64·6	79·3	29·3	43·9	+0·6	+2·8	—2·2
	Do. (Central)	96·1	63·2	79·7	32·9	48·3	+1·0	+4·1	—3·1
	Do. (Sub-montane)	93·5	64·1	78·8	29·3	45·1	+2·7	+3·9	—1·2
	Do. (Hills)	69·7	44·2	57·0	25·5	41·8	+2·3	+1·6	+0·7
	Do. (West)	97·6	65·7	81·7	31·9	47·1	+2·3	+2·9	—0·6
N.-W. F. Province	North-West Frontier Province	92·2	61·0	76·6	31·2	44·8	+1·0	+2·1	—1·1
Bombay and Malabar Coast Districts (Madras).	Malabar	84·5	74·7	79·7	9·8	15·3	—0·7	0	—0·7
	Madras (South Central)	88·3	71·6	80·0	16·8	24·0	—0·7	+0·7	—1·4
	Coorg	73·9	61·3	67·6	12·6	21·9	—1·9	—0·9	—1·0
	Mysore	81·6	65·7	73·7	15·9	25·5	—1·3	—0·4	—0·9
	Konkan	85·9	74·7	80·3	11·2	22·6	—0·6	—0·6	0
	Bombay Deccan	85·7	66·3	76·0	19·4	35·0	—1·7	—0·6	—1·1
	Hyderabad (North)	85·2	67·0	76·1	18·2	32·7	...	...	...
	Khandesh	88·9	64·9	76·9	24·0	37·6	—0·5	—0·4	—0·1
Central Provinces and Berar.	Berar	89·8	67·5	78·7	22·4	37·4	—1·2	+0·3	—1·5
	Central Provinces (West)	89·4	68·0	78·7	21·4	36·0	—0·9	+0·8	—1·7
	Do. (Central)	85·0	67·3	76·2	17·8	34·3	—2·9	+1·7	—4·6
	Do. (East)	84·4	69·5	77·0	14·9	30·8	—2·4	+0·5	—2·9
Bombay (North)	Gujarat	95·9	72·7	84·3	23·3	34·2	+1·1	+1·2	—0·1
	Kathiawar and Cutch	92·6	72·5	82·6	20·2	35·1	—0·5	+1·4	—1·9
	Sind	98·3	70·3	84·3	28·0	44·4	+3·4	+1·9	+1·5
	Baluchistan Hills	79·3	41·8	60·6	37·5	52·6	+3·1	+0·4	+2·7
Rajputana and Central India.	Central India (East)	86·4	66·3	76·4	20·1	34·3	—5·8	+3·3	—9·1
	Rajputana (East), Central India (West)	92·5	67·3	79·9	25·1	40·0	—0·4	+3·1	—3·5
	Do. (West)	99·0	69·9	84·5	29·1	44·3	+2·3?	+2·1?	+0·2?
Madras	East Coast (North)	87·2	76·3	81·8	10·9	22·4	—0·7	+1·1	—1·8
	Hyderabad (South)	86·4	70·1	78·3	16·3	30·2	—2·5	+0·1	—2·6
	Madras (Central)	89·7	72·2	81·0	17·5	31·7	—1·2	+0·1	—1·3
	East Coast (Central)	89·2	76·0	82·6	13·2	25·6	—0·9	+0·1	—1·0
	Do. (South)	89·7	75·0	82·4	14·8	26·3	+0·2	+0·2	0
	Madras (South)	91·2	75·1	82·9	16·1	25·4	+0·1	+0·1	0

The mean temperature of the plains was very uniform, the hottest areas having been Gujarat, Sind, and west Rajputana, where the mean temperature was 84°, and the coolest area, the west submontane division of the United Provinces, where the mean temperature was 75°. The total range of temperature, according to the divisions, was thus 9°. The mean daily range of temperature is ordinarily small in the month of October, but during the month under review the range was even smaller than usual—this was particularly the case over the Gangetic plain.

The following gives a brief account of the principal temperature changes during the month under review.

At the commencement of the month a small barometric depression lay over the north of the Central Provinces and generally disturbed weather was occasioning rain over a large part of the Peninsula, the Central Provinces, and north-east India. In consequence the mean temperature was low over the Peninsula, west Bengal, and the east Gangetic plain, as is shown by the following comparative data for these areas for the 1st and 2nd:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 1st October.	2nd October.
	°	°
Chota Nagpur	—3·1	—1·1
United Provinces of Agra and Oudh	+2·0	—2·3
Central India	+1·4	—0·5
Central Provinces	+0·2	—0·3
West Coast	+0·6	—0·3
Bombay Deccan	+0·1	+0·1
Mysore	—2·3	—1·1
Madras Coast	—0·8	—1·2
Madras Deccan	—1·1	—1·0
South India	—0·3	—2·0

On the 3rd a fresh depression was appearing off the Madras coast. It proved to be a very long-lived disturbance and the centre traversed a very long course passing through the Central Provinces and Central India to the west of the United Provinces whence it returned again south-eastward, finally disappearing over the Central Provinces on the 13th. It determined heavy rain to the Peninsula, to the central parts of the country, to the Gangetic plain, and to parts of north-east India, and over the whole of this large region the mean temperature was, almost everywhere, persistently deficient from the 3rd to the 12th. The following gives data in illustration:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of									
	3rd Oct.	4th Oct.	5th Oct.	6th Oct.	7th Oct.	8th Oct.	9th Oct.	10th Oct.	11th Oct.	12th Oct.
	°	°	°	°	°	°	°	°	°	°
Assam	+1·5	+2·4	+3·8	+1·2	−1·4	+0·6	+0·8	+1·3	+0·8	+1·2
Bengal	+0·9	+1·7	+2·0	−0·8	−2·8	−0·3	−0·5	+0·4	+1·0	+1·2
Orissa	−0·6	−0·2	−0·8	−2·0	−2·7	−3·8	−2·0	−1·8	+1·5	+2·4
Bihar	−0·7	+1·0	+2·7	+0·8	−4·0	−3·0	−0·3	−1·1	+0·6	+1·8
Chota Nagpur	+0·2	+0·8	−0·1	−0·1	−2·0	−2·7	−2·3	0·6	+1·2	+0·2
United Provinces	−4·4	−3·4	−3·1	−2·2	+0·6	−2·6	−3·5	−5·5	−4·3	−0·4
Central India	−2·3	−1·6	−1·7	−1·8	−0·1	−1·7	−1·4	−2·2	−3·9	−2·4
Central Provinces	−0·7	−0·4	−0·6	−1·3	−0·9	−2·6	−2·5	−1·4	−1·7	−0·5
Berar	−1·3	−0·6	−0·8	−1·1	−0·7	+1·0	+0·1	−2·4	−3·2	−0·6
West Coast	−2·0	−1·0	−0·6	−0·7	−0·1	−0·4	−0·9	−1·3	−1·5	−1·6
Bombay Deccan	−2·9	−2·7	−2·7	−1·4	−1·8	−0·9	−2·6	−2·0	−1·2	−0·7
Mysore	−2·4	−2·4	−5·0	−3·3	−2·3	−2·1	−2·0	−1·7	−2·4	−1·2
Madras Coast	−1·6	−1·9	−2·9	−1·6	−1·0	−0·2	+1·0	+1·3	+2·4	+2·4
Madras Deccan	−2·6	−3·4	−4·5	−6·4	−5·0	−3·0	−3·1	−1·0	−0·4	−0·2
South India	−1·9	−1·9	−1·1	−0·7	+0·1	+0·2	+0·6	+0·7	+1·3	+0·5

The coolest days were the 3rd and the 8th to the 11th when the variation in the mean temperature was more than 10° at the following stations:—

Date.	Station.	Mean temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
3rd October	Gorakhpur	72·7	82·8	−10·1
10th „	Agra	71·7	82·5	−10·8
	Bareilly	69·5	79·7	−10·2
11th „	Jhansi	72·6	82·7	−10·1

The effect of this rainfall and cloudy weather was very marked on the day or maximum temperature which, as always occurs under these conditions, was exceedingly low for the time of year. The following gives data for those stations at which, between the 3rd and the 12th, the maximum temperature was more than 15° below the normal:—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
3rd October	Cawnpore	77·2	93·3	−16·1
	Lucknow	77·2	92·4	−15·2
4th „	Bahraich	76·6	92·1	−15·5
5th „	Bijapur	71·8	88·3	−16·5
	Bahraich	76·6	92·1	−15·5
7th „	Hyderabad (Dn.)	72·8	88·7	−15·9
8th „	Cawnpore	77·7	93·0	−15·3
	Lucknow	77·2	92·3	−15·1
9th „	Agra	75·0	94·9	−19·9
	Mainpuri	75·8	94·7	−18·9
	Jhansi	75·6	94·4	−18·8
	Bareilly	74·3	90·9	−16·6
10th „	Agra	73·5	94·8	−21·3
	Bareilly	70·8	90·8	−20·0
	Mainpuri	76·3	94·5	−18·2
	Meerut	74·4	92·3	−17·9
	Delhi	76·2	93·7	−17·5
	Jaipur	80·7	96·8	−16·1
11th „	Jhansi	75·1	94·2	−19·1
	Nowgong	73·0	91·7	−18·7
	Mainpuri	76·3	94·4	−18·1
	Bareilly	73·8	90·7	−16·9
	Agra	78·5	94·7	−16·2
	Lucknow	76·2	92·1	−15·9

The cloudy state of the sky exercised the opposite effect on the night temperature which, between the 3rd and the

12th, was as much as 6° above the normal at the following places on the following dates :—

DATE.	STATION.	MINIMUM TEMPERATURE. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
3rd October	D. I. Khan	75·6	67·7	+7·9
	Montgomery	76·0	69·1	+6·9
4th "	Jacobabad	76·7	68·5	+8·2
5th "	Mooltan	79·0	69·4	+9·6
	Montgomery	74·0	67·9	+6·1
6th "	Mooltan	75·0	68·8	+6·2
7th "	Mainpuri	76·5	68·4	+8·1
	Agra	78·9	71·3	+7·6
	Nowgong	76·0	69·0	+7·0
	Bareilly	76·1	69·7	+6·4
8th "	Ludhiana	77·1	66·5	+10·6
9th "	Jacobabad	74·2	65·7	+8·5
	Sialkot	73·1	65·5	+7·6
	Roorkee	72·1	64·7	+7·4
	Lahore	69·7	62·4	+7·3
	Mooltan	73·5	67·3	+6·2
	Sirsa	72·1	65·9	+6·2
11th "	Bahraich	76·5	69·4	+7·1
	Ajmer	72·6	65·7	+6·9
	D. I. Khan	70·1	63·2	+6·9
	Lahore	68·2	61·5	+6·7
	Sialkot	71·1	64·5	+6·6
	Jalpaiguri	77·9	71·4	+6·5
	Khushab	70·4	64·3	+6·1
12th "	Ajmer	73·6	65·2	+8·4
	Sambhar	73·4	65·2	+8·2
	Sialkot	72·1	64·1	+8·0
	Mooltan	73·0	66·0	+7·0
	Mainpuri	73·0	66·2	+6·8

During this period of disturbed weather and low temperature over the Peninsula, Central India, and the Gangetic plain, the weather was fine in the north-west and temperature more or less excessive. Rain fell in Kashmir on the 1st, 2nd, and 3rd, and extended to Murree, Lahore, and Umballa on the 3rd. These showers occasioned a brisk decrease of temperature over the Punjab, the North-west Frontier Province and adjacent districts, but generally the heat over the North-west Frontier Province, the Punjab, Rajputana, Sind, and Gujarat was persistently excessive during this period.

The following gives comparative temperature data for the above provinces for each alternate day from the 1st to the 11th :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF 1st October.	3rd October.	5th October.	7th October.	9th October.	11th October.
	°	°	°	°	°	°
North-west Frontier Province.	+3·4	+2·3	+0·4	+2·0	+1·8	+3·4
Punjab	+4·8	+0·4	+0·7	+2·0	+2·1	+2·5
Rajputana	+3·0	+1·8	+2·8	+1·1	+0·2	+0·4
Sind	+2·0	+4·4	+1·1	+2·2	+3·4	+2·6
Gujarat	+0·9	+2·0	+0·9	−0·6	−0·7	−2·2

On the 13th general rain commenced in Burma and continued till the 19th, and the mean temperature was low over this province during this period. This is shown below :—

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.	17th October.	18th October	19th October.
	°	°	°	°	°	°	°
Burma	+0·6	−0·1	−1·2	−1·7	−1·0	−0·8	−1·2

Over India the weather during this time was fine with a few light scattered showers, more particularly in the south and the mean temperature, though unsteady, was on the whole, higher than usual—more especially in the north-west. The following gives comparative data for all divisions for these seven days :—

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.	17th October.	18th October.	19th October.
	°	°	°	°	°	°	°
Assam	+2·3	+3·7	+3·2	+2·5	+1·7	+2·0	+0·8
Bengal	+1·9	+2·4	+2·4	+2·5	+2·7	+1·9	+2·0
Orissa	+1·0	+0·8	+2·2	+2·5	+2·9	+2·7	+2·7

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.	17th October.	18th October.	19th October.
	°	°	°	°	°	°	°
Bihar	+2·2	+2·2	+3·5	+3·5	+2·7	+2·0	+0·2
Chota Nagpur	+0·8	+1·1	+3·1	+4·0	+2·1	+2·7	−0·4
United Provinces of Agra and Oudh.	−0·1	+1·1	+2·3	+2·4	+1·7	+1·1	+0·7
Punjab	+2·4	+2·6	+3·1	+3·6	+3·2	+2·9	+3·0
North-West Frontier Province.	+1·1	+0·2	+1·1	+1·8	+2·2	+2·4	+2·4
Sind	+0·3	+1·5	+2·7	+4·3	+4·0	+2·6	+2·5
Rajputana	+0·4	+0·5	+0·4	+1·3	+1·6	+1·7	+2·5
Gujarat	−1·0	+0·8	+1·1	+1·5	+2·4	+1·2	+1·0
Central India	−0·9	−0·1	+0·4	+0·4	+1·7	+0·7	−0·2
Central Provinces.	+0·4	+1·1	+2·6	+3·3	+2·5	+1·1	−0·2
Berar	+0·1	+3·2	+3·5	+3·1	+3·9	−0·6	+0·4
West Coast	−0·6	+0·2	+0·2	+1·0	+1·1	+1·2	+0·6
Bombay Deccan.	−0·3	+0·9	+1·6	+2·6	+2·9	+2·2	+1·7
Mysore	+0·2	+0·6	+0·5	+1·9	+1·8	+1·0	+0·4
Madras Coast.	+2·2	+0·7	+0·8	+2·0	+2·0	+2·0	+2·4
Madras Deccan	0	+1·4	+1·8	+2·3	+3·3	+3·0	+2·7
South India	+0·3	−1·3	+1·2	+1·9	+2·1	+1·7	+1·8

In the centre of the country a small area of relatively low temperature appeared on the 14th. This cool area approximately coincided in position with the area of highest pressure and was shown over Rajputana, Central India, part of the Central Provinces and Khandesh on the 14th; over Rajputana and Central India on the 15th and 16th; over parts of the east of Central India and of the Central Provinces on the 17th; over Central India east and the Satpuras on the 18th, 19th, and 20th; and over the Satpuras and the Deccan on the 21st, 22nd, and 23rd when it commenced to disappear. The amount of the variation of temperature increased and diminished irregularly from day to day; it was unconnected with rainfall, and the position of thearea of greatest defect of mean temperature throughout its existence roughly coincided with the position of the area of greatest barometric pressure. The following gives for each day from the 14th to the 23rd the two stations within the above mentioned area at which the negative temperature anomaly was largest :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
14th October	Jhansi	−2·6
	Saugor	−1·4
15th „	Neemuch	−1·6
	Bikaner	−1·0
16th „	Neemuch	−1·6
	Sambhar	−0·2
17th „	Hoshangabad	−0·8
	Nowgong	−0·3
18th „	Nowgong	−2·0
	Seoni	−1·2
19th „	Raipur	−1·9
	Nowgong	−1·5
20th „	Akola	−2·6
	Hoshangabad	−2·5
21st „	Chanda	−3·2
	Malegaon	−3·0
22nd „	Akola	−4·5
	Ahmednagar	−4·4
23rd „	Akola	−3·5
	Ahmednagar	−3·2

On the 24th general and in places heavyish rain fell over the south of the Peninsula and temperature fell generally over that area. This rainfall continued during the 25th and the mean temperature was low on these two days over the Peninsular divisions. The following gives data from the 23rd to the 25th for the divisions in this region :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	23rd October.	24th October.	25th October.
	°	°	°
Central Provinces	−1·0	−0·3	−0·5
Berar	−2·4	−1·8	+0·4
West Coast	−0·2	−0·1	+0·8
Bombay Deccan	−1·0	0	−1·1
Mysore	+0·5	+0·1	−0·9
Madras Coast	+1·7	+0·1	−1·9
Madras Deccan	+3·0	+1·7	−2·1
South India	+1·2	+1·3	+0·4

Between the 26th and the close of the month the temperature conditions and changes over the greater part of the country were irregular and considerable. Unusually

clear skies over the central parts of the Peninsula and the Satpuras occasioned very low night temperatures and an area of relatively low mean temperature over the centre of the Peninsula and the central parts of India. At about the same time a depression appeared off the Madras coast on the 28th occasioning rain and a rapid fall of temperature in that region. This depression with its accompanying rainfall passed northward crossing the coast near Waltair and reached Orissa by the 31st. Heavy rain and low temperatures advanced northward with the storm and practically all parts of the country were affected by the disturbance, though the north-west was less affected than other districts. The following gives data for all divisions from the 24th to the 31st:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of							
	24th Oct.	25th Oct.	26th Oct.	27th Oct.	28th Oct.	29th Oct.	30th Oct.	31st Oct.
	°	°	°	°	°	°	°	°
Burma	+0·9	+1·3	+1·5	+1·9	+2·2	+0·8	−0·1	−1·3
Assam	+1·5	+0·9	+0·5	+2·0	+2·5	+2·8	−0·2	−3·5
Bengal	−0·4	−0·1	+0·4	+0·5	+1·6	+3·8	−0·9	−0·1
Orissa	−0·8	−1·3	−1·4	−1·8	−1·4	−1·7	+1·9	+2·6
Bihar	−0·4	−0·2	−0·8	−0·2	+0·5	+2·3	−0·6	−4·8
Chota Nagpur	−1·9	−0·9	−1·8	−2·3	−1·9	+2·2	−3·2	−2·6
United Provinces of Agra and Oudh.	+0·4	−0·2	−0·7	−0·5	−0·1	+0·3	+2·6	+0·9
Punjab	+2·4	+2·0	+1·8	+2·0	+2·5	+2·4	+1·5	+1·4
North-West Frontier Province.	+2·3	+1·1	+1·3	+0·9	+1·5	+1·8	+1·6	+0·9
Sind	+1·0	+1·7	+2·6	+2·0	+4·0	+2·4	+1·7	+0·9
Rajputana	+2·3	+2·3	+2·4	+2·6	+1·6	+1·8	−0·3	−1·1
Gujarat	+0·2	+1·5	+1·8	+1·7	+0·9	+1·3	+0·6	−1·0
Central India	+1·0	−0·1	−0·8	−0·9	−0·1	−0·9	−0·4	−1·4
Central Provinces	−0·3	−0·5	−2·3	−2·9	−2·9	−1·3	+0·8	−0·6
Berar	−1·8	+0·4	−2·6	−2·0	−1·9	−4·9	+0·5	−0·2
West Coast	−0·1	+0·8	+0·3	−0·8	−1·9	−1·1	−1·4	−1·7
Bombay Deccan	0	−1·1	−1·4	−4·2	−3·6	−3·5	−2·5	−0·6
Mysore	+0·1	−0·9	−2·0	−2·9	−3·2	−3·7	−1·7	+1·2
Madras Coast	+0·1	−1·9	−0·3	−0·8	−4·1	−6·1	−1·0	+2·3
Madras Deccan	+1·7	−2·1	−2·4	−3·6	−4·5	−3·0	−2·0	+1·1
South India	+1·3	+0·4	−1·6	−0·6	−3·9	−0·9	−0·1	+1·3

The preceding data show (1) the deficient temperatures over the Peninsula and the Satpuras on the 26th, 27th, 28th, and 29th resulting from the very low minima recorded at that time, (2) the rapid fall of temperature on the 28th on the Madras coast due to the rainfall of the Bay storm; (3) the extension of these low temperatures northward along the coast and into north-east India as the storm and rainfall advanced, and (4) the high temperatures prevailing over north-west and north-east India at the commencement of the period and their gradual decrease as the unsettled conditions extended.

The minimum temperatures over the centre of the Peninsula and the central parts of India during the first three days of the period under review were very low for the time of year and were more than 6° lower than usual at the following places on the following dates:—

Date.	Station.	Minimum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
26th October	Raipur	59·4	66·7	−7·3
	Hyderabad (Deccan)	59·8	66·7	−6·9
	Chanda	58·6	65·5	−6·9
	Sambalpur	62·1	68·8	−6·7
	Hoshangabad	57·3	63·7	−6·4
27th "	Bijapur	55·1	66·3	−11·2
	Kurnool	59·3	69·1	−9·8
	Poona	54·4	63·9	−9·5
	Akola	53·9	62·9	−9·0
	Sholapur	57·6	66·3	−8·7
	Chanda	57·1	65·2	−8·1
	Ahmednagar	54·0	62·0	−8·0
	Raipur	58·4	66·3	−7·9
	Jubbulpore	52·4	59·5	−7·1
	Raichur	64·1	70·9	−6·8
	Karwar	65·5	72·3	−6·8
	Hoshangabad	56·8	63·2	−6·4
	Sambalpur	62·2	68·4	−6·2
28th "	Bijapur	55·6	66·0	−10·4
	Sholapur	56·1	66·0	−9·9
	Chanda	55·6	64·8	−9·2
	Ratnagiri	65·9	72·7	−6·8
	Poona	56·9	63·6	−6·7
	Raichur	64·1	70·7	−6·6
	Akola	55·9	62·4	−6·5
	Karwar	66·0	72·2	−6·2
	Bellary	63·2	69·4	−6·2
	Raipur	59·9	66·0	−6·1
29th "	Akola	52·9	62·0	−9·1
	Poona	55·4	63·2	−7·9
	Karwar	64·5	72·1	−7·6

On the other hand, the rainfall and cloudy weather due to the Bay storm, had a very marked effect on the maximum temperatures, recorded along the Madras coast and in north-east India, where on the following dates at the

following places the day temperature was more than 10° below the normal:—

DATE.	STATION.	MAXIMUM TEMPERATURE. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
28TH October	Madras	75·0	86·5	−11·5
	Cuddalore	76·1	86·2	−10·1
29TH ,,	Nellore	76·3	88·0	−11·7
	Gopalpur	74·1	85·6	−11·5
	Masulipatam	75·5	86·5	−11·0
	Madras	75·5	86·4	−10·9
30TH ,,	Chaibassa	73·1	86·0	−12·9
	Ranchi	68·6	80·5	−11·9
	Raipur	73·6	85·3	−11·7
31ST October.	Gaya	70·3	86·4	−16·1
	Patna	74·5	85·7	−11·2
	Purnea	74·2	84·9	−10·7
	Benares	76·1	86·8	−10·7
	Hazaribagh	69·2	79·9	−10·7
	Raipur	74·6	85·1	−10·5
	Chanda	77·6	87·8	−10·2
	Silchar	75·9	86·4	−10·5
	Berhampore	74·2	84·4	−10·2

Winds.

The wind, on the mean of the month, varied very considerably from the normal over the east of the Bay. At Port Blair, Cocos Island and Diamond Island the direction was unusually westerly, while at Akyab it was 61° more southerly than the average. At all four stations the steadiness was very exceptional for this month of unsteady variable winds. The velocity was considerably greater than the normal at the Bay Islands. The following gives comparative data for these stations:—

STATION.	MEAN STEADINESS. Actual percentage, October 1903.	Normal percentage, October.	Variation of actual from normal, October 1903.	MEAN WIND DIRECTION. Actual, October 1903.	Normal, October.	MEAN WIND VELOCITY IN MILES PER DIEM. Actual, October 1903.	Normal, October.	Variation of actual from normal, October 1903.
				°	°			
Port Blair	55	25	+30	S 68 W	S 1 W	236	150	+86
Cocos Island	50	13	+37	S 44 W	S 67 E	...	...	...
Diamond Island	32	17	+15	S 39 W	S 56 E	140	173	−33
Akyab	37	8	+29	S 3 E	S 64 E	62	59	+ 3

The increased southing, which was so noticeable in the wind's direction at Akyab, was equally remarkable at Calcutta, Saugor Island and False Point. The following gives direction data for these stations:—

STATION.	MEAN WIND DIRECTION. Actual, October, 1903.	Normal, October.
	°	°
Calcutta	S 63 W	N 44 W
Saugor Island	S 78 E	N 8 W
False Point	S 40 E	N 50 E

This large variation in the wind's direction was due to the abnormal pressure distribution and the transference westward of the area of lowest pressure from the centre of the Bay to the north-east of the Peninsula. The winds at the head of the Bay were very unsteady, even more unsteady than usual, but the velocity was higher than the average. This is shown below:—

STATION.	MEAN STEADINESS. Actual percentage, October, 1903.	Normal percentage, October.	Variation of actual from normal, October, 1903.	MEAN WIND VELOCITY IN MILES PER DIEM. Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
Calcutta	4	11	−7	79	67	+12
Saugor Island	11	13	−2	237	174	+63
False Point	21	22	−1	184	145	+39

Increased easting was shown in the wind's direction over the Gangetic Plain and Chota Nagpur, equally an

effect of the abnormal pressure distribution. The following gives data for Hazaribagh and Allahabad :—

STATION.	MEAN WIND DIRECTION.	
	Actual, October, 1903.	Normal, October.
	°	°
Hazaribagh	N 60 E	N 35 W
Allahabad	N 20 E	N 49 W

In the upper Sub-Himalayas the wind was very irregular in direction, very unsteady and generally very light in force.

In the Indus valley the wind varied irregularly from the normal. At Kurrachee the mean wind direction was nearly the average, but at Jacobabad the mean wind blew from S 12° W instead of from S 27° E and at Peshawar from N 24° E instead of from N 52° E. Both the steadiness and velocity were low in the upper Indus valley.

In Rajputana the wind was more westerly than usual and was steadier than the normal though the velocity was low. The following gives data :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, October, 1903.	Normal percentage, October.	Variation of actual from normal, October 1903.	Actual, October, 1903	Normal, October.	Westerly deflection.	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
				°	°				
Jaipur .	57	37	+20	N 36 W	N 22 W	+ 14	69	77	— 8
Deesa .	41	12	+29	N 46 W	N 82 E	...	132	161	—29

The following gives mean comparative data of air movement for the different divisions of northern India and for Burma and the Bay Islands :—

PROVINCE OR DIVISION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, October, 1903.	Normal percentage, October.	Variation of actual from normal, October, 1903.	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
Bay Islands . .	53	19	+34	236	150	+86
Burma . . .	35	13	+22	101	116	—15
Bengal . . .	7	12	— 5	137	102	+35
Bihar . . .	24	1	+23	32	52	—20
Chota Nagpur .	10	24	—14	156	124	+32
Orissa . . .	21	22	— 1	184	145	+39
United Provinces of Agra and Oudh.	10	20	—10	43	40	+ 3
Punjab . .	27	17	+10	28	33	— 5
North-West Frontier Province.	14	33	—19	12	60	—48
Rajputana . .	49	25	+24	101	119	—18
Sind . . .	44	35	+ 9	225	235	—10

In the Deccan the principal abnormal features of the wind were the increased northing and westing in the direction and generally increased steadiness and velocity. The following gives data to illustrate these variations :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, October, 1903.	Normal percentage, October.	Variation of actual from normal, October 1903.	Actual, October, 1903.	Normal, October.	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
				°	°			
Belgaum . .	12	13	—1	N 53 W	N 54 E	252	241	+11
Sholapur . .	44	22	+22	N 2 E	N 55 E	226	193	+33
Akola . . .	47	32	+15	N 26 W	N 16 E	80	83	— 3
Buldana . .	49	49	0	N 3 W	N 24 E	146	125	+21
Khandwa . .	52	35	+17	N 28 E	N 22 E	119	71	+48
Nagpur . .	34	49	—15	N 6 E	N 37 E	79	102	—23
Hyderabad (Deccan).	19	33	—14	N 26 W	S 80 E	103	96	+7

The wind direction was normal and the steadiness and velocity greater than usual at Karwar, but at Bombay the wind was unusually westerly and the steadiness and velocity below the average. The following gives data :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, October, 1903.	Normal percentage, October.	Variation of actual from normal, October, 1903.	Actual, October, 1903.	Normal, October.	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
				°	°			
Karwar . . .	81	63	+18	N 74 W	N 76 W	102	54	+48
Bombay . . .	32	33	— 1	N 22 W	N 14 E	199	226	—27

In southern India, as in the Deccan, the winds were generally more westerly than the average and the steadiness in excess of the normal. This is shown below :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.	
	Actual percentage, October, 1903.	Normal percentage, October.	Variation of actual from normal, October, 1903.	Actual, October, 1903.	Normal, October.
				°	°
Salem . . .	26	29	— 3	S 55 W	S 50 W
Chitaldroog . .	27	15	+12	N 37 W	N 28 E
Bangalore . .	19	8	+11	N 58 W	N 8 W
Hassan . .	32	24	+ 8	N 22 E	N 42 E
Mysore . .	8	13	— 5	S 89 W	N 42 E
Madras . .	23	17	+ 6	S 16 W	N 55 E
Bellary . .	32	14	+18	N 51 W	N 42 E

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

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, October, 1903.	Normal percentage, October.	Variation of actual from normal, October, 1903.	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
Central Provinces	43	42	+ 1	99	87	+12
Berar	48	41	+ 7	113	104	+ 9
Bombay Deccan	28	18	+10	239	217	+22
Madras Deccan	26	24	+ 2	126	100	+26
West Coast	57	48	+ 9	151	140	+11
Mysore	22	15	+ 7	120	124	— 4
Madras Coast	23	17	+ 6	121	118	+ 3
South India	26	29	— 3	53	60	— 7

The wind blew from the normal direction, but was very light at Quetta. The following gives data :—

Hill Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, October, 1903.	Normal, October.	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	°	°			
Quetta	N 64 W	N 59 W	13	54	—41

The winds varied irregularly from the normal at the hill stations, but were, on the whole, steadier than the average generally, and at the central stations the velocity was greater than usual. At Aden and Perim the wind's direction was approximately normal, but both the steadiness and velocity were less than usual. This is shown below :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, October, 1903.	Normal percentage, October	Variation of actual from normal, October 1903.	Actual, October, 1903.	Normal, October.	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
				°	°			
Aden	26	56	—30	S 85 E	S 80 E	232	316	— 84
Perim	71	84	—13	S 59 E	S 62 E	317	444	—127

The wind was slightly more easterly than usual at Zanzibar and less easterly than the average at the Seychelles and Mauritius. The steadiness was nearly normal, but both at the Seychelles and Mauritius the velocity was above the average. The following gives comparative data for the south-east trades region :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, October, 1903.	Normal percentage, October.	Variation of actual from normal, October, 1903.	Actual, October, 1903.	Normal, October.	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
				°	°			
Zanzibar	53	53	0	S 23 E	S 3 E	99	120	—21
Seychelles	53	59	—6	S 37 E	S 44 E	218	183	+35
Mauritius	...	...	...	S 73 E	S 78 E	288	264	+24

Humidity and Cloud.

The variations from the normal, of vapour tension, of relative humidity and of cloud, on the mean of the month, were in several respects similar to those of September. In both months the variations were large, more particularly over parts of northern and central India.

The mean vapour tension of the month was below the normal along the Konkan coast and inland over the Bombay Deccan. It was also below the normal over Mysore and the greater part of the south and south-east of the Peninsula. The variations were only important on a portion of the Konkan coast and amounted to —·050 at the two following stations :—

Station.	Absolute humidity.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	"	"	"
Ratnagiri	·750	·805	—·055
Goa	·798	·853	—·055

In all other parts of the Indian land area the mean vapour tension was in excess of the normal—more particularly over the Gangetic plain and the Indus valley and neighbouring regions. The excess was 0·100″ or more at the following stations:—

Province or Division.	Station.	Absolute Humidity. Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
		″	″	″
Gangetic Plain and neighbouring regions.	Mainpuri	·693	·532	+·161
	Agra	·645	·497	+·148
	Sutna	·716	·570	+·146
	Allahabad	·778	·634	+·144
	Bareilly	·740	·605	+·135
	Nowgong	·698	·567	+·131
	Lucknow	·756	·628	+·128
	Cawnpore	·730	·602	+·128
	Benares	·805	·679	+·126
	Delhi	·537	·422	+·115
	Patna	·841	·731	+·110
	Meerut	·589	·484	+·105
	Sirsa	·500	·400	+·100
Indus Valley	Jacobabad	·628	·438	+·190?
	Bhuj	·758	·605	+·153?
	Kurrachee	·794	·659	+·135
	Hyderabad	·622	·495	+·127

The greatest excess was thus shown (with the doubtful exceptions of Jacobabad and Bhuj), at Allahabad, Sutna, Mainpuri and Agra, in which area the rainfall of the month was exceptionally heavy.

The mean relative humidity of the month exhibited variations in some respects similar. There was a small area of deficient relative humidity on the south Konkan coast. The following gives variation data for the contained stations:—

Station.	Relative Humidity. Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	%	%	
Goa	79·0	84·6	—5·6
Belgaum	75·0	79·7	—4·7
Karwar	86·0	89·3	—3·3
Mormugao	89·0	89·6	—0·6

The mean relative humidity was also in defect at the stations on the Madras coast and in the extreme south of the Peninsula. This is shown below:—

Area.	Station.	Relative Humidity. Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
		%	%	
Madras Coast	Nellore	77·0	81·3	—4·3
	Negapatam	78·0	81·3	—3·3
	Madras	81·0	82·5	—1·5
Extreme south of the Peninsula.	Tinnevelly	68·0	72·4	—4·4
	Trivandrum	84·0	84·4	—0·4

A slight defect in the relative humidity, on the mean of the month, was also shown over parts of Assam and of north Bengal. The following gives comparative data for the stations in this area:—

Station.	Relative Humidity. Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	%	%	
Silchar	87·0	89·3	—2·3
Mymensingh	87·0	88·3	—1·3
Dhubri	88·0	88·5	—0·5
Jalpaiguri	87·0	87·4	—0·4

Finally the mean relative humidity was locally in defect at Peshawar. This is shown below:—

Station.	Relative Humidity. Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	%	%	
Peshawar	56·0	58·5	—2·5

In all other parts of the Indian land area the mean relative humidity was in excess. Over parts of the Peninsula, this excess was in part a temperature effect as the absolute humidity was less than usual in some places, but over northern and central India the excess was generally due to an increased amount of vapour in the air, as the mean temperature was generally normal or in excess of

the normal. The area of greatest excess covered the Gangetic plain and the adjoining parts of Central India and of the Central Provinces. The rainfall over these regions was very heavy during the month under review, and the mean relative humidity was more than 10 above the average at the stations for which comparative data are given below:—

Station.	Relative humidity.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	%	%	
Sutna	88·0	66·2	+21·8
Cawnpore	83·0	65·5	+17·5
Nowgong	86·0	68·6	+17·4
Allahabad	86·0	69·3	+16·7
Mainpuri	81·0	64·5	+16·5
Agra	73·0	56·8	+16·2
Jubbulpore	91·0	75·2	+15·8
Lucknow	86·0	72·2	+13·8
Bareilly	88·0	74·9	+13·1
Indore	75·0	62·0	+13·0
Patna	85·0	73·3	+11·7
Saugor	71·0	59·8	+11·2
Delhi	60·0	49·5	+10·5
Gorakhpur	87·0	76·6	+10·4
Raipur	82·0	71·9	+10·1

A second area of considerable to large excess lay over the Indus valley and Gujarat. Over this area the mean temperature was generally excessive, but the absolute humidity was in large excess and the mean relative humidity was more than 10 above the normal at the following stations:—

Station.	Relative humidity.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	%	%	
Jacobabad	71·0	52·2	+18·8
Bhuj	73·0	59·5	+13·5
Veraval	76·0	65·5	+10·5

The following table shows the stations at which the mean relative humidity of the month exceeded 90 per cent. and was below 40 per cent. and indicates the areas of greatest and least relative humidity on the mean of the month:—

Area of greatest relative humidity.			Area of least relative humidity.		
Stations.	Mean relative humidity.	Variation from normal.	Stations.	Mean relative humidity.	Variation from normal.
	%			%	
Sibsagar	97·0	+0·6	Mount Abu	39·0	−5·3
Sonemarg	96·0	...	Montgomery	38·0	?
Akyab	94·0	+3·5			
Bassein	93·0	+1·0			
Lashio	93·0	+0·6			
Rangoon	92·0	+0·5			
Tavoy	92·0	+4·5			
Mergui	92·0	+4·7			
Mercara	92·0	+3·8			
Bhamo	91·0	+4·5			
Narayanganj	91·0	?			
Jubbulpore	91·0	+15·8			

The highest relative humidity was hence recorded over upper Assam and lowest relative humidity reported from Montgomery.

On the outer ranges of the north-west Himalayas, in Baluchistan and at Pachmarhi and Wellington the mean relative humidity was in excess of the normal—most so at Pachmarhi. The following gives comparative data:—

Area.	Hill Station.	Relative humidity.		
		Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
		%	%	
Outer ranges of the Himalayas.	Chakrata	40·0	36·1	+3·9
	Ranikhet	71·0	67·0	+4·0
	Simla	52·0	48·8	+3·2
	Mussooree	63·0	60·6	+2·4
	Cherat	40·0	36·1	+3·9
	Murree	42·0	41·8	+0·2
Baluchistan	Quetta	51·0	43·8	+7·2
	Chaman	36·0	30·8	+5·2
Central Hill Station.	Pachmarhi	75·0	54·5	+20·5
Southern Hill Station.	Wellington	80·0	78·0	+2·0

On the other hand, at the stations on the inner Himalayas, as well as at Darjeeling and Mount Abu the mean relative humidity was less than the normal. This is shown below :—

Hill Station.	Relative Humidity.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	%	%	
Leh	42·0	52·7	—10·7
Gilgit	43·0	46·9	— 3·9
Srinagar	87·0	87·7	— 0·7
Darjeeling	86·0	88·5	— 2·5
Mount Abu	39·0	44·3	— 5·3

At Aden and Perim both the absolute and relative humidities exceeded the normal. The following gives data :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	"	"	"	%	%	
Aden	·834	·741	+·093	71·0	67·8	+3·2
Perim	·875	·824	+·051	72·0	68·8	+3·2

In the south-east trades region the mean relative humidity was practically normal. At Zanzibar and the Seychelles the mean absolute humidity was slightly higher than usual, while at Mauritius it was lower. This is shown below :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
	"	"	"	%	%	
Zanzibar	·793	·771	+·022	78·0	78·0	0
Seychelles	·781	·780	+·001	79·0	78·0	+1·0
Mauritius	·516	·554	—·038	69·0	70·0	—1·0

The mean cloud amount of the month was less than usual by small amounts over north-west India, the deficiency reaching its maximum amount over the Rajputana desert. The following gives comparative data :—

Station.	Mean Cloud Amount.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
Pachpadra	0	1·1	—1·1
Sirsa	0·1	0·7	—0·6
Montgomery	0	0·6	—0·6
Rawalpindi	0·4	1·0	—0·6
Peshawar	0·3	0·9	—0·6
Dera Ismail Khan	0	0·5	—0·5

The mean cloud amount was also less than usual over parts of east Bengal, Arakan, Assam and Burma. The following gives data for the stations in this area :—

Station.	Mean Cloud Amount.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
Chittagong	3·9	5·0	—1·1
Barisal	2·8	3·7	—0·9
Akyab	5·2	5·9	—0·7
Silchar	5·4	6·1	—0·7
Bogra	2·9	3·5	—0·6

Cloud was also less than the normal over the Madras coast, the extreme south of the Peninsula, east Ceylon and at Minicoy. This is shown below :—

Station.	Mean Cloud Amount.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
Trichinopoly	5·0	6·3	—1·3
Madura	4·5	5·8	—1·3
Coimbatore	4·6	5·7	—1·1
Trincomalee	2·8	3·4	—0·6
Tinnevelly	5·3	5·8	—0·5
Minicoy	4·9	5·4	—0·5

Over the remainder of India the mean cloud amount was generally more or less in excess. The excess was very large over the more central parts of the country and at the stations for which comparative data are given below, the mean excess amounted to more than 2·0 :—

Station.	Mean cloud amount. Actual, October, 1903.	Normal, October.	Variation of actual from normal October, 1903.
Sutna	5·7	1·6	+4·1
Gorakhpur	5·1	1·6	+3·5
Nowgong	5·2	1·8	+3·4
Allahabad	5·2	2·0	+3·2
Jubbulpore	5·1	2·0	+3·1
Cawnpore	4·1	1·1	+3·0
Lucknow	4·0	1·4	+2·6
Benares	4·7	2·2	+2·5
Saugor	3·9	1·5	+2·4
Hazaribagh	5·9	3·5	+2·4
Babraich	3·5	1·3	+2·2
Ranchi	5·3	3·1	+2·2
Berhampore	5·9	3·7	+2·2
Patna	4·5	2·4	+2·1
Sambalpur	4·7	2·6	+2·1

In parts of lower Burma and Tenasserim the excess in the mean cloud amount was considerable and at the two following stations amounted to about 2·0 :—

Station.	Mean cloud amount. Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
Moulmein	7·0	5·0	+2·0
Rangoon	7·5	5·6	+1·9

The variations from the normal in the mean cloud amount and of the mean relative humidity were hence very similar except in the north-west of India.

The following table gives the stations at which the mean cloud amount of the month exceeded 7·0 and was below 1·0 and hence indicates the areas of greatest cloudiness and of greatest serenity during the month :—

Area of least cloudiness. Station.	Mean cloud amount. Actual, October, 1903.	Normal, October.	Variation of actual from normal.	Area of greatest cloudiness. Station.	Mean cloud amount. Actual, October, 1903.	Normal, October.	Variation of actual from normal.
Mysore	8·6	7·0	+1·6	Deesa	0·9	1·3	—0·4
Hassan	7·8	7·1	+0·7	Umballa	0·9	0·5	+0·4
Yamethin	7·6	3·1	+4·5?	Sambhar	0·8	0·9	—0·1
Rangoon	7·5	5·6	+1·9	Patiala	0·7	...	...
Bangalore	7·3	6·1	+1·2	Ludhiana	0·6	1·0	—0·4
Waltair	7·2	4·8	+2·4?	Bikaner	0·5	0·9	—0·4
				Sialkot	0·4	0·7	—0·3
				Rawalpindi	0·4	1·0	—0·6
				Peshawar	0·3	0·9	—0·6
				Khushab	0·3	0·3	0
				Lahore	0·2	0·5	—0·3
				Hyderabad (Sind).	0·2	0·6	—0·4
				Sirsa	0·1	0·7	—0·6
				D. I. Khan	0	0·5	—0·5
				Montgomery	0	0·6	—0·6
				Mooltan	0	0·4	—0·4
				Jacobabad	0	0·3	—0·3
				Pachpadra	0	1·1	—1·1

The skies were hence most thickly clouded over Mysore and were least cloudy over parts of the Punjab, of Rajputana and of the Indus valley.

At the United Provinces hill stations, as well as at Mount Abu, Pachmarhi and Wellington the sky was more cloudy than usual, on the mean of the month, while, on the contrary, over the north-west Himalayas, in Baluchistan and at Darjeeling the mean cloud amount was less than usual. The following gives data for the hill stations :—

Hill Station.	Mean cloud amount. Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
Ranikhet	1·9	1·0	+0·9
Mussooree	1·5	1·1	+0·4
Chakrata	1·1	1·0	+0·1
Mount Abu	1·3	1·1	+0·2
Pachmarhi	5·7	2·6	+3·1
Wellington	6·7	5·9	+0·8
Gilgit	1·3	3·4	—2·1
Srinagar	0·6	2·4	—1·8
Murree	0·2	1·3	—1·1
Leh	1·5	2·4	—0·9
Cherat	0·3	0·9	—0·6
Simla	0·7	0·8	—0·1
Chaman	0	0·6	—0·6
Quetta	0	0·4	—0·4
Darjeeling	5·3	5·7	—0·4

At Perim and Aden, notwithstanding the increased humidity, the mean cloud amount was normal or less than usual. This is shown below:—

Station.	Mean cloud amount.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
Aden	2·1	2·1	0
Perim	0·5	2·1	—1·6

At Zanzibar there was considerably and at Mauritius slightly more cloud than the normal during the month, while at the Seychelles the sky was unusually clear. The following gives comparative data for the stations in the trades region:—

Station.	Mean cloud amount.		
	Actual, October, 1903.	Normal, October.	Variation of actual from normal, October, 1903.
Zanzibar	5·7	4·6	+1·1
Mauritius	5·9	5·7	+0·2
Seychelles	5·4	6·2	—0·8

Rainfall.

The rainfall of the month of October, 1903, was very abnormally distributed. Ordinarily the principal rainfall of 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 the north-east (or retreating south-west) monsoon was never properly established over the Bay, and the principal rainfall of the month was attributable to two cyclonic storms, the first of which passed from the head of the Bay into the Gangetic plain and the second passed from the south-west of the Bay northward along and over the east coast of the Peninsula as far north as Orissa.

Both storms were accompanied with a strong advance of southerly winds up the Bay and both occasioned heavy rain in their neighbourhoods. On the other hand, monsoon winds collapsed over the Arabian Sea early in the month and little rain, beyond light scattered showers, was received over the west of the Peninsula after the first week and practically none over north-west India throughout the month.

The chief periods of rainfall were as follows:—

(1) The 1st to the 4th—when showers were received except in parts of north-west India.

(2) The 5th to the 12th—when heavy rain was received over north-east India and the Gangetic plain from the first cyclonic storm of the month.

(3) The 15th to the 20th—when rain was received over Burma, Assam and part of Bengal.

(4) The 17th to the 25th—when showers fell over the south of the Peninsula.

(5) The 28th to the 31st—when rain was received over north-east India from the second cyclonic storm of the month.

Pl. IV shows the distribution of rainfall according to the meteorological observatories.

The following table gives mean actual, mean normal and variation rainfall data of the 57 meteorological divisions of the empire:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, October, 1903.	Average normal, October.	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.
				Inches.	Inches.	Inches.
Burma	Tenasserim	15·2	12·2	15·01	9·95	+5·06
	Lower Burma (Deltaic)	14·1	10·0	8·72	6·16	+2·56
	Central do.	11·5	7·5	6·20	4·59	+1·61
	Upper do.	9·5	6·1	6·87	4·44	+2·43
	Arakan	12·0	9·1	11·79	9·01	+2·78

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, October, 1903.	Average normal, October.	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.
				Inches.	Inches.	Inches.
Bengal and Assam	Eastern Bengal	7·5	5·8	6·35	5·83	+0·52
	Assam (Surma)	7·9	6·8	6·56	6·58	−0·02
	Do. (Hills)	10·8	8·4	8·24	7·38	+0·86
	Do. (Brahmaputra)	8·5	6·0	5·69	4·55	+1·14
	Deltaic Bengal	9·6	5·3	6·45	4·44	+2·01
	Central do.	7·7	4·1	6·86	3·52	+3·34
	North do.	6·6	4·3	5·95	4·75	+1·20
	Bengal Hills	9·0	5·0	7·08	3·88	+3·20
	Orissa	11·3	6·2	11·17	5·74	+5·43
	Chota Nagpur	9·2	3·6	8·86	2·80	+6·06
	Bihar (South)	8·7	2·8	6·05	2·52	+3·53
	Do. (North)	7·1	2·7	5·29	2·68	+2·61
United Provinces of Agra and Oudh.	United Provinces (East)	11·1	2·1	13·46	2·39	+11.07
	Oudh (South)	10·5	1·5	12·96	1·66	+11·30
	Do. (North)	9·3	1·5	13·41	1·79	+11·62
	United Provinces (Central)	7·0	1·1	10·46	1·06	+9·40
	Do. do. (West)	2·5	0·5	4·69	0·41	+4·28
	Do. do. (East Submontane)	10·4	2·1	13·08	2·94	+10·14
	Do. do. (West do.)	2·7	0·7	5·15	0·75	+4·40
	Do. do. (Hills)	4·5	1·3	3·45	1·44	+2·01
Punjab	Punjab (South-East)	0·8	0·4	0·43	0·23	+0·20
	Do. (South)	0·3	0·3	0·14	0·16	−0·02
	Do. (Central)	0·4	0·5	0·20	0·25	−0·05
	Do. (Submontane)	0·6	0·6	0·23	0·36	−0·13
	Do. (Hills)	0·8	1·1	0·34	0·74	−0·40
	Do. (West)	0·1	0·1	0	0·06	−0·06
North-West Frontier Province.	North-West Frontier Province	0·3	0·7	0·15	0·31	−0·16
Bombay and Malabar Coast Districts (Madras).	Malabar	11·9	11·7	11·06	9·34	+1·72
	Travancore	13·3	..	13·08	...	...
	Madras (South Central)	7·5	8·6	5·47	6·24	−0·77
	Coorg	14·2	..	9·68	...	...
	Mysore	8·0	8·1	5·86	5·50	+0·36
	Konkan	5·9	6·1	5·14	4·48	+0·66
	Bombay Deccan	5·6	6·3	3·99	4·42	−0·43
	Khandesh	2·4	3·0	2·33	1·92	+0·41
Central Provinces and Berar.	Berar	3·7	2·3	3·03	1·73	+1·30
	Central Provinces (West)	4·4	2·5	2·79	1·78	+1·01
	Do. (Central)	7·0	2·3	5·22	1·67	+3·55
	Do. (East)	8·1	2·8	5·24	2·04	+3·20
Bombay (North)	Gujarat	0·3	1·4	0·09	1·04	−0·95
	Kathiawar and Cutch	0·4	0·7	0·31	0·59	−0·28
	Sind	0	0	0	0·02	−0·02
	Baluchistan Hills	0	0·2	0	0·06	−0·06
Rajputana and Central India.	Central India (East)	4·7	1·2	4·58	0·98	+3·60
	Rajputana (East), Central India (West)	1·1	0·3	1·14	0·20	+0·94
	Do. (West)	0	0·1	0	0·07	−0·07
Madras	East Coast (North)	9·2	7·1	6·69	7·03	−0·34
	Madras (Central)	5·9	6·3	4·08	4·84	−0·76
	East Coast (Central)	6·2	8·1	5·07	8·68	−3·61
	Do. (South)	6·6	9·3	4·79	8·26	−3·47
	Madras (South)	6·6	8·6	4·46	6·81	−2·35

The preceding data show that rain was received during the month in all divisions except the west Punjab, Sind, Baluchistan, and western Rajputana where the weather was rainless throughout the month. The average actual fall was only 0·09″ in Gujarat, 0·14″ in the south Punjab, 0·15″ in the North-west Frontier Province and 0·20″ in the central Punjab. From these areas of very light rainfall the amount increased and equalled 15·01″ in Tenasserim, 11·79″ in Arakan, 11·17″ in Orissa, 13·46″ in the east of the United Provinces, 12·96″ in south Oudh, 13·41″ in north Oudh, 10·46″ in the centre of the United Provinces, 13·08″ in the east submontane division of the United Provinces, 11·06″ in Malabar and 13·08″ in Travancore.

The distribution of rain during the month was determined mainly (1) by the paths of the two cyclonic storms of the month, (2) by the constant showers over Burma (3) by the settled fine weather in north-west India and (4) by the absence of north-east monsoon winds and of rain on the Madras coast. The total rainfall of the month was hence in large to very large excess

(1) Over the greater part of Burma.

(2) Over Bengal, the United Provinces, the Central

Provinces, central India and eastern Rajputana; and was in defect.

(1) Over the greater part of the Punjab.
(2) Over the North-west Frontier Province.
(3) Over north Bombay and
(4) Over the east of the Peninsula.

The excess was greatest over the United Provinces and neighbouring regions and amounted to more than 100% in the following divisions:—

DIVISION.	RAINFALL. Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Chota Nagpur	8·86	2·80	+6·06	+216
South Bihar	6·05	2·52	+3·53	+140
United Provinces, East	13·46	2·39	+11·07	+463
South Oudh	12·96	1·66	+11·30	+681
North „	13·41	1·79	+11·62	+649
United Provinces, Central	10·46	1·06	+9·40	+887
„ „ West	4·69	0·41	+4·28	+1044
„ „ East submontane.	13·08	2·94	+10·14	+345
„ „ West submontane.	5·15	0·75	+4·40	+587
„ „ Hills	3·45	1·44	+2·01	+140
Central Provinces, Central	5·22	1·67	+3·55	+213
„ „ East	5·24	2·04	+3·20	+157
Central India, East	4·58	0·98	+3·60	+367
Rajputna East, Central India, West.	1·14	0·20	+0·94	+470

The relative deficiency was greatest in the north-west of India, but was considerable along the Madras coast. It amounted to more than 40% in the following divisions:—

DIVISION.	RAINFALL. Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Punjab Hills	0.34	0·74	−0·40	−54
Do. West	0	0·06	−0·06	−100
N.-W. F. Province	0·15	0·31	−0·16	−52
Gujarat	0·09	1·04	−0·95	−91
Kathiawar and Cutch	0·31	0·59	−0·28	−47
Sind	0	0·02	−0·02	−100
Baluchistan Hills	0	0·06	−0·06	−100
West Rajputana	0	0·07	−0·07	−100
East Coast Central	5·07	8·68	−3·61	−42
Do. South	4·79	8·26	−3·47	−42

The total rainfall of the month was in excess of the normal in 35 divisions, in defect in 19 and the total variation for the whole country (excluding the hill divisions), derived from the fifth column of the table on pages 454 and 455, was + 2·16″.

In Burma there were three periods of general rain, *viz.*, between the 1st and the 6th, the 14th and the 19th and the 28th and the 31st. On the Burma coast showers prevailed at other times but in central and upper Burma the weather was generally fine in the intervals. The first fall of rain was heavy in Tenasserim and both the first and second falls were heavy and general in upper Burma and were of great economic importance. The following amounts exceeding 4″ in 24 hours were recorded during the month:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
TAVOY	Yebyu	2nd October	4·60
	Launglon	3rd „	7·21
LOWER CHINDWIN	Kani	„ „	6·60
TAVOY	Tavoy	„ „	5·20
AMHERST	Amherst	„ „	4·78
MYINGYAN	Natogyi	4th „	4·24
AMHERST	Amherst	„ „	4·15
PAKOKKU	Myaing	16th „	4·90
MEIKTILA	Wundwin	17th „	5·20

The month's rainfall was in excess of the average in all parts of the province but particularly so in Tenasserim and upper Burma. This is shown below:—

DIVISION.	RAINFALL. Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Tenasserim	15·01	9·95	+5·06	+51
Lower Burma, Deltaic	8·72	6·16	+2·56	+42
Central Burma	6·20	4·59	+1·61	+35
Upper Burma	6·87	4·44	+2·43	+55
Arakan	11·79	9·01	+2·78	+31

In Assam rain occurred moderately generally between the 1st and the 11th, more particularly in the Brahmaputra valley. A second burst of rain occurred between the 17th and the 20th and a third at the end of the month. The month's rainfall was normal in the Surma valley and in excess in the Brahmaputra valley. The following gives comparative data for the eight plains districts of the province:—

DISTRICT.	RAINFALL. Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	7·77	6·50	+1·27	+20
Sylhet	5·45	6·65	−1·20	−18
Goalpara	4·81	4·85	−0·04	−1
Kamrup	4·49	3·59	+0·90	+25
Darrang	5·22	4·88	+0·34	+7
Nowgong	5·24	4·01	+1·23	+31
Sibsagar	7·52	4·62	+2·90	+63
Lakhimpur	6·51	5·46	+1·05	+19

There were no very heavy falls of rain during the month and the only amounts exceeding 3·50″ were as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8A.M. of date.
			Inches.
Sibsagar	Diflu	1st October	5·03
Nowgong	Lumding	5th ,,	4·25
Darrang	Kerkeriya	6th ,,	4·35
Cachar	Mupa	,, ,,	3·70
Nowgong	Nowgong	7th ,,	9·30
Cachar	Monierkhal	,, ,,	4·17
Khasi and Jaintia Hills.	Cherra Poonjee, Mr. Shadwell's house.	31st ,,	4·08
	Cherra Poonjee Police Station.	,, ,,	4·07

At Cherra Poonjee the total rainfall of the month was 8·28″, the normal fall for October being 13·99″, and the only heavy fall in the Khasi and Jaintia hills was on the last day of the month, when Cherra Poonjee received 4·07″.

In Bengal most of the rainfall was due to the two cyclonic storms of the month. Heavy and general rain occurred between the 6th and the 12th; showers between the 17th and 20th and another heavy and general downpour between the 29th and 31st, while, in the western districts, rain occurred between the 1st and the 5th, due to the feeble storm over the Central Provinces at this time.

In south-west Bengal the month's rainfall was normal in Jessore and Khulna and in excess in the remaining districts. The following gives comparative data :—

District.	Rainfall.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burdwan	8·65	3·36	+5·29	+157
Birbhum	5·76	3·89	+1·87	+ 48
Bankura	6·78	3·15	+3·63	+115
Midnapore	8·16	3·99	+4·17	+105
Hooghly	6·55	4·00	+2·55	+ 64
Howrah	5·52	3·79	+1·73	+ 46
24-Parganas	7·22	5·21	+2·01	+ 39
Calcutta	8·02	3·87	+4·15	+107
Nadia	6·41	4·04	+2·37	+ 59
Murshidabad	7·92	3·75	+4·17	+111
Jessore	4·79	4·45	+0·34	+ 8
Khulna	5·82	5·21	+0·61	+ 12

The heaviest falls were generally recorded during the first ten days of the month,—during the existence of the first cyclonic storm,—when the following falls exceeding 3″ in 24 hours were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Burdwan	Katwa	6th October	3·13
Bankura	Khatra	7th ,,	3·48
24-Parganas	Basirhat	,, ,,	3·27
Khulna	Nakipur	,, ,,	3·07

In north Bengal the rainfall of the month was about the normal in Jalpaiguri and Cooch Behar, but was excessive elsewhere, more particularly in Rajshahi. The following gives comparative data for the contained districts :—

District.	Rainfall.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rajshahi	7·34	3·66	+3·68	+101
Dinajpur	5·99	3·48	+2·51	+72
Jalpaiguri	5·52	5·86	−0·34	− 6
Darjeeling	7·71	4·10	+3·61	+88
Cooch Behar	4·63	4·81	−0·18	− 4
Rangpur	7·09	4·67	+2·42	+52
Bogra	5·82	4·46	+1·36	+30
Pabna	7·58	4·19	+3·39	+81

The heaviest rainfall ordinarily occurred under the influence of the second storm, though some heavy falls were also recorded on the 6th and 7th. The following gives the amounts exceeding 3″·50 in 24 hours recorded during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Darjeeling	Darjeeling	6th October	4·12
	Kurseong	,, ,,	3·78
Rangpur	Ulipur	,, ,,	3·75
Darjeeling	Darjeeling	7th ,,	4·07
Rajshahi	Mahadebpur	31st ,,	4·44
	Naugaon	,, ,,	4·06
Dinajpur	Churaman	,, ,,	3·76
Rangpur	Ulipur	,, ,,	3·65

In east Bengal the influence of the two storms was less felt than in other parts of the province, and the rainfall of this division was about normal, though there was some excess in Backergunge. The following gives comparative data for the districts:—

District.	Rainfall.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dacca	3·82	4·26	—0·44	—10
Mymensingh	6·40	5·06	+1·34	+26
Faridpur	4·79	4·39	+0·40	+ 9
Backergunge	9·89	6·38	+3·51	+55
Tippera	3·24	4·49	—1·25	—28
Noakhali	8·27	7·52	+0·75	+10
Chittagong	6·86	7·62	—0·76	—10

The following falls exceeding 3 inches in 24 hours were registered during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Noakhali	Fenny	5th October	3·10
Backergunge	Patuakhali	7th „	3·41
	Barisal	„ „	3·12
Noakhali	Harishpur	11th „	5·05
Backergunge	Daulatkhan	30th „	4·96
Mymensingh	Netrakona	„ „	3·65
Noakhali	Noakhali	„ „	3·32
Mymensingh	Netrakona	31st „	5·48
	Mymensingh	„ „	4·95
	Kishorganj	„ „	4·03

Over the greater part of Bihar rain occurred almost daily from the 1st to the 11th, with a heavy general fall on the 7th, 8th and 9th. Then the weather cleared and was fine till the 30th, when another general fall was reported. The month's rainfall was almost everywhere in large excess, as is shown by the following data of the contained districts:—

District.	Rainfall.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Patna	3·86	2·66	+1·20	+ 45
Gaya	6·62	2·27	+4·35	+191
Shahabad	6·39	2·61	+3·78	+145
Saran	6·00	2·67	+3·33	+125
Champaran	9·24	3·28	+5·96	+182
Muzaffarpur	4·41	2·61	+1·80	+ 69
Darbhanga	4·28	2·16	+2·12	+ 98
Monghyr	6·48	2·49	+3·99	+160
Bhagalpur	4·62	2·54	+2·08	+ 82
Purnea	4·69	2·86	+1·83	+ 64
Malda	4·41	3·39	+1·02	+ 30
Sonthal Parganas	6·35	3·15	+3·20	+102

The rainfall was heaviest between the 2nd and the 7th, when the following falls exceeding 3·50″ in 24 hours were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Saran	Hathwa	2nd October	4·85
Darbhanga	Khutauna	„ „	4·00
Gaya	Daudnagar	3rd „	6·22
Saran	Sripur	„ „	4·97
Champaran	Bettiah	4th „	5·00
Sonthal Parganas	Nanihat	7th „	4·20
Gaya	Nawada	„ „	4·10
Monghyr	Khargpur	„ „	3·83

Orissa came under the influence of both storms, and the

rainfall exceeded the normal in all districts. This is shown below:—

District.	Rainfall.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuttack	11·69	6·19	+5·50	+ 89
Balasore	13·83	5·54	+8·29	+150
Puri	10·66	7·30	+3·36	+ 46

The heaviest rainfall generally occurred on the 29th, when the second storm was crossing the north Madras coast, and the following falls exceeding 3·50 inches in 24 hours were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Cuttack	Salepur	29th October	5·38
Orissa Tributary Mahals.	Ranpur	" "	5·00
Cuttack	Jagatsingpur	" "	4·56
Balasore	Soro	" "	4·45
Puri	Puri	" "	3·97
Orissa Tributary Mahals.	Hindol	" "	3·88
	Narsingpur	" "	3·72
Balasore	Balasore	" "	3·70
Puri	Pipli	" "	3·61
	Gop	" "	3·52

In Chota Nagpur the month's rainfall, relatively to the normal, was heavier than in any other part of the province. The following gives data for the districts:—

District.	Rainfall.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hazaribagh	8·61	3·13	+5·48	+175
Ranchi	9·77	2·63	+7·14	+271
Palamau	5·10	2·69	+2·41	+ 90
Manbhum	9·56	2·62	+6·94	+265
Singhbhum	9·31	2·88	+6·43	+223

Both storms occasioned heavy general rain, the weather in the interval having been fine. The largest amounts, exceeding 3·50 inches in 24 hours, recorded during the month, were as follows:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Manbhum	Gobindpur	6th October	3·60
	Chas	7th "	5·20
	Purulia	" "	5·12
Hazaribagh	Kharagdiha	" "	5·10
	Kodarma	" "	4·71
	Barhi	" "	4·66
	Pachamba	" "	4·40
Chota Nagpur Tributary States	Sirguja	" "	3·60
Singhbhum	Baharagura	8th "	4·07
	Gailkura	31st "	4·00

The United Provinces were only affected by the first cyclonic storm, the weather after the 15th having been fine. During the first fortnight, however, very disturbed conditions prevailed, and between the 7th and the 11th, when the cyclonic storm was passing, over this region, the rainfall was excessively heavy. The following gives data for the different divisions:—

Division.	Rainfall.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
United Provinces, East	13·46	2·39	+11·07	+ 463
South Oudh	12·96	1·66	+11·30	+ 681
North "	13·41	1·79	+11·62	+ 649
United Provinces, Central	10·46	1·06	+ 9·40	+ 886
Do. do., West	4·69	0·41	+ 4·28	+1044
Do. do., East Submontane	13·08	2·94	+10·14	+ 345
Do. do., West Submontane	5·15	0·75	+ 4·40	+ 587
Do. do., Hills	3·45	1·44	+ 2·01	+ 140

The preceding data show that the month's rainfall was actually heaviest in the east and Oudh divisions, but, relatively to the normal, it was heaviest in the central and

west divisions. The following gives data for the districts in these two divisions:—

Division.	District.	Rainfall. Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
		Inches.	Inches.	Inches.	
United Provinces (Central.)	Banda	14·99	1·96	+13·03	+ 665
	Fatehpur	12·12	1·57	+10·55	+ 672
	Hamirpur	7·07	0·99	+ 6·08	+ 614
	Cawnpore	11·12	1·06	+10·06	+ 949
	Jalaun	6·68	0·66	+ 6·02	+ 912
	Etawah	8·61	0·98	+ 7·63	+ 779
	Farrukhabad	11·26	0·93	+10·33	+1111
	Mainpuri	12·94	0·86	+12·08	+1405
	Etah	12·09	0·67	+11·42	+1704
	Jhansi	7·94	0·77	+ 7·17	+ 931
Do. (West.)	Agra	7·83	0·46	+ 7·37	+1602
	Muttra	4·71	0·34	+ 4·37	+1285
	Aligarh	6·66	0·51	+ 6·15	+1206
	Bulandshahr	2·47	0·35	+ 2·12	+ 606
	Meerut	0·58	0·34	+ 0·24	+ 71

Very heavy falls of rain in 24 hours were recorded during the first ten days and more particularly on the 10th. The following gives the amounts exceeding 8″:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jaunpur	Mariahu	2nd October	10·79
Mirzapur	Korh	2nd October	9·50
Jaunpur	Kutahan	2nd October	9·31
Allahabad	Karchhana	2nd October	9·21
Sultanpur	Kadipur	2nd October	8·97
Jaunpur	Jaunpur	2nd October	8·40
	Kirakat	2nd October	8·18
Gorakhpur	Bansgaon	3rd October	8·05
Sultanpur	Sultanpur	5th October	8·02
Shahjahanpur	Jalalabad	9th October	8·26
Etah	Aliganj	10th October	13·34
Shahjahanpur	Shahjahanpur	10th October	13·31
Hardoi	Shahabad	10th October	12·07
Shahjahanpur	Jalalabad	10th October	11·62
Farrukhabad	Farrukhabad	10th October	10·86
Shahjahanpur	Pawayan	10th October	10·83
	Tilhar	10th October	10·73
Budaun	Dataganj	10th October	10·16
Hardoi	Hardoi	10th October	9·92
Bareilly	Faridpur	10th October	8·85
Kheri	Muhamdi	10th October	8·10

Showers occurred over the northern districts of the Punjab during the first three days of the month, and general moderate rain fell over the Gurgaon, Rohtak and Delhi districts on the 9th, when the first storm of the month lay near Jhansi. At other times and over the remainder of the province the weather was rainless. At a few places, mainly in Hazara in the North-West Frontier Province, light showers occurred during the first three days, but the remainder of the month was rainless and the month's rainfall of the division was much below the normal.

Baluchistan had no rain during the month. In Kashmir, as in the north Punjab and the North-West Frontier Province, and from the same general disturbance, there were a few showers on the 1st, 2nd and 3rd.

Western Rajputana received no rain during the month, but eastern Rajputana reported heavy general rainfall on the 9th and 10th, when the first storm lay over the west of the United Provinces. The total rainfall of the month was, on the whole, much heavier than usual, as is shown by the following comparative data for the larger states:—

State.	Rainfall. Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jaipur	0·70	0·10	+0·60	+600
Alwar	0·74	0·29	+0·45	+155
Bharatpur	3·19	0·15	+3·04	+2027
Dholpur	5·09	0·15	+4·94	+3293
Karauli	2·59	0·07	+ 2·52	+3600
Kotah	0·70	0·13	+0·57	+ 438
Ajmer-Merwara	0·03	0·14	−0·11	− 79
Udaipur	0	0·47	−0·47	−100

The greatest excess was thus in Karauli, Dholpur and Bharatpur, where the following amounts exceeding 3″ in 24 hours were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Dholpur	Garhi Sandro	8th October	4·35
	Dholpur	" "	4·20
	Mania	" "	4·02
	Kesarbagh	" "	4·06
	Rajakhera	" "	3·50
	Tajpur	" "	3·43
	Sermathra	" "	3·37
Bharatpur	Kumher	" "	3·31
Dholpur	Gajpura	" "	3·30
	Sonaki Goorja	9th "	4·00
	Gajpura	" "	3·40
	Pahari	" "	3·25

In the Bhopal and Gwalior States of Central India the rainfall, as in Rajputana, was confined to the 8th, 9th and 10th, but in the remaining States daily rain fell from the 1st to the 13th. The heaviest rainfall was, however, connected with the cyclonic storm and occurred between the 7th and 10th, as is shown by the following record of falls exceeding 3″ in 24 hours during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Rewah	Tyonthar	2nd October	4·86
Bundelkhand	Panna	" "	3·22
	Ajaigarh	" "	3·12
	Ajaigarh	4th "	3·11
	Dhurwai	7th "	4·10
	Ghoora	" "	3·25
Gwalior	Ambah	8th "	7·00
Bundelkhand	Samthar	" "	3·82
	Nowgong	" "	3·73
Nagode	Nagode Hospital	" "	3·68
Bundelkhand	Chandla	" "	3·66
Rewah	Tyonthar	" "	3·62
	Sutna	" "	3·61
Bundelkhand	Chhatarpur	8th October	3·39
	Charkhari	" "	3·23
	Ajaigarh	" "	3·11
	Datia	" "	3·05
	Datia	9th "	6·17
Gwalior	Sipri	" "	3·70
	Bhind	" "	3·10

The following gives comparative data of the month's rainfall for the larger States of Central India and shows that the actual rainfall was generally heavier than in Rajputana:—

State.	Rainfall.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Bhopal Agency	1·10	0·75	+0·35	+47
Gwalior	1·56	0·52	+1·04	+200
Rewah	9·56	2·13	+7·43	+349
Bundelkhand	10·15	1·18	+8·97	+760

In Berar rain fell between the 1st and the 6th and the 14th and 17th, the weather at other times having been fine. The fall was heavy in some places during the first rainfall 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.
Buldana	Mehkar	2nd October	6·50
	Donegaon	" "	5·05
Akola	Pathur	" "	4·56
Basim	Pusad	" "	4·21

Owing to this heavy rainfall the total for the month exceeded the normal, as is shown below :—

DIVISION.	RAINFALL. Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Berar	3·03	1·73	+1·30	+ 75

Over the Central Provinces the weather was showery from the 1st to the 12th and again on the last three days of the month. In the interval the weather was generally fine. The month's rainfall was considerably heavier than usual, as is shown by the following comparative data :—

DIVISION.	RAINFALL. Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Central Provinces, West	2·79	1·78	+1·01	+57
„ „ Central	5·22	1·67	+3·55	+213
„ „ East	5·24	2·04	+3·20	+157

The heaviest rainfall in this area occurred between the 6th and the 8th, when the following amounts exceeding 3″ in 24 hours were registered :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
FEUDATORY STATES	Kanker	6th October	5·10
RAIPUR	Gariaband	„ „	3·70
FEUDATORY STATES	Deogarh (Bamra)	7th „	3·76
SAMBALPUR	Padampur	„ „	3·65
MANDLA	Dindori (Ramgarh)	8th „	5·77
JUBBULPORE	Sihora	„ „	4·00
	Jubbulpore	„ „	3·58

Over the Peninsular divisions of the Bombay Presidency the month's rainfall was about normal.

In the Konkan showers occurred between the 1st and the 6th, the 9th and 11th and the 16th and 19th. The rainfall was not heavy, except in Thana on the 2nd and 3rd, but the month's rainfall, on the whole, slightly exceeded the normal. The following gives data for the contained districts:—

DISTRICT.	RAINFALL. Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North Kanara	4·06	6·55	—2·49	—38
Savantvadi	3·67	6·34	—2·67	—42
Ratnagiri	5·32	4·71	+0·61	+13
Kolaba	5·71	4·13	+1·58	+38
Thana	5·82	2·39	+3·43	+144

The following amounts exceeding 3·50″ in 24 hours were recorded during the month :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
THANA	Mahim	2nd October	3·66
	Thana	3rd „	5·89
	Kurla	„ „	4·46
	Shahapur	„ „	4·05
	Bassein	„ „	3·90
	Bombay	„ „	3·80
NORTH KANARA	Bhatkal	16th „	3·56

In the Karnatak the distribution of rain during the month was similar to that in the Konkan except that fairly general showers were received also on the 24th and 25th. The total rainfall was about normal except in Bijapur, where it was in slight excess, as is shown by the following comparative data for the contained districts.—

DISTRICT.	RAINFALL. Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dharwar	5·20	4·98	+0·22	+4
Bijapur	6·03	4·43	+1·60	+36
Belgaum	4·36	5·13	—0·77	—15
Kolhapur, etc	4·04	4·92	—0·88	—18

General showers occurred over the south Deccan between the 1st and the 5th and scattered showers about the middle of the month. There was no heavy rain during the month, and the total rainfall of the districts was about normal in Sholapur and in slight defect in Satara and Poona. This is shown below:—

District.	Rainfall.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Satara	2·85	4·30	—1·45	— 34
Sholapur	3·37	3·85	—0·48	— 12
Poona	2·66	3·56	—0·90	— 25

In Khandesh the only rainfall of importance was between the 1st and 4th, when heavy showers occurred in Ahmednagar and Nasik. The following gives the falls exceeding 3″ in 24 hours:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ahmednagar	Nevasa	2nd October	4·00
	Jamkhed	,, ,,	3·45
Nasik	Sinnar	3rd ,,	4·06

The total rainfall of the month, on the whole, exceeded the normal, as is shown by the following data for the districts:—

District.	Rainfall.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ahmednagar	4·23	2·72	+1·51	+56
Nasik	2·92	2·62	+0·30	+11
Khandesh	0·94	1·02	—0·08	—8

In Gujarat, Kathiawar and Sind there was very little rain during the month, though local heavy showers were reported in parts of Kathiawar on the 3rd, 4th and 5th.

The rainfall of Mysore for the month was about normal, as is shown below:—

Division.	Rainfall.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Mysore	5·86	5·50	+0·36	+7

General rain occurred between the 1st and the 5th, the 17th and 20th and the 22nd and 25th.

As mentioned previously, the north-east monsoon rains never set in along the Madras coast during the month under review and the rainfall of the Madras presidency was almost everywhere lighter than usual.

In Malabar the weather was fine between the 9th and 13th and on the 28th and was showery at other times—more particularly between the 1st and the 8th and the 22nd to the 26th. Amounts exceeding 4″ in 24 hours were registered at the following places on the following dates:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Travancore State	Parur	2nd October	5·50
Malabar	Mannarghat	,, ,,	5·20
Travancore State	Kottayam	,, ,,	5·05
Travancore State	Kunnatnad	,, ,,	4·94
Cochin State	Trichur	,, ,,	4·86
Malabar	Ottapalam	,, ,,	4·82
	Manjeri	,, ,,	4·67
Travancore State	Peermade	,, ,,	4·50
Malabar	Tirurangadi	,, ,,	4·40
Malabar	Kuttiadi	,, ,,	4·06
Cochin State	Trichur	18th ,,	4·56
Travancore State	Alleppey	22nd ,,	4·13
Cochin State	Trichur	24th ,,	5·40
Travancore State	Ambalapuzha	26th ,,	4·77
	Mavelikara	,, ,,	4·03
Travancore State	Kartigapally	27th ,,	5·20

The total rainfall of the division slightly exceeded the normal, as is shown below :—

DIVISION.	RAINFALL.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Malabar	11·06	9·34	+1·72	+18

In south Madras the weather was more or less showery throughout the month. The rain was general and heavy on the 25th and 26th, when the second cyclonic storm was forming over the south-west of the Bay 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.
MADURA . . .	Morekulam . .	25th October .	5·53
	Manakkudi . .	" " .	3·25
TINNEVELLY . .	Radhapuram . .	26th " .	3·73
	Kuttanguli . .	" " .	3·13

The month's rainfall of the districts was as follows :—

DISTRICT.	RAINFALL.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madura . . .	4·46	7·32	—2·86	—39
Tinnevelly . . .	4·29	6·18	—1.89	—31

In south-central Madras the first half of the month was fairly fine, but from the 18th to the 26th the weather was very showery. The total rainfall of the month was, however, slightly lighter than usual, as is shown by the following data for the districts :—

DISTRICT.	RAINFALL.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Salem	5·12	5·89	—0·77	—13
Coimbatore . . .	5·33	6·37	—1·04	—16

Very similar conditions prevailed in central Madras, except that general showers were received between the 1st and the 3rd. The following gives data for the districts in this division :—

DISTRICT.	RAINFALL.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah . . .	3·54	5·79	—2·25	—39
Anantapur . . .	4·12	4·72	—0·60	—13
Bellary	5·16	4·30	+0·86	+20
Kurnool . . .	3·68	4·34	—0·66	—15

The north division of the east coast received general rain from the 1st to the 7th and again on the 29th and 30th. The following gives data for the contained districts and shows that the month's rainfall was about normal :—

DISTRICT.	RAINFALL.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	6·97	7·96	—0·99	— 12
Vizagapatam . . .	6·00	7·64	—1·64	— 21
Godavari . . .	7·03	7·63	—0·60	— 8
Kistna	6·17	5·81	+0·36	+ 6

The central division of the east coast received general

showers on the 23rd, 24th, 29th and 30th and the total rainfall was less than usual. This is shown below :—

DISTRICT.	RAINFALL.			
	Average actual, October, 1903.	Average normal, October,	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Nellore	5·07	8·68	−3·61	− 42

The south division of the east coast reported general showers on the 1st and 2nd and again on the 13th and 25th, but the showers were not generally very heavy and the total rainfall was short of the normal. The following gives data for the districts :—

DISTRICT.	RAINFALL.			
	Average actual, October, 1903.	Average normal, October,	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madras	8·84	10·75	−1·91	− 18
Chingleput . . .	8·00	9·42	−1·42	− 15
North Arcot . . .	4·45	6·80	−2·35	− 35
South Arcot . . .	4·53	8·58	−4·05	− 47
Tanjore	3·57	8·86	−5·29	− 60
Trichinoply . . .	4·29	7·49	−3·20	−43

The following gives the rainfall recorded at the extra-Indian stations :—

STATION.	RAINFALL.			
	Average actual, October, 1903.	Average normal, October.	Variation of actual from normal, October, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee . . .	9·62	7·14	+2·48	+ 35
Colombo . . .	11·02	14·80	−3·78	− 26
Minicoy	3·11	7·46	−4·35	− 58
Amini Divi . . .	4·08	6·01	−1·93	− 62
Kashgar	0	0·05	−0·05	−100
Meshed	0	0·42	−0·42	−100
Teheran	0	0·10	−0·10	−100
Ispahan	0	0·21	−0·21	−100
Bushire	0	0·08	−0·08	−100
Jask	0	0·04	−0·04	−100
Muscat	0	0·02	−0·02	−100
Baghdad	0	0·04	−0·04	−100
Aden	0	0·01	−0·01	−100
Perim	0	0·07	−0·07	−100
Seychelles . . .	1·89	5·29	−3·40	− 64
Zanzibar . . .	3·03	2·99	+0·04	+ 1
Mauritius . . .	1·26	1·24	+0·02	+ 2

The preceding data show that there was some excess in the month's rainfall at Trincomalee but that at Colombo, Minicoy and Amini Divi the fall was short of the average, while over the whole of the region embracing Kashgaria, Persia, Asiatic Turkey and Arabia the month was rainless throughout. At the Seychelles the rainfall was only about one-third of the average, while at Mauritius and Zanzibar it was about normal.

Crop Report.

Madras.—Rain fell throughout the month and water for irrigation was generally sufficient. Ploughing, sowing, transplanting and weeding were in progress during the month and the standing crops were in good condition generally. In parts of Godavari and Cuddapah, however, the crops had suffered from excessive rain and in Kistna from floods. Early crops were being harvested at the close of the month, the outturn having been fair, while pasture and fodder were sufficient and the cattle in good condition.

Bombay.—The rainfall during the month was generally sufficient, but more was needed for the spring crops in parts of Khandesh, Nasik, Ahmednagar, Poona and Bijapur. The standing crops, though damaged in places by locusts, insects, rats and excessive moisture, were generally in good condition at the close of the month. Picking of cotton had commenced in some districts, the harvesting of autumn crops was generally in progress and the sowing of spring crops had commenced or continued.

Bengal.—Rain fell in almost all districts during the month. The harvesting of autumn crops was approaching completion about the middle of the month and the standing winter rice crop was doing well, the outturn having been estimated at 87 per cent. of a normal crop. The prospects of indigo were more favourable than last year, the outturn having been estimated at 60 per cent. for north Bihar and 80 per cent. for the rest of Bengal. The sowing of spring crops commenced about the middle of the month.

United Provinces.—Excessive rain fell over the provinces in the early part of the month, but about the middle of the month the autumn crops were recovering from the effects of the storm and the prospects of the spring crops were much improved by the rainfall. At the close of the month prospects were favourable.

Punjab.—Very little rain fell during the month. The picking of cotton and harvesting of other autumn crops continued during the month, while the sowing of spring crops was in progress. The condition and prospects of the autumn crops, at the close of the month, were generally good, except in Delhi and parts of Ferozepore, where the crops were below the average. Cattle were in good condition and fodder sufficient.

North-West Frontier Province.—No rain of importance fell during the month and the abnormal heat and dry weather had injuriously affected the outturn of the late-snow unirrigated crops. At the close of the month the prospects of the standing crops were generally average, but rain was badly wanted for spring dry sowings.

Burma.—Rain fell fairly generally and the prospects in upper Burma were considerably improved by the late rain. At the close of the month the condition of the standing crops, as a whole, was fairly good.

Central Provinces.—Heavy rain fell at the commencement of the month, causing some damage to the crops and delaying the harvesting and threshing of crops and the preparation of land for the spring sowings. At the close of the month the weather was clear and cool and the harvesting of autumn crops and spring sowings were in progress. The crops were generally in good condition.

Assam.—General rain fell during the month and cotton was slightly damaged in Cachar, while harvesting operations were stopped in the Naga hills and Manipur. Reaping of early rice continued during the month and the sowing of pulse was completed. Plucking and manufacture of tea and ploughing for the mustard crop were in progress. The outturn of early rice was generally good and of jute good in Sylhet and Goalpara and fair elsewhere. The prospects, at the end of the month, of tea, late rice, pulse and sugarcane were fair to good.

Mysore.—The general prospects were good.

Coorg.—Cardamom picking continued during the month and coffee was ripening. The price of food grains was stationary.

Hyderabad.—At the commencement of the month the rainfall was excessive and the standing crops suffered, while spring sowings were suspended in parts owing to the rain. Towards the close, however, the rainfall was lighter and the autumn harvest was approaching completion. The early rice was good. Spring sowings were in progress at the end of the month and the preparation of land for late rice sowings had commenced.

Rajputana.—The rainfall was good at the commencement of the month and the preparation of land for winter crops had commenced. Some damage had been done by locusts generally and by wind and rain in Bharatpur and Dholpur. At the close of the month the weather was fine and the sowing of winter crops and harvesting of autumn crops were in progress generally. The prospects of the autumn harvest were generally good, but great damage had been done to the crops by locusts in Jaisalmer.

Central India.—Rain had ceased by the end of the month. Agricultural operations were in progress everywhere. The crops were in good condition in Gwalior, Bhopal and Baghelkhand, fair in Indore, Malwa and Bhopawar and average in Bundelkhand, but had been slightly damaged by vermin and rain in parts of Indore, Bundelkhand, Malwa and Bhopawar.

Kashmir.—In Jummoo the condition of the standing crops was fair and the harvest was in progress.

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 231 Stations in India, Burma, etc., in October, 1903.

Table

Abstract of Observations taken at 8 A.M. at 231

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.				—·026								86·9	−1·2	76·0	+0·9	81·5	−0·2	10 9					17 9
1	Tenasserim and Bay Islands.	Car Nicobar .	25																					
		Port Blair .	61	29·845	—·011	29·837	29·956	30th	29·719	27th	·237	80·1	85·9	−1·0	77·3†	+0·1	81·6†	−0·5	8·6	90·2	26th	75·5	14th	14·7
		Mergui .	96	29·838	+·002	29·866	29·981	30th	29·751	23rd	·230	78·3	86·7	−0·5	74·4	+2·3?	80·6	+0·9?	12·3	91·1	26th & 28th.	72·4	4th & 31st	18·7
		Tavoy .	26	29·904	—·015	29·861	30·045	30th	29·815	23rd	·230	77·9	86·8	—1·2	74·9	+1·6	80·9	+0·2	11·9	91·2	25th	72·0	3rd	19·2
		Moulmein .	94	29·806	—·029	29·839	29·948	29th	29·722	23rd	·226	78·7	87·9	—0·5	75·7	+1·0	81·8	+0·3	12·2	92·0	28th	72·8	19th	19·2
2	Lower Burma .	Rangoon .	57	29·846?	—·029?	29·841?	29·999	29th	29·765	23rd	·234	79·0	86·3	− 1·4	76·4	+0·8	81·4	−0·3	9·9	90·1	3 days	75·9	5th	16·2
		Bassein .	27	29·865	—·028	29·827	30·009	30th	29·781	3rd	·228	79·4	86·8	—0·6	76·3	+1·1?	81·6	+0·3?	10·5	90·7	27th & 28th.	72·7	13th	18·0
		Diamond Island	41	29·845	—·036	29·821	29·995	30th	29·759	3rd	·236	81·0	84·5	− 2·0	77·5	+0·8	81·0	−0·6	7·0	88·9	27th	74·2	7th	14·7
5	Arakan . .	Akyab . .	20	29·849	—·049	29·812	29·999	30th	29·741	3rd	·258	80·1	86·8	—1·0	77·6	+0·9	82·2	−0·1	9·2	90·4	29th	75·7	30th	14·7
8	Central Burma .	Toungoo .	183	29·717	—·026	29·841	29·874	29th	29·634	3rd	·240	80·5	90·6	+0·3?	74·1	−0·7	82·4	−0·2?	16·5	96·9	22nd	71·6	14th	25 3
	II.—Burma Inland . .				—·037								89·6	—1·3	72·9	+0·7	81·3	−0·3	16·7					24·7
3	Central Burma .	Thayetmyo .	130	29·767	—·022	29·838	29·924	30th	29·681	3rd	·243	80·1	90·1	−0·3	73·4	−0·7	81·8	−0·5	16·7	93·5	13th	71·0	29th	22·5
4	Upper Burma .	Minbu . .	165	29·726	—·041	29·835	29·873	29th & 30th.	29·635	3rd	·238	79·7	89·2	—2·1	76·1	+1·1	82·7	−0·5	13·1	94·7	13th	73·1	14th	21·6
		Yamethin .	657	29·234	—·044	29·846	29·386	30th	29·151	3rd	·235	78·2	90·3	—2·2	74·5	+0·7	82·4	−0·8	15·8	94·3	9th & 11th.	72·2	12th & 26th.	22·1
		Monywa .		29·612		29·830	29·772	29th	29·527	3rd	·245	79·5	89·4		66·7		78·1		22·7	93·8	10th & 12th.	60·3	26th	33·5
		Mandalay .	250	29·627	—·041	29·827	29·785	29th	29·544	3rd	·241	80·9	90·0	—1·8	75·5	+0·7	82·8	−0·6	14·5	94·6	11th	73·1	17th & 25th.	20·9
		Bhamo* .	381	29·510	—·036	29·852	29·640	30th	29·407	3rd	·233	75·4	88·4	—0·1	71·1	+1·5	79·8	+0·7	17·3	92·0	4th & 8th.	64·6	24th & 25th.	27·4
4(a)	Burma Hill Stations.	Maymyo .		26·410			26·468	31st	26·336	24th	·132	70·3	78·7		63·5		71·1		15·2	82·0	4th	55·8	25th & 26th.	26·2
		Lashio .										70·2	84·3	+0·8	65·3	+1·8	74·8	+1·3	19·0	89·0	6th	61·5	17th	27·5
	III.—Assam . . .				—·050								87·4	+1·3	72·7	+1·5	80·1	+1·4	14·7					25·3
7	Surma .	Silchar . .	104	29·779	—·046	29·836	29·915	30th	29·668	3rd	·247	79·5	90·4	+1 7	74·8	+2·5	82·6	+2·1	15·6	94·0	5th & 6th.	70·3	30th	23·7
9	Brahmaputra .	Sibsagar .	333	29·567	—·053	29·862	29·700	30th	29·456	3rd	·244	74·8	84·9	+0·1	71·8	+1·0	78·4	+0·6	13·1	90·2	1st	66·0	26th	24·2
		Dhubri . .	115	29·762	—·051	29·833	29·915	30th	29·631	3rd	·284	78·0	86·7	+2·2	73·8	+1·0	80·3	+1·6	12·9	90·2	14th & 16th.	66·2	31st	24·0
		Gauhati .	195	29·697		29·850	29·830	30th	29·566	3rd	·264	77·2	88·7		72·9		80·8		15·8	93·0	2nd	64·5	23rd	28·5
		Tezpur . .	252	29·642		29·857	29·773	30th	29·527	3rd	·246	75·2	87·6		72·2		79·9		15·4	91·1	4 days	65·9	31st	25·2
		Dibrugarh .	353	29·549		29·867	29·696	30th	29·427	3rd	·269	74·4	86·0		70·7		78·4		15·3	91·2	1st & 5th.	65·0	26th	26·2
	IV.—Bengal and Orissa . .				—·060								87·4	+0·1	74·7	+1·3	81·1	+0·7	12·7					23 8
6	East Bengal .	Chittagong .	87	29·766	?	29·802	29·887	30th	29·648	4th	·239	79·9	88·0	+1·5	74·5	+1·1	81·3	+1·3	13·5	91·0	29th & 30th.	70·1	25th & 29th.	20·9
		Noakhali .	43	29·814		29·804	29·942	29th	29·701	4th	·241	80·7	87·2		74·8		81·0		12·4	90·2	7th & 29th	69·9	23rd & 24th.	20·3
		Comilla . .	36	29·829		29·813	29·977	29th	29·715	3rd	·262	79·5	89·1		75·0		82·1		14·1	93·3	5th	69·3	25th	24·0
		Sirajganj .	49	29·819		29·818	29·944	30th	29·705	5th	·239	78·4	86·4		75·2		80·8		11·2	91·3	5th	69·2	30th	22·1
		Narayanganj .	26	29·818?	?	29·823?	29·968	30th	29·729	3rd	·239	79·9	88·4	+0·5	77·8	+2·5	83·1	+1·5	10·6	92·1	5th	73·8	30th	18·3
		Barisal . .	13	29·841	—·059	29·799	29·971	29th	29·712	4th	·259	81·2	87·6	0	76·0	+1·4	81·8	+0·7	11·6	91·3	5th	71·1	23rd	20·2
		Mymensingh .	63	29·812	—·053	29·824	29·945	30th	29·700	3rd	·245	79·8	87·8	+1·6	75·6	+2·4	81·7	+2·0	12·2	91·7	5th	69·6	31st	22·1
		Faridpur . .	46	29·821		29·815	29·938	30th	29·697	5th	·241	79·9	87·1		75·1		81·1		12·0	90·8	5th	69·4	23rd	21·4
10	Deltaic Bengal.	Jessore . .	33	29·821	—·059	29·801	29·919	29th	29·689	5th	·230	79·6	87·6	—0·8	75·0	+0·4?	81·3	-0·2?	12·6	91·5	5th	65·2	27th	26·3
		Calcutta . .	21	29·830	—·058	29·797	29·938	21st	29·659	6th	·279	79·5	87·0	+0·3	74·7	+0·4	80·9	+0·4	12·3	90·9	5th	66·9	27th	24·0
		Saugor Island .	25	29·806	—·074	29·775	29·911	21st	29·621	6th	·290	80·8	87·4	+0·5	76·5	+0·3	82·0	+0·4	10·9	91·9	5th	70·5	3 days	21·4
		Krishnagar .	47	29·815		29·811	29·915	28th	29·664	6th	·251	79·5	88·7		74·8		81·8		13·9	92·3	5th	65·5	27th	26·8
		Midnapore .	146	29·689		29·786	29·799	21st	29·483	6th	·316	78·8	87·2		74·7		81·0		12·5	91·8	17th	65·7	27th	26·1

* Observations of 30 days.

† Mean of 30 days.

Note 1.—When a query is inserted against any reading or in returns of any station, the

Note 2.—The divisional means of the figure columns Nos. 41, 43, and 45 are derived

I.

Stations in India, Burma, etc., in October, 1903.

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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 31st October.	Variation from normal of period, 1st May to 31st October 1903.	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	56	57	58
														90	+2·7	·907	+·022	5·4	+0·7				12 90	9·03	+3·87					I.—Burma Coast and Bay Islands.		
		1		6	1	9	10	4	S 60° W	8·8	9·9	6·4	+55	89		·913		6·1		18			7·13	11·76	− 4·63		96·66		1·60	Car Nicobar	Tenasserim and Bay Islands	1
																														Port Blair.		
20	3				1	2	2	3	N 64° W	1·9	1·7	1·5	+13	92	+4·7	·875	+·020	5·0	+0·1	20	16·10	+3·90	19·48	12·74	+ 6·74	147·98	151·83	− 3·85	3·10	Mergui.		
30						1			S 45° W	1·1				92	+4·5	·876	+·008	4·4	−0·4?	14	12·30	+1·70	18·97	9·45	+ 9·52	183·15	201·38	−18·23	5·11	Tavoy.		
23		1		4	2	1			S 31° E	1·7	1·9	1·7	+12	87	?	·855	?	7·0	+2·0	14	10·70	+3·30	10·48	7·97	+ 2·51	198·63	177·86	+20·77	2·85	Moulmein.		
10	1	3	11	1	2		2	1	N 84° E	4·9	4·1	3·2	+28	92	+0·5	·920	+·013	7·5	+1·9	15	8·50	+6·50	10·58	6·39	+ 4·19	89·12	91·80	− 2·68	1·94	Rangoon	Lower Burma	2
4		9		5		6		7	N 11° E	3·0		2·5	+20	93	+1·0	·938	+·023	4·5	−0·7?	16	12·10	+3·90	11·67	8·13	+ 3·54	98·01	106·37	− 8·36	2·04	Bassein.		
3	2	6	7	4	2	2	3	2	N 80° E	5·9		6·4	− 8	85	+2·1	·916	+·017	5·7	0	19	11·60	+7·40	14·95	8·00	+ 6·95	117·75	103·18	+ 9·57	2·14	Diamond Island.		
	1	22	1	3	1	1		2	N 50° E	2·7	2·6	2·3	+13	94	+3·5	·959	+·046	5·2	−0·7	13	8·30	+4·70	13·63	10·28	+ 3·35	222·05	183·75	+38·31	5·01	Akyab	Arakan	
25			1		2	3			S 17° W	1·4	1·4	1·3	−22	87	?	·915	+·028	3·6	−1·9?	11	9·60	+1·40	9·22	6·56	+ 2·66	82·84	75·12	+ 7·72	3·48	Toungoo	Central Burma	
														88	+3·5	·879	+·030	5·9	+0·5				6·78	4·42	+2·36					II.—Burma Inland.		
	2	6	1	9	8	2	1	2	S 44° E	4·2		3·1	+35	88	+3·8	·910	+·060?	6·4	+0·7	10	6·90	+3·10	6·67	4·00	+ 2·67	36·56	33·84	+ 2·72	2·46	Thayetmyo	Central Burma	3
6				12	7		1	5	S 20° E	3·8	4·5		−16	86	+2·1	·879	+·036	5·0	+0·5	10	5·20	+4·80	5·45	4·41	+ 1·04	26·35	29·86	− 3·51	1·07	Minbu	Upper Burma	4
25				2	4				S 15° E	11·3	11·9			90	+4·0	·866	+·009	7·6	+4·5?	12	6·60	+5·40	9·83	5·72	+ 4·11	29·57	33·91	− 4·34	2·23	Yamethin.		
18	5	1	2	3	2				S 71° E	0·6	·6			89		·908		5·3		11	5·50	+5·50	7·36	3·95	+ 3·41	24·78	26·29	− 1·51	1·88	Monywa.		
	1	2		7	14	6	1		S 3° E	13·1	13·5			86	+3·3	·907	+·047	2·1	−2·0?	12	5·60	+6·40	9·18	4·98	+ 4·20	28·94	28·98	− 0·04	1·97	Mandalay.		
15	2	3	3			2	1	4	N 1° W	1·6	1·9			91	+4·5	·803	+·029	4·4	+0·3	5	5·70	−0·70	2·20	3·47	− 1·27	50·64	68·52	−17·88	0·60	Bhamo. *		
30		1							N 45° E	0·4				90		·671		5·9		11	11·20	−0·20	4·80	7·71	− 2·91	50·53	51·99	− 1·46	0·78	Maymyo	Burma Hill Stations.	1(c)
	5	15	3	2	1	1	1	3	N 37° E	1·8				93	+0·6	·690	+·043	7·5	−0·1	12			8·81	3·68	+5·13	61·69	54·98	+ 6·71	1·70	Lashio.		
														90	−0·7	·824	+·049	5·7	−0·1				5·91	4·41	+1·50					III.—Assam.		
28			2	1					S 75° E	0·5	0·9	2·1	−57	87	−2·3	·881	+·053	5·4	−0·7	9	7·00	+2·00	8·95	6·03	+ 2·92	97·96	97·90	+ 0·06	2·37	Silchar	Surma.	7
10		14	4			3			N 57° E	1·9	1·7	2·0	−15	97	+0·6	·839	+·037	7·0	−0·2	10	4·20	+5·80	7·62	4·99	+ 2·63	97·07	76·81	+20·26	1·25	Sibsagar	Brahmaputra	9
2		12	10		2	4	1		N 69° E	3·6	4·2	2·9	+45	88	−0·5	·848	+·057	5·0	+1·2	4	4·10	−0·10	3·71	3·48	+ 0·23	93·81	85·47	+ 8·34	1·72	Dhubri.		
18	3	6	1	2	1				N 55° E	1·0	1·1			89		·833		5·5		5	4·10	+0·90	3·91	2·92	+ 0·99	57·19	52·78	+ 4·41	1·65	Gauhati.		
6		8	12	2	2		1		N 83° E	2·3	2·4			89		·785		5·7		8	5·50	+2·50	4·74	3·66	+ 1·08	53·77	60·70	− 6·93	2·68	Tezpur.		
6	6	8	3	1	1	3	2	1	N 28° E	0·5	0·5			89		·759		5·7		9	7·70	+1·30	6·51	5·40	+ 1·11	87·38	94·19	− 6·81	3·38	Dibrugarh.		
														87	+2·3	·871	+·043	4·2	+0·6				7·49	5·02	+2·47					IV.—Bengal and Orissa.		
	2	12	7	7	2		1		N 78° E	3·5	3·4	3·0	+13	86	P	·881	+·017	3·9	−1·1	9	6·81	+2·19	6·54	6·37	+ 0·17	71·96	86·32	−14·36	2·50	Chittagong	East Bengal	6
	3	9	7	8	3	1			E	2·4	2·6			88		·928		3·9		7	7·13	−0·13	6·38	7·92	− 1·54	88·47	102·84	−14·37	3·32	Noakhali.		
11	2	1	1	12	2	1		1	S 48° E	2·1	1·8			88		·889		3·0†		7	5·62	+1·38	2·88	5·43	− 2·55	72·68	78·31	− 5·63	0·64	Comilla.		
11	2	2	4	4	1	1	2	4	N 56° E	1·8	1·9			90		·881		4·4†		6	4·77	+1·23	7·17	4·37	+ 2·80	45·45	55·13	− 9·68	2·65	Sirajganj.		
6	4	4	3	2	3	2	2	5	N 4° E	3·5	3·0	2·3	+30	91	P	·937	+·089	4·2	−0·1	5	5·06	−0·06	2·94	4·48	− 1·54	55·53	59·45	− 3·92	1·56	Narayanganj		
4	5	7	3	3	2	3	1	3	N 49° E	2·2				87	+3·5	·927	+·042	2·8	−0·9	10	5·91	+4·06	12·74	6·69	+ 6·05	70·56	68·95	+ 1·61	3·64	Barisal.		
16	1	3	4	3	1			3	N 72° E	1·5	1·4			87	−1·3	·890	+·040	4·8‡	+0·5	9	5·58	+3·42	8·97	5·12	+ 3·85	110·30	77·92	+32·38	4·95	Mymensingh.		
6	3	2	3	6	3	1	1	6	N 72° E	2·5	2·1			88		·908		2·6		11	5·31	+5·69	5·31	4·49	+ 0·82	53·41	59·18	− 5·77	1·37	Faridpur.		
15	4	1	1	5	4			1	S 68° E	2·1	2·1	2·1	0	89	+2·7	·908	+·032	4·7†	+0·8	10	5·74	+4·26	4·18	4·38	− 0·20	50·70	55·73	− 5·03	1·23	Jessore	Deltaic Bengal	10
4	2	1	6	5	2	3		6	S 56° E	3·3		3·2	+ 3	88	+4·2	·892	+·049	5·3	+1·9	14	5·33	+8·67	8·02	4·12	+ 3·90	50·79	54·71	− 3·92	1·64	Calcutta.		
	5	7	5	3	3	4	2	2	N 63° E	10·0		6·5	+54	87	+1·4	·921	+·033	5·9	+0·5	14	7·90	+6·10	9·80	8·64	+ 1·16	54·32	66·68	−12·36	2·28	Saugor Island		
4	2	2	7	6	2	2	2	1	S 81° E	2·3	2·5			88		·892		4·9		10	4·97	+5·03	8·04	4·20	+ 3·84	51·70	49·21	+ 2·49	1·46	Krishnagar.		
3	10	1	3	6	2	1		9	N 30° E	2·6	2·3			85		·844		3·5		10	5·27	+4·73	8·30	4·51	+ 3·79	45·29	55·17	− 9·88	1·90	Midnapore.		

data for that station are not utilized in calculating the provincial variations.
only from the data available.

‡ Mean of 22 days.

Table

Abstract of Observations taken at 8 A.M. at 231

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	29·524		29·776	29·642	21st	29·324	6th	·318	78·4	87·1		73·8		80·5		13·3	93·1	16th	65·4	27th	27·7
		Raniganj	334	29·521		29·809	29·633	21st	29·341	6th	·292	76·5	87·0		73·2		80·1		13·8	92·9	17th	65·0	27th	27·9
		Burdwan	99	29·755	—·061	29·802	29·853	20th	29·577	6th	·276	79·8	87·6	−1·1	76·2	+1·6	81·9	+0·3	11·4	92·4	17th	69·8	24th	22·6
		Naya Dumka	489	29·359		29·812	29·467	21st	29·197	6th	·270	77·8	86·2		72·3		79·3		13·9	91·5	17th	63·9	27th	27·6
		Berhampore	67	29·792	—·057	29·808	29·906	30th	29·664	5th & 6th.	·242	79·4	87·2	−0·3	75·7	+1·4	81·4	+0·6	11·5	91·8	5th	68·2	31st	23·6
		Rampur Boalia.	70	29·790		29·810	29·916	30th	29·674	5th	·242	79·9	86·9		75·1		81·0		11·8	91·1	5th	68·1	31st	23·0
		Malda	72	29·769?		29·793?	29·875	29th	29·647	5th	·228	80·0	87·5		74·1		80·8		13·4	91·1	4 days	66·0	23rd	25·1
		Bogra	61	29·789	—·052	29·803	29·932	30th	29·677	5th	·255	77·9	87·9	+0·7	74·2	+1·5	81·1	+1·1	13·7	91·7	5th	67·7	31st	24·0
12	North Bengal	Dinajpur	123	29·746	—·053	29·824	29·882	30th	29·638	3rd	·244	78·8	87·6	+0·2	73·4	+1·4	80·5	+0·8	14·2	91·3	3 days	66·0	31st	25·3
		Rangpur	123	29·760		29·839	29·915	30th	29·641	3rd	·274	78·9	87·8		73·8*		80·8*		14·0	91·2	4 days	65·8	31st	25·4
		Jalpaiguri	284	29·587	—·057	29·833	29·730	30th	29·469	2nd	·261	76·0	86·8	+1·0	71·3	+1·5	79·1	+1·3	15·5	91·4	5th & 6th	66·1	7 days	25·3
		Cooch Behar	156	29·726		29·840	29·877	30th	29·608	3rd	·269	77·1	87·5		72·9		80·2		14·6	91·4	5th	66·1	28th & 31st.	25·3
17	North Bihar	Purnea	125	29·744	—·046	29·825	29·880	30th	29·616	5th	·264	77·1	87·5	+0·1	72·4	+1·2	80·0	+0·7	15·1	91·7	4th& 5th	65·1	23rd & 26th.	26·6
14	Orissa	Balasore	50	29·791	P	29·784	29·917	21st	29·572	6th	·345	79·0	87·1	−0·9	73·9	+0·8	80·6	−0·1	13·2	91·9	19th	64·7	27th	27·2
		False Point	21	29·808	—·078	29·771	29·917	21st	29·595	5th	·322	80·8	86·5	−0·9	76·0	+1·4	81·3	+0·3	10·5	90·5	11th	69·1	26th & 27th.	21·4
		Cuttack	80	29·746	—·079	29·769	29·863	21st	29·518	6th	·345	78·8	88·0	−1·7	75·7	+1·1	81·9	−0·3	12·3	92·4	17th	68·2	27th	24·2
		Puri	24	29·804		29·767	29·930	21st	29·570	5th	·360	81·2	87·6		77·6		82·6		10·0	90·7	16th	71·6	27th	19·1
	V.—Gangetic Plain and Chota Nagpur.				—·070								86·2	−3·2	71·4	+2·4	78·8	−0·4	14·8					28·3
15	Chota Nagpur	Hazaribagh	2,007	27·826	—·071	29·801	27·948	21st	27·630	6th	·318	72·7	82·2	−1·1	68·1	+1·3	75·2	+0·1	14·1	88·2	15th	61·2	28th	27·0
		Ranchi	2,128	27·706	—·078	29·796	27·832	21st	27·498	6th	·334	72·5	80·5	−2·5	67·3	+1·7	73·9	−0·4	13·2	86·7	16th	60·5	26th	26·2
16	South Bihar	Daltonganj	736?	29·100		29·798	29·246	21st	28·872	7th	·374	74·2	88·5		68·8		78·7		19·7	93·6	16th & 18th.	57·0	27th	36·6
15	Chota Nagpur	Purulia		29·017		29·789	29·144	21st	28·754	6th	·390	76·2	86·1		71·2		78·6		14·9	92·0	16th	63·1	27th	28·6
		Chaibassa	760	29·068	—·075	29·787	29·198	21st	28·791	6th	·407	75·6	85·7	−3·0	71·6	+1·3	78·7	−0·9	14·1	91·1	17th	61·5	27th	29·6
16	South Bihar	Gaya	375	29·470	—·063	29·804	29·597	21st	29·283	7th	·314	77·4	88·3	−1·3	72·3	+1·3	80·3	0	16·0	93·2	5th	64·7	26th	28·5
		Dehri	351	29·475		29·789	29·608	21st	29·275	7th	·333	77·3	86·4		73·2		79·8		13·2	91·3	19th	65·0	27th.	26·3
		Patna	183	29·670	—·063	29·808	29·793	30th	29·525	6th	·268	78·6	87·0	−1·2	74·0	+1·5	80·5	+0·2	13·0	90·5	16th & 18th.	67·2	26th	23·3
		Arrah	190	29·661		29·806	29·786	30th	29·491	7th	·295	77·9	87·3		72·2		79·8		15·1	91·5	5th	64·1	31st	27·4
		Buxar	239	29·600		29·798	29·731	30th	29·426	7th	·305	77·4	86·3		72·7		79·5		13·6	91·0	16th	65·5	26th	25·5
17	North Bihar	Bhagalpur	160	29·696		29·810	29·834	30th	29·553	5th	·281	79·8	88·0		73·6		80·8		14·4	92·2	4th & 5th	65·1	27th	27·1
		Darbhanga	166	29·690	—·060	29·812	29·819	30th	29·572	5th	·247	78·6	86·4	−0·3	74·6	+1·5	80·6	+0·6	11·8	90·8	5th	67·5	28th	23·3
		Muzaffarpur	178	29·683		29·817	29·817	21st	29·556	5th	·261	78·6	86·1		74·8‡		80·6‡		11·3	90·2	4 days	67·2	31st	23·0
		Motihari	224	29·652		29·837	29·777	30th	29·516	5th	·261	78·3	87·0		72·0		79·5		15·0	91·4	6th, 15th & 16th.	63·4	28th	28·0
		Chapra	181	29·658		29·796	29·777	30th	29·516	7th	·261	78·0	87·9		73·0*		80·4*		14·9	91·9	15th, 16th & 17th.	63·6	28th	28·3
18	United Provinces (East).	Benares	267	29·557	—·082	29·783	29·691	28th	29·354	7th	·337	77·0	86·6	−3·3	71·0	+2·7	78·8	−0·3	15·6	91·1	16th	59·6	28th	31·5
		Allahabad	309	29·519	—·078	29·787	29·659	29th	29·322	8th	·337	76·1	85·5	−5·0	70·8	+3·2	78·2	−0·9	14·7	89·6	4 days	61·6	26th & 28th.	28·0
23	United Provinces (East Submontane).	Gorakhpur	257	29·587	—·057	29·804	29·714	30th	29·476	7th	·238	77·1	85·3	−3·4	71·5	+1·5	78·4	−1·0	13·8	89·5	4 days	62·5	28th	27·0
19	South Oudh	Lucknow	368	29·459	—·072	29·791	29·607	29th & 30th.	29·276	10th	·331	75·3	85·5	−5·7	69·7	+4·2	77·6	−0·8	15·8	90·3	1st, 17th & 22nd.	59·7	27th	30·6
20	North Oudh	Bahraich	401	29·435	—·062	29·802	29·561	30th	29·341	18th	·220	76·2	85·7	−4·4	70·4	+3·2	78·1	−0·6	15·3	91·6	1st	62·0	28th	29·6
21	United Provinces (Central).	Cawnpore	416	29·403	—·084	29·782	29·557	29th & 30th.	29·184	10th	·373	75·3	86·2	−5·3	70·3	+4·5	78·3	−0·4	15·9	92·8	1st	61·8	4 days	31·0
		Mainpuri	516	29·320	P	29·805	29·470	29th	29·099	9th	·371	74·1	87·9	−5·0	68·8	+4·2	78·4	−0·4	19·1	94·3	1st	59·6	31st	34·7

* Mean of 30 days.

‡ Mean of 24 days.

Note 1.—When a query is inserted against any reading

Note 2.—The divisional means of the figure columns

I—*continued.*

Stations in India, Burma, etc., in October, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean amount, cloud	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 31st October.	Variation from normal of period, 1st May to 31st October 1903.	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	56	57	58
25			3				3		Calm	2·5	2·9			83		·812		4·4		11	4·81	+6·19	9·06	4·08	+4·98	43·23	51·59	− 8·36	1·75	Bankura .	Central Bengal.	11
19	2	1	3	3				3	N 53° E	2·0				88		·815		4·6		8	4·23	+3·77	5·39	3·22	+2·17	39·04	51·68	−12·64	1·27	Raniganj.		
21		1	4	2	3				S 56° E	1·2	1·2	2·1	−43	86	+6·4	·883	+·089	5·3†	+1·6	11	4·10	+6·90	6·76	3·27	+3·49	51·60	51·86	− 0·26	1·68	Burdwan.		
16	1	1	5	5	2	1			S 48° E	2·6	2·9			84		·809		4·5		7	4·70	+2·30	7·31	3·94	+3·37	42·02	55·06	−13·04	3·05	Naya Dumka.		
20			8		2	1			S 67° E	1·8	1·6	2·1	−24	88	+2·5	·888	+·053	5·9*	+2·2	5	5·01	−0·04	7·40	3·95	+3·45	44·34	50·84	− 6·50	2·50	Berhampore.		
28	1	1	1						N 45° E	0·3	0·3			86		·881		3·5		8	4·90	+3·10	6·76	4·49	+2·27	50·42	53·10	− 2·68	1·99	Rampur Boalia.		
	6	9	4	4	4			4	N 51° E	5·0	4·6			84		·861		3·8		5	4·39	+0·61	4·58	4·18	+0·40	39·14	50·12	−10·98	2·60	Malda.		
21		3	4					3	N 45° E	2·3	2·0			89	+3·5	·857	?	2·9	−0·6	7	4·84	+2·16	6·57	4·21	+2·36	58·96	61·52	− 2·56	2·91	Begra.		
	4	11	6	4	2		1	3	N 57° E	2·2	2·0			86	+1·3	·850	+·042	4·5	+1·4	9	3·64	+5·36	8·78	3·02	+5·76	64·18	67·03	− 2·85	2·75	Dinajpur .	North Bengal .	12
6	1	15	2	2	2	2	1		N 69° E	2·0	2·2			86		·862		2·4		5	4·03	+0·97	5·86	4·94	+0·92	79·04	78·45	+ 0·59	2·43	Rangpur.		
	7	12	6	3				3	N 43° E	0·5	0·6			87	−0·4	·790	+·013	2·5	−0·8	8	4·71	+3·29	4·28	3·82	+0·46	118·81	117·00	+ 1·84	1·54	Jalpaiguri.		
20	1	3	6			1			N 74° E	1·1	1·2			87		·818		4·2		5	4·17	+0·83	3·03	4·79	−1·76	131·96	120·02	+11·94	1·30	Cooch Behar.		
16		3	6	6					S 81° E	2·3	2·1	1·4	+50	88	+0·5	·840	+·040	3·3	+0·7	5	3·39	+1·61	3·66	3·44	+0·22	46·12	62·01	−15·89	1·37	Purnea .	North Bihar .	17
2	5		2	3	5	5	2	7	S 81° W	3·2	2·3			83	?	·835	?	4·3	−0·3?	13	6·32	+6·68	18·67	5·74	+12·93	72·20	58·13	+14·07	5·17	Balasore .	Orissa . .	14
4	8		2	3	6	2	4	2	S 89° W	7·3	7·5	6·1	+23	85	+1·0	·898	+·021	5·6	+1·0	11	7·74	+3·26	13·05	8·58	+4·47	55·44	58·79	− 3·35	4·15	False Point.		
20		3	3		1	2	2		S 82° E	1·3		1·9	−32	83	+4·0	·829	+·042	5·4	+1·8	13	6·06	+6·94	12·23	5·24	+6·99	64·40	54·93	+ 9·47	2·97	Cuttack.		
9	4	2	1	2	1	6	1	5	N 68° W	11·5	10·8			85		·910		4·2		10	7·62	+2·38	10·15	8·98	+1·17	43·51	52·02	− 8·51	3·97	Puri.		
														84	+10·5	·775	+·097	3·9	+2·4				9·00	2·63	+6·37					V.—Gangetic Plain and Chota Nagpur.		
4	1	2	5	2	7	6	2	2	S 1° E	7·3	6·5	5·0	+30	77	+6·9	·629	+·050	5·9*	+2·4	10	4·48	+5·52	8·68	3·14	+5·54	42·99	50·47	− 7·48	2·05	Hazaribagh	Chota Nagpur .	15
2	4	3	5	2	4	4	2	5	N 9° E	6·1	7·3			80	+8·2	·650	+·064	5·3	+2·2	10	4·35	+5·65	8·52	2·92	+5·60	43·91	51·45	− 7·54	1·81	Ranchi.		
23		5	3						N 60° E	3·5	2·9			83		·722		3·0		7	3·06	+3·94	2·96	2·40	+0·56	23·14	41·70	−18·56	0·90	Daltonganj.	South Bihar .	16
3	1	6	2	3	1		9	6	N 34° W	2·9	3·6			82		·751		3·9*		11	3·80	+7·20	13·04	3·17	+9·87	45·60	48·83	− 3·23	5·12	Purulia.	Chota Nagpur .	15
21		6	1	1		1		1	N 51° E	0·9	0·8			87	+7·3	·782	+·043	4·1	+0·9?	13	4·19	+8·81	10·15	2·29	+7·86	46·94	46·61	+ 0·33	2·55	Chaibassa.		
14		5	5	3	3	1			S 79° E	3·9	3·0	1·5	+100	80	+6·0	·762	+·078	3·9*	+0·9?	12	2·90	+9·10	8·09	2·20	+5·89	34·88	44·44	− 9·56	3·25	Gaya.	South Bihar .	16
1	1	1	10	2	6	7	2	1	S 27° E	7·0	6·2			83		·790		4·6		11	2·78	+8·22	5·47	2·49	+2·98	34·05	40·86	− 6·81	1·25	Dehri.		
2		6	7	5	1	6	4		S 54° E	6·5	7·3	1·9	+284	85	+11·7	·841	+·110	4·5	+2·1	8	3·13	+4·87	5·37	3·26	+2·11	24·81	45·90	−21·09	1·76	Patna.		
12		5	4	6	1	2		1	S 79° E	2·6	2·6			85		·820		2·0		10	3·48	+6·52	3·86	2·77	+1·09	27·40	43·27	−15·87	1·21	Arrah.		
	1	17	1	1	1	8	2		S 88° E	4·1	3·8			85		·802		4·4		10	2·84	+7·16	8·14	2·96	+5·18	39·87	39·22	+ 0·65	1·68	Buxar.		
13	1	4	6	5		1		1	N 88° E	2·6	2·4			81		·826		3·0		7	3·03	+3·97	5·12	3·54	+1·58	30·17	46·57	−16·40	2·12	Bhagalpur .	North Bihar .	17
18		1	10			1			E	1·2		2·2	−45	85	+2·5	·840	+·057	3·4	+1·4	6	3·03	+2·97	5·56	3·24	+2·32	41·89	48·62	− 6·73	2·98	Darbhanga.		
16	1	1	6	4		1	1	1	S 82° E	2·8				86		·849		2·8		9	2·87	+6·13	5·32	2·92	+2·40	35·19	43·28	− 8·09	1·07	Muzaffarpur.		
5		6	10	1		1	4	4	N 49° E	4·7	4·5			84		·818		3·0		11	2·71	+8·29	7·76	3·38	+4·38	49·49	49·27	+ 0·22	2·36	Motihari.		
7		1	13	2	1	2	3	2	S 77° E	3·4	3·0			86		·827		3·8		7	2·81	+4·19	3·56	2·63	+0·93	25·82	38·62	−12·80	1·07	Chapra.		
10	2	1	8	2		6		2	S 71° E	2·7	3·1	2·6	+19	85	P	·805	+·126	4·7	+2·5	11	2·20	+8·80	14·04	2·56	+11·48	49·15	38·96	+10·19	4·00	Benares .	United Provinces (East).	18
3	2	6	5	3	1	4	6	1	N 59° E	4·7	3·9	2·8	+39	86	+16·7	·778	+·144	5·2	+3·2	13	1·90	+11·10	17·73	2·57	+15·16	47·01	38·62	+ 8·39	5·48	Allahabad.		
9	1	12	4		1	1	2	1	N 48° E	1·4		1·3	+ 8	87	+10·4	·808	+·094	5·1	+3·5	12	2·10	+9·90	15·79	4·19	+11·60	67·36	49·69	+17·67	4·10	Gorakhpur .	United Provinces (East Submontane).	23
19	1	6	2	2	1				N 69° E	1·8	2·0	1·9	+ 5	86	+13·8	·756	+·128	4·0	+2·6	10	1·60	+8·40	9·98	1·16	+8·82	43·99	36·63	+ 7·36	1·89	Lucknow .	South Oudh .	19
3	2	4	10	4	2		1	5	N 73° E	3·0	2·8			84	+8·1	·766	+·075	3·5	+2·2	8	1·40	+6·60	11·73	1·55	+10·18	61·70	45·27	+16·43	3·20	Bahraich .	North Oudh .	20
1	4	7	4	3	1	5	6		N 28° E	4·4				83	+17·5	·730	+·128	4·1	+3·0	10	1·50	+8·50	11·45	1·42	+10·03	31·23	33·88	− 2·65	2·88	Cawnpore .	United Provinces (Central).	21
4	5	2	8	1	1	4	3	3	N 29° E	3·6	3·6			81	+16·5	·693	+·161	2·6	+1·5	5	0·80	+4·20	15·68	1·12	+14·56	33·70	28·90	+ 4·80	7·02	Mainpuri.		

† Mean of 29 days.

or in returns of any station, the data for that station are not utilized in calculating the provincial variations.
Nos. 41, 43 and 45 are derived only from the data available.

Table

Abstract of Observations taken at 8 A.M. at 231

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				−·055								91·0	+0·3	65·0	+3·1	78·0	+1·7	26·0					
24	United Provinces (West Submontane).	Bareilly	568	29·264	−·060	29·807	29·412	29th	29·146	9th	·266	74·0	86·1	−3·4	68·2	+2·9	77·2	−0·3	17·9	91·9	1st	58·6	26th	33·3
		Dehra Dun	2,233	27·628	−·050	29·845	27·771	29th	27·535	6th	·236	67·7	82·2	−0·1	62·1	+1·5	72·2	+0·7	20·1	87·0	7th	54·5	29th	32·5
		Roorkee	899	28·937	−·055	29·826	29·092	29th	28·832	6th	·260	69·9	87·9	−1·4	64·3	+3·0	76·1	+0·8	23·6	91·7	1st & 7th.	53·9	26th	37·8
22	United Provinces (West).	Meerut	738	29·092	−·059	29·813	29·250	29th	28·989	6th	·261	70·8	90·0	−0·5	65·5	+3·1	77·8	+1·3	24·5	95·1	1st	56·3	31st	38·8
26	South-East Punjab.	Delhi	718	29·116	−·060	29·810	29·281	29th	29·018	7th	·263	75·1	90·6	−1·5	70·1	+2·2	80·4	+0·4	20·5	95·7	1st	61·4	27th & 28th.	34·3
28	Central Punjab.	Lahore	702	29·129	−·053	29·818	29·321	29th	29·011	10th	·310	72·0	96·1	+1·0	63·2	+4·1	79·7	+2·6	32·9	102·4	2nd	54·1	30th	48·3
27	South Punjab	Sirsa	662	29·171	−·057	29·810	29·351	29th	29·072	11th	·279	74·9	96·7	+0·6	65·4	+2·8	81·1	+1·7	31·3	102·3	1st	57·1	29th	45·2
		Patiala	818	29·018		29·820	29·179	30th	28·925	6th	·254	72·8	91·0		63·8		77·5		27·2	96·5	1st	53·9	30th	42·6
29	Punjab (Submontane).	Ludhiana	812	29·020	−·054	29·823	29·192	29th	28·924	10th	·268	70·9	92·0	+0·1	65·1	+2·1	78·6	+1·1	26·9	97·0	1st & 2nd,	55·2	31st	41·8
		Sialkot	830	29·007	−·044	29·823	29·195	29th	28·896	10th	·299	72·2	95·4	+3·1	67·6	+5·7	81·5	+4·4	27·8	101·7	1st	57·7	31st	44·0
		Umballa	892	28·942	−·049	29·822	29·107	29th	28·842	7th	·265	71·5	91·5	−1·7						99·0	15th			
		Rawalpindi	1,674	28·173	−·060	29·854	28·372	29th	28·043	10th	·329	69·4	93·0	+4·8	59·7	+3·9	76·4	+4·4	33·3	99·0	1st	49·	31st	49·4
	VII.—Indus Valley and North-West Rajputana.				−·063								97·2	+2·2	67·2	+2·4	82·2	+2·3	30·0					45·2
32	North-West Frontier Province.	Peshawar	1,110	28·745	−·075	29·865	28·913	29th	28·610	10th	·333	69·2	90·8	+2·4	59·5	+2·3	75·2	+2·4	31·3	96·0	1st & 12th,	51·5	31st	44·5
		D. I. Khan	590	29·247	−·071	29·803	29·467	29th	29·109	10th	·358	70·6	93·5	−0·5	62·5	+1·9	78·0	+0·7	31·0	97·2	1st	52·1	31st	45·1
31	West Punjab	Khushab	612	29·226	?	29·821	29·440	29th	29·089	10th	·351	74·0	95·7	+1·9	64·4	+2·5	80·1	+2·2	31·3	101·4	1st	56·0	26th	45·4
		Montgomery	558	29·266	−·060	29·801	29·480	29th	29·150	2nd	·330	77·9	98·6	+2·0	65·2	+3·0	81·9	+2·5	33·4	104·8	2nd	54·0	30th	50·8
		Mooltan	420	29·393	−·077	29·790	29·604	29th	29·261	3rd	·343	74·5	98·6	+3·1	67·5	+3·1	83·1	+3·1	31·1	103·1	2nd	56·4	27th & 31st.	45·0
47	Sind	Jacobabad	186	29·639	−·072	29·790	29·860	29th	29·500	3rd	·360	75·2	103·1	+4·5	64·4	+1·9	83·8	+3·2	38·7	109·3	3rd	56·0	29th & 30th.	53·3
		Hyderabad	96	29·751	−·058	29·801	29·936	30th	29·617	3rd	·319	79·7	100·2	+2·2	71·8	+1·8	86·0	+2·0	28·4	105·1	3rd & 4th,	61·0	31st	44·1
		Kurrachee	30	29·858	−·045	29·839	30·024	30th	29·738	2nd	·286	79·3	91·5	−0·1	74·9	+4·0?	83·2	+1·9?	16·6	97·4	22nd	61·7	31st	35·7
51	West Rajputana	Bikaner	771	29·056	−·054	29·801	29·239	30th	28·939	2nd	·300	79·7	97·7	+1·8	71·8	+0·4	84·8	+1·1	25·9	103·1	5th	60·1	31st	43·0
		Pachpadra	386	29·482	−·053	29·823	29·637	30th	29·345	3rd	·292	78·9	101·5	+2·8	68·6	+3·7	85·1	+3·3?	32·9	105·5	4th, 6th & 7th.	57·1	31st	48·4
		Jodhpur	782	29·073		29·813	28·229	30th	28·949	3rd	·280	77·5	97·8		69·2		83·5		28·6	101·7	5th	60·2	31st	41·5
	VIII.—East Rajputana, Central India and Gujarat.				−·057								91·6	−1·3	69·6	+2·0	80·6	+0·4	22·0					36·6
50	East Rajputana	Jaipur	1,431	28·437?	−·061?	29·843?	28·589	29th	28·284	9th	·305	76·2	93·8	−0·5	66·0	+2·0	79·9	+0·8	27·8	98·2	1st	57·5	30th	40·7
		Bharatpur	585	29·256		29·814	29·417	29th	29·038	9th	·379	74·0	90·4		67·9		79·2		22·5	97·9	1st	59·2	29th & 30th.	38·7
		Kotah	819	29·026		29·856	29·177	29th	28·857	9th	·320	76·9	92·9		70·0		81·5		22·9	101·5	9th	62·0	31st	39·5
		Sambhar	1,254	28·603?	?	29·839?	28·757	29th	28·475	9th	·282	74·2	93·5	+0·2?	65·3	+1·7?	79·4	+1·0?	28·2	97·0	5th	53·9	31st	43·1
		Ajmer	1,611	28·259	−·066	29·856	28·407	30th	28·130	9th	·277	73·3	91·7	−0·3	67·9	+4·7	79·8	+2·2	2·38	94·4	6th & 8th.	56·2	31st	38·2
		Udaipur	1,925	27·961		29·861	28·095	30th	27·842	2nd	·253	74·2	89·8?		63·1		76·5?		26·7?	92·0	18th & 19th.	52·7	30th & 31st.	39·3
		Deesa	466	29·409	−·050	29·853	29·543	30th	29·275	2nd	·268	80·5	100·9?	+4·0?	69·2	+2·4	85·1?	+3·2?	31·7?	104·6?	6th & 7th.	59·1	31st	45·5?
46	Kathiawar and Cutch.	Bhuj	395	29·493	−·035	29·844	29·628	30th	29·372	2nd	·256	80·1	95·8	−0·3	72·2	+1·3	84·0	+0·5	23·6	99·3	15th	64·9	31st	34·4
		Jamnagar	61	29·834		29·841	29·955	30th	29·714	2nd	·241	81·0	93·3		72·9		83·1		20·4	99·6	15th	61·7	30th & 31st.	37·9
		Rajkot	429	29·462	−·041	29·848	29·582	30th	29·342	2nd	·240	78·3	95·7	+0·4	69·8	+1·7	82·8	+1·1	25·9	99·4	17th	57·0	31st	42·4
		Veraval	18	29·876	−·037	29·836	29·973	30th	29·767	2nd	·206	78·6	87·6	−1·7	73·5	+1·2	80·6	−0·3	14·1	96·1	16th	66·3	31st	29·8
		Dwarka	37	29·857		29·840	29·965	30th	29·742	2nd	·223	80·4	86·0		75·4		80·7		10·6	90·9	31st	65·7	31st	25·2
		Bhavnagar Para.	55	29·841*	?	29·810*	29·956	30th	29·705	2nd	·251	79·6	97·3	+1·2	71·0	−1·1?	84·1	+0·1?	26·3	101·6	7th	61·0	31st	40·6
49	Central India	Nowgong	757	29·059	−·097	29·788	29·206	29th	28·783	8th	·423	72·5	83·5	−6·8	68·0	+2·9	75·8	−2·0	15·5	89·0	1st	57·5	26th & 27th.	31·5
		Indore	1,823	28·052	−·056	29·814	28·156	21st	27·911	8th	·245	73·4	87·8	−0·1	63·1	−0·5?	75·5	−0·3?	24·7	91·3	18th	54·6	30th & 31st.	36·7
		Neemuch	1,630	28·246	−·059	29·850	28·376	30th	28·114	9th	·262	74·9	91·3	+0·9	64·9	+0·4?	78·1	+0·7?	26·4	94·0	7th, 19th & 20th.	51·8	31st	42·2

* Mean of 30 days.

Note 1.—When a query is inserted against any reading or

Note 2.—The divisional means of the figure columns

I—*continued.*

Stations in India, Burma, etc., in October, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 31st October.	Variation from normal of period, 1st May to 31st October 1903.	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	56	57	58
														69	+7·6	·552	+·094	0·9	+0·2				1·21	0·37	+0·88					VI.—Upper Sub-Himalayas.		
									N 61° E	0·7	0·7	1·9	− 63	88	+13·1	·740	+·135	2·7	+1·9	4	0·91	+ 3·99	10·87	1·00	+9·87	41·87	44·63	− 2·76	6·55	Bareilly .	United Provinces (West Sub-montane).	24
26	1	2	1	1																												
16			2	3	2	1	2	3	S 15° W	1·1		1·7	− 35	76	+ 7·8	·530	+·088	1·3	+0·1	1	1·10	− 0·10	0·79	0·92	−0·13	57·63	81·87	−24·21	0·69	Dehra Dun,‡		
11		4		9	1	1		5	S 70° E	1·4		1·4	0	81	+ 6·8	·609	+·084	1·0	+0·3	0	0·80	− 0·80	0·02	0·38	−0·36	35·65	38·22	− 2·60	0·02	Roorkee,		
21		1	4				4	1	N	0·5	0·5	1·4	− 64	75	+ 8·9	·589	+·105	1·2	+0·6	1	0·50	+ 0·50	0·61	0·35	+0·26	24·78	29·39	− 3·61	0·58	Meerut .	United Provinces (West).	22
11		2	3	2	2	1	5	5	N 75° W			2·4		60	+10·5	·527	+·115	1·5	+0·7	2	0·60	+ 1·40	0·67	0·06	+0·61	12·34	24·80	−12·46	0·43	Delhi .	South-East Punjab.	26
24	1	1		4				1	S 82° E	1·2		1·6	− 25	65	+ 7·7	·528	+·095	0·2	−0·3	1	0·40	+ 0·60	0·10	0·20	−0·10	13·17	16·36	− 3·19	0·10	Lahore .	Central Punjab	28
6		1	1	7	5	7	1	3	S 5° W	2·6	2·4	2·5	− 4	57	+ 7·5	·500	+·100	0·1	−0·6	0	0·40	−0·40	0	0·11	−0·11	13·15	12·36	+ 0·79	0	Sirsa . .	South Punjab .	27
3	4	1	6	10	1	2	3	1	S 66° E	3·7	3·7			74		·610		0·7		2			0·78			14·72			0·58	Patiala,		
20	1	1	2	6				1	S 74° E	1·4	1·2	0·9	+ 33	68	+7·3	·531	+·073	0·6	−0·4	0	0·50	− 0·50	0	0·33	−0·33	20·88	23·19	− 2·31	0	Ludhiana .	Punjab (Sub-montane).	29
14	1	7	8	1					N 69° E	1·2		1·4	− 14	61	+ 2·1	·494	+·060	0·4	−0·3	0	1·00	− 1·00	0·05	0·25	−0·20	34·79	24·89	+ 9·90	0·05	Sialkot,		
26		1	1	3					S 70° E	4·1				75	+ 4·7	·591	+·081	0·9	+0·4	1	0·40	+ 0·60	0·60	0·03	+0·57	25·41	26·97	− 1·56	0·60	Umballa,		
31									Calm	1·7	1·6	1·2	+ 33	46	?	·364	?	0·4	−0·6	0	1·30	−1·30	0	0·44	−0·44	16·38	24·38	− 6·00	0	Rawalpindi,		
														56	+7·6	·513	+·090	0·5	−0·3				0	0·05	−0·05					VII.—Indus Valley and North-West Rajputana.		
31									Calm	0·3	0·3	2·5	− 88	56	−2·5	·410	+·027	0·3	−0·6	0	0·40	− 0·40	0	0·09	−0·09	4·81	5·68	− 0·87	0	Peshawar .	North-West Frontier Province.	32
									N 45° E	0·6	0·6	1·2	− 50	64	+7·2	·497	+·090	0	−0·5	0	0·20	− 0·20	0	0·04	−0·04	16·99	5·32	+11·67	0	D. I. Khan,		
24		7							N 54° E	4·0	3·4			49	+4·1	·420	+·069	0·3	0	0	0·20	− 0·20	0	0·01	−0·01	10·52	10·30	+ 0·22	0	Khushab .	West Punjab .	31
6	3	13	7	1		1			S 37° E	4·8	4·5			38	?	·404	−·001?	0	−0·6	0	0·10	− 0·10	0	0·03	−0·03	7·42	7·78	− 0·36	0	Montgomery,		
4			6	12	6	2	1		S 58° E	1·0	1·2	2·0	− 40	58	?	·501	+·039?	0	−0·4	0	0	0	0	0	0	6·56	5·67	+ 0·89	0	Mooltan,		
20		2		9					S 15° E	1·8	1·9	2·2	− 14	71	+13·8	·628	+·190?	0	−0·3	0	0	0	0	0	0	2·77	2·67	+ 0·10	0	Jacobabad .	Sind . .	47
28				1	2				S 39° W	6·9	7·2	7·8	− 8	62	+9·0	·622	+·127	0·2	−0·4	0	0	0	0	0	0	5·07	6·07	− 1·00	0	Hyderabad,		
4		1		2	3	18		3	S 73° W	7·7	9·6	9·7	− 1	79	+8·9	·791	+·135	2·2	+1·0	0	0	0	0	0	0	3·68	6·65	− 2·97	0	Kurrachee.		
4		1	1	1	2	8	19	4	S 28° W	4·0		4·0	0	46	?	·479	+·030?	0·5	−0·4	0	0·30	− 0·30	0	0·09	−0·09	10·00	10·12	− 0·12	0	Bikaner .	West Rajputana	51
8			1	3		6	5	1	W	4·8	4·2	3·7	+ 14	43	?	·442	−·036?	0	−1·1	0	0·20	− 0·20	0	0·07	−0·07	9·62	12·49	− 2·87	0	Pachpadra,		
	7	3	1	1	7	6	2	4	N 18° W	3·1	2·8			47		·450		1·8		0	0·30	− 0·30	0	0·17	−0·17	19·81	12·43	+ 7·38	0	Jodhpur,		
10	3	6	1	1	1	5	3	1						69	+8·3	·649	+·077	2·2	+0·8				1·51	0·63	+1·01					VIII.—East Rajputana, Central India and Gujarat		
									N 6° E	2·8		3·7	− 24	58		·529	+·084	1·8	+0·7	1	0·50	+ 0·50	0·40	0·22	+0·18	23·21	24·48	− 1·27	0·39	Jaipur .	East Rajputana.	50
18	2	5	1					5	W	2·6	2·3			80		·682		1·6		3			3·81			22·03			2·50	Bharatpur .		
16		2	3	3		1	6	1	N 45° W	3·5	2·8			59		·554		1·3		1	0·60	+ 0·40	0·45	0·50	−0·05	35·50	29·11	+ 5·39	0·33	Kotah,		
11	4	3			3	3	1	6	N 18° E	4·0		4·7	− 15	56	+5·4	·491	+·067	0·8	−0·1	0	0·40	− 0·40	0·14	0·13	+0·01	23·72	19·27	+4·45	0·09	Sambhar,		
18	3	2	2	2			2	2	S 46° W	3·2	2·8	2·6	+ 8	64	?	·535	+·071	1·6	+0·6	0	0·60	− 0·60	0·07	0·29	−0·22	17·84	20·38	− 2·54	0·07	Ajmer,		
17	1	1		2	1	6	3		W	2·6	2·3			63		·539		1·3		0	0·80	− 0·80	0			26·39			0	Udaipur,		
28						1	1	1	S 87° E	5·6		6·7	− 16	54	?	·572	+·085	0·9	−0·5	0	0·45	− 0·45	0	0·28	−0·28	19·43	23·61	− 4·18	0	Deesa,		
	1	4	9	4	2	3	4	4	N 49° W	8·7	7·3	6·0	+ 22	73	+13·5	·758	+·153?	1·4	+0·3	0	0·50	− 0·50	0	0·28	−0·28	16·18	13·99	+ 2·19	0	Bhuj . .	Kathiawar and Cutch.	46
	3				1	1	3	23	S 61° W	11·3	13·7			73		·780		3·0		0			0			26·64			0	Jamnagar .		
	1	2	3	1	3	10	9	2	N 57° W	5·7	5·6	5·6	0	73	+5·6	·714	+·056	3·4	?	0	0·90	− 0·90	0	0·49	− 0·49	22·92	27·62	− 4·70	0	Rajkot,		
5	4		2			1	10	9	N 11° W	8·1	8·1	2·4	+238	76	+10·5	·732	+·077	3·1	+0·8	0	0·10	− 0·10	0	0·77	−0·77	24·17	17·55	+ 6·62	0	Veraval,		
	16	3	1		2		3	6	N 51° W	9·0				82		·856		1·6		0			0			25·13			0	Dwarka,		
	5	2			1	2	7	14	N 46° W	5·2	4·9			64	?	·651	+·001	3·3	+1·8?	0	0·90	− 0·90	0	0·29	− 0·29	23·69	18·99	+ 4·70	0	Bhavnagar Parn,		
	1	3		1		2	3	21	N 43° W	2·3	2·3	1·5	+ 53	86	+17·4?	·698	+·131	5·2	+3·4	8	1·70	+ 6·30	7·88	1·25	+6·63	43·53	42·68	+ 0·85	3·73	Nowgong .	Central India .	49
3	9	4	1	1	3	5	5		N 20° W	4·4	3·6	2·3	+ 57	75	+13·0	·626	+·084	3·3	+1·9	1	2·40	− 1·40	0·44	1·43	−0·99	46·88	32·61	+14·27	0·40	Indore,		
14	2	5					2	8	N 56° W	4·3	3·8	7·9	− 51	65	?	·571	+1·6	1·9	+0·8	1	0·90	+ 0·10	0·42	0·41	+0·01	33·60	29·10	+ 4·50	0·42	Neemuch,		
5	3	2				4	5	12																								

† Mean of 27 days.

‡ Wind observations for 29 days.

§ Mean of 16 days.

in returns of any station, the data for that station are not utilized in calculating the provincial variations.
Nos. 41, 43 and 45 are derived only from the data available.

Table

Abstract of Observations taken at 8 A.M. at 231

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
45	Gujarat	Surat	39	29·852	−·045	29·833	29·947	30th	29·740	2nd	·207	80·7	93·3	+0·3	71·8	+1·0	82·6	+0·7	21·5	96·7	5 days	63·5	30th	33·2
		Ahmedabad	163	29·719	−·054	29·831	29·841	30th	29·606	2nd	·235	80·6	97·5	+0·8	73·5	+1·4	85·5	+1·1	24·0	100·8	6th	66·6	30th & 31st.	34·2
22	United Provinces (West).	Agra	555	29·278?	?	29·803?	29·437	29th	29·043	9th	·394	75·0	89·1	−4·2	70·2	+2·6	79·7	−0·8	18·9	97·0	1st	60·4	31st	36·6
21	United Provinces (Central).	Jhansi	858	28·977	−·081	29·807	29·131	29th	28·660	9th	·471	74·3	87·4	−5·5	69·9	+0·8?	78·6	−2·4?	17·5	93·2	20th	63·6	27th & 29th.	29·6
	IX.—Deccan				−·066								86·3	−2·0	67·8	+0·5	77·1	−0·7	18·5					33·4
38	Bombay (Deccan)	Belgaum	2,539	27·354	−·037	29·833	27·431	10th	27·271	2nd	·160	71·7	81·4	−1·7	64·6	−0·4	73·0	−1·1	16·8	85·3	15th & 16th.	56·4	31st	28·9
		Sholapur	1,590	28·288	−·051	29·840	28·382	21st	28·170	2nd	·212	74·8	87·5	−2·4	68·2	+0·1	77·8	−1·2	19·3	93·7	17th	56·1	28th	37·6
		Poona	1,840	28·057	−·046	29·865	28·148	21st	27·952	2nd	·196	71·8	88·4	−0·1	65·3	−1·2	76·9	−0·7	23·1	92·5	16th	54·4	27th & 30th.	38·1
		Bijapur	1,948	27·935	−·045	29·837	28·022	21st	27·823	2nd	·199	73·8	85·5	−2·7	67·1	−0·7	76·3	−1·7	18·4	90·4	16th & 17th.	55·1	27th	35·3
40	Khandesh	Malegaon	1,430	28·465	−·043	29·864	28·559	20th	28·355	2nd	·204	75·2	91·0	+0·4	65·5	−0·3	78·3	+0·1	25·5	94·9	19th	56·1	28th	38·8
		Ahmednagar	2,152	27·756	−·044	29·862	27·848	21st	27·637	2nd	·211	73·6	86·7	−1·4	64·2	−0·4	75·5	−0·9	22·5	90·4	19th	54·0	27th	36·4
41	Berar	Akola	930	28·934	−·064	29·826	29·059	21st	28·783	8th	·276	75·7	90·7	−0·6	65·8	−0·4	78·3	−0·5	24·9	94·4	19th	52·9	29th	41·5
		Amraoti	1,215	28·640	−·066	29·820	28·768	21st	28·481	8th	·287	76·1	88·9	−1·7	69·1	+0·9	79·0	−0·4	19·8	92·2	1st, 18th & 20th.	59·0	29th	33·2
42	Central Provinces (West).	Khandwa	1,044	28·816	−·063	29·830	28·934	20th	28·661	8th	·273	75·1	91·8	+0·7	66·5	+0·2	79·2	+0·5	25·3	95·7	19th	57·1	28th & 29th.	38·6
		Hoshangabad	1,006	28·853	−·077	29·834	28·982	20th	28·644	8th	·338	73·9	87·9	−1·7	68·5	+1·6	78·2	−0·1	19·4	91·8	1st	56·8	27th	35·0
		Nagpur	1,025	28·820	−·066	29·814	28·956	21st	28·623	8th	·333	75·0	88·5	−1·6	68·9	+0·5	78·7	−0·6	19·6	93·1	16th	58·7	28th	34·4
43	Central Provinces (Central)	Chanda	634	29·218	−·064	29·805	29·349	20th & 21st.	29·062	7th	·287	75·8	88·6	−1·5	69·9	+1·4	79·3	−0·1	18·7	92·2	12th, 15th & 16th.	55·6	28th	36·6
		Seoni	2,033	27·815	−·080	29·806	27·957	21st	27·580	8th	·377	72·8	84·0	−2·6	65·9	+1·7	75·0	−0·5	18·1	87·8	19th	55·0	28th	32·8
		Jubbulpore	1,327	28·492	−·097	29·800	28·641	21st	28·201	8th	·440	70·7	83·5	−3·9	66·3	+2·3	74·9	−0·8	17·2	87·9	17th	52·4	27th	35·5
		Saugor	1,807	28·039	−·078	29·817	28·165	20th	27·766	8th	·399	72·9	83·9	−3·7	66·9	+1·2	75·5	−1·3	17·0	89·4	22nd	57·1	29th	32·3
49	Central India	Sutna	1,040	28·767	−·101	29·785	28·913	20th	28·479	8th	·434	72·8	83·1	−4·8	69·3	+3·6	76·2	−0·6	13·8	87·4	1st	60·7	27th & 28th.	26·7
44	Central Provinces (East).	Raipur	970	28·849	−·093	29·780	28·995	21st	28·607	7th	·388	75·2	84·9	−3·4	69·8	+0·1	77·4	−1·7	15·1	90·6	17th	58·4	27th	32·2
		Pendra	2,123?	27·788?		29·787?	27·936	20th	27·523	7th	·413	70·8	80·8		65·9		73·4		14·9	85·3	5th, 15th & 17th.	55·1	28th	30·2
		Sambalpur	486	29·343	−·089	29·783	29·486	21st	29·103	7th	·383	77·7	87·4	−1·4	72·8	+0·9	80·1	−0·3	14·6	92·1	17th	62·2	26th & 27th.	29·9
39	Hyderabad (North).	Aurangabad	1,905	27·947		29·831	28·086	20th	27·845	2nd	·241	75·7	87·5		64·9*		76·2*		22·6	90·8	15th	54·2	27th	36·6
		Indur		28·541			28·620	8th	28·493	31st	·127	75·3	85·1		67·5		76·3		17·6	89·8	17th	54·1	31st	35·7
		Bidar	2,165	27·731		29·844	27·834	20th	27·603	2nd	·231	74·4	82·9		68·5		75·7		14·4	88·1	17th	62·4	28th	25·7
53	Hyderabad (South).	Gulbarga	1,503	28·369	−·059	29·830	28·457	21st	28·247	3rd	·210	75·5	87·0	−3·1	69·0	−0·1	78·0	−1·6	18·0	92·1	18th	58·4	27th	33·7
		Raichur	1,326	28·538	−·047	29·823	28·622	20th & 21st.	28·419	2nd	·203	76·2	86·9	−2·1	71·4	−0·8	79·2	−1·5	15·5	92·1	17th	61·1	27th & 28th.	28·0
		Hyderabad (Dn.)	1,690	28·164	−·065	29·810	28·263	21st	28·018	5th	·245	74·9	85·3	−2·3	69·2	+1·1	77·3	−0·6	16·1	90·4	17th	59·8	26th	30·6
		Secunderabad	1,787	28·074	−·069	29·81	28·175	21st	27·922	5th	·253	74·7	85·8	−0·1?	68·5	+0·8	77·2	+0·4	17·3	90·6	4 days	61·1	26th	29·5
		Hanumkonda	871	28·962		29·786	29·076	20th & 21st.	28·788	5th	·288	76·8	86·9		72·2		78·6		14·7	91·0	14th, 16th & 18th.	61·7	26th	29·3
	X.—West Coast				−·030								85·3	−0·6	74·7	−0·3	80·0	−0·5	10·6					19·3
37	Konkan	Bombay	37	29·858	−·040	29·835	29·921	21st	29·755	2nd	·166	79·5	87·3	−0·2	76·7	+0·2	82·0	0	10·6	91·5	25th & 27th.	72·5	3rd	19·0
		Ratnagiri	110	29·788	?	29·837	29·878	10th	29·711	2nd	·167	77·8	86·6	−1·6	72·9	−1·1	79·8	−1·4	13·7	94·3	22nd & 26th.	63·9	30th	30·0
		Mormugao	60	29·843	−·029	29·839	29·942	10th	29·773	2nd	·169	77·5	84·9	−1·1	74·7	−0·9	79·8	−1·0	10·2	89·0	26th	69·4	28th	19·6
		Goa	199									79·3	84·4	−0·9	76·5	+1·0?	80·5	+0·1?	7·9	89·0	22nd, 26th & 27th.	72·0	4 days	17·0
		Karwar	44	29·858	−·028	29·835	29·961	10th	29·781	2nd	·183	77·5	86·1	+0·7	72·7	−0·7	79·4	0	13·4	91·3	22nd & 27th.	64·5	29th	26·8
33	Malabar	Cochin	10	29·906	−·028	29·844	29·993	10th	29·832	23rd	·161	78·9	86·0	−0·2	75·0	+0·4	80·5	+0·1	11·0	88·3	18th	71·7	24th	16·6
		Calicut	27	29·889	−·026	29·845	29·979	10th	29·814	23rd	·165	78·4	85·2	−1·0	74·9	+0·4	80·1	−0·3	10·3	88·8	22nd	72·2	12th & 31st.	16·6
		Mangalore	65	29·844	−·034	29·841	29·944	10th	29·794	24th	·150	78·1	83·6	−2·1	74·1	−0·5	78·9	−1·3	9·5	86·2	21st, 22nd & 26th.	71·4	28th & 29th.	14·8
		Trivandrum	198	29·718	−·022	29·850	29·800	10th	29·657	24th	·143	77·6	83·2	+0·5	74·9	−0·3	79·1	+0·1	8·3	84·5	5 days.	71·5	28th	13·0

* Mean of 30 days.

NOTE 1.—When a query is inserted against any reading or in

NOTE 2.—The divisional means of the figure columns Nos. 41, 45

I—*continued.*

Stations in India, Burma, etc., in October, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 31st October.	Variation from normal of period, 1st May to 31st October, 1903.	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	56	57	58
4	7	3	2	3	2	5	1	4	N 14° W	4·0	3·8	5·1	−25	68	P	·722	+·004	1·7	−0·3	1	2·20	−1·20	0·12	2·00	−1·88	40·19	43·73	−3·54	0·12	Surat	Gujarat	45
	3	2	5	4		2	2	13	N 20° W	2·1	3·4			61	+5·4	·639	+·078	1·7	0	0	0·80	−0·80	0·06	0·77	−0·71	26·32	32·56	−6·24	0·06	Ahmedabad.		
4		6		4		9		8	N 82° W	3·9	4·7	3·0	+57	73	+16 2	·645	+·148	2·5	+1·7	4	0·60	+3·40	7·55	0·38	+7·17	23·40	26·81	−3·41	3·30	Agra	United Provinces (West).	22
9	3	4	1			9		5	N 63° W	3·5	3·9	2·8	+50	80	P	·681	+·184	2·2	+1·3	5	0·90	+4·10	8·83	0·61	+8·19	35·08	36·73	−1·65	4·71	Jhansi	United Provinces (Central).	21
														74	+5·8	·639	+·031	4·4	+1·5				5 61	2·73	+2·68					IX.—Deccan.		
13	2	4	1			4	6	1	N 72° W	10·6		10·5	+ 1	75	−4·7	·585	−·040	5·5	+1·0	5	8·70	−3·70	2·33	5·96	−3·63	41·41	45·85	− 4·44	0·91	Belgaum	Bombay Deccan.	38
2	2	10	4	1		1	3	8	N 10° E	7·5	9·1	7·4	+23	64	+0·9	·558	−·023	5·5	+1·1	5	4·70	+0·30	3·32	4·16	−0·84	41·32	28·57	+12·75	1·40	Sholapur.		
	3	2	1	2		2	15	6	N 71° W	8·8		5·8	+52	74	+3·3	·592	−·009	3·7	−0·2	3	5·60	−2·60	3·48	4·40	−0·92	21·02	25·82	− 4·80	1·37	Poona.		
7	4	4	1	1	1	5	5	3	N 58° W	6·2	6·1			76	+2·1	·639	−·021	5·0	+1·0	5	6·60	−1·60	4·57	4·50	+0·07	26·14	21·94	+4·20	2·15	Bijapur.		
	2					3	17	9	N 76° W	6·1	7·0	4·5	+56	62	P	·561	−·016	4·0	+0·9	2	3·00	−1·00	0·94	2·42	−1·48	24·82	23·04	+ 1·78	0·72	Malegaon	Khandesh.	40
15	5	1				1	2	9	N 36° W	6·3	7·7			61	P	·518	−·082	4·1	+1·4	3	5·20	−2·20	4·66	2·14	+2·52	33·51	20·27	+13·24	2·05	Ahmednagar.		
13	1	3		1			3	10	N 38° W	3·7†	3·6†	3·3	+ 9	69	+5·4	·624	+·054	4·1	+1·6	3	2·70	+0·30	1·42	2·74	−1·32	30·14	31·74	− 1·60	0·73	Akola	Berar	41
	7	5	5	1		2	9	2	N 14° W	7·0	6·2	2·9	+114	65	P	·591	+·029	3·9	+1·4	4	2·40	+1·60	3·58	2·33	+1·25	42·40	32·36	+10·04	1·65	Amraoti.		
	2	9	3	4		2	1	10	N 13° E	5·1		2·9	+76	67	P	·591	+·050	3·1	+1·2	0	2·60	−2·00	0	1·45	−1·45	29·79	30·13	− 0·34	0	Khandwa	Central Provinces (West).	42
		13		1		8		9	N 13° W	1·6	1·6	1·5	+ 7	75	+3·6	610	+·051	2·9	+0·8	1	2·10	−1·10	0·28	1·75	−1·47	46·50	50·24	− 3·74	0·14	Hoshangabad		
4	17	2			1	1	5	1	N 16° W	4·1	3·2	4·3	−26	73	+8·4	·650	+·055	4·4	+1·6	7	3·10	+3·90	4·32	2·43	+1·89	56·46	46·43	+10·03	2·59	Nagpur.		
28						1	2		S 75° W	1·0	0·9	2·3	−01	78	+6·4	·715	+·052	3·6	+1·0	6	2·70	+3·30	4·36	2·00	+2 36	61·11	51·88	+ 9·23	2·56	Chanda	Central Provinces (Central).	43
	8	8	1	1	2	3	3	5	N 6° W	6·4	5·4	3·1	+74	75	+3·7 p	·607	+·042	4·3	+2·0	9	2·80	+6·20	6·21	2·03	+4·18	63·49	51·75	+11·74	1·49	Seoni.		
1	3	3		5	7	6	3	3	S 27° W	3·3	2·9	2·1	+38	91	+15·8	·694	+·088	5·1	+3·1	10	2·20	+7·80	7·17	1·86	+5·31	54·30	56·44	− 2·14	3·58	Jubbulpore.		
	8	1	5		3	7	5	2	N 69° W	6·2	5·5	2·7	+104	71	+11·2	·582	+·072	3·9	+2·4	6	2·10	+3·90	3·25	1·27	+1·98	43·99	46·11	− 2·12	1·79	Saugor.		
8	1	3	3		1	4	10	1	W	3·5	3·2	4·3	−26	88	+21·8	·716	+·146	5·7	+4·1	12	2·10	+9·90	11·75	2·45	+9·30	42·58	43·00	− 0·42	3·61	Sutna	Central India.	49
7	5	7	1	2	2	6		1	N 38° E	4·5	5·4	3·8	+42	82	+10·1	·721	+·067	4·8	+1·4	8	3·10	+4·90	4·07	2·09	+1·98	41·93	48·21	− 6·28	0·97	Raipur	Central Provinces (East).	44
5	6	1	1	2	10	2		4	S 18° W	5·6	4·8			83		·640		5·5		11			12·01			55·61			3·63	Pendra		
	2	6	5	8	3	4	2	1	S 61° E	4·5	4·1	2·0	+120	80	+2·0	·773	+·024	4·7	+2·1	8	3·60	+4·40	7·72	1·92	+5·80	52·67	64·10	−11·43	2·17	Sambalpur		
4	2	8	5				8	4	N 1° W	9·1	9·0			63		·568		5·7		3	3·40	−0·40	1·50	2·36	−0·86	29·33	28·66	+ 0·67	0·92	Aurangabad	Hyderabad (North).	39
19		4						8	N 18° W	4·3	3·6			80		·709		3·5		5	2·90	+2·10	6·22	2·09	+4·13	46·86	37·14	+ 9·72	2·27	Indur.		
	7	4	6	1	1	3	6	3	N 7° W	3·6	3·0			70		·637		4·2		6	4·40	+1·60	9·85	3·07	+6·78	46·71	36·21	+10·50	5·05	Bidar.		
7	2	8	3	1			4	6	N 5° E	8·6	8·3			72	+2·4	·636	−·007	4·6	+1·0	6	5·00	+1·00	10·09	3·09	+7·00	54·46	29·35	+25·11	3·72	Gulbarga	Hyderabad (South).	58
1	2	4	4		2	6	6	6	N 70° W	8·2	7·8			73	+2·5	·671	−·002	2·9	−0·5	6	4·20	+1·80	11·14	4·31	+6·83	35·97	28·64	+ 7·33	3·70	Raichur.		
16		3	2				8	2	N 56° W	4·4	4·3			78	+3·0	·682	+·014	4·4	+0·8	8			10·37	2·71	+7·66	46·71	28·45	+18·26	4·61	Hyderabad (Dn.).		
4	4	6	4	2	1		3	7	N 10° E	5·5		3·8	+45	69		·629		3·7		8	4·60	+3·40	12·73	2·71	+10·02	46·51	28·45	+18·06	5·00	Secunderabad		
3	7	1	1	1	5	4	2	7	N 60° W	6·8	5·8			77		·731		4·9		5	4·10	+0·90	4·05			61·06			2·29	Hanumkonda		
														84	−0·7	·820	−·018	5·2	+0·4				6·86	7·47	−0·61					X.—West Coast.		
	3	9	10	3	2		2	2	N 66° E	8·3		·8	−15	82	0	·824	−·021	4·8	+1·4	4	2·70	+1·30	5·91	2·24	+3·67	84·32	74·45	+ 9·87	3·47	Bombay	Konkan	37
7	4	6	9	3				2	N 61° E	7·2	7·1	7·7	− 8	79	+1·3	·750	−·055	4·4	+0·7	8	5·00	+3·00	7·18	4·47	+2·71	105·61	106·61	− 1·00	1·81	Ratnagiri.		
7	1	2	4	9	2	1	1	4	S 62° E	5·2*				89	−0·6	·842	−·013	3·5	−0·5	7			3·73	6·17	−2·44	103·57	91·18	+12·39	0·87	Mormugao.		
6	1	9	10	1	1			3	N 63° E					79	−5·6	·798	−·055	5·2	+1·2	5			1·99	5·42	−3·43	109·66	96·66	+13·00	0·66	Goa.		
14	1	2	10	1	1		2		N 86° E	4·3				86	−3·3	·818	+·005	3·5	−0·5	3	8·50	−5·50	1·58	7·26	−5·68	135·04	120·97	+14·07	0·70	Karwar.		
1	1	11	8	3		3	1	3	N 62° E	5·7				85	+0·5	·846	−·005	6·3	+0·6	14	14·80	−0·80	12·61	13·92	−1·31	118·46	98·96	+19·50	2·80	Cochin	Malabar	33
15	2	3	4	1	1		2	3	N 33° E	3·2	4·0			87	+1·1	·850	+·014	5·9	+0·2	12	11·80	+0·20	10·60	9·75	+0·85	112·22	104·12	+ 8·10	2·82	Calicut.		
19			7	3		1		1	S 75° E	1·7*		2·7	−37	89	+2·5	·852	+·008	6·8	+0·9	14	10·30	+3·70	9·85	7·55	+2·30	133·10	119·04	+14·06	2·03	Mangalore.		
11	7	1						12	N 26° W	4·3				84	−0·4	·804	−·006	6·7	−0·1	7	11·90	−4·90	8·30	10·49	−2·19	45·58	46·63	− 1·05	3·18	Trivandrum.		

† Mean of 27 days.

returns of any station, the data for that station are not utilized in calculating the provincial variations.
and 45 are derived only from the data available.

Table

Abstract of Observations taken at 8 A.M. at 231

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-sistern 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.				−·048								88·0	−0·7	72·9	+0·2	80·5	−0·3	15·1					25·9
57	Madras (South)	Pamban	37	29·854		29·818	29·931	10th	29·785	1st	·146	82·8	89·7		78·6		84·2		11·1	94·8	18th	75·2	26th	19·6
		Tinnevelly	168	29·727	−·027	29·826	29·796	10th	29·662	24th	·134	82·4	94·6	+0·9	76·4	−0·2	85·5	+0·4	18·2	101·4	12th	72·9	28th	28·5
		Madura	447	29·436	−·028	29·821	29·504	10th	29·365	1st	·139	80·1	90·6	−0·7	74·4	+0·4	82·5	−0·2	16·2	95·4	8th	71·5	28th	23·9
		Periyakulam	945	28·942			29·022	10th	28·862	1st	·160	77·0	89·9		71·1		79·2		18·8	96·3	11th	66·6	30th	29·7
34	Madras (South-Central).	Salem	940	28·958	−·049	29·813	29·039	10th	28·882	1st	·157	77·8	88·9	−0·7	72·3	+1·2	80·6	+0·3	16·6	91·2	9th, 15th & 17th.	68·4	28th	22·8
		Coimbatore	1,348	28·547	−·031	29·847	28·634	10th	28·463	1st	·171	75·9	87·7	−0·6	70·8	+0·2	79·3	−0·2	16·9	91·9	17th	66·8	30th	25·1
35	Coorg	Mercara	3,781	26·213	−·023		26·293	10th	26·160	23rd	·133	65·7	73·9	−1·9	61·3	−0·9	67·6	−1·4	12·6	79·0	22nd & 23rd.	57·1	28th	21·9
36	Mysore	Chitaldroog	2,405	27·498	−·040	29·835	27·589	10th	27·427	2nd	·162	72·6	82·0	−2·6	67·5	−0·3	74·8	−1·5	14·5	87·1	16th	61·9	27th	25·2
		Bangalore	3,021	26·913	−·043	29·857	27·000	10th	26·839	1st	·161	70·2	80·7	−0·7	65·2	0	73·0	−0·4	15·5	85·8	16th	62·3	29th	23·5
		Hassan	3,091	26·855	−·035	29·868	26·938	10th	26·792	1st	·146	70·6	80·5	−0·9	63·9	−0·4	72·2	−0·7	16·6	84·6	22nd	57·4	27th	27·2
		Mysore	2,518	27·409	−·035	29·861	27·496	10th	27·351	1st	·145	71·3	83·0	−1·1	65·1	−0·9	74·6	−1·0	16·9	87·6	22nd	61·4	11th	26·2
56	Madras, East Coast, South.	Negapatam	31	29·843	−·040	29·803	29·916	10th	29·774	28th	·142	81·8	89·6	+1·2	77·6	+1·7?	83·6	+1·5?	12·0	95·3	10th	69·5	23th	25·8
		Cuddalore	12	29·863	?	29·804	29·940	10th	29·775	1st	·165	80·8	88·8	+0·7	74·3	−0·4?	81·6	+0·2?	14·5	93·2	11th	67·2	28th	26·0
		Trichinopoly	255	29·631	−·033	29·819	29·714	10th	29·551	1st	·163	79·9	91·8	+0·8	74·7	+0·4	83·3	+0·6	17·1	96·1	9th	70·4	28th	25·7
		Madras	22	29·840	−·054	29·793	29·919	21st	29·743	2nd	·176	80·6	88·6	−0·4	75·1	0	81·9	−0·2	13·5	94·0	13th	68·0	29th	26·0
		Vellore	707	29·157		29·808	29·250	10th	29·061	1st	·189	78·8	89·8		73·1		81·4		16·7	94·4	23rd	66·5	28th	27·9
55	Madras, East Coast, Central.	Nellore	71	29·781	?	29·786	29·867	21st	29·667	1st	·200	80·7	91·2	0	76·0	+0·2	83·6	+0·1	15·2	97·3	12th & 13th.	68·6	29th	28·7
		Masulipatam	15	29·828	−·060	29·778	29·932	21st	29·676	29th	·256	80·1	87·1	−1·8	76·0	0	81·6	−0·9	11·1	93·1	13th	70·6	30th	22·5
54	Madras, Central	Cuddapah	433	29·429	−·053	29·803	29·532	10th	29·325	2nd & 4th.	·207	80·6	92·0	+0·1	74·4	+0·2	83·2	+0·2	17·6	97·2	18th & 20th.	66·9	27th	30·3
		Kurnool	945	28·909	−·059	29·803	29·009	21st	28·786	3rd	·223	77·3	88·6	−2·3	71·1	+0·1	79·9	−1·1	17·5	93·2	17th & 19th.	59·3	27th	33·9
		Bellary	1,475	28·395	−·048	29·824	28·479	10th	28·295	2nd	·184	76·0	88·4	−1·3	71·1	0	79·8	−0·7	17·3	94·0	16th	63·2	28th	30·8
52	Madras, East Coast, North.	Cocanada	26	29·806	−·073	29·767	29·917	21st	29·641	4th	·276	80·5	87·5	−0·4	76·4	+0·6	82·0	+0·1	11·1	94·1	12th	71·0	27th	23·1
		Waltair (Vizag.)	226	29·595	−·083	29·763	29·717	21st	29·409	6th	·308	80·8	87·5	?	76·6	?	82·1	?	10·9	92·4	11th	70·9	29th	21·5
		Gopalpur	21	29·809	−·075	29·770	29·941	21st	29·593	5th	·348	80·6	86·6	−1·0	75·8	+1·6	81·2	+0·3	10·8	89·7	17th	67·0	26th & 27th.	22·7
	XII.—Hill Stations.																							
48	Baluchistan	Pishin											78·5		35·7		57·2		42·8	86·4	1st	28·0	23rd, 25th & 26th.	58·4
		Quetta	5,502	24·721	−·006		24·853	29th	24·601	10th	·252	54·0	78·2	+3·6	38·0	−0·3	58·1	+1·7	40·2	86·7	1st	32·3	25th	54·4
		Kalat *	...									62·9	81·1	+4·6?	22·9	−8·5?	52·1	−2·0?	58·2	85·5	1st	15·5	6th	70·0
		Chaman	4,311	25·735	−·065		25·886	30th	25·649	10th	·237	63·2	81·2	+2·5	51·8	+1·1	66·5	+1·8	29·4	88·2	1st & 10th.	43·1	29th	45·1
30	Punjab	Leh	11,503	19·772	−·008		19·864	14th	19·660	23rd	·204	41·3	59·9	+1·3	31·2	+1·3	45·6	+1·3	28·7	72·1	1st	22·9	30th	49·2
		Srinagar	5,204	24·944	−·041		25·075	29th	24·867	10th	·208	49·1	71·3	+1·6	44·4	+4·6	57·9	+3·1	26·9	81·7	1st	36·1	3rd & 31st.	45·6
		Sonemarg		21·889?			21·947?	6th & 15th.	21·801?	1st	·146	34·7	57·0?		30·5		43·8?		26·5?	67·9	1st	24·6	29th & 31st.	43·3
		Skardu		22·925			23·055	29th	22·805	18th	·250	50·1	68·3		42·7		55·6		25·6	80·5	1st	32·1	30th	48·4
		Dras		20·866			20·948	14th	20·764	22rd	·184	41·3	60·8		29·3		45·0		31·5	71·4	1st	20·6	30th	50·8
		Gilgit	4,890	25·188			25·360	29th	25·072	18th	·288	62·5	79·2	+5·3	54·7	+1·6	67·0	+3·5	24·5	86·8	1st	46·1	31st	40·7
		Chitral		24·615			24·750	3 days	24·500	3rd	·250	50·6	80·3		46·3		63·3		24·0	86·5	15th	39·0	30th & 31st.	47·5
		Killa Drosh										57·8	81·0		56·2		68·6		24·8	87·2	15th	49·1	29th & 31st.	38·1
		Murree	6,333	23·889	−·030		24·010	29th	23·803	10th	·207	59·7	70·2	+0·9	52·7	−0·6	61·5	+0·2	17·5	76·2	1st	47·9	27th	28·3
		Kalang	10,087	21·006			21·167	30th	20·927	23rd	·240	42·3	64·6	+4·2	33·1	+1·6	48·9	+2·9	31·5	73·3	1st	27·0	28th	46·3

* Mean of 16 days.

Note 1.—When a query is inserted against any reading or in

Note 2,—The divisional means of the figure columns Nos. 4 to

I—*continued.*

Stations in India, Burma, etc., in October, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 31st October.	Variation from normal of period, 1st May to 31st October, 1903.	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	56	57	58
														80	+0·7	·777	+·007	5·6	+0·1				5·58	7·59	−2·01					XI.—South India.		
6	1		2	4	4	8	4	2	S 31° W	11·0	11·6			78		·880		3·9		5	9·50	−4·50	3·92	8·63	−4·71	10·11	11·59	−1·48	1·37	Pamban	Madras (South)	57
	4	1	1	1	1	7	12	4	N 87° W	4·6	4·4			68	−4·4	·758	−·018	5·3	−0·5	6	8·40	−2·40	3·85	6·30	−2·45	6·84	10·28	−3·44	1·19	Tinnevelly.		
8	9	3					1	10	N 18° W	2·7	3·1	2·9	+ 7	76	+2·0	·794	+·038	4·5	−1·3	6	11·40	−5·40	5·84	8·61	−2·77	25·48	23·25	+2·23	2·34	Madura.		
16	4	3				3	3	1	N 45° W	2·1	2·3			80		·742		5·5		10	10·60	−0·60	3·88	7·55	−3·67	11·17	16·47	−5·30	0·73	Periyakulam.		
19	1	1	1			2	3	3	S 67° W	2·5	2·3	2·8	−18	81	−0·1	·781	0	6·5	+0·6	13	9·50	+3·50	7·21	6·72	+0·49	43·94	32·20	+11·74	1·27	Salem	Madras (South Central).	34
12		2	2			2	8	4	S 45° W	1·9	1·7	3·5	−51	85	P	·781	+·007	4·6	−1·1	5	9·40	−4·40	6·26	5·98	+0·28	18·38	13·58	+4·80	3·11	Coimbatore.		
4	7	2	3				7	8	N 31° W	7·8	7·3	3·6	+103	92	+3·8	·592	+·009	8·3	+1·7	19	13·00	+6·00	15·30	8·61	+6·69	128·22	118·93	+9·29	3·23	Mercara	Coorg	35
6		1	3	1		7	10	3	S 77° W	5·5	4·8			79	+2·7	·639	−·006	5·2	−0·9	6	7·70	−1·70	9·36	3·28	+6·08	34·87	21·00	+13·87	3·31	Chitaldroog	Mysore	36
3	1	5	1	3	1	8	7	2	S 69° W	7·0	6·1	4·0	+53	84	+1·5	·622	−·005	7·3	+1·2	13	9·30	+3·70	6·74	6·36	+0·38	40·83	29·28	+11·55	1·03	Bangalore.		
5		6	6	3			6	5	N 27° E	2·7	2·3			83	+1·4	·624	−·002	7·8	+0·7	7	9·50	−2·50	2·90	6·64	−3·74	39·75	28·72	+11·03	0·77	Hassan.		
	1	3	3	1	2	13	7	1	S 51° W	6·7	7·2			84	+0·7	·639	−·020	8·6	+1·6	10	9·40	+0·60	11·13	6·98	+4·15	39·65	25·01	+14·64	3·34	Mysore.		
9		2		1		10	7	2	S 70° W	5·4	4·8	3·7	+30	78	−3·3	·853	−·009	6·1	−0·3	6	11·00	−5·00	2·38	11·65	−9·27	28·38	23·75	+4·63	0·75	Negapatam	Madras (East Coast, South)	56
27						2	1	1	S 77° W	1·8	2·2			82	P	·874	−·035?	7·0	+1·0	6	10·00	−4·00	6·44	11·66	−5·22	24·89	29·01	−4·12	2·59	Cuddalore.		
22						3	6		S 75° W	2·6		3·8	−32	80	+0·5	·811	+·008	5·0	−1·3	3	9·70	−6·70	2·29	7·15	−4·86	25·50	21·16	+4·34	1·24	Trichinopoly.		
	3			1	9	10	7	1	S 47° W	4·9		5·0	− 2	81	−1·5	·859	−·014	5·3	−0·4	7	12·50	−5·50	8·84	11·45	−2·61	35·52	28·93	+6·59	1·75	Madras.		
11		1	1	2		5	3	8	N 84° W	2·0	2·0			79		·773		4·3		9	9·30	−0·30	5·80	7·51	−1·71	33·14	28·18	+4·96	3·59	Vellore.		
3		1		5	5	1		16	N 70° W	5·5				77	−4·3	·807	−·073?	5·1	−0·4	5	8·70	−3·70	3·65	7·33	−3·68	19·74	20·14	−0·40	1·52	Nellore	Madras (East Coast, Central)	55
10	5		1	1		2	8	4	N 62° W	5·9	5·7	4·4	+30	86	+2·4	·880	−·002	5·8	+0·6	13	8·60	+4·40	8·81	8·42	+0·39	48·75	32·95	+15·80	2·50	Masulipatam.		
		10	2	5		1	5	8	N 8° E					73	−1·7	·753	−·025	5·3	+0·4	6	6·70	−0·70	3·17	5·78	−2·61	34·52	26·73	+7·79	1·23	Cuddapah	Madras (Central).	54
3						12	8	8	S 83° W	5·5				80	+6·8	·754	+·047	5·0	+0·9	5	5·90	−0·90	4·99	4·01	+0·98	30·18	25·81	+4·37	1·51	Kurnool.		
2	2	1	2	1	1	2	8	12	N 61° W	5·7	6·0	4·3	+40	73	+5·1	·668	+·033	6·0	+0·3	8	6·70	+1·30	5·98	4·27	+1·71	20·17	16·65	+3·52	1·43	Bellary.		
15	3	5				4	3	1	N 35° W	6·0	5·0			86	P	·903	+·103?	5·1	+0·3	12	9·40	+2·60	6·58	8·72	−2·14	40·70	31·64	+9·06	1·06	Cocanada	Madras, (East Coast, North)	52
2	1	9	2			17			S 38° W	10·3				73	P	·772	−·038?	7·2	+2·4?	8	8·20	−0·20	4·38	10·23	−5·85	24·79	34·39	−9·60	1·34	Waltair (Vizag.).		
2	14			1	1	4	1	3	N 30° W	10·0	9·8	6·3	+56	86	+4·1	·898	+·079	3·5	−1·0?	5	7·90	−2·90	4·05	9·41	−5·36	36·52	40·50	−3·98	1·74	Gopalpur		
																														XII.—Hill Stations.		
																				0	0·20	−0·20	0	0·09	−0·09	0·62	0·55	+0·07	0	Pishin	Baluchistan	48
31									Calm	0·4	0·4	3·0	−87	51	+7·2	·222	+·031	0	−0·4	0	0·20	−0·20	0	0·09	−0·09	1·04	2·41	−1·37	0	Quetta.		
	2		2		11		1		S 6° E					41		·238				0	0·30	−0·30	0	0·08	−0·08	0·52†	1·73	−1·21	0	Kalat.*		
		1	11	12	3			1	S 66° E	6·7	7·4			36	+5·2	·215	+·034	0	−0·6	0	0·10	−0·10	0	0·04	−0·04	0·55	0·32	+0·23	0	Chaman.		
	4	4	2		2	4	14	1	N 77° W	2·2				42	−10·7	·106	−·016	1·5	−0·9	0	0·10	−0·10	0	0·22	−0·22	0·92	1·75	−0·83	0	Leh	Punjab	30
6			2	8	12			3	S 19° E	2·6	2·4			87	−0·7	·311	+·029	0·6	−1·3	3	2·70	+0·30	1·58	0·84	+0·74	19·82	11·25	+8·57	0·73	Srinagar.		
24		3	4						N 71° E	2·8	2·5			96		·199		0·5		3			1·01			30·39			0·42	Sonemarg.		
9		5	9	3	1		1	3	N 7° E	5·7	5·8?			73		·266		1·5		0	0·10	−0·10	0	0·02	−0·02	5·78	2·95	+2·83	0	Skardu.		
27					2	1	1		S 33° W	6·4	5·1			57		·146		0·4		0	3·10	−3·10	0	0·99	−0·99	7·62	6·45	+1·17	0	Dras.		
29						1	1		S 60° W	3·0	2·7			43	−3·9	·244	+·016	1·3	−2·1	0	0·30	−0·30	0·05	0·20	−0·15	2·76	2·55	+0·21	0·05	Gilgit.		
31									Calm	1·6	1·5			75		·281		0·4		0			0			10·49			0	Chitral.		
18	1		2		7		3		S 9° W					45		·220		2·7		1			0·35			9·84			0·35	Killa Drosh.		
20	1	1	1		1	12	4		N 53° E	6·2	6·7	5·7	+18	42	+0·2	·223	+·019	0·2	−1·1	1	3·30	−2·30	0·19	1·32	−1·13	35·91	38·90	− 2·99	0·16	Murree.		
			1	11	10	9			S 5° W	1·5				60		·165		1·2		0			0	0·45	−0·45	8·32	8·77	− 0·45	0	Kallang.		

returns of any station, the data for that station are not utilized in calculating the provincial variations.
43 and 45 are derived only from the data available.

† Rainfall for July not included.

Table

Abstract of Observations taken at 8 A.M. at 231

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—*concld.*	Peo											68·5		43·8		56·1		24·7	78·0	9th	35·8	28th	42·2
		Simla	7,224	23·155	−·022		23·254	29th	23·092	10th	·162	54·8	63·0	+0·6	51·9	+0·9	57·5	+0·8	11·1	69·8	7th	46·9	25th	22·9
	North-West Frontier Province.	Para Chinar	6,000	24·508			24·594	28th & 30th	24·434	3rd	·160	62·7	76·6		51·2		63·9		25·4	82·1	1st	43·2	28th & 31st.	38·9
		Cherat		25·723	−·030		25·882	29th	25·622	10th	·260	66·5	81·5	+2·9	59·4	+2·2	70·5	+2·6	22·1	88·4	1st	52·0	27th & 28th.	36·4
25	United Provinces.	Chakrata	7,022	23·306	−·034		23·405	29th	23·245	10th	·160	55·7	67·3	+1·1	51·6	+0·7	59·5	+0·9	15·7	72·0	16th	46·8	4 days	25·2
		Mussooree	6,705	23·575	−·021		23·711	29th	23·514	10th	·197	57·6	64·5	−0·4	52·3	+0·8	58·5	+0·2	12·2	69·8	7th	47·0	24th	22·8
		Ranikhet	6,069	24·130	−·024		24·240	29th	24·047	10th	·193	59·2	68·1	−1·1	55·1	+0·9	61·6	−0·1	13·0	73·5	1st	50·5	24th	23·0
		Muktesar	7,600	22·880			22·967	29th	22·814	10th	·153	56·5	64·5		49·9		57·2		14·6	69·9	1st	41·0	24th	25·9
13	Bengal	Tanga (Sikkim).*										42·0	43·9		32·0		38·0		11·9	56·0	1st	18·0	27th	38·0
		Yatung	10,480										55·3		38·4		46·8		16·9	61·1	4th	27·9	27th	33·2
		Darjeeling	7,376	23·065	−·026		23·155	29th	22·988	18th	·167	55·9	62·2	+1·7	51·3	+1·5	56·8	+1·6	10·9	66·7	6th	45·6	26th & 27th.	21·1
8	Assam Hill Tracts	Shillong	4,920	25·157			25·259	29th	25·070	3rd	·189	65·4	73·0		56·2		64·6		16·8	75·6	6 days	48·0	23rd & 25th.	27·6
		CherraPoonjee	4,309	25·705			25·810	29th	25·618	3rd	·192	67·0	73·9		62·3		68·1		11·6	79·3	5th	59·0	22nd & 23rd.	20·3
	Central India	Mount Abu	3,945	26·065	−·047		26·158	30th	25·968	2nd	·190	73·0	79·6	+0·8	66·5	+2·2	73·0	+1·5	13·1	82·7	7th	60·4	31st	22·3
		Pachmarhi	3,528	26·422	−·070		26·550	20th	26·202	8th	·348	68·8	76·8	−1·3	61·1	+1·4	69·0	+0·1	15·7	81·1	1st	50·7	27th	30·4
	South India	Wellington	6,200	24·230	−·032		24·299	10th	24·174	27th	·125	62·4	70·6	+1·5	54·5	−0·3	62·6	+0·6	16·1	73·7	8th	44·7	11th	30·0
		Kodaikanal	7,688	22·808			22·872	10th	22·745	28th	·127	56·1	63·5		51·3		55·8		12·2	67·5	21st	47·4	27th	20·1
		Ootacamund		23·038			23·111	10th	22·977	27th	·134	57·2	63·7		59·2†		57·0†		13·5	67·5	21st & 24th.	44·7	9th	22·8
		Dodabetta																						
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·882	?	29·820	29·963	31st	29·815	27th	·148	78·8	88·1	−0·3?	75·9	+0·4	82·0	+0·1?	12·2	93·5	11th	72·0	28th	21·5
		Colombo	40	29·886	−·030	29·852	29·969	10th	29·818	24th	·151	80·8	86·4	+0·7	76·1	+0·7	81·3	+0·7	10·3	89·5	15th	73·0	16th & 17th.	16·5
	Persia	Meshed	3,104									58·9			45·4	+0·8						37·9	31st	
		Teheran		25·924 ‡			26·050	5 days	25·800	4 days	·250	63·9	79·8	+2·3	53·7	−0·4	66·7	+1·0	26·1	87·5	5th	48·5	28th	39·0
		Ispahan		24·361 ‡			24·520	21st	24·270	8th & 9th.	·250	57·2	78·6	+1·1	45·9†	+1·5	62·2†	+1·3	32·7	87·4	4th & 5th.	35·4	28th	52·
		Bushire	14	29·898	−·047	29·871	30·039	31st	29·722	3rd	·367	75·1	84·8	−3·0	68·6	−2·6	76·7	−2·8	16·2	90·6	5th	60·2	26th	30·4
		Bahrein §	30	29·858			30·030	16th	29·756	2nd & 3rd.	·274	79·2	86·7		76·1		81·5		10·6	91·2	16th	72·3	27th	18·9
		Jask		29·876	−·060	29·846	30·077	30th	29·675	2nd	·402	81·8	89·8	−0·9	76·7	+1·2	83·3	+0·2	13·1	96·3	9th	72·2	28th, 29th & 30th.	24·1
	Arabia	Muscat	20	29·832?	−·118?	29·800?	30·007?	31st	29·709?	9th	·298?	83·9	86·1	+0·3	82·1	+1·0	84·1	+0·7	4·0	89·8	13th	78·1	29th	11·7
		Baghdad ‖	220	29·849	+·024	30·051	29·973	16th	29·709	13th	·264	64·9	90·1	−2·6	59·9	−2·2	75·0	−2·4	30·2	103·1	3rd	47·5	27th	55·6
		Busrah		29·932			30·204	31st	29·606	1st	·598		86·6		61·6		74·1		25·0	97·4	3rd	54·0	28th	43·4
		Aden	84	29·853	−·020	29·878	29·983	31st	29·740	4th	·243	83·9	91·6	+1·4	78·6	+0·9	85·1	+1·2	13·0	95·8	1st	74·4	26th	21·4
		Dthalla										72·3	86·6		59·0		72·8		27·6	91·7	5th	51·6	28th	40·1
		Perim	201	29·712	−·022	29·845	29·839	31st	29·606	2nd	·233	85·4	92·1	+1·0	81·9	+1·4	87·0	+1·2	10·2	98·5	4th	78·6	23rd & 26th.	19·9
	Afghanistan	Kabul			¶																			
	Central Asia	Kashgar	4,255	25·695			26·140	26th	25·510	10th	·630	50·5	73·4	+4·7	42·4	+0·2	57·9	+2·5	31·0	81·1	7th & 17th.	29·3	28th & 30th.	51·8
	Arabian Sea Islands.	Amini Divi	13	29·906	−·021	29·850	30·005	10th	29·842	23rd	·163	82·1	86·1	+1·0	77·1	+0·6	81·6	+0·8	9·0	89·4	10th	71·1	30th	18·3
		Minicoy	7	29·931		29·863	30·029	10th	29·859	28th	·170	82·1	86·4	+0·7						89·4	18th			
	Africa	Zanzibar	73	30·006	−·009	30·006	30·084	1st	29·932	14th	·152	78·7	84·0	+0·9	75·5	+0·2	79·8	+0·6	8·5	86·9	25th	73·8	2nd & 23rd.	13·1
		Do. Dunga										76·1	86·4		68·8		77·6		17·6	94·5	21st	65·8	9th	28·7
	Straits Settlements.	Penang**	20	29·921		29·866	29·965	8th	29·829	26th	·137	80·8	87·8		73·6		80·7		14·2	92·0	27th	72·0	4 days	20·0
		Singapore**	10	29·919		29·850	29·996	29th	29·828	23rd	·168	82·7	86·7		74·4		80·6		12·3	90·2	25th	70·0	14th	20·2

* Observations of 30 days. † Mean of 30 days. ‡ Aneroid uncorrected. § Observations of 23 days. ‖ Observations of 29 days. ¶ Aneroid corrected. ** 9 hours observations.

Note 1.—When a query is inserted against any reading or in returns of any

Note 2.—The divisional means of the figure columns Nos. 41, 43, and 45

I—*concluded.*

Stations in India, Burma, etc., in October, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 31st October.	Variation from normal of period, 1st May to 31st October, 1903.	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	56	57	58
13	1		2	1	2	5	5	2	S 60° W									1·6		0			0	0·75	−0·75	2·63	3·77	− 1·14	0	Poo .	Punjab—*concld*	30
12	16	2			1				N 5° E	2·6	2·5			52	+ 3·2	·223	+·015	0·7	−0·1	2	1·30	+0·70	0·88	0·98	−0·10	44·05	52·27	− 8·22	0·45	Simla.		
21	2	4	1	1	2				N 68° E	6·5	5·9			38		·218		0·2		1	1·00	0	0·41	0·37	+0·04	13·54	12·83	+ 0·71	0·41	Para Chinar.	North-West Frontier Provinces.	
15	8				2		2	4	N 29° W	1·8	1·7			40	+ 3·9	·265	+·041	0·3	−0·6	0			0	0·09	−0·09	12·03	11·92	+ 0·11	0	Cherat.		
11	14	2	1		1			2	N 4° E	7·5	9·0	5·1	+ 76	67	+ 6·7	·308	+·024	1·1	+0·1	1	1·20	−0·20	0·16	0·78	−0·62	65·88	57·33	+ 8·55	0·16	Chakrata .	United Provinces.	25
1		2	5	2	1	1	10	9	N 63° W					63	+ 2·4	·314	+·026	1·5	+0·4	1	1·30	−0·30	0·42	0·93	−0·51	71·73	84·03	−12·30	0·33	Mussooree.		
26	1	1	2			1			N 63° E	1·6	1·8	1·7	+ 6	71	+ 4·0	·371	+·039	1·9	+0·9	3	1·50	+1·50	2·35	1·99	+0·86	32·15	45·43	−13·28	1·06	Ranikhet.		
9	1	1	2	9	1		2	6	S 72° E	5·8 ¶¶	5·3			62		·295		2·3		7			3·89			28·69			1·32	Muktesar.		
8	2	1	1	1	12	4		1	S 5° W	1·9				77		·236				7			4·94			4·94			1·50	Tanga (Sikkim.)	Bengal .	13
																				8	5·43	+2·57	3·30	2·60	+0·70	43·33	40·48	+ 2·85	0·83	Yatung .		
10	1	9	2	4			3	2	N 49° E	1·8	1·6	2·6	−38	86	− 2·5	·390	+·010	5·3 §§	−0·4	8	4·87	+3·13	10·65	4·35	+6·30	98·23	116·18	−17·95	4·12	Darjeeling.		
15	1		4	5		4		2	S 40° E	1·2	1·4			80		·500		3·3		10	9·10	+0·90	6·32	5·65	+0·67	88·30	71·23	+17·07	2·21	Shillong. .	Assam Hill Tracts	8
5	4	12	3	1			5	1	N 27° E	2·2	2·5			83		·558	−·017	5·1		9	8·20	+0·80	7·84	13·59	−5·75	356·58	388·06	−31·48	3·61	Cherra Poonjee		
2	4	9		1	1	4	1	9	N 14° W	5·7	5·8	4·0	+45	39	− 5·3	·320	+·107	1·3	+0·2	0	0·50	−0·50	0	0·69	−0·69	47·45	60·45	−13·00	0	Mount Abu .	Central India.	
8	2	10	2			1	4	4	N 8° E	7·4	7·6	2·9	+162	75	+20·5	·531	+·007	5·7	+3·1	8	3·30	+4·70	8·98	2·18	+6·80	86·93	73·48	+13·45	2·34	Pachmarhi.		
17		4	1	3	1	5			S 33° E	2·4		2·6	− 8	80	+ 2·0	·450		6·7	+0·8	7	14·80	−7·80	3·97	11·06	−7·09	38·48	31·34	+ 7·14	0·96	Wellington .	South India.	
	7	6		2	2		1	13	N 16° W	11·5				81		·366		5·7		10	16·20	−6·20	5·65	12·49	−6·84	45·03	39·55	+ 5·48	1·91	Kodaikanal.		
13	1	1	4	1	2		4	5	N 34° W	3·5	3·3			82		·387		7·0		11	13·70	−2·70	5·20	8·57	−3·37	62·59	35·76	+26·83	0·91	Ootacamund.		
																														XIII.—Extra India.		
3						28			S 45° W					87	+ 2·	·863	−·023	2·8	−0·6	9			9·62	7·14	+2·48	32·13	22·28	+ 9·85	2·64	Trincomalee	Ceylon.	
	1	1	3	3	4	13	5	1	S 35° W	8·0		7·3	+10	85	+ 5·4	·892	+·037	6·4	+0·2	16			11·02	14·80	−3·78	57·59	47·70	+ 9·89	1·71	Colombo.		
														57		·281		0·9		0			0	0·42	−0·42	3·73	1·43	+2·30	0	Meshed .	Persia.	
16	1	12	1			1			N 45° E	3·9	5·0			39		·234		0·5		0			0	0·10	−0·10	1·06	1·07	−0·01	0	Teheran.		
24							2	5	N 56° W	1·2	1·5			57		·273		0·3		0			0	0·21	−0·21	0·72	0·38	+0·34	0	Ispahan.		
4	11	6	1		1			8	N 1° W	7·1	8·4	6·5	+29	67	+ 5·0	·583	−·040	0·4	−0·6	0			0	0·08	−0·08	0	0·08	− 0·08	0	Bushire.		
	8					1	14		N 31° W					84		·833				0			0			0			0	Bahrein.		
2	2	2	13	1			3	8	N 38° E	12·1	10·0			76	+10·6	·820	+·081	0·2	−0·3	0			0	0·04	−0·04	0	0·17	− 0·17	0	Jask.		
1				9				21	N 45° W	3·8 ††	4·0 ††			76	+10·7	·910	+·155	0·1	−0·2	0			0	0·02	−0·02	0·03	0·42	− 0·39	0	Muscat .	Arabia.	
16	6			1			2	4	N 27° W	1·5	2·0			41		·260		0·3		0			0	0·04	−0·04	0	0·37	−0·37	0	Baghdad		
																				0			0			1·28			0	Busrah.		
1	1	17	5				1	6	N 34° E	11·7	9·5	12·2	−22	71	+ 3·2	·834	+·093	2·1	0	0			0	0·01	−0·01	0·05 ***	0·51	− 0·46	0	Aden.		
	8	20	2	1					N 39° E	7·0††	7·1††							0		0			0			3·51			0	Dthalia.		
		5	6	17				3	S 72° E	13·1	13·3			72	+ 3·2	·875	+·051	0·5	−1·6	0			0	0·07	−0·07	1·27	0·91	+ 0·36	0	Perim.		
28	1								N	1·5	1·3			52		·196		0·1		0			0	0·05	−0·05	0	3·06	−3·06	0	Kashgar‡‡ .	Central Asia.	
10	3						8	10	N 56° W					75	−7·7	·825	−·064	7·8	+1·7	7			4·08	6·01	−1·93	55·84	43·74	+12·10	1·10	Amini Divi.	Arabian Sea Islands.	
	1						15	15	N 65° W	6·2	6·6			78	− 3·9	·854	−·003	4·9	−0·5	8			3·11	7·46	−4·35	46·90	41·58	+ 5·32	0·91	Minicoy.		
			2	19	8	2			S 31° E	4·4	4·2			85		·839		6·0		5			3·03	2·99	+0·04	18·66	21·35	− 2·69	1·51	Zanzibar .	Africa.	
8				3		6			S 18° W	6·0	5·9			89		8·08		5·0		5			4·38			24·74			1·32	Do. Dunga.		
8	4	11	1		5			2	N 42° E	6·2								3·9		19			21·21			70·55			4·76	Penang .	Straits Settlements.	
	3	1		7	3	3	2	12	N 73° W									6·0		9			4·46			39·22			1·77	Singapore.		

station, the data for that station are not utilized in calculating the provincial variations.
are derived only from the data available.

†† Mean of 28 days.
‡‡ Wind observations for 29 days.

¶¶ Mean of 21 days.
§§ Mean of 27 days.

‖‖ Rainfall for October only.

*** Rainfall since August 1902.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 64 Stations in India, Burma, etc., in October, 1903.

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	29·857	29·750	·107	29·802	—·007	29·794 ††	85·8	77·3††	8·5	90·2	75·5	14·7	83·4 ††	83·0	80·4††	+0·2	75·2	79·5 ††	78·4	77·7
	Rangoon	57	·846	·743	·103	·800	—·030	·790	86·2	76·4	9·8	90·3	73·9	16·4	82·1	83·1	79·6	−0·2	75·2	77·2	77·3	76·6
	Diamond Island	41	·863	·756	·107	·808	—·036	·783	84·5	77·5	7·0	89·0	74·2	14·8	82·1	82·1	79·9	−0·1	74·5	78·0	77·5	76·7
	Cocos Island	119	·778	·672	·106	·723	P	·774	86·2	77·6	8·6	88·8	73·9	14·9	83·0	82·8	80·5	+0·7	74·2			
	Akyab	20	·860	·751	·109	·807	—·047	·769	86·6	77·6	9·0	90·2	75·7	14·5	83·1	84·0	81·5	+0·2		80·2	79·7	
Bengal and Orissa.	Chittagong	87	·772	·657	·115	·715	—·072	·749	87·8	74·5	13·3	90·9	70·0	20·9	83·6	84·4	80·3	+1·3	73·8	78·3	78·4	76·8
	Calcutta (Alipore)	21	·843	·733	·110	·783	—·053	·750	87·0	74·9	12·1	90·9	66·9	24·0	83·5	83·6	80·3	+0·3	73·4	77·3	76·9	75·9
	Saugor Island	25	·818	·711	·107	·760	—·070	·729	87·3	76·5	10·8	91·7	70·4	21·3	83·9	84·4	80·7	+0·5	74·2	78·7	78·0	77·0
	False Point	21	·819	·717	·102	·766	—·081	·729	86·6	76·0	10·6	90·5	68·8	21·7	84·3	84·2	80·2	+0·4	74·6	78·1	77·4	76·7
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·843	27·742	·101	27·795	—·073	·745	82·0	68·0	14·0	88·1	61·0	27·1	77·2	79·3	74·0	+0·5	65·4	68·8	68·7	67·6
	Darbhanga	166	29·708	29·593	·115	29·647	—·058	·767	86·2	74·6	11·6	90·7	67·5	23·2	83·1	84·2	79·6	+0·3	72·5	76·8	76·4	75·2
	Allahabad	309	·534	·431	·103	·476	—·079	·741	85·5	70·8	14·7	89·6	61·4	28·2	80·3	83·6	77·0	−1·6	68·8	74·8	75·7	73·1
Upper Sub-Himalayas.	Dehra Dun	2,233	27·648	27·564	·084	27·594	—·058	·788	82·1	62·2	19·9	86·9	54·4	32·5	75·1	78·2	70·8	+0·2	59·5	66·6	68·3	64·8
	Roorkee	899	28·951	28·852	·099	28·891	—·073	·756	87·8	64·3	23·5	91·8	54·1	37·7	80·6	83·9	74·7	+0·6	63·3	70·4	69·8	67·8
	Meerut	738	29·109	29·012	·097	29·054	—·063	·757	89·8	65·7	24·1	93·6	56·3	37·3	79·1	86·7	76·6	+1·0	63·1	69·7	71·5	68·1
	Lahore	702	·140	·049	·091	·087	—·063	·750	95·9	63·2	32·7	102·4	54·1	48·3	84·8	94·1	78·4	+3·9	59·7	69·2	72·3	67·1
	Ludhiana	812	·035	28·944	·091	28·982	—·060	·760	91·7	64·9	26·8	97·0	55·2	41·8	79·8	89·9	77·3	+2·1	61·2	66·0	67·5	64·9
Indus Valley and N.-W. Rajputana.	Peshawar	1,110	28·758	·654	·104	·699	—·080	·787	90·5	59·5	31·0	95·8	51·7	44·1	81·3	87·6	73·6	+2·7	53·0	65·3	66·7	61·7
	Jacobabad	186	29·655	29·550	·105	29·595	—·071	·735	103·0	64·4	38·6	109·3	56·0	53·3	90·1	98·4	81·8	+3·3	60·7	76·2	80·8	72·6
	Kurrachee	30	·967	·767	·100	·818	—·054	·796	91·7	74·8	16·9	97·6	66·4	31·2	87·0	86·7	82·0	+2·3	71·5	77·0	77·9	75·5
E. Rajputana, Central India, and Gujarat.	Jaipur	1,431	28·446	28·351	·095	28·392	—·066	·763	93·5	68·0	27·5	97·3	57·9	39·4	83·4	91·2	78·2	+2·0	59·9	68·0	67·8	65·2
	Udaipur	1,925	27·970	27·874	·096	27·922		·776	89·8	63·1	26·7	92·3	52·5	39·8	84·5	87·6	75·9		58·6	66·7	66·4	63·9
	Deesa	466	29·414	29·296	·118	29·349	—·066	·758	100·8	69·2	31·6	104·6	59·1	45·5	91·3	98·4	84·6	+3·9	62·3	71·6	70·0	68·0
	Jamnagar	61	·844	·736	·108	·790		·796	93·5	72·8	20·7	99·7	61·6	38·1	87·3	90·7	82·4		70·1	74·9	74·3	73·1
Deccan.	Belgaum	2,539	27·362	27·262	·100	27·311	—·029	·758	81·5	64·6	16·9	85·3	56·5	28·8	76·9	77·5	71·6	−0·7	62·5	67·6	67·7	65·9
	Sholapur	1,590	28·289	28·165	·124	28·230	—·049	·752	87·7	68·1	19·6	93·8	56·1	37·7	81·4	86·4	76·9	−0·3	64·2	68·7	69·0	67·3
	Akola	930	·938	·816	·122	·873	—·063	·750	90·7	65·8	24·9	94·3	52·9	41·4	83·6	88·1	78·4	0	63·5	71·6	70·1	68·6
	Buldana	2,132	27·756	27·649	·107	27·698	—·057	·753	84·8	67·7	17·1	88·6	61·7	26·9	79·7	82·6	76·5	−0·1	61·5	66·9	66·3	64·9
	Khandwa	1,044	28·819	28·705	·114	28·758	—·068	·749	91·8	66·5	25·3	95·5	57·1	38·4	83·7	89·0	77·9	+1·0	62·3	71·3	71·5	68·5
	Nagpur	1,025	·828	·718	·110	·769	—·055	·745	88·4	68·9	19·5	93·1	58·7	34·4	81·4	82·0	78·7	−0·1	65·6	71·6	71·3	69·5
	Do. (Sanitary Commr.'s Office)	1,013	·834	·721	·113	·774		·741	88·2	69·2	19·0	91·8	59·1	32·7	82·0	85·3	78·0		66·1	72·8	72·8	70·6
	Hyderabad (Deccan)	1,690	·170	·058	·112	·112	—·061	·735	85·2	69·2	16·0	90·4	59·9	30·5	80·4	82·8	76·6	−0·3	67·4§	71·8	72·9	70·7
West Coast.	Bombay	37	29·868	29·757	·111	29·809	—·033	·785	87·2	76·6	10·6	91·5	72·4	19·1	81·9	84·5	81·1	0	72·9	75·9	77·3	75·4
	Karwar	44	·868	·765	·103	·812	—·020	·788	86·2	72·7	13·5	91·4	64·6	26·8	81·2	83·8	78·7	+0·3	71·0	76·7	77·7	75·1

† Mean of 27 days. § Mean of 28 days. †† Mean of 30 days.

II.

64 Stations in India, Burma, etc., in October, 1903.

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
††					††																				%	%						
·847	·960	·914	·907	−·004	90	83	81	85	− 1	5·7	6·8	6·3	+0·3	1		1	1	9	3	15	23	9	S 68° W	S 1° W	55	25	236*	150	7·13	1·60	Port Blair .	Burma Coast and Bay Islands.
·862	†† ·870	·865	·866	−·022	94	†† 79	76	83	− 1	6·0	6·3	6·2	+0·3	1			14	12	18	9	8		S 14° E	S 36° E	55	28		74	10·58	1·94	Rangoon .	
·812	·906	·886	·868	+·001	86	83	81	83	0	6·1	6·4	6·3	+0·6		3	4	4	11	6	17	10	7	S 39° W	S 56° E	32	17	140*	173	14·95	2·14	Diamond Island,	
·805					85					6·2	5·9	6·1	+0·9			7	1	3	12	26	6	7	S 44° W	S 67° E	50	13		?	5·97	0·96	Cocos Island	
	·994	·959				87	82			6·0	4·5	5·3	+0·5			4	4	20	8	13	5	8	S 3° E	S 64° E	37	8	62*	59	13·63	5·01	Akyab .	
·828	·898	·896	·874	+·026	97	78	76	84	+ 1	4·5	3·8	4·2	−0·2		5	11	1	13	4	9	8	11	N 75° W	N 11° W	6	13	96*	66	6·54	2·50	Chittagong .	Bengal and Orissa.
·810	·860	·841	·837	+·018	93	75	74	80	− 1	5·4	5·9	5·7	+1·6	5	2	5	8	11	1	13	1	16	S 63° W	N 44° W	4	11	79	67	8·02	1·64	Calcutta (Alipore).	
·823	·916	·880	·873	+·016	90	78	74	81	0	6·1	6·1	6·1	+1·4	1	11	4	11	10	6	9	4	6	S 78° E	N 8° W	11	13	237	174	9·80	2·28	Saugor Island,	
·841	·886	·853	·860	+·035	94	75	73	81	+ 2	5·6	5·9	5·8	+1·0	5	11	5	8	6	19	3	4	1	S 40° E	N 50° E	21	22	184*	145	13·05	4·15	False Point	
·606	·606	·579	·597	+·058	86	65	59	70	+ 6	6·3	6·1	6·2	+1·8	3	7	4	15	5	7	5	5	11	N 60° E	N 35° W	10	24	156*	124	8·68	2·05	Hazaribagh	Gangetic Plain and Chota Nagpur.
·778	·845	·813	·812	+·055	90	74	69	78	+ 3	4·2	3·9	4·1	+1·5	36		1	10	10		2	2	1	N 62° W	S 4° W	24	1	32	52	5·56	2·98	Darbhanga	
·695	·791	·789	·758	+·138	90	77	70	79	+13	5·3	5·0	5·2	+3·4	4	7	10	12	5	2	9	10	8	N 20° E	N 49° W	20	18	111	66	17·73	5·48	Allahabad .	
·485	·555	·578	·539	+·089	84	63	59	69	+ 7	1·3	2·2	1·8	+0·6	9			8	10	4	7	4	9	S 1° W	N 39° W	16	21	3	33	0·79	0·69	Dehra Dun .	Upper Sub-Himalayas.
·587	·613	·547	·582	+·088	95	58	47	67	+ 9	1·4	1·3	1·4	+0·5	19	1	3	4	13	4		4	14	S 81° E	S 6° E	2	6	40	31	0·02	0·02	Roorkee .	
·561	·609	·579	·583	+·090	86	60	46	64	+ 7	1·5	0·9	1·2	+0·5	38		4	6	3	1	1	7	2	N 77° E	N 55° W	3	35	16*	31	0·61	0·58	Meerut .	
·473	·511	·505	·497	+·055	80	42	31	51	+ 4	0·1	0	0·1	−0·6	32	10		7	6	1	1	2	3	N 46° E	N 7° W	14	11	26	39	0·10	0·10	Lahore .	
·505	·470	·388	·454	−·010	81	45	27	51	− 2	0·5	0·5	0·5	−0·5	24	1			8			29		S 79° W	N 39° W	39	22	30*	26	0	0	Ludhiana .	
·330	·433	·402	·388	+·025	63	40	30	44	− 3	0·3	0·5	0·4	−1·1	44	3	6	3	1			2	3	N 24° E	N 52° E	14	33	12*	60	0	0	Peshawar .	Indus Valley and N.W. Rajputana.
·492	·721	·815	·676	+·257	80	51	44	59	+17	0	0	0	−0·4	47		1	1	2	5	3	1	2	S 12° W	S 27° E	11	9	?	54	0	0	Jacobabad .	
·737	·801	·842	·793	+·147	85	63	66	71	+ 8	0·7	0·7	0·7	−0·2		1	1	1		6	26	25	2	S 64° W	S 72° W	77	61	225*†	235	0	0	Kurrachee .	
·454	·465	·394	·437	+·031	68	37	27	44	+ 1	1·8	3·1	2·5	+0·8	3	7	13	1			2	16	19	N 36° W	N 22° W	57	37	69	77	0·40	0·39	Jaipur .	
·446	·443	·392	·427		76	37	29	47		1·2	2·3	1·8		26	6	2	3	1	1	3	10	10	N 48° W		26		54*		0	0	Udaipur .	E. Rajputana, C. India and Gujrat.
·482	·520	·356	·453	+·013	66	36	19	40	− 2	0·5	1·5	1·0	−0·8		11	4	5	4	2	6	12	18	N 46° W	N 82° E	41	12	132	161	0	0	Deesa .	
·710	·704	·637	·684		87	55	45	62		2·3	2·1	2·2			7	5				17	22	10	N 81° W		61		330*		0	0	Jamnagar‖	
·550	·568	·560	·560	−·029	89	62	61	71	− 1	5·0	6·4	5·7	+0·1	2	4	14	9	1	1	13	15	2	N 53° W	N 54° E	12	13	252¶	241	2·35	0·91	Belgaum .	Deccan.
·564	·557	·502	·541	−·038	80	52	42	58	− 4	4·9	5·9	5·4	−0·5	1	4	20	2	7		2	4	22	N 2° E	N 55° E	44	22	226*	193	3·32	1·40	Sholapur .	
·573	·623	·527	·574	+·003	87	54	41	61	+ 1	4·1	5·5	4·8	+1·6	16	9	8	6				7	16	N 26° W	N 16° E	47	32	80*§	83	1·42	0·73	Akola .	
·480	·503	·450	·479	−·044	69	51	41	54	− 5	4·2	5·3	4·8	+1·1		16	10	9	2	1	1	8	15	N 3° W	N 24° E	49	49	146*	125	1·14	0·91	Buldana .	
·542	·617	·556	·572	+·032	81	54	41	59	+ 2	3·3	4·0	3·7	+1·3		7	25	6	6		3	1	14	N 28° E	N 22° E	52	35	119	71	0	0	Khandwa	
·606	·660	·606	·624	+·043	83	61	51	65	+ 5	4·6	5·4	5·0	+1·2	3	13	13	10	2	1	2	15	3	N 6° E	N 37° E	34	49	79*	102	4·32	2·59	Nagpur .	
·619	·702	·661	·661		84	64	55	68		4·6	5·3	5·0		20		9		3		7	1	22	N 41° W		32		35*		4·60	1·85	Do. (Sanitary Commr.'s Office).	
·657§	·679	·691	·676	+·027	91§	66	62	73	+ 3	4·7	6·4	5·6	+1·3	24	1	7	9				15	6	N 26° W	S 80° E	19	33	103*	96	10·37	4·61	Hyderabad (Deccan).	
·766	·822	·848	·812	−·028	83	75	71	76	− 4	4·1	4·0	4·1	0		2	11	9	2	5	2	8	23	N 22° W	N 14° E	32	33	199	226	5·91	3·47	Bombay .	West Coast.
·741	·859	·871	·824	+·009	92	81	75	83	0	2·8	3·4	3·1	−1·4		1	4	1				42	14	N 74° W	N 76° W	81	63	102	54	1·58	0·70	Karwar .	

‖ Wind variable 1. ¶ Mean of 29 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	28·940	28·806	·134	28·886			89·9	71·1	18·8	96·3	66·6	29·7	82·7	85·9	79·2		69·4	74·1	74·8	72·6
	Salem	940	·957	·831	·126	·900	−·044	29·774	88·6	72·3	16·3	91·4	68·4	23·0	81·2	84·7	78·4	+0·4	70·4	75·5	75·8	73·9
	Chitaldroog	2,405	27·501	27·389	·112	27·447	−·028	·770	82·1	67·5	14·6	87·2	61·8	25·4	77·2	78·9	74·0	−1·1	65·0	69·0	69·1	67·7
	Bangalore	3,021	26·919	26·806	·113	26·867	−·039	·773	80·7	65·2	15·5	85·6	62·4	23·2	75·3	77·8	72·2	+0·2	63·8	68·6	68·8	67·1
	Hassan	3,091	·861	·757	·104	·813	−·034	·791	80·5	63·9	16·6	84·6	57·4	27·2	75·0	76·4	71·2	−0·2	63·0	68·1	68·4	66·5
	Mysore	2,518	27·411	27·294	·117	27·353	−·033	·780	83·3	66·1	17·2	87·7	61·6	26·1	77·0	79·9	73·9	−0·8	65·2	69·4	69·9	68·2
	Madras	22	29·247	29·727	·129	29·790	−·048	·741	88·5	75·1	13·4	93·9	67·9	26·0	84·1	84·4	80·9	−0·2		77·1	77·8	76·6
	Bellary	1,475	28·402	28·277	·125	28·342	−·054	·751	88·4	71·1	17·3	94·0	63·2	30·8	81·4	84·3	78·1	−0·	66·9	72·8	74·5	71·4
	Waltair	226	29·606	29·497	·109	29·552		·718	87·5	76·6	10·9	92·6	70·9	21·7	84·4	84·5	81·3		72·0	75·5	76·2	74·6
Hill Stations, Baluchistan.	Quetta	5,502	24·732	24·651	·081	24·683	0		77·7	38·0	39·7	83·0	32·4	50·6	68·9	73·0	56·7	+1·1	35·4	50·1	51·2	45·6
Hill Stations, Northern India.	Leh	11,503	19·770	19·6575	·113	19·7238	−·009		59·3	31·1	28·2	67·4	22·9	44·5	48·7	56·7	45·6	+3·0	27·8	34·0	39·0	33·6
	Srinagar	5,204	24·954	24·857	·097	24·897	−·041		70·8	44·3	26·5	77·1	35·9	41·2	56·7	69·0	57·1	+3·7	42·7	53·1	62·8	52·9
	Simla (Ridge)	7,224	23·173	23·122	·051	23·139	−·021		62·8	51·8	11·0	69·8	46·9	22·9	57·9	59·3	56·3	+0·1	45·2	48·2	50·5	47·9
	Chakrata	7,022	·324	·279	·045	·293	−·034		67·2	51·6	15·6	72·0	46·8	25·2	62·0	61·2	57·7	+0·9	46·8	53·7	54·0	51·5
	Ranikhet	6,069	24·144	24·077	·067	24·095	−·024		67·8	55·1	12·7	73·0	50·7	22·3	64·3	64·3	60·4	−0·3	51·1	56·1	56·4	54·5
	Muktesar	7,600	22·901	22·836	·065	22·869			64·0	49·9	14·1	69·5	44·0	25·5	60·2	58·7	55·6		45·2	52·6	53·4	50·4
	Katmandu	4,388	25·706	25·618	·088	25·661	P		76·0	58·2	17·8	81·1	48·3	32·8	68·5	71·8	66·1	−0·8	57·1	63·0	64·5	61·5
	Darjeeling	7,376	23·071	23·026	·045	23·048	−·004		62·0	51·3	10·7	66·6	45·7	20·9	58·9	60·4	56·3	+1·9	49·4	56·2	57·9	54·5
Hill Stations, Central India.	Mount Abu	3,945	26·081	26·005	·076	26·037	−·057		79·4	66·4	13·0	82·7	60·4	22·3	75·6	77·3	72·4	+1·8	54·5	58·8	60·0	57·8
	Pachmarhi	3,528	·439	·357	·082	·394	−·069		76·6	60·9	15·7	80·5	50·7	29·8	71·3	73·8	68·1	+0·4	58·7	63·7	65·1	62·5
	Chikalda	3,642	·307	·217	·090	·258	−·083		76·1	63·8	12·3	82·2	58·6	23·6	72·1	73·7	69·4	−0·7	58·0	65·7	66·8	63·5
Hill Stations, S. India.	Kodaikanal	7,688	22·820	22·740	·080	22·777			63·5	51·3	12·2	67·5	47·4	20·1	60·5	58·0	55·8		48·2	55·6	55·5	52·8
	Ootacamund		23·045	·969	·076	23·007			63·6	50·1	13·5	67·7	44·7	23·0	60·4	58·8	55·7		49·0	55·8	56·1	53·6
	Dodabetta		21·981	21·911	·073	21·948			56·4	47·7	8·7	60·4	42·7	17·7	54·7	53·1	51·2		46·3¶	50·7	50·2	48·9¶
Extra India.	Aden	94	29·862	29·735	·127	29·799	−·027	·823	91·2	78·6	12·6	95·1	74·3	20·8	86·3	88·4	84·4	+1·5	73·1	78·1	75·8	75·7
	Perim	201	·717	·604	·113	·661	−·013	·792	92·0	81·9	10·1	98·5	78·6	19·9	88·4	88·9	88·3	+1·4	74·8	79·2	79·1	77·7
	Minicoy	7	·944	·876	·068	·908		·840	86·5			89·4			84·5	83·2				77·8	76·8	
	Zanzibar	73	30·013‡	·895	·118	·954	0	·955‡	84·0	75·5	8·5	87·0	73·8	13·2	79·8‡	83·5	79·6	+0·5	70·4	76·2‡	76·9	74·5
	Port Victoria (Seychelles).	15	29·993	·900	·093	·947	−·008	·886	82·5	73·5	9·0	83·5	69·5	14·0	81·3	81·8	77·8	−1·3	71·9	75·0	75·0	74·0
	Mauritius (Pamplemouses).	18				·950	+·011	30·080				82·0	57·2	24·8			70·3	−1·8				64·4

‡ Mean of 28 days. § Mean of 30 days. ¶ Mean of 25 days.

II—*concluded.*

64 Stations in India, Burma, etc., in October, 1903—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	6
										4·7	6·6	5·7		4	13	6	3	3	15	10	5	3	S 45° W		% 11	%	55°		3·88	0·73	Periyakulam	South India.
·699	·729	·716	·718		91	66	59	72		6·6	7·2	6·9	+1·1	35	1	1	2		4	10	9		S 55° W	S 50° W	26	29	58°	60	7·21	1·27	Salem	
·721	·809	·783	·771	+·020	91	76	65	77	+ 1	5·9	6·3	6·1	+0·1	3	6	8	10	2	1	5	16	11	N 37° W	N 28° E	27	15	114°	143	9·36	3·31	Chitaldroog	
·592	·611	·596	·600	+·034	87	65	61	71	+ 6	6·4	7·5	7·0	+1·2	2	6	12	6	2	2	13	12	7	N 58° W	N 8° W	19	8	145°	105	6·74	1·03	Bangalore	
·581	·624	·602	·602	+·010	93	71	64	76	+ 1	7·4	8·0	7·7	+0·6	2	2	21	9	5		2	12	9	N 22° E	N 42° E	32	24	55°	63	2·90	0·77	Hassan	
·570	·612	·605	·596	+·017	95	70	67	77	+ 2	8·2	8·5	8·4	+1·8		4	9	9	3	2	9	16	5	S 89° W	N 42° E	8	13	167°	185	11·13	3·34	Mysore	
·611	·629	·611	·617	+·015	95	67	61	74	+ 3	5·5	5·5	5·5	−0·5		5	4	6	12	9	11	10	5	S 16° W	N 55° E	23	17	131	118	8·84	1·75	Madras	
	·840	·868	·863	+·030		72	74	82	+ 2	6·1	6·9	6·5	0	7	5	6	7	3	1	3	18	12	N 51° W	N 42° E	32	14	148°	104	5·98	1·43	Bellary	
·616	·707	·740	·688	+·067	80	65	63	69	+ 6	6·8	6·7	6·8			1	18	17	1	13	12			S 69° E		39		110		4·38	1·34	Waltair	
·727	·769	·801	·766		80	65	67	71																							
·182	·170	·154	·169	−·017	78	24	19	40	− 1	0	0	0	−0·6	30	5					1	16	10	N 64° W	N 59° W	42	44	13°	54	0	0	Quetta	Hill Station, Baluchistan.
·127	·075	·090	·097	−·003	73	23	19	38	− 2	1·4	2·8	2·1	−1·7		2	1		1	11	20	23	4	S 62° W	S 55° W	71	42	53	44	0	0	Leh	Hill Stations, Northern India.
·261	·369	·528	·386	+·071	88	79	73	80	+ 2	0·6	1·2	0·9	−1·9	11	5	2		9	9	1	4	21	N 66° W	N 18° W	21	12	60°	75	1·58	0·73	Srinagar	
·241	·242	·282	·255	+·009	61	49	54	55	+ 3	0·9	1·9	1·4	−0·1	25	23	2		1	11				N 10° E	N 32° W	21	15	60°	108	0·88	0·45	Simla (Ridge)	
·278	·333	·348	·320	+·036	71	59	63	64	+ 4	1·7	2·6	2·2	+0·5	5	3	1		15	36			2	S 13° E	S 64° W	69	32	218°	129	0·16	0·16	Chakrata	
·341	·372	·380	·364	+·026	76	61	59	65	+ 4	2·9	2·7	2·8	+1·1	25	1	1	1			22	11	1	S 63° W	S 55° W	47	51	47°	49	2·35	1·06	Ranikhet	
·262	·327	·361	·317		70	61	72	68		3·7	5·4	4·6		22	1	1	5	13	7	6	1	6	S 21° E		24		126°		3·89	1·32	Muktesar	
·468	·521	·534	·508	+·034	93	74	68	78	+ 5	5·4	5·1	5·3	+1·4		4	1	21		1		35		N 74° W	W	23	38	19	16	4·44	0·83	Katmandu	
·340	·428	·447	·405	+·035	87	85	87	86	+ 3	5·8	5·8	5·8	0	8	1	10	4	5	3	3	6	22	N 31° W	S 78° W	29	21	68°	85	10·65	4·12	Darjeeling	
·293	·306	·322	·307	−·032	45	34	34	38	− 7	1·2	2·0	1·6	−0·3		17	11		3	2	9	8	12	N 30° W	N 40° W	42	9	140°	109	0	0	Mount Abu	Hill Stations, Central India.
·480	·504	·525	·503	+·064	87	67	64	73	+12	5·5	6·0	5·8	+2·6	2	5	21	9	3		2	5	15	N 27° E	N 25° E	48	32	184°	75	8·98	2·34	Pachmarhi	
·424	·563	·583	·523	+·057	71	72	71	71	+ 9	4·0	5·0	4·5	+0·8	31	21	1						9	N 11° W	N 2° E	46	40	173°	139	2·19	1·49	Chikalda	
·311	·397	·418	·373		81	75	86	83		6·7	8·1	7·4			15	11	1	1	7	1	7	18	N 22° W		97		273		5·65	1·91	Kodaikanal†	Hill Stations, S. India.
·339	·401	·424	·388		93	76	85	85		7·0	8·4	7·7		19		7	12	2	2	1	10	9	N 11° E		11		78°		5·20	0·91	Ootacamund	
·300	·330	·333	·319		90	77	82	82		5·4	6·4	5·9		2	15	8	3	1		3	18	12	N 36° W		53		133		6·52	1·36	Dodabetta	
·749	·860	·729	·779	+·059	76	68	54	66	+ 2	1·5	1·1	1·3	−0·4		2	15	11	13		14		7	S 85° E	S 80° E	26	56	232°	316	0	0	Aden	Extra India.
·769	·880	·866	·838	+·089	70	65	63	66	+ 5	0·4	0·6	0·5	−0·7		1	10	3	42	3			3	S 59° E	S 62° E	71	84	317°	444	6	0	Perim	
	·862	·835				73	74			4·8	5·5	5·2			2					1	30	29	N 67° W		90		157°		3·11	0·91	Minicoy	
·679	·858‡	·841	·793	+·022	76	84‡	74	78	0	6·6‡	4·7	5·7	+1·1		2	3	11	13	16	13		1	S 23° E	S 3° E	53	53	‡99°	120	3·03	1·51	Zanzibar	
·767	·789	·786	·781	+·001	92	74	72	79	+ 1	5·6	5·1	5·4	−0·8	3	5	1	5	28	12	3	2	3	S 37° E	S 44° E	53	59	218	183	1·89	1·07	Port Victoria (Seychelles).	
			·516	−·038				69	− 1			5·9	+0·2										S 73° E	S 78° E			288	264	1·26	0·25	Mauritius (Pamplemouses)	

‖ Mean of 29½ days. † Wind variable 1. * Corrected.

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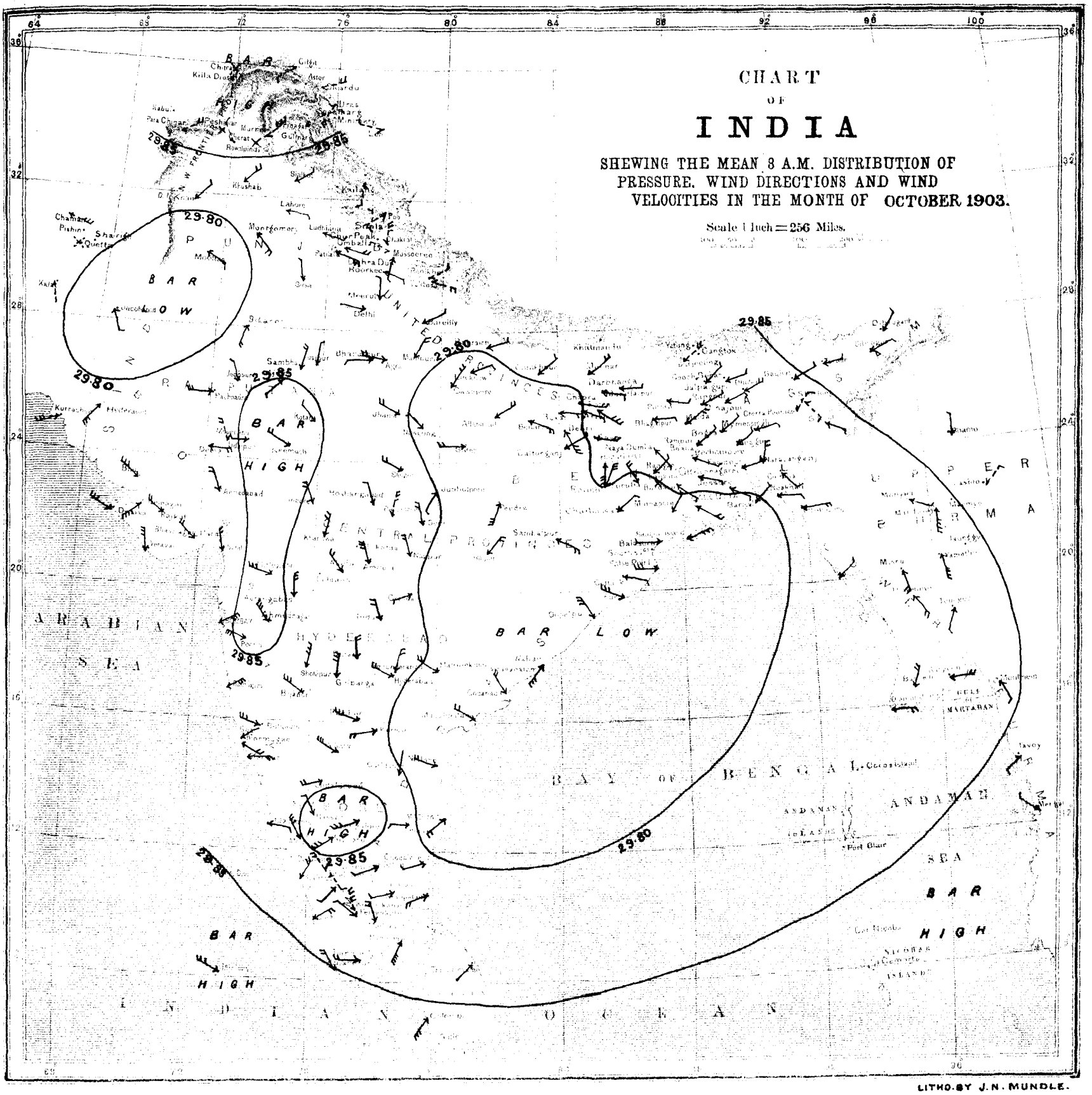
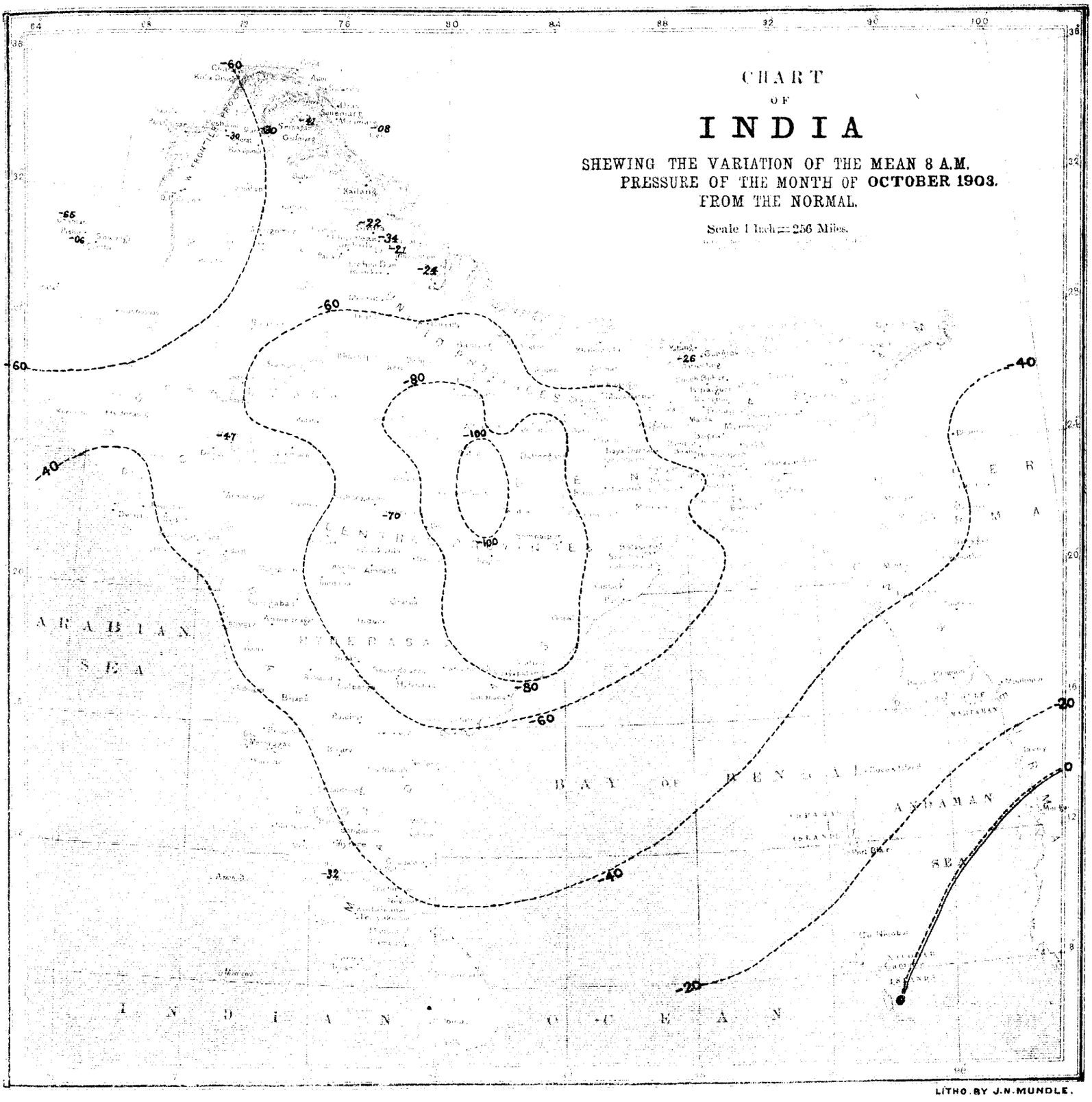


Explanation.

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.

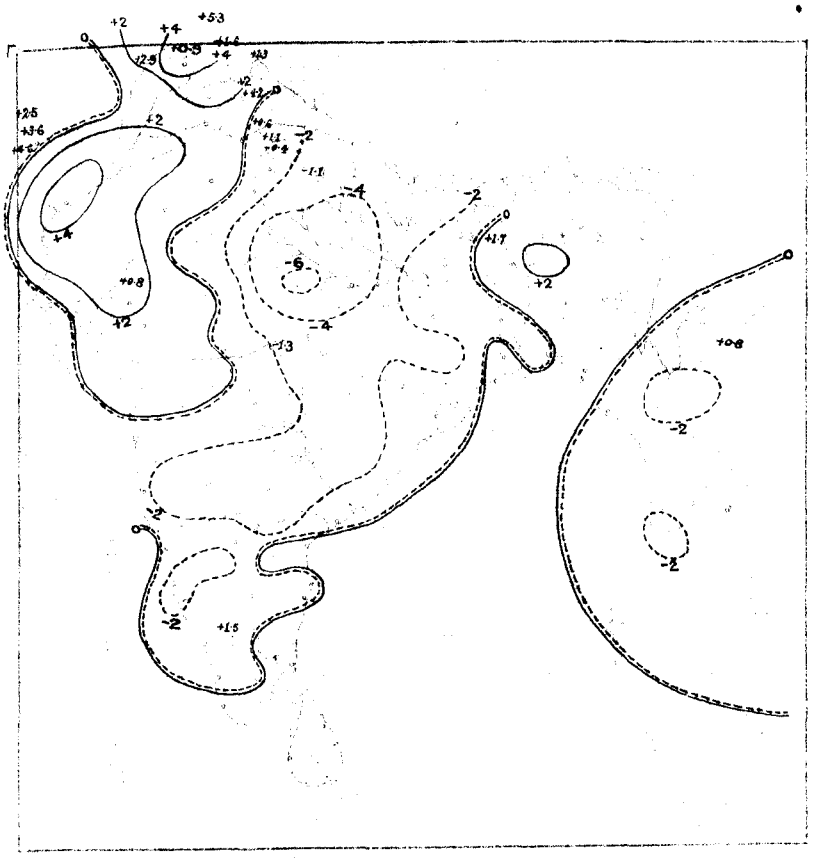
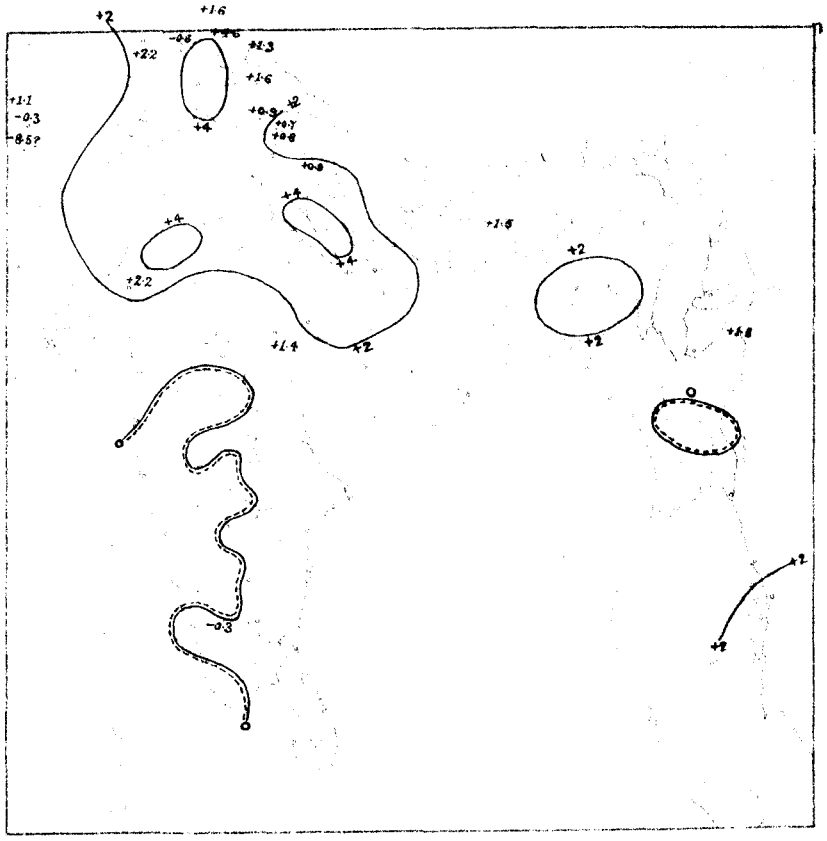


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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 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 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.

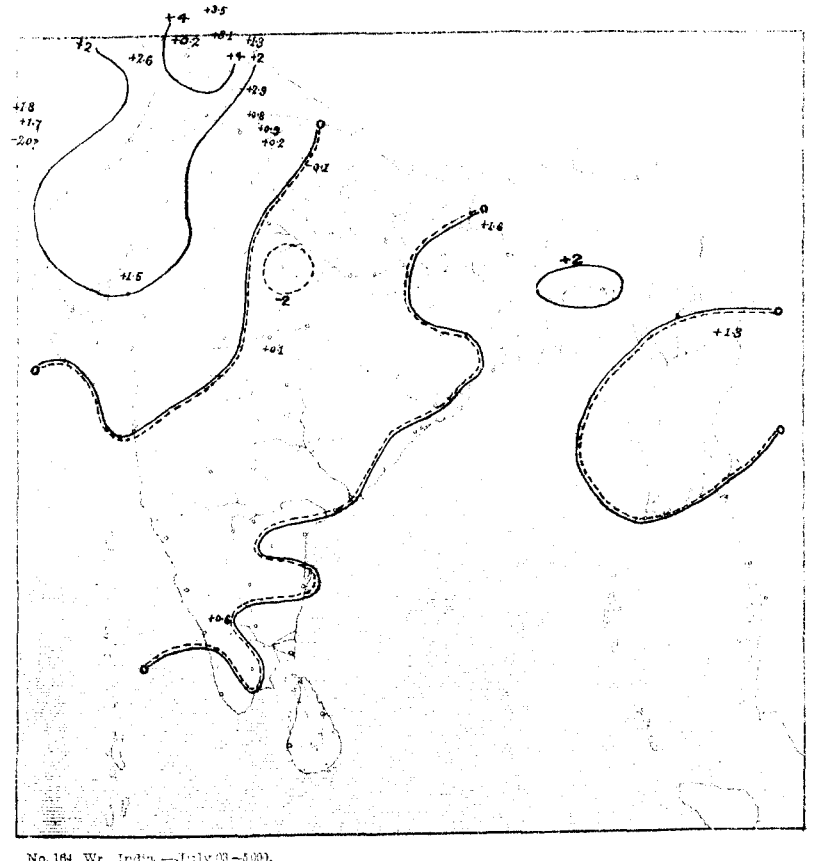
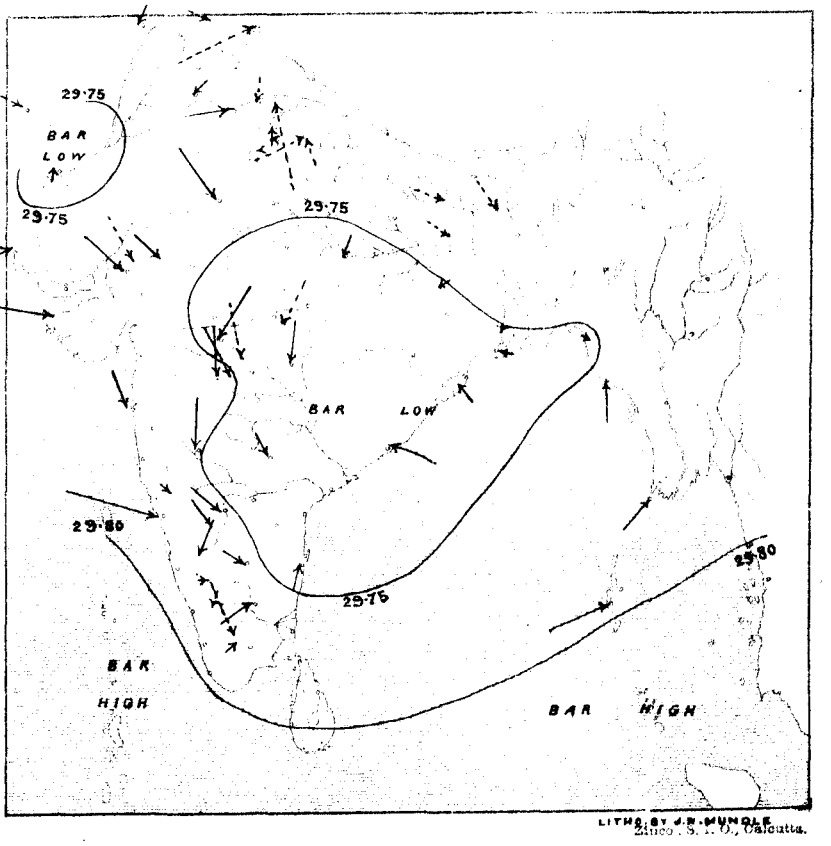


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF OCTOBER 1903.



No. 164, Wr., India.—July 03—5,000.

LITHO. BY J. B. MUNDLE
Zinco. S. I. O., 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 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 $\frac{1}{8}$th of an inch being equal to 100 per cent.

CHART SHEWING THE VARIATION AT 8 A.M. OF THE MEAN ABSOLUTE HUMIDITY OF THE MONTH FROM THE NORMAL.

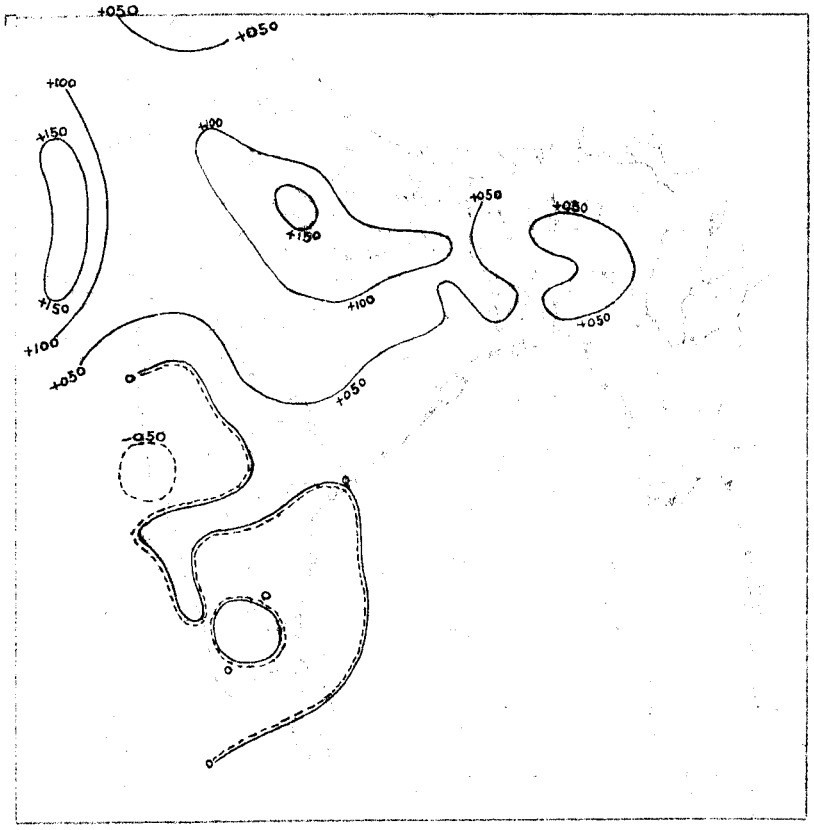
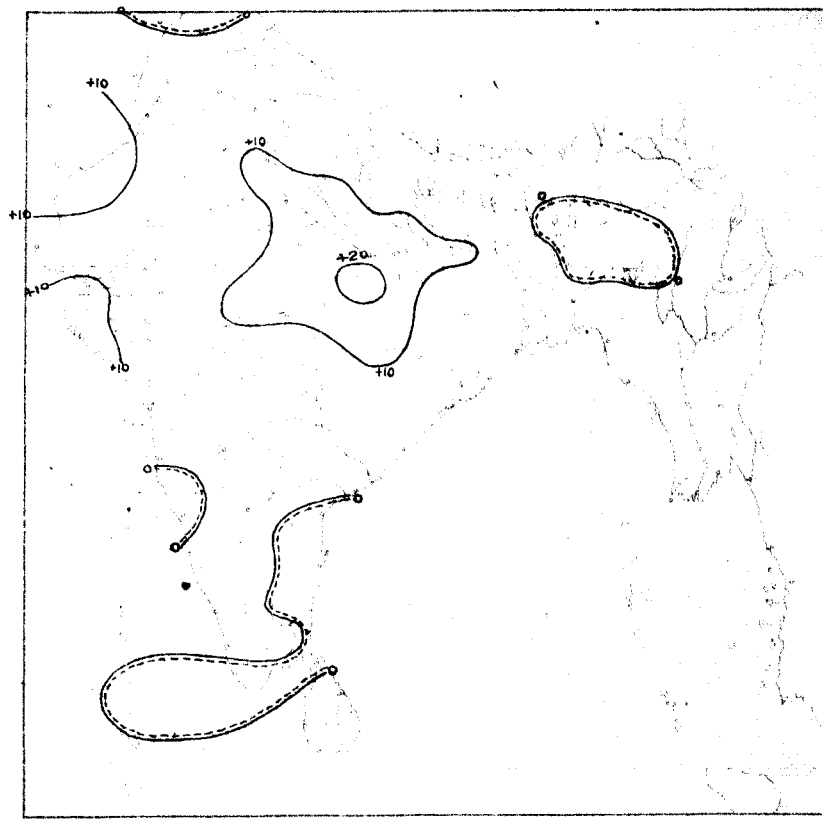


CHART SHEWING THE VARIATION AT 8 A.M. OF THE MEAN RELATIVE HUMIDITY OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

CHART SHEWING THE VARIATION AT 8 A.M. OF THE MEAN CLOUD AMOUNT OF THE MONTH FROM THE NORMAL.

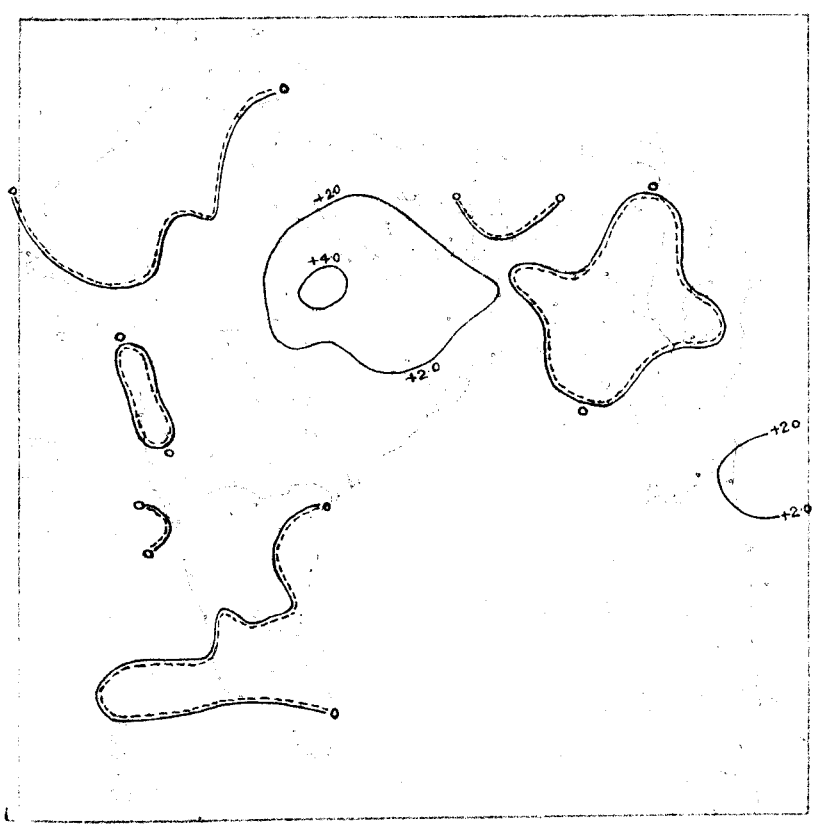
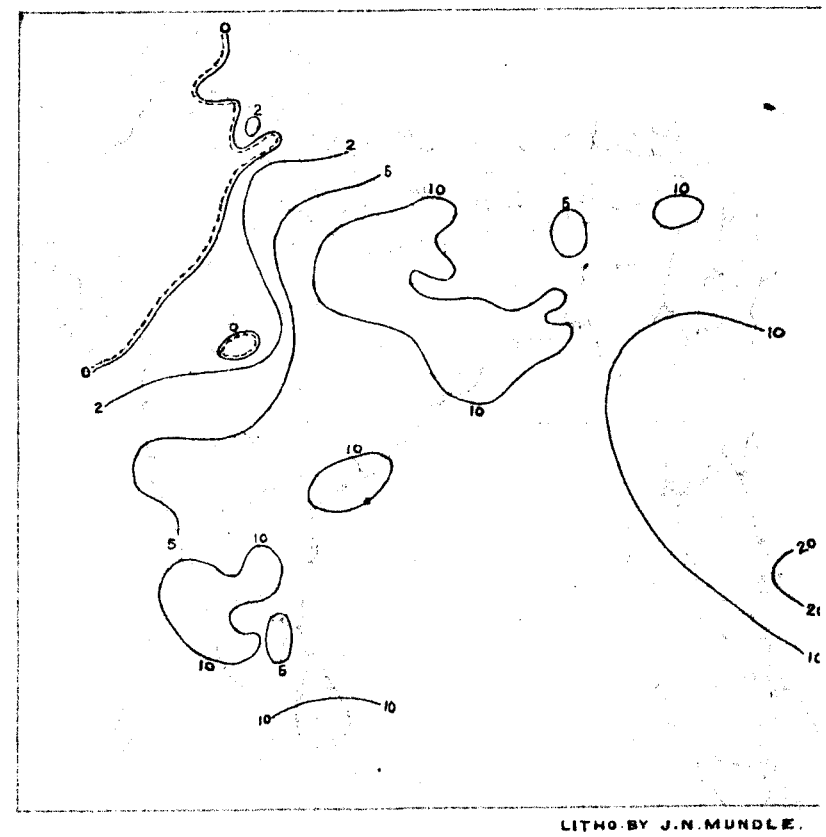


CHART SHEWING THE TOTAL NUMBER OF RAINY DAYS IN THE MONTH OF OCTOBER 1903.



LITHO. BY J.N. MUNDLE.

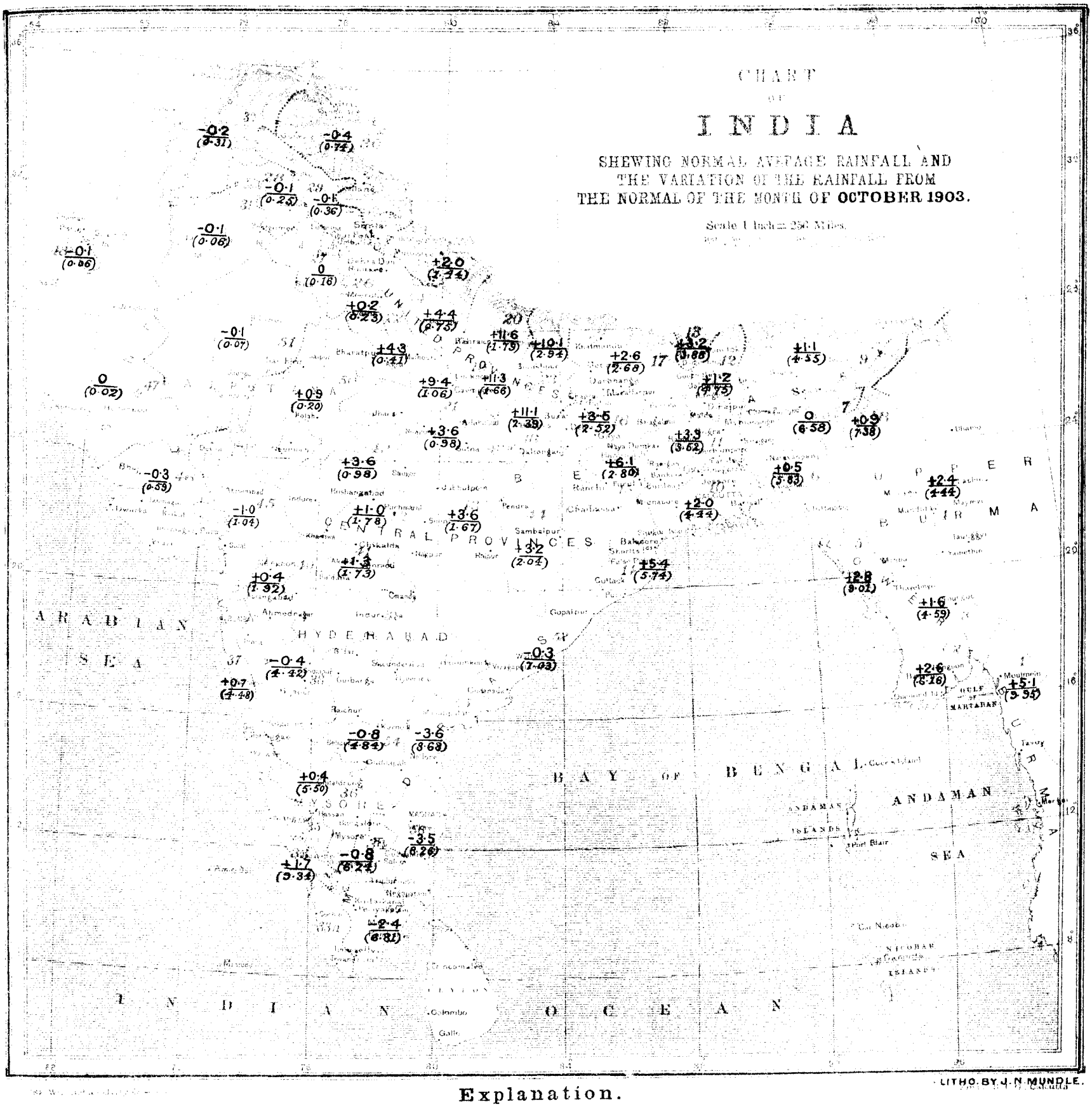
Explanation.

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

A rainy day is one on which 0·10 inch or more of rain is received within 24 hours.

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. 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. West Punjab
32. North West Frontier Province
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 and Cutch
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
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

GOVERNMENT OF INDIA

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, NOVEMBER, 1903.

INTRODUCTION.

THIS review of the weather in India during the month of November 1903, 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 during the month of November, 1903.

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 meteorological conditions and the chief features of the weather during November 1903.

The weather was somewhat finer and more settled than usual over northern and central India, while it was more disturbed than usual over the Bay area during the first half of the month, though the disturbances, as measured by the amount of the barometric depression, were not severe.

At the commencement of the month rain was falling over north-east India, and a large, shallow, low-pressure area lay over the Bay. The mean temperature was high over the southern parts of the Peninsula and over north-west India, but was lower than usual elsewhere. These conditions lasted during the first four days of the month, during which period the principal variations of temperature were as follow :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	1st Nov.	2nd Nov.	3rd Nov.	4th Nov.
	°	°	°	°
Sind	+2·2	+2·5	+2·4	+2·4
Punjab	+1·7	+1·8	+1·8	2·7
North-West Frontier Province	+0·6	+0·3	+0·6	+2·0
Central India	−1·7	−2·0	−1·7	−1·4
Central Provinces	−0·4	−0·7	−0·1	−1·4
Bihar	−2·8	−0·7	−0·8	−1·0
Chota Nagpur	−4·2	−0·6	+0·3	−0·5
Madras Deccan	+3·2	+4·0	+3·1	+1·9
Madras Coast	+2·5	+3·1	+2·8	+2·4
South India	+1·9	+2·6	+2·5	+2·3

On the 5th a slight barometric storm appeared over the south-west of the Bay and advancing to the Madras coast hung about that region until the 10th. The greatest depression of the barometer reported during the existence of this storm was —0·152″ at Madras on the morning of the 6th, so that the disturbance was only of slight intensity, but the accompanying rainfall was heavy and widespread, and the following amounts exceeding 8″ in 24 hours were recorded between the 5th and the 10th :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Chingleput	Tiruvallur	6th November	11·23
	Poonamallee	,, ,,	10·24
Cuddapah	Rayachoti	,, ,,	9·77
North Arcot	Puttur	,, ,,	9·25
Chingleput	Sriperumbudur	,, ,,	8·75
Nellore	Sulurpeta	,, ,,	8·34
North Arcot	Tiruttani	,, ,,	8·14
Chingleput	Saidapet	,, ,,	8·03
Nellore	Kandukur	10th ,,	11·00
	Kanuparti	,, ,,	10·20
	Pakala	,, ,,	10·14
	Ongole	,, ,,	8·46

This general and heavy rainfall resulted in extensive floods in different parts of the Madras Presidency, and reduced temperature to below the normal over practically the whole of the Peninsula. The following gives comparative temperature data for the Peninsular divisions from the 5th to the 10th :—

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.
	°	°	°	°	°	°
Central Provinces	—2·2	—1·8	—0·7	+0·1	—0·8	—1·0
Berar	—0·4	—1·9	—0·7	—0·8	—1·0	—1·3
West Coast	+0·5	+0·4	—1·0	—1·9	—0·3	—0·5
Bombay Deccan	+1·8	+0·9	—1·9	—1·0	+0·1	+1·5
Mysore	—0·6	—3·4	—5·3	—0·9	—0·6	+0·1
Madras Coast	—0·9	—1·7	—1·0	—1·4	—1·2	—1·6
Madras Deccan	+0·4	—1·0	—2·4	+0·5	—1·3	—1·3
South India	+0·3	—1·0	—0·2	+0·5	+0·8	—0·3

In most other parts of India also the mean temperature was lower than usual.

On the morning of the 5th a well-marked cold wave was entering the extreme north-west of India from the westward, the wave reaching Rajputana and Sind about the 6th and Central India about the 7th. The following gives comparative temperature data from the 5th to the 10th for the different provinces of north-west India :—

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.
	°	°	°	°	°	°
North-West Frontier Province.	—2·4	—4·1	—2·4	—2·1	—1·0	—1·5
Punjab	+3·3	—1·6	—1·2	—1·6	—2·1	—2·5
Sind	+5·6	—1·3	—2·9	—3·2	—4·5	—4·2
Rajputana	+0·9	+1·5	—1·1	—2·6	—4·5	—4·9
United Provinces of Agra and Oudh.	—0·2	+0·6	+1·3	+0·7	—1·0	—2·7
Gujarat	+2·9	+1·3	—0·6	—2·1	—4·0	—3·3
Central India	—1·0	—0·6	—0·5	—1·1	—2·1	—4·4

The deficiency was most marked over the north-west dry area and in the day temperature, and, at the following places, the maximum was more than 10° below the normal :—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
5th November.	Cherat	59·3	71·0	—11·7
	Chaman	61·8	72·6	—10·8
6th ,,	Murree	49·2	64·3	—15·1
	Mooltan	74·3	88·2	—13·9
	Srinagar	50·5	63·3	—12·8
	D. I. Khan	74·3	86·2	—11·9
	Quetta	56·2	67·9	—11·7
	Khushab	75·8	86·6	—10·8
	Chaman	61·8	72·4	—10·6
7th ,,	Quetta	56·2	67·7	—11·5
	Chaman	60·8	72·1	—11·3
	Srinagar	52·0	63·1	—11·1
	Cherat	60·3	70·5	—10·2
8th ,,	Srinagar	50·5	62·8	—12·3
	Chaman	61·3	71·8	—10·5

The storm in the south had disappeared by the 10th, but rain, in decreasing amounts, continued over the southern half of the Peninsula during the 11th, 12th, 13th and 14th, and on these four days the mean temperature remained lower than usual over the greater part of the Peninsula, though there was some excess over the Bombay coast and the Bombay Deccan. In northern and central India there had been no important change and the weather remained apparently under the influence of the cold wave noticed above. In consequence the heat was less than usual all over this area, and in some places the deficiency was considerable. The following gives comparative data of temperature for all the Indian divisions 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.
	°	°	°	°
Assam	+1·1	+0·9	+1·1	+0·9
Bengal	−1·5	−1·8	+0·2	+1·5
Orissa	−0·8	−4·5	−3·6	−1·4
Bihar	−3·7	−2·9	−2·0	−0·8
Chota Nagpur	−3·6	−5·8	−4·8	−3·7
United Provinces of Agra and Oudh.	−3·6	−3·5	−2·6	−2·0
Punjab	−2·1	−1·6	−1·5	−1·3
North-West Frontier Province	−0·2	−1·1	−1·0	−0·8
Sind	−3·8	−4·2	−4·9	−2·6
Rajputana	−5·7	−4·8	−4·5	−4·5
Gujarat	−3·7	−2·1	−2·0	−2·8
Central India	−6·2	−6·2	−6·1	−5·6
Central Provinces	−3·0	−4·9	−6·5	−5·9
Berar	−0·8	−2·7	−5·3	−6·1
West Coast	−0·4	+0·2	+0·3	−0·6
Bombay Deccan	+0·9	+1·2	−2·1	−4·8
Mysore	−2·4	−3·2	−3·0	−0·7
Madras Coast	−1·4	−1·4	−1·3	−1·1
Madras Deccan	−1·7	−1·4	−2·6	−1·9
South India	+0·9	+0·8	+0·4	−1·6

The above shows that the coolest days were the 12th, 13th and 14th. The skies were clear or nearly clear at this time, and the greatest deficiency was shown in the minimum or night temperature which, at the following places on the following dates, was more than 9° below the average :—

Date.	Station.	Minimum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
11th November	Bikaner	48·6	61·1	−12·5
	Hyderabad (Sind)	51·5	61·8	−10·3
12th „	Hyderaba (Sind)	50·0	61·6	−11·6
	Pachmarhi	41·3	52·1	−10·8
	Bikaner	50·1	60·8	−10·7
	Jubbulpore	44·9	54·3	−9·4
13th „	Hyderabad (Sind)	50·0	61·3	−11·3
	Khandwa	47·1	57·2	−10·1
	Akola	48·4	58·2	−9·8
	Neemuch	45·8	55·3	−9·5
	Bikaner	51·1	60·5	−9·4
	Seoni	47·0	56·3	−9·3
14th „	Sholapur	51·6	62·6	−11·0
	Malegaon	47·2	57·8	−10·6
	Akola	47·4	57·8	−10·4
	Chanda	49·6	60·0	−10·4
	Hyderabad (Sind)	51·0	61·1	−10·1
	Khandwa	47·1	56·8	−9·7
	Bikaner	50·6	60·1	−9·5

The province of Burma was unaffected both by the changes due to the rainfall from the Bay storm and by the cold wave in northern and central India, and the mean temperature of Burma was steadily excessive from the 4th to the 13th. The following gives comparative data for each alternate day for this period :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	4th Nov.	6th Nov.	8th Nov.	10th Nov.	12th Nov.
	°	°	°	°	°
Burma	+0·2	+1·1	+2·0	+1·9	+1·3

A change was, however, approaching. A storm, which had developed over the centre of the Bay on the 12th, advanced northward and north-eastward and struck the Arakan coast on the morning of the 15th. The storm occasioned general rain over Burma and produced a sudden

fall of temperature. The following gives data from the 14th to the 18th:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	14th Nov.	15th Nov.	16th Nov.	17th Nov.	18th Nov.
	°	°	°	°	°
Burma . . .	—0·8	—0·2	—1·5	—1·7	—0·3

On the 17th the mean temperature was lower than usual over practically the whole of the Indian land area. The following gives data for all divisions:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 17th November.	Mean minimum temperature, 17th November.	Mean daily temperature, 17th November.
	°	°	°
Burma	—5·4	+2·0	—1·7
Assam	+0·8	+0·1	+0·5
Bengal	—1·3	—2·2	—1·8
Orissa	—1·9	—1·9	—1·9
Bihar	—1·7	—3·7	—2·7
Chota Nagpur	—3·6	—3·2	—3·4
United Provinces of Agra and Oudh .	—1·7	—2·6	—2·2
Punjab	—1·2	+0·1	—0·6
North-West Frontier Province . .	—2·2	+1·7	—0·3
Sind	+0·2	+3·3	+1·8
Rajputana	—0·5	—3·4	—2·0
Gujarat	—2·1	—3·1	—2·6
Central India	—3·7	—4·1	—3·9
Central Provinces	—2·7	—5·4	—4·1
Berar	—0·8	—2·7	—1·8
West Coast	—2·9	—1·2	—2·1
Bombay Deccan	+0·9	—3·1	—1·1
Mysore	—0·8	—3·5	—2·2
Madras Coast	—1·1	—2·1	—1·6
Madras Deccan	—1·4	—2·8	—2·1
South India	+0·3	—1·6	—0·7

The changes during the next nine days were generally slight and gradual. No rain occurred during this period, and the principal features of the temperature distribution were the generally low temperatures, which, as shown above, prevailed at the commencement of this period over the greater part of the country, and the gradual advance of a warm wave from the north-west over northern India. The following gives comparative data for all divisions for each alternate day from the 18th to the 26th:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	18th November.	20th November.	22nd November.	24th November.	26th November.
	°	°	°	°	°
Burma . . .	—0·3	+0·5	+0·5	+1·7	+3·4
Assam . . .	+1·2	—0·8	—1·1	+1·1	+2·4
Bengal . . .	—2·2	—1·8	+0·4	+1·1	+1·8
Orissa . . .	—3·6	—5·1	—3·3	—1·2	+1·6
Bihar . . .	—3·0	—2·5	—1·4	+0·3	+1·0
Chota Nagpur . .	—3·9	—3·2	—2·6	—1·3	+1·5
United Provinces of Agra and Oudh.	—1·5	—0·5	—0·7	+0·5	+2·2
Punjab . . .	—0·4	+1·9	+3·7	+2·9	+3·6
North-West Frontier Province.	+1·9	+5·2	+6·2	+5·1	+6·6
Sind	+1·0	+2·0	+2·0	+4·2	+4·2
Rajputana . . .	—0·3	—0·5	—0·1	+1·4	+1·6
Gujarat . . .	—1·3	—0·7	—1·0	—1·0	—0·5
Central India . .	—2·2	—1·1	—2·2	—2·3	—1·1
Central Provinces .	—3·3	—2·8	—2·9	—3·1	—1·3
Berar	—3·2	—2·2	—3·9	—3·4	—2·5
West Coast . .	—2·5	—0·8	—2·0	—2·9	—2·5
Bombay Deccan . .	—1·4	—4·7	—3·3	—5·2	—4·5
Mysore . . .	—3·0	—3·5	—5·1	—4·5	—2·0
Madras Coast . .	—1·7	—3·2	—2·7	—2·8	—2·8
„ Deccan . .	—2·7	—5·1	—4·2	—5·9	—3·0
South India . .	—3·2	—2·0	—2·8	—2·2	—1·3

On the 26th another storm appeared over the south-west of the Bay giving rain to the Madras coast districts, the heaviest falls in 24 hours between the 26th and 30th (exceeding 5 inches) having been as follows:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
NELLORE . . .	Nellore . . .	26th November.	9·96
	Kistnapatam . .	27th „ .	8·07
	Kota . . .	„ „ .	6·27
	Gudur . . .	„ „ .	5·94
	Dugarazpatnam .	„ „ .	5·85
	Kandukur. . .	28th „ .	6·49
COORG . . .	Dunkeld Estate .	„ „ .	5·73

This rainfall only temporarily affected the temperature which, though low on the 26th and 27th, recovered quickly on the 28th. The following gives comparative temperature data for the Madras coast, the Madras Deccan and south India for the 26th, 27th, and 28th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	26th November.	27th November.	28th November.
	°	°	°
Madras Coast	—2·8	—0·6	+1·9
Madras Deccan	—3·0	+1·8	+2·2
South India	—1·3	—0·2	+1·7

On the 28th a cold wave was entering Sind from the westward and, advancing rapidly eastward, overspread the whole of northern India by the 30th. At the same time temperature rose over the Peninsula, and on the last day of the month the heat was less than usual to the north of a line connecting Bhuj with Mandalay and in excess to the south of that line. The following gives temperature data for all divisions for the last three days of the month:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	28th November.	29th November.	30th November.
	°	°	°
Burma	+ 2·4	+ 2·2	+ 1·7
Assam	+ 0·6	+ 1·0	— 2·2
Bengal	+ 3·6	+ 1·2	— 1·6
Orissa	+ 6·5	+ 5·6	+ 3·4
Bihar	+ 0·9	— 1·4	— 4·2
Chota Nagpur	+ 3·0	+ 0·2	— 1·5
United Provinces of Agra and Oudh.	+ 1·6	+ 0·2	— 2·8
Punjab	+ 1·8	— 0·8	— 2·0
North-West Frontier Province.	+ 1·0	+ 0·3	— 1·3
Sind	— 2·2	— 1·7	— 1·5
Rajputana	+ 0·5	— 2·0	— 2·5
Gujarat	— 0·7	— 1·1	— 0·4
Central India	+ 0·2	— 1·1	— 2·0
Central Provinces	+ 2·5	+ 1·5	+ 2·6
Berar	+ 0·6	+ 2·0	+ 5·4
West Coast	+ 0·1	+ 0·8	+ 1·1
Bombay Deccan	+ 3·5	+ 4·8	+ 5·4
Mysore	+ 2·1	+ 2·8	+ 1·3
Madras Coast	+ 1·9	+ 2·4	+ 2·5
Madras Deccan	+ 2·2	+ 3·8	+ 4·5
South India	+ 1·7	+ 3·2	+ 3·7

Pressure.—The mean pressure was in excess of the normal over Tenasserim, the south of the Bay, Ceylon and Malabar, as well as over the greater part of Gujarat, Rajputana and the west of Central India and of the Central Provinces. It was in defect elsewhere, and the general anomaly of the whole country was —·009″. Compared with this general condition pressure was in defect over the greater part of northern and north-eastern India and over the Madras coast, Mysore and the Deccan, and was in excess elsewhere. The anomalies were generally small and unimportant, the largest positive anomalies having been ·047″ at Mergui, ·031″ at Trincomalee, ·027″ at Hoshangabad and ·025″ at Nagpur, Chanda and Colombo, and the largest negative anomalies ·032″ at Sibsagar and ·025″ at Minbu and Yamethin. In the trades region and over Arabia pressure, on the mean of the month, was generally slightly excessive, while over the countries to the westward of northern India the variations were irregular.

The vertical pressure anomalies, as determined from the pressure variations at the hill stations and at the neighbouring plains stations, were generally small.

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 1903.	Pressure anomaly, November 1903.
	″	″
Burma Coast and Bay Islands	—·003	+·005
Burma Inland	—·028	—·019
Assam	—·029	—·020
Bengal and Orissa	—·018	—·009
Gangetic Plain and Chota Nagpur	—·015	—·006
Upper Sub-Himalayas	—·013	—·004
Indus Valley and North-West Rajputana	—·007	+·002
East Rajputana, Central India and Gujarat	+·002	+·011
Deccan	—·002	+·007
West Coast	+·001	+·010
South India	—·014	—·005

Temperature.—The mean day or maximum temperature of the month was in excess of the normal in two areas. The first included the greater part of the Punjab and the Indus valley, the greatest excess in this region having been 2°·0 at Rawalpindi; the second included Ceylon, and the extreme south of the Peninsula and extended across the south of the Bay to Tenasserim. Within this area the greatest excess reported was 2°·9 at Tinnevelly. Over practically the whole of the remainder of the Indian land area the mean maximum temperature was in defect of the normal. The deficiency was greatest over the centre and east of the Peninsula, the east of the Central Provinces and adjoining districts, the greatest deficiency having been 3°·4 at Chaibassa.

At the north-western hill stations the mean maximum temperature was generally lower than usual.

The mean minimum temperature of the month was about normal over the Peninsula. It was higher than usual over Burma, Assam and part of Bengal, more particularly at Bhamo (+4°·9), at Mandalay (+3°·6) and at Yamethin (+3°·7). It was, likewise, higher than usual in the extreme north-west of India and particularly at Peshawar (+2°·8) and at Sialkot (+2°·7). In other parts of the Indian land area the mean minimum temperature was lower than usual, and over the central parts of the country and north Bombay the deficiency was considerable. At Jubbulpore it amounted to 4°·6, at Neemuch to 4°·7 and at Khandwa to 4°·2. On the north-west hills the mean minima were, on the whole, lower than usual, but the actual minima were not remarkable.

The mean temperature of the month exceeded the normal over Assam, south-east Bengal, Burma, and across the Bay to Ceylon and the extreme south of the Peninsula; it was also excessive in the extreme north-west of India, but in neither region were the variations large or important. Over the whole of the intervening area the heat was less than the average, and at several central stations the deficiency was considerable—thus at Jubbulpore it amounted to 3°·4, at Neemuch to 2°·9 and at Indore and Nowgong to 2°·8.

At most of the hill stations in the north-west Himalayas the mean temperature was about normal, but in further Kashmir and at Chaman the cold was greater than usual.

The following table gives temperature variation data of the month of November for the eleven meteorological provinces:—

Meteorological Province.	Variation of actual from normal of		
	Mean maximum temperature, November 1903.	Mean minimum temperature, November 1903.	Mean daily temperature, November 1903.
	°	°	°
Burma Coast and Bay Islands	0	+1·5	+0·8
Burma Inland	−1·1	+3·0	+1·0
Assam	−0·1	+1·0	+0·5
Bengal and Orissa	−0·8	+0·5	−0·2
Gangetic Plain and Chota Nagpur	−1·3	−1·0	−1·2
Upper Sub-Himalayas	0	+0·6	+0·3
Indus Valley and North-West Rajputana.	+0·2	−0·4	−0·1
East Rajputana, Central India and Gujarat.	−0·9	−2·5	−1·7
Deccan	−1·3	−2·0	−1·7
West Coast	−1·4	−0·8	−1·1
South India	−1·6	0	−0·8

Winds.—The winds were unusually southerly both at Port Blair and Diamond Island on the mean of the month. At the head of the Bay the directions were approximately normal, but in other parts of northern India the winds were generally both more westerly and steadier than usual, and this characteristic was noticeable at some of the hill stations in northern India. Over the Deccan and southern India there was a slightly increased northing in the wind's direction, but along the west coast, as in northern India, the winds were more westerly than usual. At the hill stations the directions were very variable. Normal winds were reported from Mauritius, but at the Seychelles a light, very variable south-south-east wind prevailed instead of the normal east-south-east wind, and at Zanzibar an east-north-east wind instead of a south-south-east wind.

Humidity.—The relative humidity, on the mean of the month, exceeded the normal over the Peninsula—except in the extreme south. The excess was greatest at the Mysore and Deccan stations and amounted to 11·9 at Kurnool, to 11·8 at Bellary, to 9·1 at Chitaldroog and to 8·4 at Gulbarga. The air was locally damper than usual in upper Sind, in the central Punjab and at Dehra Dun, but the variations in these areas were small except at Jacobabad. In Burma the variations of the mean relative humidity were irregular. In all other parts of the Indian land area the air was drier than usual, and the deficiency in the mean relative humidity was large over Gujarat, the central India plateau, the west Satpuras and adjacent regions. The deficiency amounted to 12·0 at Rajkot, to 14·0 at Surat and to over 7·0 at Delhi, Jaipur, Saugor, Hoshangabad, Seoni, Akola, Amraoti and Malegaon. In the south-east trades region the variations of the mean relative humidity were irregular.

The following table gives variation data of the mean aqueous vapour pressure and of the mean humidity of nine meteorological provinces for November, 1903:—

Meteorological Province.	Mean absolute humidity.		Mean relative humidity.	
	Average actual, November 1903.	Variation of actual from normal, November 1903.	Average actual, November 1903.	Variation of actual from normal, November 1903.
	"	"	%	
Burma Coast and Bay Islands.	·836	+·004	80	0
Bengal and Orissa	·6·4	0	75	−1
Gangetic Plain and Chota Nagpur.	·416	−·019	60	−2
Upper Sub-Himalayas	·304	−·026	53	−3
Indus Valley and North-West Rajputana.	·375	+·035	51	+1
East Rajputana, Central India and Gujarat.	·225	−·064	31	−8
Deccan	·389	−·049	52	−4
West Coast	·683	−·017	72	−1
South India	·620	+·033	78	+7

Cloud.—A broad band of increased cloud amount extended from the west coast across the centre and east of the Peninsula through south-west and lower Bengal to upper and central Burma. The excess was considerable over the greater part of this large area and amounted to more than 2·0 at False Point (+2·6), Cuttack (+2·5), Waltair (+2·6), Kurnool (+2·1), Cuddalore (+2·0) and Salem (+2·5). To the north and south of this band the sky was clearer than usual. In northern India the variation was generally small or slight, but in Tenasserim and in the extreme south of the Peninsula the deficiency was considerable to large, amounting to 3·3 at Tavoy, to 1·6 at Moulmein, to 1·2 at Tinnevelly and to 1·1 at Trivandrum.

The following table gives variation data of the mean cloud amount of the nine meteorological provinces for November, 1903:—

Meteorological Province.	Mean cloud amount.	
	Average actual, November 1903.	Variation of actual from normal, November 1903.
Burma Coast and Bay Islands	3·8	−0·6
Bengal and Orissa	4·0	+1·1
Gangetic Plain and Chota Nagpur	1·0	−0·5
Upper Sub-Himalayas	1·1	−0·2
Indus Valley and North-West Rajputana	1·4	−0·2
East Rajputana, Central India and Gujarat	1·0	−0·6
Deccan	2·6	0
West Coast	2·4	+0·1
South India	6·6	+1·1

Rainfall.—Except for a few scattered showers on and near the hills in the extreme north-west, the month of November, 1903, was rainless over the whole area lying to the north and west of a line joining Ratnagiri on the west coast to Dhubri in the Assam valley. To the south and east of the above line rain was, on the contrary, general and in places heavy. The fall was heaviest along the mid-Madras coast, the total fall amounting to 29·87″ at Nellore, to 18·80″ at Vellore and to 17·74″ at Madras. The distribution of rain during the month and over different parts of the country was interesting and peculiar. Between the 1st and the 4th the moisture was directed towards north-east India and heavy rain fell over Assam, etc.; then, on the 5th, the direction of the air currents changed and heavy rain was received over Madras from that date to about the 15th. About the latter date rain abruptly ceased over the Peninsula and general rain fell over Burma. Then on the 26th rain suddenly recommenced over the Peninsula. The month's rainfall was largely above the normal over the southern half of the Peninsula, over Burma and over Assam and east Bengal, but was less than usual elsewhere.

The following table gives comparative rainfall data of the eleven meteorological provinces or divisions for November, 1903 —

Meteorological Province.	Rainfall.			
	Mean actual for November 1903.	Mean normal for November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	3·57	3·57	+0·01	0
Burma Inland	2·30	1·15	+1·15	+100
Assam	1·48	0·66	+0·82	+124
Bengal and Orissa	0·82	0·91	−0·09	−10
Gangetic Plain and Chota Nagpur	0·01	0·29	−0·28	−97
Upper Sub-Himalayas	0	0·19	−0·19	−100
Indus Valley and North-West Rajputana.	0·01	0·13	−0·11	−92
East Rajputana, Central India and Gujarat.	0	0·24	−0·24	−100
Deccan	0·48	0·79	−0·30*	−38
West Coast	2·75	2·78	−0·03	−1
South India	8·77	6·05	+2·72	+45

* 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.—The month of November is ordinarily the quietest month of the year over the Indian monsoon area. Early examples of cold weather storms occasionally pass from Persia, Afghanistan, etc., into north-west India, giving rain to the plains and snow to the higher hills, but during the month under review any such storms appear to have been very slight. Rain indeed occurred at Baghdad on the 10th, 11th and 30th; over at Ispahan on the 2nd and 20th; and at Kabul on the 2nd, 14th, 21st, and 26th, but the amounts were smaller than usual and rain was confined to the more northern stations, southern Persia and Baluchistan having been practically rainless. Pressure decreased briskly to rapidly over western Siberia on the 4th and 5th; the 9th and 10th; the 19th and 20th; the 25th and 26th and on the 30th, and comparing these dates with the periods of disturbed weather in Persia, Afghanistan and Kashmir, the following results are obtained:—

Large fall of pressure in western Siberia.	Disturbed weather in northern Persia (Ispahan and Meshed).	Disturbed weather in Afghanistan.	Disturbed weather in Baluchistan.	Disturbed weather in Kashmir.
4th and 5th	2nd and 3rd	2nd	4th and 5th	5th to 8th.
9th and 10th	...	14th	...	15th and 16th
19th and 20th	20th	21st	...	...
25th and 26th	...	26th	...	...
30th	...	...	...	...

It is exceedingly difficult to establish any relationship between these changes of pressure in western Siberia and the periods of disturbed weather on the outskirts of the Indian monsoon area. The rainfall in northern Persia on the 20th, in Afghanistan from the 21st and 26th and in Kashmir from the 5th to 8th may have been connected with disturbances over central Asia, but it would be very difficult to establish the connexion, as the pressure changes at Chitral and Gilgit, in further Kashmir, were seldom similar to those proceeding over western Siberia. The relation between the pressure changes in the Caspian region, as shown by the stations of Tiflis and Baku, and Asiatic Turkey and Persia, were less definite than have been shown in previous months. There occurred a brisk rise of the barometer on the 5th in both regions and a brisk fall in both regions on the 14th, but at other times it was difficult to trace any connexion. The absence of storms in this region is interesting, as in Egypt the weather during the month was somewhat disturbed. On the 8th a depression appeared over the eastern Mediterranean with its centre near Crete. The storm moved eastward and on the 11th lay over north Syria. On the 12th another depression appeared to the east of Malta and moving eastward affected the weather in Egypt up to the 15th. Between the 20th and 23rd a shallow depression influenced the weather in Egypt, and on the 27th another disturbance passed eastward over north Egypt. Pressure, on the mean of the month, was slightly below the normal and the barometer fell considerably in connexion with the depression of the 8th to the 11th, while a sharp fall of the barometer also accompanied the last depression. At Tiflis, Baku and Baghdad a fall of 0·140″ of the barometer occurred on the 14th, and it is possible that this may have been caused by a continuation of the depression which affected Egypt between the 8th and 11th.

For the Indian sea area there is no information available as to the wind's mean direction, but the force was very nearly normal. This is shown below :—

NOVEMBER.	Arabian Sea.	Bay of Bengal.
Actual mean force	3·1	3·2
Normal mean force	2·9	3·2

In the south-east trades region, on the contrary, conditions appear to have been somewhat abnormal, judging by the observations recorded at the Seychelles, Zanzibar and Mauritius. This is shown by the following table which gives the actual and normal mean wind direction and velocity and the rainfall variations :—

NOVEMBER.	Seychelles.	Zanzibar.	Mauritius.
	°	°	°
Actual mean wind direction	S 25 E	N 87 E	S 84 E
Normal mean wind direction	S 70 E	S 31 E	S 83 E
Actual mean wind velocity	104	98	250
Normal mean wind velocity	140	115	252
	″	″	″
Rainfall variation	+2·75	−1·13	−0·77

At Mauritius the wind, on the mean of the month, was about normal both as regards direction and force, though the rainfall was somewhat lighter than usual. At Zanzibar there was a steady east-north-east wind instead of the normal unsteady south-south-east wind, and the rainfall was likewise below the average. At the Seychelles the wind was abnormally southerly and lighter than usual, while the rainfall was much heavier than the average. On eleven days calms were reported at this station and the steadiness percentage was only 7. These observations appear to indicate that to the north of Mauritius the trades were feeble and the air movement irregular. This irregular air movement was accompanied with frequent thunderstorms which gave occasional heavy rain. Thus at 10 A.M. on the 7th 5·17″ of rain was measured at the Seychelles and at 10 A.M. on the 16th, 17th, 23rd and 25th over 1·00″. Similar conditions appear to have prevailed over the Transvaal where, as shown by the following table, the rainfall of the month, where comparison was possible, was excessive :—

STATIONS.	Actual rainfall, November 1903.	Average rainfall for November.	Difference.
	Inches.	Inches.	Inches.
Joubert Park	4·23	4·05	+0·18
Modderfontein	4·49	3·57	+0·92
Pretoria	5·53	3·99	+1·54
Sabie, Lydenburg	9·64	3·59	+6·05
Vereceniging	3·62	1·37	+2·25

The observer at Sabie says "the November rainfall is a record—there has been nothing approaching it before—nearly all the rain has been accompanied with thunderstorms," and the observer at Klein Spelonken says "November has been remarkable for violent thunder storms and misty rains," and most of the other stations in this region reported heavy to torrential rain falling during thunderstorms.

These conditions, *viz.*, the light rainfall at Mauritius and Zanzibar, the light, variable winds at the Seychelles, etc., show that the trades current was weak during November, but that inland over the interior of Africa heavy storms were giving abundant rainfall.

At this season of the year, when the general motion of the atmosphere over the Indian region is to the southward, the variations in the trades conditions are unimportant, relatively to the Indian weather, which was in November, 1903, apparently largely determined by local conditions. The following table gives the daily variations of pressure

from the normal for certain selected stations in the monsoon area :—

PRESSURE VARIATION FROM NORMAL OF

DATE.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	"	"	"	"	"	"	"	"	"
1	—·002	—·083	—·063	+·082	+·019	+·044	0	+·003	0
2	+·002	—·142	—·099	+·036	+·024	+·040	+·019	+·035	—·011
3	—·033	—·144	...	+·005	—·028	—·013	+·029	+·031	—·022
4	—·018	—·162	—·171	—·052	—·044	—·013	+·001	+·018	—·055
5	+·064	—·032	+·034	+·044	+·007	+·008	—·003	—·071	+·006
6	+·082	+·008	+·088	+·055	+·047	+·005	—·009	—·152	+·016
7	+·051	—·034	+·073	+·044	+·056	+·008	+·014	—·079	+·017
8	+·090	+·033	+·105	+·055	+·008	+·036	+·030	—·051	+·038
9	+·078	+·015	+·110	+·055	+·010	+·039	—·001	—·068	+·030
10	+·083	+·014	+·058	+·057	+·034	+·044	—·002	—·021	+·033
11	+·063	—·029	+·037	+·046	+·012	+·026	+·027	+·025	+·026
12	+·053	—·026	+·070	+·047	+·045	+·048	+·047	+·040	+·041
13	+·004	—·041	—·017	+·059	+·010	+·014	+·007	+·003	+·005
14	—·039	—·088	—·092	+·033	—·014	—·012	—·039	—·025	—·035
15	—·083	—·135	—·118	—·001	—·010	—·006	—·017	—·020	—·049
16	—·090	—·217	—·185	—·085	—·002	—·028	—·031	—·018	—·082
17	—·051	—·149	—·134	—·022	—·014	+·006	—·011	+·009	—·046
18	+·022	—·076	—·025	0	+·005	+·009	+·025	+·041	0
19	+·069	—·054	+·033	+·013	+·028	+·026	+·071	+·059	+·031
20	+·111	—·032	+·040	—·004	+·014	+·024	+·063	+·045	+·033
21	+·112	—·030	+·017	+·013	0	+·019	+·015	+·044	+·024
22	+·104	—·015	+·041	+·044	—·013	+·055	+·012	+·058	+·036
23	+·107	—·040	+·031	+·020	+·005	+·059	+·031	+·039	+·032
24	+·102	—·029	+·037	+·039	+·013	+·055	+·030	+·056	+·038
25	+·034	—·096	—·009	0	—·038	+·026	—·039	—·036	—·020
26	+·028	—·100	+·035	—·033	—·085	—·022	—·060	—·101	—·042
27	+·057	—·040	+·052	+·018	+·004	+·032	—·058	—·089	—·003
28	+·026	—·063	+·023	+·006	—·001	+·033	—·081	—·075	—·017
29	—·040	—·019	—·045	+·016	—·011	+·037	—·109	—·060	—·029
30	—·082	—·169	—·110	+·034	—·033	+·012	—·122	—·049	—·065

The rainfall over India agreed to a certain extent with the variations of pressure shown in the above table. Between the 1st and the 4th the mean pressure was below the normal and rain fell over north-east India and Burma; on the 15th and 16th pressure was low and there was rain over Burma from the Akyab cyclone; from the 18th to the 25th there was no rain over India and pressure was generally above the normal, while from the 26th to the end of the month pressure was relatively low and rain fell over the Peninsula. On the other hand, the heaviest rainfall of the month was received between the 5th and 13th, during which period the general pressure exceeded the normal

Magnetic and Solar Disturbances

Kodaikanal.—The Director of the Kodaikanal Observatory telegraphed as follows during the month of November, 1903:—

November 2nd.—Another new spot coming round east limb; very extensive faculæ. Bad observing weather.

" *23rd.*—Chromosphere greatly disturbed. Connected group of high prominences on south-east limb extending over 10°; only one very small spot.

" *24th.*—Large new spot appeared south-east limb, exactly where yesterday's extensive prominence was observed.

" *27th.*—Two large new spots east limb with brilliant faculæ. Clouds prevent chromospheric observations.

" *3rd.*—On 31st October enormous magnetic disturbance. Range of horizontal force 0·006 C.G.S. units. Declination ten minutes. Disturbance strong 1st and 2nd November, now declining.

The following gives a list of sunspots, prominences, faculæ and magnetic disturbances observed daily during the month of November, 1903:—

SOLAR PHYSICS OBSERVATORY—KODAIKANAL.

Spots, Prominences, etc.—November, 1903.

Day of month.	Spots. Large.	Spots. Small.	Prominences. Large.	Prominences. Small.	Faculæ (groups).	Magnetic disturbances.	Remarks.
1	7	5	no obsn.		1 (II)	Very great	
2	4	groups	W. U.		1 (I)	Moderate	Cloudy.
3	4	7	W. U.		...	Moderate	
4	4	many	W. U.		2 (I)	Moderate	
5	...	...	W. U.		...	Moderate	Overcast

Date of month.	Spots. Large.	Spots. Small.	Prominences. Large.	Prominences. Small.	Faculæ (groups).	Magnetic disturbances.	Remarks.
6	7	groups	W. U.		4 (I)	Moderate	Cloudy.
7	3	many	5	1	2 (I) ; 1 (III)	Small	
8	5	groups	no obsn.		...	Small	Cloudy.
9	6	groups	W. U.		1 (III)	...	Cloudy.
10	4	9	7	3	2 (I)	Small	
11	6	groups	W. U.		3 (I) ; 1 (II)	Small	Cloudy.
12	2	many	4	4	2 (I)	Small	
13	1	many	2	1	2 (I) ; 2 (II)	Small	Hazy.
14	1	many	6	2	1 (I) ; 2 (II)	...	
15	5	groups	no obsn.		3 (I) ; 1 (II) ; 2 (III)	Small	
16	1	many	11	9	3 (I) ; 1 (II)	Small	
17	...	3	1	1	2 (I) ; 1 (II)	Small	Hazy.
18	...	1	2	8	1 (I) ; 1 (II)	Small	
19	...	1	W. U.		...	Moderate / Small	
20	...	8	3	2	1 (I) ; 1 (II)	continuous	
21	...	4	3	2	1 (I) ; 2 (II)	series of small	
22	...	4	no obsn.		1 (I) ; 2 (II)	variations	
23	...	2	5 and another series extending 10.°	1 series of small ones.	1 (I) ; 1 (II)	throughout	
24	1	7	1	...	1 (I) ; 1 (II)	...	
25	1	9	W. U.		1 (II)	...	
26	1	6	W. U.		2 (II)	Small	
27	3	4	W. U.		2 (I)	...	
28	3	7	W. U.		2 (II)	...	
29	4	1	no obsn.		4 (II)	...	
30	2	many	4	4	1 (I) ; 1 (II)	...	

NOTE 1.—The Roman figures under "Faculæ" indicate their relative extent; (i) shows that they were very extensive; (ii) that they form a moderately big group, and (iii) that they consist only of points and streaks.

NOTE 2.— *W. U.*—Weather unfavourable.

Colaba.—The following notes have been supplied by the Director of the Colaba Observatory, Bombay;—

During the month 12 days were recorded as Calm, 9 days showed small, 8 days, moderate, and one day great disturbance, the last being recorded on the 1st.

The selected quiet days of the month were the 6th, 7th, 14th, 16th and 25th.

Two small seismic disturbances were recorded—one on the 10th, and the other on the 26th.

The following gives the dates of the magnetic disturbances at Colaba during the month:—

MAGNETIC DISTURBANCES.

November, 1903.		November, 1903.		November, 1903.	
1	G.	11	M.	21	S.
2	M.	12	S.	22	S.
3	M.	13	S.	23	S.
4	M.	14	C.	24	C.
5	M.	15	C.	25	C.
6	C.	16	C.	26	C.
7	C.	17	S.	27	C.
8	S.	18	M.	28	C.
9	S.	19	M.	29	C.
10	M.	20	S.	30	C.

The magnitudes of the disturbances are determined from Horizontal force traces.

C=Calm, S=Small, M=Moderate, G=Great, V G=Very great. Days are reckoned from midnight to midnight.

The means of the observed absolute values of the several elements for November and for the previous ten months were as follows:—

Elements.	January, 1903.	February, 1903.	March, 1903.	April, 1903.
Declination	0° 18′ 17″ E	0° 8′ 1″ E	0° 17′ 58″ E	0° 16′ 29″ E
Horizontal Force	C. G. S. units 0·37430	C. G. S. units 0·37436	C. G. S. units 0·37442	C. G. S. units 0·37431
Dip	21° 40′·7	21° 40′·3	21° 41′·3	21° 40′·7

Elements.	May, 1903.	June, 1903.	July, 1903.	August, 1903.
Declination	0° 15′ 8″ E	0° 16′ 0″ E	0° 16′ 36″ E	0° 15′ 29″ E
Horizontal Force	C. G. S. units 0·37425	C. G. S. units 0·37437	C. G. S. units 0·37439	C. G. S. units 0·37418
Dip	21° 41′·0	21° 42′·0	21° 43′·7	21° 45′·41

Elements.	September, 1903.	October, 1903.	November, 1903.
Declination	0° 15′ 26″ E	0° 16′ 48″ E	0° 16′ 45″ E
Horizontal Force	C. G. S units 0·37404	C. G. S. units 0·37415	C. G. S. units 0·37392
Dip	21° 45′·3	21° 45′·4	21° 47′·6

The following table gives the ranges and the Σ ranges of the Horizontal force and declination for the months of January to November, 1903 :—

Months.	Horizontal Force.		Declination.	
	Range.	Σ Range.	Range in arc.	Σ Range in arc.
January, 1903	C. G. S. '000275	C. G. S. '001646	1'·37	6'·40
February ,,	308	2038	1'·19	4'·82
March ,,	460	2952	2'·12	7'·59
April ,,	491	3232	3'·45	13'·38
May ,,	397	2797	3'·91	15'·53
June ,,	411	2710	4'·64	19'·62
July ,,	419	2868	4'·62	19'·11
August ,,	390	2356	4'·74	18'·90
September 1903.	C.G.S. '000326	C.G.S. '001951	5'·06	19'·42
October	618	3186	2'·54	9'·66
November	347	2256	1'·04	5'·65

Mauritius.—At the Royal Alfred Observatory, Mauritius, groups of sunspots were observed on all days, except the 3rd, 13th, 18th to 20th, 23rd and 24th, and individual sunspots in addition were recorded from the 4th to the 12th and from the 17th to the 23rd.

Faculæ were observed daily throughout the month.

A magnetic disturbance commenced at 0 hour on 1st November and continued till 13 hours on the 6th. A second disturbance commenced at 15 hours on the 18th and continued till 7 hours on the 19th.

Atmospheric Pressure.

The mean pressure of the Indian land area was '009" below the normal. There had thus been a considerable increase of pressure as compared with the previous month of October, when the general pressure anomaly was—'054".

Plate I shows the mean actual distribution of pressure over India. Pressure was highest over the North-west Frontier Province and the north Punjab, and was relatively high over the east of Rajputana and the adjoining parts of Central India. Pressure was lowest over the Malabar and Madras coast districts, Ceylon and the south and centre of the Bay. The range of pressure was about normal, and the general distribution was fairly normal, except that pressure was apparently lower than usual over the centre of the Bay.

Pressure was higher than the average over Tenasserim, the south of the Bay and Ceylon, and this excess of pressure apparently extended westward over the south of the Arabian Sea, as at Aden and Perim the barometric variation was +'021", as well as southward over the Indian Ocean, as at the Seychelles and Mauritius the mean monthly pressure was in excess of the normal. Over the Indian land area the variations from the normal were somewhat irregular, and this condition prevailed over the countries to the westward and even as far as Egypt, where pressure was below the normal in the delta and above in the Sudan.

Compared with the general condition over India, *viz.*, a general deficiency of '009", pressure was in defect over the North-west Frontier Province, the north Punjab, the United Provinces, north-east India, the northern parts of Burma, the Madras coast districts, Mysore and the Deccan. Within these areas the anomalies were generally slight, but exceeded —0·020" at the stations for which comparative data are given below :—

Station.	Variation from normal of mean 8 A.M. pressure of November, 1903.	Pressure anomaly November, 1903.
	"	"
Sibsagar	—'041	—0·23
Minbu	—'034	—'025
Yamethin	—'034	—'025

In all other parts of the country pressure was in local excess. The excess was greatest over Tenasserim and Ceylon, but likewise exceeded 0·020" at some central and north-western stations. This is shown in the following comparative data :—

Province or Division.	Station.	Variation from normal of mean 8 A.M. pressure of November, 1903.	Pressure anomaly, November, 1903.
		"	"
Tenasserim	Mergui	+'038?	+'047?
Ceylon	Trincomalee	+'022	+'031
	Colombo	+'016	+'025
	Hoshangabad	+'018?	+'027?
Central and North-western stations.	Nagpur	+'016	+'025
	Chanda	+'016	+'025
	Neemuch	+'014	+'023
	Indore	+'012	+'021
	Saugor	+'012	+'021
	Akola	+'012	+'021
	Bhuj	+'012	+'021

Pressure was lower than usual, on the mean of the month, at all the hill stations, with the exceptions of Quetta and Pachmarhi, but the amount of the variation varied considerably. In consequence the vertical pressure anomalies differed in different localities, but, generally speaking, were slightly negative. This is shown below:—

HILL STATION.	Variation from normal pressure, November, 1903.	PLAIN STATION.	Variation from normal pressure, November, 1903.	Vertical pressure anomaly (Hill–Plain).
	in.		in.	in.
Quetta	+·011	Jacobabad	—·005	+·016
Leh	—·025	Lahore	—·012	—·013
Murree	—·012	Peshawar	—·020	+·008
Simla	—·003	Ludhiana	—·009	+·006
Chakrata	—·017	Roorkee	—·015	—·002
Ranikhet	—·009	Bareilly	—·022	+·013
Darjeeling	—·033	Dhubri	—·025	—·008
Mount Abu	—·009	Deesa	+·001	—·010
Pachmarhi	+·002	Khandwa	+·008	—·006
Wellington	—·012	Coimbatore	—·006	—·006

The following gives a brief summary of the chief abnormal features of the pressure distribution of the month under review:—

(1) Pressure was in defect by amounts averaging ·009".

(2) The variations were generally small and the general distribution was approximately normal.

(3) Compared with the general condition, pressure was in local defect over north-east India, the northern parts of Burma, the United Provinces, the north Punjab, the North-west Frontier Province, Mysore, the Deccan and the coast districts of Madras.

(4) Pressure was in local excess in other parts of the country—most so in Tenasserim, Ceylon, the Central India plateau and Gujarat.

(5) The vertical pressure anomalies were generally slight and rather irregular.

Barometric depressions and cyclonic storms of the month.

There was no serious cyclonic storm over the Bay during the month, but the weather was more disturbed than usual over that area. In the north-west of India the weather was quiet and settled.

Slight cyclonic storm of the 5th to the 9th.—On the morning of the 4th pressure was giving way slowly over the south of the Peninsula, Ceylon and the south-west of the Bay. Light north-westerly winds and rain were reported on the Madras coast and south-west winds in Ceylon, but the changes were not generally important. The marine data, however, showed a cyclonic circulation over the south-west of the Bay. The following gives marine data for the southern half of the Bay for the 4th:—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer, as corrected by Calcutta office.	WIND		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	in.			
S.S. *Coromandel*	5 55	82 43	29·830	SW	4	Heavy rain squalls.
S.S. *Masagon*	5 59	86 33	·710	W by S	3 to 4	Cloudy; 4 P.M. rainy.
S.S. *Mutira*	6 00	80 20	·767	WSW	4	Fine; 8 P.M. overcast.
S.S. *Aphrodite*	7 25	82 25	·878	WNW	2	Slight sea; 4 A.M. fine.
S.S. *Workman*	7 29	82 26	...	N	2	Smooth sea and cloudy; 8 P.M. heavy rain.
S.S. *Sofala*	7 31	82 03	·814	WNW	2	Smooth sea and fine; midnight rain squalls.
S.S. *Oronsay*	8 17	82 40	29·959	WNW	4	Choppy sea and heavy rain.
S.S. *Arabia*	9 00	82 43	·828	NNW	3	Smooth sea and passing showers; 4 P.M. frequent squalls and heavy rain.
S.S. *Kirkle*	10 01	83 01	·789	WNW	5	Heavy constant rain.
S.S. *Sutherland*	11 02	84 12	·761	NW	5	Slight sea and overcast with rain.
S.S. *Shirley*	13 26	84 37	·787	NE	3 to 4	Heavy rain clouds; noon frequent squalls and continuous rain.
S.S. *Sirdhana*	13 34	84 43	·817	NE	3	Moderate sea and occasional rain squalls.
S.S. *Oolobaria*	14 48	82 04	·911	NE	4	Moderate sea and cloudy; 4 P.M. occasional rain squalls.
S.S. *Vauxhall Bridge.*	16 37	86 08	·825	ENE	4	Slight sea and overcast with rain; 4 P.M. heavy rain squall.

The preceding data show that the reported winds were only light, apparently circulating around a centre off the east coast of Ceylon, but that the weather was unsettled with showers and squalls over the whole of that area.

November 5th.—The following gives 8 A.M. data for the stations in Ceylon and on the Madras coast:—

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.			
	"	"	"				Inches.	
Colombo .	29·876	—·008	+·002	W	7	2	...	Sea slight.
Trincomalee	·835	—·043	—·020?	SW	...	2	0·31	
Negapatam	·805	—·068	—·064	W	1	10	0·18	
Cuddalore .	·792	—·080	—·087	WNW	19	10	0·96	Severe gale.
Madras .	·813	—·086	—·071	NW	7	10	3·56	Sea slight.
Nellore .	·826	—·057	—·060	NW	5	10	1·90	Drizzling.
Masulipatam	·866	—·049	—·028	NNE	3	8	0·40	Thunder.
Cocanada .	·864	—·044	—·036	NE	16	6	0·19	Sea rough.
Waltair .	·896	—·030	—·012	NE	17	8	0·10	Sea smooth.
Gopalpur .	·935	0	+·011	N	11	2	...	

Pressure had been steady at Colombo, fallen slightly at Trincomalee, and fallen briskly at the Madras ports. The winds were cyclonic in direction and had increased in strength on the Madras coast, the velocity at 8 A.M. having been at the rate of 18 miles per hour at Cocanada and of 20 miles per hour at Waltair. Rain was falling along the coast and had been heavy at Madras.

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. *Masagon* .	5 46	83 09	29·829	W by S	5 to 4	Cloudy.
S.S. *Kirklee* .	6 51	81 57	·809	WSW	6	Raining.
S.S. *Muttra* .	7 45	82 28	·790	NW	2	Fine.
S.S. *Sirsa* .	7 54	84 13	·839	SW	4	Passing clouds; noon occasional squalls.
S.S. *Shirley* .	10 41	83 15	·737	SW	5	Moderate south-south-west sea and frequent rain squalls.
S.S. *Aphrodite* .	11 00	84 09	·848	S	4	Following sea; 8 P.M. heavy rain.
S.S. *Sofala* .	11 10	82 49	·681	NW	5	Passing rain squalls.
S.S. *Sirdhana* .	11 23	83 36	·754	SSE	4	Moderate sea and overcast; 4 A.M. passing rain squalls.
S.S. *Oronsay* .	12 14	84 37	29·953	SE	4	Choppy sea and heavy rain squalls.
S.S. *Workman* .	12 18	84 29	...	SE	4	Moderate sea and cloudy; 8 P.M. squally with rain.
S.S. *Manora* .	Madras.		·755	...	...	Midnight squally with heavy rain.
S.S. *Arabia* .	13 04	84 47	·828	SE	2	Moderate confused sea and occasional showers.
S.S. *Sutherland*	14 46	85 11	·861	ESE	5	Moderate sea and showery.
S.S. *Oolobaria* .	17 32	84 05	·915	NE	5	Moderate sea and cloudy; noon occasional showers.

The winds showed a well-defined cyclonic circulation over the south-west of the Bay. The force was stronger than on the previous day, but varied between 4 and 6 (Beaufort scale) generally, so that the disturbance was only slight. The centre of the depression lay apparently between the *Sofala* (Lat. 11° 10′ N, Long. 82° 49′ E) with a north-west wind, the *Shirley* (Lat. 10° 41′ N, Long. 83° 15′ E) with a south-west wind, and the *Sirdhana* (Lat. 11° 23′ N, Long. 83° 36′ E) with a south-south-east wind, so that the centre had moved nearly north-north-west. Squally, rainy weather prevailed over the whole of the south-west of the Bay.

November 6th.—The following gives 8 A.M. data for the Madras coast ports and Ceylon:—

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.			
	"	"	"				Inches	
Colombo .	29·887	+·011	+·012	SSW	13	7	0·11	Sea slight.
Trincomalee	·851	+·016	—·005	SW	...	2	0·44	
Negapatam.	·787	—·018	—·084	SW	3	5	...	
Cuddalore .	·783	—·009	—·099	Calm	16	10	0·04	Gale of wind.
Madras .	·735	—·078	—·152	SE	7	10	4·95	Sea rising.
Nellore .	·774	—·052	—·116	E	10	10	3·79	Continuous rain.
Masulipatam	·842	—·024	—·056	NNE	11	10	1·75	Drizzling.
Cocanada .	·860	—·004	—·045	NNE	24	10	1·27	Sea very rough.
Waltair .	·883	—·013	—·031	NE	20	10	0·73	Sea smooth.
Gopalpur .	·919	—·016	—·010	NNW	8	2	...	

Pressure was increasing slightly over Ceylon and decreasing slightly to briskly over Madras. The storm lay apparently near the station of Madras, where pressure was 0·152″ below the normal. The winds were still strong at Waltair and Cocanada, but the cyclonic circulation was much broken up and the winds were generally moderate.

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. *Begonia*	7 15	82 40	29·952	WSW	2	Smooth sea and fine.
S.S. *Shirley*	7 31	82 23	·837	SW	5 to 6	High south-south-west sea; noon fine.
S.S. *Santhia*	8 10	82 05	·753	S	1	Slight north-east swell and fine; 4 A.M. cloudy.
S.S. *Sirdhana*	8 49	82 58	·840	SW	4	Moderate sea and cloudy.
S.S. *Ikhona*	9 21	83 18	·840	NW	2	Moderate swell and fine.
S.S. *Sirsa*	9 32	86 54	·846	SSW	2	Slight swell and passing clouds; 4 A.M. passing showers.
S.S. *Multra*	11 08	84 05	·789	SW	4	Moderate sea and light rain.
S.S. *Aphrodite*	11 15	85 30	30·008	Var.	2	Slight sea.
S.S *Sofala*	15 00	82 46	29·760	NE	2	Slight confused sea and dull overcast; 8 P.M. rainy.
S.S. *Manora*	15 05	82 09	·783	ENE	5	Rough sea and heavy rain.
S.S *Oronsay*	15 58	86 19	...	SE	4	Moderate sea and passing showers; 8 P.M. heavy rain.
S.S. *Bangala*	16 25	82 20	·867	E	2	Fine.
S.S. *Arabia*	16 59	86 28	·908	E	4	Moderate sea and squally with rain.
S.S. *Boscombe*	17 09	84 48	...	E	4	4 A.M. squalls of wind and rain.
S.S. *M. Meanatchy.*	17 09	85 01	·851	Calm.	0	Squalls of wind and rain.
S.S. *Sutherland*	18 32	87 16	·921	NE	4	Slight sea and showery.
S.S. *Oolobaria*	19 40	86 27	·945	NE	4	Moderate sea and cloudy.

With the advance of the disturbance northward cyclonic winds had extended northwards towards the head of the Bay, but the circulation was ill-defined and the winds were only moderate in force. Squally, rainy weather, howuver, continued to be reported from the south-west of the Bay.

During the 7th, 8th and 9th the depression hovered over or near the Madras coast slowly filling up, but was never of any importance or intensity. It drew the winds into south, east and north-east over the west of the Bay and occasioned feebly unsettled weather over that area.

The most important feature about this depression was the heavy rain which it brought to the southern half of the Peninsula, where, as will be seen in the rainfall section, very heavy falls were received during these few days.

Slight cyclonic storm of the 12th to the 16th.—During the 10th and 11th the barometer had risen over the Bay area, but on the 12th a slight decrease disclosed itself over the centre of the Bay and the winds arranged themselves into a cyclonic circulation around a centre apparently in about Lat. 12° N and Long. 88° E.

November 12th.—The following gives marine data for this day for the Bay area:—

Name of Vessel.	8 A.M. position.		Barometer, as corrected by Calcutta office.	Wind		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Albion*	5 57	87 18	29·981	WSW	4	Heavy sea and cloudy; noon heavy rain squalls.
S.S. *Burma*	7 15	83 08	·937	Calm	0	Fine.
S.S. *Zillah*	8 49	82 56		NW	2	Smooth sea and fine; 8 P.M. squally.
S.S. *Rothenfels.*	8 55	85 50	30·006	NW	3	
S.S. *Queen Louise.*	9 18	83 16	29·988	W	2	Fine.
S.S. *Bezwada*	10 55	91 39	30·124	SE	4	Moderate sea and fine; 4 P.M. occasional squalls of wind and rain.
S.S. *Shahjehan.*	Port Blair		29·888			Midnight occasional rain squalls.
S.S. *Schuylkill*	12 53	94 23	·879	Var	2	Clear; noon heavy rain squalls.
S.S. *Umzinto*	15 26	82 41	·850	NE	5	Short confused sea and cloudy.
S.S. *Malda*	16 18	93 26	·954	SE	5	Moderate sea and rainy; 4 P.M. heavy rain.
S.S. *M. Meanatchy.*	16 42	89 49	·899	NE	4 to 6	Moderate to strong sea and frequent heavy squalls of rain.
S.S. *Orissa*	17 30	86 39	·996	NE by N	5	Moderate sea; midnight passing rain squalls.
S.S. *Maharaja.*	17 41	92 00	·860	NE	2	Overcast; 8 P.M. frequent heavy rain squalls.
S.S. *Goa*	17 50	92 00	·924	NE	2	Fine.
S.S. *Marea*	18 06	90 26	·964	NE	4	Moderate sea and overcast.

The winds were thus north-easterly in the north of the Bay, north-westerly off the Madras and Ceylon coasts, south-westerly to south-easterly in the south of the Bay and easterly to the north of the Andamans. The winds were nowhere very strong, but the weather was squally and showery, and on the preceding day heavy rain (3·02″) had been reported from Port Blair.

November 13th.—The following gives 8 A.M. data for the Bay 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.			
	″	″	″				Inches	
Bassein	29·940	—·056	+·036	NNE	5	6		
Diamond Island.	·900	—·081	—·004	ENE	18	6	0·50	Sea slight.
Akyab	·930	—·049	+·004	NE	3	4		
Chittagong	·921	—·067	—·025	NE	2	5		Foggy.
Barisal	·941	—·057	—·003	NNE	2	2		
Calcutta	·964	—·085	0	NW	4	8		
Saugor Island.	·947	—·077	—·010	N	11	8		
Balasore	·971	—·086	—·004	NNW	3	5		
False Point	·938	—·098	—·017	N	8	8		
Cuttack	·951	—·086	—·008	Calm	1	9		
Gopalpur	·951	—·083	—·009	NNW	13	7		
Waltair	·911	—·096	—·032	NNE	19	8		Gale of wind.
Cocanada	·904	—·079	—·030	NW	11	5		
Masulipatam	·924	—·071	0	NE	3	1		
Nellore	·918	—·067	0	NW	5	9	0·35	Showery.
Madras	·909	—·034	+·003	WNW	5	6	0·88	Sea rising.
Cuddalore	·908	—·036	+·006	Calm	2	10		
Negapatam	·901	—·016	+·016	Calm	3	10	1·68	

The barometer had fallen everywhere, and over the greater part of the area the fall had been brisk. The winds had increased in strength from east-north-east at Diamond Island, and the direction had changed to the westward on the Madras 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. *Rothenfels*	11 19	89 30	29·947	S	3	
S.S. *Lindula*	11 29	82 24	·859	NNW	4	Slight north swell and squally.
S.S. *Shahjehan*	13 41	94 30	·895	SE	3	Overcast; 4 P.M. showery.
S.S. *Bezwada*	14 24	90 33	30·075	SSE	5	Fresh sea and cloudy; noon passing squalls.
S.S. *Orissa*	14 35	85 27	29·803	N	6	High sea and squally and rainy.
S.S. *Daghestan*	15 29	85 36	·813	NNE	6	Squally with rain.
S.S. *M. Meanatchy*	15 44	93 31	·898	SE	7	Heavy rain squalls.
S.S. *Umsinto*	16 02	83 50	·749	NNE	5	Moderate sea and cloudy.
S.S. *Onda*	16 16	86 00	·816	NE by N	5	Confused sea and overcast; 4 P.M. passing rain squalls.
S.S. *Bihara*	16 27	91 54	·880	ESE	6	Rough sea and frequent hard squalls with continuous heavy rain.
S.S. *Schuylkill*	16 33	91 39	·844	ESE		Moderate sea and heavy showers; noon continuous rain.
S.S. *Pentakota*	Rangoon.		·929			Midnight overcast.
S.S. *Shahsada*	Rangoon.		·888			Noon fine and clear.
S.S. *Santhia*	Vizagapatam.		·853			4 A.M. cloudy.
S.S. *Venetia*	18 51	87 18		NE	2	Smooth sea and fine; noon squally.
S.S. *Maharani*	19 48	89 33	·908	NE	4	Fine; 8 P.M. occasional heavy squalls with rain.

The cyclonic circulation over the Bay had become clearer and better defined, and the winds were apparently blowing about a centre in Lat. 14° N and Long. 88° E, so that the disturbance had moved northward. The winds had increased somewhat in strength, and the *Orissa* to the west of the disturbance and the *Bihara* and *M. Meanatchy* to the east reported strong south-easterly winds. Squally, rainy weather continued to prevail generally.

November 14th.—The following gives 8 A.M. data for the stations around the north and west 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 past 24 hours.	Cloud.	Rainfall.	REMARKS.
	"	"	"				Inch.	
Diamond Island.	29·830	—·070	—·075	SE	19	3	0·61	Sea slight.
Akyab	·835	—·095	—·093	N	3	10	0·63	
Chittagong	·873	—·048	—·076	SE	3	10	0·03	Drizzling.
Barisal	·875	—·066	—·072	NE	1	10		
Calcutta	·878	—·086	—·089	NNE	3	10		
Saugor Island.	·849	—·098	—·112	NNE	10	10		Sea smooth.
Balasore	·852	—·119	—·126	NNW	4	4		
False Point	·811	—·127	—·148	NNE	11	9		
Cuttack	·849	—·102	—·113	NW	2	9		
Gopalpur	·848	—·103	—·116	NNW	11	3		Sea slight.
Waltair	·858	—·053	—·089	W	7	7		Sea smooth.
Cocanada	·854	—·050	—·084	WNW	4	3		Sea smooth.
Masulipatam	·883	—·041	—·044	NNW	3	1		
Nellore	·887	—·031	—·035	NNW	3	2		
Madras	·883	—·026	—·025	N	5	4		Sea slight.

Pressure had continued to give way and over the Orissa coast the change exceeded —·100". Pressure at False Point was ·148" below the normal. The winds were cyclonic around the Bay, and were blowing strongly at Diamond Island. The only rain reported was from Diamond Island, Akyab and Chittagong.

The following gives marine data for the Bay area:—

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. *Orissa*	11 50	84 16	29·876	WNW	4	Fine and clear.
S.S. *Burma*	12 24	90 24	·807	S	5	Squally with thunder and lightning.
S.S. *Daghestan*	12 32	84 01	·853	WNW	4	Fine and clear.
S.S. *Rothenfels*	13 52	92 44	·947	SE	5	
S.S. *Beswada*	15 43	90 19	·954	S	8	High confused sea and frequent hard squalls; 4 A.M. frequent hard squalls and heavy rain.
S.S. *Venetia*	16 04	85 34	29·830	NNW	5	Rough following sea and passing rain squalls.
S.S. *Shahzada*	16 19	93 58	·807	E	3	Showery; 4 A.M. heavy rain squalls.
S.S. *M. Meanatchy*	16 27	96 42	·894	E by S	2	Fine and clear.
S.S. *Shahjehan*	Rangoon river		·872			Fine and clear.
S.S. *Pentahota*	16 50	92 40	·779	ESE	5	Fresh following sea and fine; noon occasional rain squalls.
S.S. *Maharani*	18 02	91 27	·729			Occasional heavy rain squalls.
S.S. *Sutherland*	18 41	87 19*	...	NE	4	High sea and heavy rain squalls.
S.S. *Highlander*	18 54	87 17*	·640	NE	3	Heavy sea and rainy.
S.S. *Madura*	19 36	89 39	·848	ENE	6	High head sea and squally with continuous rain.
S.S. *Schuylkill*	20 03	88 56	·760	ENE	6	Rough sea and heavy rain; noon heavy rain squalls.

* Noon position.

The storm had apparently moved north-eastward and the centre apparently lay in Lat. 16° N and Long. 90°E. The cyclonic circulation of the winds was maintained, but the wind generally had not increased in force. The only vessel in the neighbourhood of the storm was the *Beswada* in Lat. 15° 43′ N and Long. 90° 19′ E with a fresh southerly gale, a high confused sea and frequent hard squalls of heavy rain. The following gives the log of this vessel for this day:—

HOUR.	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.
		° ′	° ′	"			
4 A.M.	*Beswada*			29·899	SSE	7	Frequent hard squalls, heavy rain and high sea.
8 A.M.	,,	15 43	90 19	·954	S	8	Frequent hard squalls and high confused sea.
Noon	,,	15 51	90 19	·974	SSW	7	Frequent hard squalls and high sea.
4 P.M.	,,			·914	SW	5	Moderate sea and squalls.
8 P.M.	,,			·969	SW	4	Dull, cloudy and moderate confused sea.
Midnight.	,,			·959	SW	5	Cloudy and heavy southerly swell.

November 15th.—The following gives 8 A.M. data for the stations around the northern half 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.	REMARKS.
	"	"	"				Inches.	
Bassein	29·845	—·018	—·063	NW	2	8	0·01	
Diamond Island.	·796	—·034	—·110	S	25	4	0·02	Sea slight.
Akyab	·686	—·149	—·244	SE	10	10	1·54	Raining.
Chittagong	·730	—·143	—·223	NE	4	10	1·12	
Barisal	·766	—·109	—·183	NNE	2	4	0·07	
Calcutta	·839	—·039	—·132	NW	4	2	...	
Saugor Island.	·819	—·030	—·146	N	12	6	0·03	Sea slight.
Balasore	·841	—·011	—·140	NW	5	2	...	
False Point	·874	+·063	—·089	WNW	12	4	...	
Cuttack	·874	+·025	—·091	NW	2	2	...	
Gopalpur	·876	+·028	—·091	NNW	9	1	...	
Waltair	·889	+·031	—·061	SW	5	2	...	Sea smooth.
Cocanada	·882	+·028	—·060	Calm	4	0	..	
Masulipatam	·899	+·016	—·032	N	3	0	...	

Pressure had increased over the west of the Bay and fallen over the east and north-east. The fall exceeded ·140" at Chittagong and Akyab, where pressure was between 0·22" and 0·24" below the normal. The disturbance had continued to move north-eastward and the centre was close to Akyab. The winds remained cyclonic over the Bay and at Diamond Island and Saugor Island the velocity at 8 A.M. was at the rate of 22 miles per hour.

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. *Burma*	14 44	94 07	29·827	S	4	Fine.
S.S. *Vadala*	15 30	95 00	·795	SE	4	Fine.
S.S. *Maharani*	16 22	93 04	·733	SW by S	5	Moderate sea and occasional rain squalls.
S.S. *Highlander*	16 36	86 18	·660	WNW	3	Moderate sea and fine.
S.S. *Avoca*	16 33	93 14	·999	SSW	5	Occasional rain squalls.
S.S. *Rothenfels*	Ran	goon.*		S	3	
S.S. *Madura*	16 54	91 35	·689	WSW	4	Moderate sea and fine.
S.S. *Beswada*	17 52	89 32	30·026	WNW	5	Rough sea and passing squalls.

* Noon position.

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. *Umsinto*	18 20	85 58	29·760	N	4	Moderate sea and cloudy.
S.S. *Shahsada*	19 04	92 43	·662	SW	5 to 6	Fine; 1 A.M. violent rain, and squalls more frequent and heavy.
S.S. *Pentakota*	19 45	90 10	·713	N	6	Moderate high sea and squally; noon occasional rain squalls.
S.S. *Bangala*	Calcutta.		·873	...	...	Noon fine.

The preceding data show that the cyclonic circulation had been transferred north-eastward to the Arakan coast, but the winds were nowhere strong though squally, rainy weather prevailed generally.

November 16th.—The storm had crossed the Arakan coast and a rapid recovery of pressure had occurred around the north-east of the Bay while general rain had fallen over Burma. The winds were northerly all over the Bay.

Slight cyclonic storm of the 25th to 27th.—The following gives 8 A.M. data for the Bay area for the 25th :—

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.	REMARKS.
	"	"	"				Inch.	
Diamond Island.	29·896	—·021	—·030	ENE	16	2	...	Sea smooth.
Akyab	·914	—·037	—·045	NE	2	1	...	
Chittagong	·929	—·031	—·054?	NNE	2	2	...	
Barisal	·933	—·034	—·040	WNW	1	0	...	
Calcutta	·955	—·041	—·047	NW	2	0	...	
Saugor Island	·935	—·050	—·066	N	7	0	...	Dust haze.
Balasore	·950	—·059	—·063	NW	2	2	...	
False Point	·941	—·061	—·058	N	5	7	...	
Cuttack	·953	—·050	—·050	Calm	1	3	...	
Gopalpur	·953	—·066	—·041?	NW	8	1	...	
Waltair	·909	—·092	—·068	NE	9	3	...	Sea smooth.
Cocanada	·902	—·096	—·074	NW	4	7	...	
Masulipatam	·921	—·092	—·041	N	2	2	...	
Nellore	·911	—·089	—·047	NW	4	9	...	
Madras	·897	—·090	—·036	WNW	7	8	...	
Cuddalore	·898	—·084	—·027	Calm	1	10	...	
Negapatam	·864	—·090	—·042	N	9	10	...	

Pressure had decreased everywhere—most so on the Madras coast and winds had drawn into cyclonic directions around the Bay. There was no rain though the sky had clouded over in Madras.

The following gives marine data for the south of the Bay :—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Calcutta office.	WIND. Direction.	Force.	WEATHER.
	° ′	° ′	"			
S.S. *Arroyo* .	5 56	80 57	29·885	SW	5	Showery.
S.S. *Ismaila* .	6 17	81 59	·666	N	2	Fine.
S.S. *Ikhona* .	6 39	81 39	·842	NW	2	Smooth sea and fine.
S.S. *Chindwara*	8 08	81 40*	·854	NNE	4	Fine, midnight passing rain clouds.
S.S. *Palawan* .	8 52	82 51	·812	NNW	5	North swell and squally.
S.S. *Begonia* .	10 00	83 08		SSW	4	Rising sea and overcast.
S. S. *Shahjehan*	12 33	83 28	·786	N	7	Rough sea, noon heavy rain squalls.
S.S. *Themis* .	12 57	84 34	·760	NE	6	Heavy swell and rain squalls.
S.S. *India* .	15 58	82 45	·851	NNE	5	Moderate following sea and cloudy ; 4 P.M. light rain.
S.S. *Bangala* .	Kalingapatam.		·924			4 A.M. fine.

* Noon position.

The winds were irregular, but the observations of the *Themis* in Lat. 12° 57′ N and Long. 84° 34′ E, of the *Shahjehan* in Lat. 12° 33′ N and Long. 83° 28′ E, and of the *Begonia* in Lat. 10° 0′ N and Long. 83° 8′ E appeared to show that a small centre of depression had been developed in Lat. 11° N and Long. 83° E.

November 26th.—The following gives 8 A.M. data for the stations in the south 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.	REMARKS.
	"	"	"				Inch.	
Colombo .	29·852	—·054	—·037	N	8	1	...	Sea slight.
Trincomalee .	·848	—·018	—·032	NW	...	2	...	
Negapatam .	·841	—·023	—·065	Calm	2	10	0·07	Drizzling.
Cuddalore .	·846	—·052	—·081	Calm	1	8	0·19	
Madras .	·833	—·064	—·101	WNW	6	10	0·14	Sea rising.
Nellore . .	·862	—·049	—·097	NW	5	10	...	
Masulipatam .	·861	—·060	—·103	Calm	3	10	...	Thunder.
Cocanada .	·863	—·039	—·115	NE	11	8	...	Sea rising.
Diamond Island.	·912	+·016	—·016	ENE	11	2	...	Sea smooth.
Bassein . .	·919	+·006	—·022	NW	14	4	...	
Moulmein .	·928	—·013	—·013	ENE	8	0	...	
Tavoy . .	·924	—·003	—·016	Calm	2	0	...	

Pressure had continued to decrease over the greater part of the Bay, the change having been brisk on the Madras coast. A depression was approaching the Madras coast where rain had commenced.

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. *Brighton* .	5 51	81 52	...	NE	6	Moderate sea and fine.
S.S. *Gibralter* .	6 15	81 30	29·867	E	2	N. E. swell, fine ; 4 A.M. cloudy.
S.S. *Dalmatia* .	6 29	82 07	·885	NNE	2	Smooth sea and fine.
S.S. *Kohinur* .	6 43	82 04	·803	NNW	2	Fine ; 4 P.M. occasional lightning.
S.S. *Begonia* .	6 47	80 29	...	NW	2	Fine and clear.
S.S. *Ismaila* .	9 09	83 25	·638	WNW	4	Moderate sea and fine; noon cloudy.
S.S. *Themis* .	9 39	82 42	·780	NW	...	Clearing up ; 4 A.M. thick rain and very dark weather.
S.S. *Shahjehan*	11 59	86 58	·774	ESE	3	Showery ; midnight heavy rain and wind squalls and vivid lightning.
S.S. *Palawan* .	12 48	84 15	·781	ENE	3	Fine; 8 P.M., passing squalls.
S.S. *India* .	Madras		·775	NNW	5	Moderate sea and light occasional rain.
S.S. *Westminster Bridge.*	16 13	85 49	·875	SE	4	Lightning to south-west ; 4 P.M. showery.
S.S. *Santhia* .	17 02	85 51	·784	E	2	Frequent rain squalls.
S.S. *Maroa* .	17 19	86 33	·860	E	4	Squalls and heavy rain.
S.S.M. *Meanatchy.*	Vizagapatam		·892	...	...	4 A.M. overcast.
S.S. *Bangala* .	18 20	87 39	·873	ENE	4	Overcast; 4 P.M. frequent heavy rain squalls.

The winds were very irregular, but apparently showed that the depression was moving north-westward. Squally, rainy weather prevailed over a large part of the Bay.

November 27th.—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.	REMARKS.
	"	"	"				Inches.	
Negapatam	29·843	+·002	—·065	Calm	1	10	0·25	
Cuddalore .	·840	—·005	—·089	Calm	1	9	0·04	
Madras .	·847	+·014	—·089	NNW	7	10	1·26	Sea slight.
Nellore .	·868	+·006	—·094	NNW	6	10	9·96	Continuous rain.
Masulipatam	·894	+·032	—·072	NNE	8	10	...	Thunder.
Cocanada .	·894	+·031	—·086	NE	20	9	...	Sea rough.
Waltair .	·907	+·019	—·073	NE	19	10	...	Sea slight.
Gopalpur .	·942	+·007	—·056	NNW	8	2		

The pressure changes were slight and unimportant in Madras, but a shallow depression had advanced to the neighbourhood of Madras and had given heavy rain to some stations. The storm filled up during the day and was at no time of any importance.

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.*—Snow began to fall on the 2nd November but was very light and quickly disappeared. On the Paghman and other high hills there was more snow than at Kabul and the accumulation was about ½ inch. The snowfall up to date was less than last year.

(2) *Wano.*—On the 5th and 18th snow fell on the highest peaks of the Marwattai and Pirghal to a depth of about 3″ and down to an elevation of 11,000 feet.

On the 26th snow fell as follows :—

	Feet.	Inches.
Marwattai and Pirghal . . .	11,000	6
Ganimela	9,000	4
Kanigoram	6,500	3

Snow melted very quickly.

About ½ inch of snow fell on the 26th in the British Afghan Commission Camp at Baghar Chind at an elevation of 7,400 feet on the west side of Marwattai.

Snow accumulated in patches down to 8,000 feet and fairly heavy drifts were reported on Marwattai down to 10,000 feet.

The snowfall of the month under report was lighter than that of the corresponding month of the previous year.

(3) *Killa Drosh.*—This year on crossing the Lowari Pass during the second week of October the pass was clear, the snow lying on the mountains at about 7,000 feet or rather less than last year. Moderate snow fell on November 4th covering the tops of all surrounding mountains, the depth being 2 feet on the southern hills and much more over the northern hills. A light fall occurred on November 7th on the mountains to the east of Drosh at an elevation of 12,500 feet. Another light snowfall occurred on November 14th.

Snow was accumulated only at an elevation of 9,500 feet and the accumulation was less than in previous years.

(4) *Kagan Range (Hazara).*—The following shows the snowfall on the Kagan range during the month of November 1903 :—

DATE.	Place of measuring.	Depth of snow measured.	Elevation.
November, 4th .	Pludran chowki . .	0′ 6″	7,500 feet.
	Narang . . .	0′ 7″	8,000 feet.
15th .	Pludran chowki . .	1′ 0″	
	Narang . . .	1′ 3″	
27th .	Pludran chowki . .	0′ 6″	
	Narang . . .	0′ 8″	

The snow descended to Kagan proper but no accumulation occurred. The weather was unusually dry and cold.

(5) *Kurram.*—Snow fell on the Sufaid Koh and the surrounding hills on the 4th and 5th November, but none of these falls extended to Parachinar, the height of which is 5,200 feet above mean sea-level.

The snow had not, at the close of the month, attained any considerable depth on the passes which remained opened.

(6) *Chitral.*—Two falls of snow occurred during the month of November, and all the high hills towards the east and north of Chitral were covered. The depth of snow was about 1″. The inhabitants state that the snowfall and rainfall of the month have been much less than in the previous year.

II.—KASHMIR AND PUNJAB HIMALAYAS.

Pangi.—Snow fell at Kilar (8,400 feet) on the 6th and 7th November, the depth of snow being 3″.

III.—UNITED PROVINCES HIMALAYAS.

Almorah.—No snow fell during November, and the snow fall has been less than last year.

Summary of Special Storm Reports.

Local storms were somewhat less prevalent than usual during the month of November. The following gives a record of the reports received from the observers :—

November 4th—a thunder storm and rain occurred at Cuddapah.

„ 5th—a nor'wester with rain passed over Srinagar between 4 P.M. and 8 P.M. Snow fell on the mountains.

„ 9th—Thunderstorm at Cuddapah from 3-50 P.M. to 5 P.M.

„ 14th—a slight storm passsd over Srinagar between 3 A.M. and 7 A.M.

A solar halo was observed at Cuddapah on the 25th November at 1 P.M. and lasted about half an hour and on the 23rd a solar halo was recorded at Srinagar between 9-30 A.M. and 11 A.M.

A fairly severe earthquake was felt at Rangoon at 7-4 A.M. on the 7th. It lasted for 5 seconds and the oscillation apparently moved from north to south.

The following extracts are from newspaper reports :—

The storm in the south.—The rainfall at Madras during the time the storm lasted (6th November) was about 10 inches and the tanks were overflowing. Rain again fell between the 6th and 7th and a large part of Madras was inundated and the north-west line of the Madras railway was breached between Rajampet and Reddipalle and the north-east line at Korukkapet.

At Cuddapah on the 6th the tank above the town overflowed and flooded the town and the Bugga, a usually insignificant stream, suddenly rose 11 feet and the waters poured through the town. It was stated that 2,000 houses were washed down.

Heavy rain continued over the Madras Presidency up to the 12th, and the floods, which were playing havoc throughout the Presidency, were worse than any known since 1874. Traffic was practically at a standstill with no prospect of being resumed for some days. Every river was in full flood and most of the bridges had been washed away, and the tanks, that had not been full for 15 years, presented the appearance of large and beautiful lakes.

Earthquake Reports.

At Rangoon a very sudden and sharp shock of earthquake was felt at about 7 A.M. on the 7th, but no damage beyond the falling of plaster and of mouldings, was reported. People walking along the roads felt and saw the ground move under their feet. Something akin to a panic ensued and the people rushed about in a terrified state.

At 11-30 P.M. November 26th, a very severe shock or rather two shocks of earthquake visited Silchar, the smartest since the great earthquake of 1897. No severe damage was done, though the whole station was greatly startled. The shock was also felt in Sylhet.

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

Arabian Sea.—On the 1st, 2nd and 3rd north-east winds of the winter monsoon prevailed generally over the Arabian sea but off the Malabar coast of the Indian Peninsula calms and south-east to south-west winds were reported. On the 4th normal conditions were established, north-easterly winds blowing over the centre of the sea and north-westerly winds along the west coast of India. These conditions continued till the 6th when a storm was shown over Madras and light variable winds were reported over the east of the Arabian sea. The winds were unsteady and irregular and rain squalls prevailed over the south of the Arabian sea during the 7th, 8th and 9th though no storm could be traced as having passed from the south of the Peninsula into the Arabian sea. On the 10th and 11th general north-east winds were re-established, but again, on the 12th, some small disturbance appears to have passed out into the south-east of the sea and the winds there were irregular and squally till the 17th. On the 19th conditions again became unsettled with squally and rainy weather over the south of the sea and south-east to north-east squally winds prevailed there till the 22nd. Between the 23rd and 28th normal conditions of wind and weather prevailed, but on the 29th and 30th the weather became again unsettled over the south of the sea.

The air movement, on the mean of the month, averaged 3·1, which was 0·2 above the normal. The wind was lighter than usual from the 1st to the 5th; the force then increased and exceeded the normal from the 6th to the 12th. The force was generally low from the 13th to the 17th, after which date it again increased and was generally higher than usual till the close of the month.

The wind was strongest on the 23rd, when the average force was 4·0 and was lightest on the 3rd with a mean force of 2·1.

Bay of Bengal.—Northerly winds prevailed over the Bay on the 1st, but on the 2nd and 3rd the directions were very variable, and from the 4th to the 9th cyclonic winds prevailed over the centre and south of the Bay. On the 10th and 11th more regular winds were experienced, but on the 12th cyclonic winds re-appeared and continued till the 15th. On the 16th the storm disappeared and northerly (north-west to north-east) winds prevailed over the greater part of the Bay till the 23rd. On the 24th the wind directions again became cyclonic and irregular winds were reported up to the 29th after which northerly winds re-appeared.

The wind's force averaged, for the whole month, 3·2 which was exactly normal.

Winds were lighter than usual during the first four and last three days of the month, but, with a few exceptions, were generally stronger than usual on the intervening days. The wind was strongest, 4.3, on the 13th, and was lightest, 2·5, on the 8th and 28th.

Equatorial Belt:—The winds were more or less variable over the west of the equatorial belt and at the Seychelles calms were reported on no less than eleven days during the month.

The following gives data for this station and exhibits the great unsteadiness of the wind in this region:—

Station.	Mean steadiness.			Mean wind Direction.		Mean wind velocity in miles per diem.		
	Actual percentage, November 1903.	Normal percentage, November.	Variation of actual from normal, November 1903.	Actual November 1903.	Normal November.	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
				°	°			
Seychelles . .	7	30	−23	S25E	S70E	104	140	−36

At Zanzibar, though the mean wind direction of the month differed somewhat from the normal, ordinary north-east winds were experienced on many days during the month while to the east of the Seychelles the directions varied between south-east, east and north-west.

Temperature of the air.

The mean maximum or day temperature of the month was lower than usual over the greater part of the country. The exceptions were shown over Tenasserim, Ceylon, the extreme south of the Peninsula, the extreme north-west of India and parts of Bengal. In most of these areas, though the mean maximum temperature was in excess,

the variation was generally slight or small and only amounted to +2° at the stations for which comparative data are given below:—

Station.	Mean maximum temperature.		
	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	°	°	°
Tinnevelly	91·6	88·7	+2·9
Colombo	88·4	86·4	+2·0
Rawalpindi	79·2	77·2	+2·0

Over the whole of the remainder of the Indian land area the mean maximum temperature of the month was lower than usual. The deficiency was considerable over the east and centre of the Peninsula and the south of the Central Provinces, where the rainfall was unusually heavy and continuous. The following gives comparative data for the stations at which the deficiency exceeded 2°:—

Station.	Mean maximum temperature.		
	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	°	°	°
Chaibassa	80·1	83·5	— 3·4
Nowgong	79·0	82·3	— 3·3
Kurnool	85·0	88·1	— 3·1
Nellore	83·6	86·7	— 3·1
Chitaldroog	79·0	82·1	— 3·1
Mangalore	85·2	88·3	— 3·1
Cuddapah	85·5	88·5	— 3·0
Raichur	83·2	86·1	— 2·9
Goa	84·6	87·4	— 2·8
Masulipatam	82·3	85·1	— 2·8
Ranchi	75·0	77·8	— 2·8
Raipur	80·5	83·2	— 2·7
Bangalore	76·8	79·3	— 2·5
Bijapur	83·2	85·6	— 2·4
Bellary	84·4	86·7	— 2·3
Salem	85·0	87·3	— 2·3
Cuttack	82·8	85·1	— 2·3
Sambalpur	81·5	83·8	— 2·3
Calicut	85·2	87·4	— 2·2
Mysore	80·4	82·5	— 2·1
Chanda	83·1	85·2	— 2·1
Jubbulpore	79·8	81·9	— 2·1

The greatest actual deficiency was thus reported from Nowgong, in Central India, Chaibassa, in west Bengal and from some stations in Madras and Mysore.

The following gives the highest maximum temperatures recorded in each division together with the highest previously recorded readings:—

Province or Division.	Station.	Highest maximum temperature recorded in November 1903.	Date on which recorded.	Highest maximum temperature recorded in November previous to 1903.	Year in which recorded.
		°		°	
Burma	Monywa	96·3	14th	...	...
Assam	Silchar	90·5	13th	94·5	1900
Bengal	Comilla	87·6	14th	92·3	1898
Orissa	Cuttack	88·9	1st	96·8	1886
Bihar	Gaya	85·7	15th	94·9	1896
Chota Nagpur.	Purulia	83·8	27th	92·5	1901
United Provinces.	Jhansi	90·2	4th & 5th	98·2	1872
Punjab	Montgomery	93·3	2nd	96·3	1895
N.-W.F. Province.	D. I. Khan	88·3	1st & 4th	92·3	1900 and 1901
Sind	Jacobabad	98·5	5th	99·5	1897 and 1900
Rajputana	Deesa	96·6	1st	103·1	1901
Gujarat	Ahmedabad	99·2	5th	102·3	1899 and 1901
Central India.	Neemuch	87·5	2nd	96·0	1901
Central Provinces.	Khandwa	92·2	3rd & 4th	99·2	1901
Berar	Akola	90·9	1st	97·5	1896 and 1899
West Coast.	Ratnagiri	92·8	13th	98·8	1896
Bombay Deccan.	Poona	91·5	29th	96·5	1896
Mysore	Mysore	85·1	1st, 2nd & 3rd	88·1	1900
Madras Coast	Nellore	92·3	3rd	96·9	1898
Madras Deccan.	Cuddapah	95·7	2nd	97·1	1896
South India.	Tinnevelly	96·2	3rd & 13th	98·3	1892

The preceding data show that the highest temperatures recorded during November 1903 were considerably lower than those registered in previous years.

At all the north-western hill stations, with the exception of Chakrata, the mean day temperature of the month was lower than usual. The deficiency exceeded 1½° at the following places:—

Hill Station.	Mean maximum temperature.		
	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	°	°	°
Srinagar	57·9	60·3	— 2·4
Leh	45·3	47·6	— 2·3
Chaman	67·2	69·4	— 2·2
Mount Abu	71·7	73·5	— 1·8

At the remaining hill stations the mean day temperature was in excess but the variations were generally unimportant.

The variations of the mean minimum or night temperature from the normal were generally larger and more strongly marked than the variations of the mean day temperature. The night temperature, on the mean of the month, was excessive over Burma and part of north-east India, the Madras coast districts and part of the Nizam's dominions and the extreme north of India. The excess was moderate to considerable in the first area, very small in the second and moderate in the third and amounted to over 2° at the following stations :—

Province or Division.	Station.	Mean minimum temperature. Actual, Nov. 1903.	Normal, Nov.	Variation of actual from normal, Nov. 1903.
		°	°	°
Burma and North-East India.	Bhamo	64·1	59·2	+ 4·9
	Yamethin	70·7	67·0	+ 3·7
	Mandalay	70·9	67·3	+ 3·6
	Silchar	66·3	63·6	+ 2·7
	Minbu	71·0	68·3	+ 2·7
	Bassein	74·1	71·5	+ 2·6
	Tavoy	71·1	68·5	+ 2·6
	Narayanganj	68·4	66·0	+ 2·4
	Diamond Island	77·4	75·2	+ 2·2
	Mergui	71·9	69·7	+ 2·2
Extreme North of India.	Peshawar	47·9	45·1	+ 2·8
	Sialkot	52·7	50·0	+ 2·7
	Lahore	49·3	46·8	+ 2·5

Over the remainder of the country the mean night temperature was lower than usual. The variations were generally small and unimportant over the Peninsula, but were moderate to considerable within an area which covered the Central Provinces, Central India, Rajputana and parts of Sind and Gujarat. The following gives comparative data for those stations at which the variation exceeded —2°·5 :—

Station.	Mean minimum temperature. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	°	°	°
Neemuch	50·2	54·9	— 4·7
Jubbulpore	48·5	53·1	— 4·6
Khandwa	52·0	56·2	— 4·2
Indore	50·2	54·1	— 3·9
Ahmedabad	62·0	65·7	— 3·7
Akola	53·7	57·4	— 3·7
Nagpur	57·0	60·3	— 3·3
Bikaner	56·2	59·4	— 3·2
Seoni	52·2	55·4	— 3·2
Deesa	54·6	57·7	— 3·1
Jaipur	52·2	55·2	— 3·0
Hoshangabad	54·3	57·3	— 3·0
Malegaon	54·2	57·1	— 2·9
Rajkot	56·5	59·3	— 2·8
Hyderabad (S)	57·3	60·0	— 2·7
Pachpadra	51·5	54·1	— 2·6

The variations of the mean night temperature from the normal were considerable at the hill stations in Kashmir and at Pachmarhi, and Lashio but were small at the remaining hill stations. The following gives data for those places where the variations exceeded 1½° :—

Hill Station.	Mean minimum temperature. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	°	°	°
Pachmarhi	46·5	51·3	— 4·8
Murree	42·6	45·6	— 3·0
Chaman	42·9	44·8	— 1·9
Lashio	59·7	54·3	+ 5·4
Srinagar	33·4	31·6	+ 1·8

The lowest minima recorded were in no way exceptional, but during a cold "snap" about the close of the month, the temperature fell to 9°·1 at Dras, to 11°·9 at Leh, to 21°·1 at Skardu, to 19°·0 at Kailang, to 38°·4 at Peshawar, to 38°·0 at Dera Ismail Khan, to 39°·4 at Khushab, and to 35°·0 at Rawalpindi.

At Tangu, in Sikkim, the thermometer fell to 16° on the 19th and the mean night temperature of the month was 20°·7.

The variations of the mean temperature of the month from the normal were considerable within an area which extended from Gujarat in the west to Chota Nagpur in the east where the heat was less than usual. The following gives data for some of the contained stations :—

Station.	Mean daily temperature. Actual, November 1903.	Normal, November.	Variation of Actual from normal, November 1903.
	°	°	°
Jubbulpore	64·2	67·6	—3·4
Bhavnagar Para	74·0	77·1	—3·1
Neemuch	66·8	69·7	—2·9
Indore	65·9	68·7	—2·8
Nowgong	65·0	67·8	—2·8
Raipur	69·4	72·0	—2·6
Seoni	66·2	68·4	—2·2
Hoshangabad	68·6	70·8	—2·2
Ahmedabad	76·5	78·6	—2·1
Rajkot	72·9	74·9	—2·0
Pachpadra	70·5	72·5	—2·0
Akola	70·3	72·3	—2·0
Chanda	70·3	72·3	—2·0
Ranchi	65·8	67·8	—2·0

In all other parts of the country the variations of the mean temperature were generally slight or small. There was some excess over Assam, south-east Bengal, Burma, Ceylon, and the extreme south of the Peninsula on the one hand, and over upper Sind, the North-West Frontier Province and the Punjab on the other, while over the whole of the intervening region the heat was slightly less than usual. At the hill stations the variations of the mean temperature from the normal were irregular.

The following gives temperature variation data for the extra-Indian stations :—

Station.	Mean temperature. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	°	°	°
Trincomalee	80·2	80·0	+0·2
Colombo	81·6	80·2	+1·4
Amini Divi	81·.	80·3	+0·8
Kashgar	43·7	43·2	+0·5
Kabul	44·9	51·3	—6·4
Teheran	51·4	51·8	—0·4
Ispahan	47·9	48·9	—1·0
Bushire	66·9	70·3	—3·4
Jask	74·8	76·0	—1·2
Muscat	78·0	77·6	+0·4
Baghdad	60·4	62·3	—1·9
Aden	79·4	79·8	—0·4
Perim	82·6	82·0	+0·6
Zanzibar	81·2	79·6	+1·6
Seychelles	76·4	79·0	—2·6
Mauritius	73·6	75·1	—1·5

The above data show that the variations were very irregular. In the south-east trades region the mean temperature was in excess at Zanzibar and in defect at Mauritius and the Seychelles; it was in excess at the Ceylon stations and was in defect over Afghanistan, Persia and part of Arabia.

The following summarises the chief abnormal features of the temperature conditions of the month :—

(1) The mean temperature exceeded the normal, both by day and night, over the extreme north-west of India.

(2) The temperature was lower than usual, both by day and night, over the central parts of the country.

(3) The day temperature was considerably lower than the normal, the night temperature about normal and the mean temperature lower than usual over the greater part of the Peninsula.

(4) The day temperature was lower and the night temperature higher than usual over the greater part of Burma and Assam where the mean temperature was slightly higher than the average.

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	88·8	71·8	80·3	16·9	26·4	+0·9	+2·1	—1·2
	Lower Burma (Deltaic)	86·3	75·2	80·8	11·1	17·1	—0·1	+2·2	—2·3
	Central do.	87·4	68·9	78·2	18·5	28·1	—0·3	+0·2	—0·5
	Upper do.	85·4	68·6	77·0	16·8	29·0	—1·3	+3·7	—5·0
	Arakan	83·8	72·5	78·1	11·3	18·7	—1·3?	+1·1	—2·4?

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.
		°	°	°	°	°	°	°	°
Bengal and Assam.	Eastern Bengal	82·2	65·8	74·1	16·4	27·9	−0·4	+1·7	−2·1
	Assam (Surma)	84·4	66·3	75·4	18·1	34·1	−0·4	+2·7	−3·1
	Do. (Hills)	68·1	50·6	59·4	17·5	32·2	...	...	...
	Do. (Brahmaputra)	80·0	61·5	70·8	18·4	30·7	+0·1	+0·2	−0·1
	Deltaic Bengal	82·0	65·3	73·6	16·8	28·1	+0·2	+0·7	−0·5
	Central do.	80·9	62·2	71·6	18·8	30·3	−1·0	+0·2	−1·2
	North do.	81·2	60·1	70·7	21·2	33·1	−0·7	−1·4	+0·7
	Bengal Hills	53·1	34·9	44·1	18·2	29·4	+1·2	−0·3	+1·5
	Orissa	82·1	66·7	74·4	15·4	29·2	−1·6	+1·0	−2·6
	Chota Nagpur	77·7	58·3	68·0	19·4	30·0	−2·6	−0·9	−1·7
	South Bihar	81·5	57·0	69·3	24·5	34·8	−1·0	−1·7	+0·7
	North do.	81·1	58·4	69·8	22·7	36·3	−0·6	−2·2	+1·6
United Provinces of Agra and Oudh.	United Provinces (East)	81·8	54·1	68·0	27·7	39·5	−0·9	−1·5	+0·6
	Oudh (South)	82·5	53·5	68·0	29·0	41·1	−0·8	+0·7	−1·5
	Do. (North)	81·6	56·9	69·3	24·7	42·6	−1·2	+0·3	−1·5
	United Provinces (Central)	83·5	54·6	69·1	29·0	40·8	−0·8	−0·9	+0·1
	Do. do. (West)	82·6	53·3	67·9	29·3	42·5	−1·7	0	−1·7
	Do. do. (East Submontane).	80·9	58·3	69·6	22·6	32·8	−0·7	0	−0·7
	Do. do. (West Submontane)	78·3	50·9	64·7	27·3	41·5	−0·6	−0·5	−0·1
	Do. do. (Hills)	60·5	45·0	52·9	15·5	24·9	+0·6	0	+0·6
Punjab	Punjab (South-East)	82·4	56·3	69·4	26·1	38·3	−0·5	+0·1	−0·6
	Do. (South)	82·4	50·8	66·7	31·6	46·3	−1·1	+1·6	−2·7
	Do. (Central)	83·7	49·3	66·5	34·4	50·8	+0·1	+2·5	−2·4
	Do. (Submontane)	80·5	49·8	65·2	30·8	49·3	+1·0	+1·7	−0·7
	Do. (Hills)	54·9	32·3	43·6	22·5	38·8	−1·3	−0·8	−0·5
	Do. (West)	83·9	51·2	67·6	32·7	49·9	+0·1	+0·2	−0·1
N.-W. F. Province	North-West Frontier Province	79·8	48·2	64·0	31·6	49·0	+0·2	+2·2	−2·0
Bombay and Malabar Coast Districts (Madras).	Malabar	84·8	72·9	78·9	11·9	19·5	−1·6	−0·8	−0·8
	Madras (South Central)	85·0	69·0	77·0	16·0	29·2	−1·8	+0·3	−2·1
	Coorg	74·5	59·7	67·1	14·8	24·9	−1·4	−0·4	−1·0
	Mysore	78·6	62·3	70·4	16·3	31·5	−2·4	−0·2	−2·2
	Konkan	86·4	71·2	78·8	15·2	25·2	−1·2	−0·8	−0·4
	Bombay Deccan	84·9	59·8	72·3	25·1	39·6	−1·1	−1·0	−0·1
	Hyderabad (North)	82·8	59·3	71·1	23·5	36·5	...	...	...
	Khandesh	85·6	55·1	70·4	30·6	44·6	−0·6	−1·6	+1·0
Central Provinces and Berar.	Berar	86·1	57·3	71·8	28·9	38·9	−0·2	−3·7	+3·5
	Central Provinces (West)	85·2	54·4	69·8	30·8	39·3	−0·1	−3·5	+3·4
	Do. do. (Central)	80·9	53·7	67·3	27·3	36·7	−1·8	−3·2	+1·4
	Do. do. (East)	79·7	57·7	68·7	22·0	32·8	−2·5	−1·5	−1·0
Bombay (North)	Gujarat	91·5	62·3	76·9	29·3	39·9	−0·4	−3·7	+3·3
	Kathiawar and Cutch	88·2	60·9	74·5	27·2	37·7	−0·7	−2·3	+1·6
	Sind	88·5	56·7	72·6	31·8	50·1	+1·1	−0·8	+1·9
	Baluchistan Hills	65·5	34·6	50·2	30·9	52·3	−1·2	−0·7	−0·5
Rajputana and Central India.	Central India (East)	80·9	51·1	66·0	29·8	39·1	−1·9	−2·9	+1·0
	Rajputana (East), Central India (West)	85·2	52·6	68·8	32·6	43·7	−0·1	−2·8	+2·7
	Do. (West)	86·9	54·4	70·6	32·5	46·5	−0·8	−2·9	+2·1
Madras	East Coast (North)	82·0	69·7	75·9	12·3	26·3	−1·9	+0·3	−2·2
	Hyderabad (South)	83·2	64·0	73·6	19·1	35·5	−2·5	−0·1	−2·4
	Madras (Central)	85·0	66·6	75·8	18·4	38·8	−2·8	+0·3	−3·1
	East Coast (Central)	83·0	71·0	77·0	12·0	26·0	−3·0	−0·5	−2·5
	Do. (South)	84·7	71·9	78·3	12·8	26·3	−0·5	+0·2	−0·7
	Madras (South)	87·8	73·2	80·3	14·6	24·2	+1·8	−0·4	+2·2

The hottest area outlined by the isotherm of 80° covered the divisions of Tenasserim, lower Burma and south Madras, while the coolest regions were the North-west Frontier Province with a mean temperature of 64° and the west submontane division of the United Provinces with a mean temperature of 64°.7.

The mean daily range of temperature was less than usual over the greater part of the country, but in Rajputana, Central India, Berar, the Central Provinces and north Bombay the mean daily range, owing to the lowness of the mean night temperature, was generally greater than usual.

The following is a brief sketch of the more important changes of temperature during the month under review :—

During the first four days of the month there was little rain over the country generally, though heavy showers occurred over Burma, north-east India and the Deccan. The mean temperature was generally higher than usual over the Peninsula (except the west coast), Sind, the North-west Frontier Province and the Punjab. The following gives comparative data for these areas :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A. M. of			
	1st November.	2nd November.	3rd November.	4th November.
	°	°	°	°
Berar	+1·8	+1·0	+3·5	+1·2
West Coast	—1·2	—0·5	—0·4	+0·5
Bombay Deccan	+0·6	+1·7	+1·5	+1·1
Mysore	+·06	+1·9	+1·1	+1·4
Madras Coast	+2·5	+3·1	+2·8	+2·4
Madras Deccan	+3·2	+4·0	+3·1	+1·9
South India	+1·9	+2·6	+2·5	+2·3
Sind	+2·2	+2·5	+2·4	+2·4
Punjab	+1·7	+1·8	+1·8	+2·7
North-West Frontier Province.	+0·6	+0·3	+0·6	+2·0

Elsewhere the mean temperature during this period was generally normal or in defect. On the 1st the deficiency was most marked in the north-east, where rain was falling, but the area of greatest deficiency was subsequently transferred to Central India and the Central Provinces. At no time and in no area were the variations very large. The following gives comparative temperature data from the 1st to the 4th for the remaining divisions :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	1st November.	2nd November.	3rd November.	4th November.
	°	°	°	°
Burma	—0·2	+0·1	+0·1	+0·2
Assam	—3·2	—1·6	+1·5	+2·2
Bengal	+0·3	—0·5	+0·9	+0·5
Orissa	+2·6	+1·5	+0·5	+1·4
Bihar	—2·8	—0·7	—0·8	—1·0
Chota Nagpur	—4·2	—0·6	+0·3	—0·5
United Provinces of Agra and Oudh.	—0·2	—0·5	—0·1	—0·4
Rajputana	—0·6	—0·1	+1·3	+1·7
Gujarat	+0·4	—0·6	—0·1	+1·0
Central India	—1·7	—2·0	—1·7	—1·4
Central Provinces	—0·4	—0·7	—0·1	—1·4

On the 4th and 5th showers of rain and snow occurred in the extreme north-west at Chitral, Pishin, Parachinar, Killa Drosh and Sonemarg and extended slightly into the North-west Frontier Province. This was accompanied with and followed by a rapid fall of temperature, which appeared in Baluchistan on the 4th, extended to the North-west Frontier Province on the 5th and to the greater part of north-west India on the 6th. This cold wave slowly extended eastward across northern India and southward over the Central Provinces, and was one of the most marked abnormal features of temperature during the month. The following gives comparative temperature data from the 5th to the 14th for Baluchistan and the different divisions of northern and central India :—

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.	14th Nov.
	°	°	°	°	°	°	°	°	°	°
Baluchistan	—2·7	—8·3	—9·5	—8·9	—5·3	—4·6	—2·1	—0·4	+0·3	+2·8
N. W. F. Province.	—2·4	—4·1	—2·4	—2·1	—1·0	—1·5	—0·2	—1·1	—1·0	—0·8
Punjab	+3·3	—1·6	—1·2	—1·6	—2·1	—2·5	—2·1	—1·6	—1·5	—1·3
Sind	+5·6	—1·3	—2·9	—3·2	—4·5	—4·2	—3·8	—4·2	—4·9	—2·6
Rajputana	+0·9	+1·5	—1·1	—2·6	—4·5	—4·9	—5·7	—4·8	—4·5	—4·5
Gujarat	+2·9	+1·3	—0·6	—2·1	—4·0	—3·3	—3·7	—2·1	—2·0	—2·3
Central India	—1·0	—0·6	—0·5	—1·1	—2·1	—4·4	—6·2	—6·2	—6·1	—5·6
Central Provinces	—2·2	—1·8	—0·7	+0·1	—0·8	—1·0	—3·0	—4·9	—6·5	—5·9
Berar	—0·4	—1·9	—0·7	—0·8	—1·0	—1·3	—0·8	—2·7	—5·3	—6·1
United Provinces	—0·2	+0·6	+1·3	+0·7	—1·0	—2·7	—3·6	—3·5	—2·6	—2·0
Chota Nagpur	—2·0	—2·6	—1·0	—0·2	—0·9	—1·8	—3·6	—5·8	—4·8	—3·7
Bihar	—1·1	—1·4	—1·3	—1·4	—1·1	—2·1	—3·7	—2·9	—2·0	—0·8

During this period the depression of temperature was frequently large and at the following places on the following dates the day or maximum temperature was more than 6° below the normal:—

Date.	Station.	Maximum temperature. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
5TH November	Cherat	59·3	71·0	—11·7
	Chaman	61·8	72·6	—10·8
6TH „	Murree	49·2	64·3	—15·1
	Mooltan	74·3	88·2	—13·9
	Srinagar	50·5	63·3	—12·8
	Dera Ismail Khan	74·3	86·2	—11·9
	Quetta	56·2	67·9	—11·7
	Khushab	75·8	86·6	—10·8
	Chaman	61·8	72·4	—10·6
7TH „	Quetta	56·2	67·7	—11·5
	Chaman	60·8	72·1	—11·3
	Srinagar	52·0	63·1	—11·1
	Cherat	60·3	70·5	—10·2
8TH „	Srinagar	50·5	62·8	—12·3
	Chaman	61·3	71·8	—10·5
9TH „	Sirsa	80·2	87·4	— 7·2
	Bikaner	80·1	87·1	— 7·0
10TH „	Jaipur	81·2	87·7	— 6·5
	Sambhar	79·8	86·1	— 6·3
11TH „	Nowgong	76·5	83·7	— 7·2
	Chanda	78·6	85·7	— 7·1
12TH „	Nowgong	76·5	83·4	— 6·9
	Indore	77·3	84·0	— 6·7
13TH „	Jacobabad	79·9	88·4	— 8·5
	Indore	76·3	83·9	— 7·6
	Raipur	77·1	83.8	— 6·7
	Chaibassa	77·6	84·0	— 6·4
	Ranchi	72·1	78·3	— 6·2
14TH „	Nowgong	75·5	82·8	— 7·3
	Chaibassa	77·6	83·8	— 6·2

In the meantime, in the south, the weather was very unsettled and temperature unsteady. On the 5th, a storm appeared off the Madras coast. Rain was falling heavily at the coast stations and subsequently extended inland. This rainfall was accompanied with a rapid fall of temperature and the mean temperature was low over most of the Peninsular divisions from the 5th to the 14th. This 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.	14th Nov.
	°	°	°	°	°	°	°	°	°	°
West Coast	+0·5	+0·4	—1·0	—1·9	—0·3	—0·5	—0·4	+0·2	+0·3	—0.5
Bombay Deccan	+1·8	+0·9	—1·9	—1·0	+0·1	+1·5	+0·9	+1·2	—2·1	—4·8
Mysore	—0·6	—3·4	—3·3	—0·9	—0·6	+0·1	—2·4	—3·2	—3·0	—0·7
Madras Coast	—0·9	—1·7	—1·0	—1·4	—1·2	—1·6	—1·4	—1·4	—1·3	—1·
Madras Deccan	+0·4	—1·0	—2·4	+0·3	—1·3	—1·3	—1·7	—1·4	—2·6	—1·9
South India	+0·3	—1·0	—0·2	+0·5	+0·8	—0·3	+0·9	+0·8	+0·4	—1·6

The depression of temperature was most marked in the day or maximum temperature which was more than 8° below the normal at the following stations on the following dates:—

Date.	Station.	Maximum temperature. Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
6TH NOVEMBER	Cuddapah	78·2	89·1	—10·9
	Bangalore	69·2	79·9	—10·7
	Cuddalore	76·1	85·3	— 9·2
	Nellore	78·8	87·2	— 8·4
7TH „	Cuddapah	76·7	89·1	—12·4
	Bellary	76·0	87·3	—11·3
	Chitaldroog	73·1	82·8	— 9·7
	Bangalore	70·2	79·8	— 9·6
8TH „	Gopalpur	73·6	84·3	—10·7
	Cuttack	75·3	85·9	—10·6
	Nellore	78·3	87·0	— 8·7
	Masulipatam	77·5	85·6	— 8·1
9TH „	Bellary	77·5	87·2	— 9·7
	Raichur	78·1	86·6	— 8·5
10TH „	Kurnool	79·7	88·6	— 8·9
	Hyderabad (Deccan)	75·8	84·3	— 8·5
	Masulipatam	77·0	85·5	— 8·5
	Calicut	79·2	87·3	— 8·1
11TH „	Hyderabad (Deccan)	74·8	84·2	— 9·4
	Bangalore	71·2	79·8	— 8·6
12TH „	Bangalore	70·2	79·8	— 9·6
	Mysore	74·6	83·2	— 8·6
	Cuddapah	80·2	88·8	— 8·6
13TH „	Cuddapah	79·7	88·8	— 9·1

Burma and north-east India were but little affected either by the cold wave which entered north-west India from the westward or by the rainfall from the Bay storm, and the mean temperature was generally excessive during this period. The following gives comparative data:—

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.	14th Nov.
	°	°	°	°	°	°	°		°	°
Burma . . .	+1.5	+1'1	+1'7	+2'0	+2'0	+1·9	+1'8	+1'3	+0'4	—0'8
Assam . . .	+1'6	+0·8	+0'5	+0'9	+0'6	+0'8	+1'1	+0'9	+1'1	+0'9
Bengal . . .	+0'3	—0'9	—0'6	—0'3	—0'2	—1'1	—1'5	—1'8	+0'2	+1'5

On the 14th a storm was shown over the north of the Bay. This storm advanced north-eastward across the Arakan coast and occasioned general rain over Burma, so that a brisk to rapid fall of temperature occurred over that province at this time. The following gives comparative data for the 15th, 16th and 17th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	15th November.	16th November.	17th November.
	°	°	°
Burma	—0·2	—1'5	—1'7

Very low day or maximum temperatures were recorded in upper Burma during this burst of rainfall, the depression at the following places on the following dates exceeding 10°:—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
16th November.	Minbu	71'2	88'5	—17'3
" "	Bhamo	68·0	82'2	—14'2
" "	Thayetmyo . . .	76·0	87·9	—11'9
" "	Mandalay . . .	75'5	86'2	—10'7
17th "	Bhamo	69·0	81'9	—12'9
" "	Minbu	77'2	88'3	—11'1

From the 18th to the 25th there was practically no rain over India, but the mean temperature was steadily low over the greater part of the country, the greatest deficiency being reported from parts of the Deccan and the more central divisions. The following gives data:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A. M. of							
	18th Nov.	19th Nov.	20th Nov.	21st Nov.	22nd Nov.	23rd Nov.	24th Nov.	25th Nov.
	°	°	°	°	°	°	°	°
Burma . . .	—0'3	+0'2	+0'5	+0'5	+0'5	+0'8	+1'7	+2'7
Assam . . .	+1'2	+0'3	—0'8	—0'7	—1'1	—0'1	+1'1	+3'4
Bengal . . .	—2'2	—2'0	—1'8	—1'1	+0'4	+1'2	+1'1	+1'6
Orissa . . .	—3'6	—4'8	—5'1	—3'9	—3'3	—1'3	—1'2	—0'7
Bihar . . .	—3'0	—2'7	—2'5	—2'0	—1'4	—0'4	+0'3	+1'2
Chota Nagpur . .	—3'9	—4'1	—3'2	—2'6	—2'6	—2'5	—1'3	—0'2
United Provinces .	—1'5	—0'9	—0'5	—0'6	—0'7	+0'1	+0'5	+1'1
Gujarat . . .	—1'3	—0'9	—0'7	—0'2	—1'0	—1'1	—1'0	—1.5
Central India . .	—2'2	—1'4	—1'1	—1'6	—2'2	—2'8	—2'3	—1'5
Central Provinces .	—3'3	—3'2	—2'8	—2'8	—2'9	—3'7	—3'1	—2'2
Berar	—3'2	—3'2	—2'2	—1'8	—2'9	—3'3	—3'4	—3'7
West Coast . .	—2'5	—0'4	—0'8	—1'8	—2'0	—2'2	—2'9	—2'9
Bombay Deccan .	—1'4	—4'0	—4'7	—4'1	—3'3	—4'8	—5 2	—5'0
Mysore . . .	—3'0	—1'6	—3.5	—5'0	—5'1	—5'3	—4'5	—3.4
Madras Coast . .	—1'7	—2'1	—3'2	—2'8	—2'7	—3'6	—2'8	—2'7
Madras Deccan .	—2'7	—3'5	—5'1	—5'7	—4'2	—5'1	—5'9	—4'9
South India . .	—3'2	—0'9	—2'0	—2'6	—2'8	—3'3	—2'2	—1'7

The extreme north-west of India formed an exception to this general coolness. On the 17th temperature was rising very rapidly in Baluchistan and a warm wave was appearing on the north-west frontier of India. This warm wave extended and intensified during the succeeding week and was very strongly marked on the 23rd when the mean temperature was more than 9° above the normal at Jacobabad. The excess was, on the whole, more marked in the night than in the day temperature; but, on all days, the temperature, in the extreme north-west, exceeded the normal both by day and night. The following gives comparative data from the 18th to the 25th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of							
	18th Nov.	19th Nov.	20th Nov.	21st Nov.	22nd Nov.	23rd Nov.	24th Nov.	25th Nov.
	°	°	°	°	°	°	°	°
Baluchistan . .	+7'0	+5'3	+3'3	+3'0	+2'7	+0'4	+2'9	—2'9
Sind	+1'0	+1'6	+2'0	+2'6	+2'0	+4'6	+4'2	+3'7
North-West Frontier Province.	+1'9	+4'7	+5'2	+4'1	+6'2	+7'3	+5'1	+4'4
Punjab . . .	—0'4	+1'2	+1'9	+2'7	+3'7	+4'3	+2'9	+3'9
Rajputana . .	—0'3	—0'4	—0'5	+0'1	—0'1	+0'7	+1'4	+1'5

On the 26th temperature fell in Baluchistan and another cool wave entered north-west India from the westward. This wave extended to Sind by the 27th, to Gujarat and south-west Rajputana by the 28th, to eastern Rajputana by the 29th, and all over northern India by the 30th, occasioning a very rapid fall in the north-east. The following gives comparative data for Baluchistan and all divisions of northern India from the 26th to the 30th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	26th November.	27th November.	28th November.	29th November.	30th November.
	°	°	°	°	°
Baluchistan	−5·5	−6·6	−5·8	−5·0	−5·4
Sind	+4·2	−0·9	−2·2	−1·7	−1·5
N.-W. Frontier Province.	+6·6	+3·3	+1·0	+0·3	−1·3
Punjab	+3·6	+3·7	+1·8	−0·8	−2·0
Rajputana	+1·6	+1·3	+0·5	−2·0	−2·5
United Provinces	+2·2	+2·1	+1·6	+0·2	−2·8
Central India	−1·1	−0·3	+0·2	−1·1	−2·0
Chota Nagpur	+1·5	+4·7	+3·0	+0·2	−1·5
Bihar	+1·0	+1·6	+0·9	−1·4	−4·2
Bengal	+1·8	+2·0	+3·6	+1·2	−1·6
Assam	+2·4	+2·6	+0·6	+1·0	−2·2

Whilst this cold wave was progressing eastward over northern India temperature rose over the Peninsula and on the last three days of the month was in excess over all the Peninsular divisions as is shown below :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	26th November.	27th November.	28th November.	29th November.	30th November.
	°	°	°	°	°
Orissa	+1·6	+5·0	+6·5	+5·6	+3·4
Central Provinces	−1·3	+1·2	+2·5	+1·5	+2·6
Berar	−2·5	−0·8	+0·6	+2·0	+5·4
West Coast	−2·5	−1·8	+0·1	+0·8	+1·1
Bombay Deccan	−4·5	−0·6	+3·5	+4·8	+5·4
Mysore	−2·0	+0·3	+2·1	+2·8	+1·3
Madras Coast	−2·8	−0·6	+1·9	+2·4	+2·5
Madras Deccan	−3·0	+1·8	+2·2	+3·8	+4·5
South India	−1·3	−0·2	+1·7	+3·2	+3·7

Burma was very little affected by these changes and the mean temperature of that province was excessive during this period. This is shown below :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	26th November.	27th November.	28th November.	29th November.	30th November.
	°	°	°	°	°
Burma	+3·4	+2·7	+2·4	+2·2	+1·7

On the whole the temperature conditions of the month of November 1903, were less stable than usual. Although the weather was, so far as can be judged, fine and settled over Persia and Afghanistan and there was apparently less snow than the average over the mountain regions around the north-west frontier of India, a series of cold and warm waves advanced from the westward into north-west India and thence extended eastward and southward over northern and central India, so that the temperature over those areas was unsteady and changed largely from time to time. At the same time the weather was unusually stormy and wet over the Peninsula during the first fortnight of the month and low temperatures were produced over that area and continued more or less uninterruptedly until almost the close of the month.

Winds.

As mentioned in the pressure section, the mean pressure of the month was lower than the average over the centre of the Bay and higher than the average in the south. This unusual distribution of pressure may account for the winds at Port Blair and Diamond Island which, on the mean of the month, were unusually southerly. The steadiness was

less than usual while the velocity was normal or above the normal. The following gives data :—

Station.	Mean steadiness. Actual percentage, November 1903.	Mean steadiness. Normal percentage, November.	Mean steadiness. Variation of actual from normal, November 1903.	Mean wind direction. Actual, November 1903.	Mean wind direction. Normal, November.	Mean wind velocity in miles per diem. Actual, November 1903.	Mean wind velocity in miles per diem. Normal, November.	Mean wind velocity in miles per diem. Variation of actual from normal, November 1903.
Port Blair	32	44	−12	S 56° E	N 81° E	194	165	+29
Diamond Island	45	59	−14	S 87 E	N 60 E	210	222	−12

Around the head of the Bay the winds were slightly more northerly than the average, but the variations were generally small and unimportant. The velocity was generally above the average while the steadiness varied irregularly from the normal. The following gives data:—

Station.	Mean steadiness. Actual percentage, November 1903.	Mean steadiness. Normal percentage, November.	Mean steadiness. Variation of actual from normal, November 1903.	Mean wind direction. Actual, November 1903.	Mean wind direction. Normal, November.	Mean wind velocity in miles per diem. Actual, November 1903.	Mean wind velocity in miles per diem. Normal, November.	Mean wind velocity in miles per diem. Variation of actual from normal, November 1903.
				°	°			
Chittagong	40	48	− 8	N 2 E	N 19 W	73	63	+10
Calcutta	76	59	+17	N 23 W	N 14 W	73	62	+11
Saugor Island	28	60	−32	N 1 W	N 3 E	204	167	+37
False Point	73	59	+14	N 20 E	N 27 E	144	153	− 9

The wind was approximately normal in direction at Hazaribagh and Darbhanga, but was unusually westerly at Allahabad, where also the steadiness was abnormally high. The following gives data for these stations:—

Station.	Mean steadiness. Actual percentage, November 1903.	Mean steadiness. Normal percentage, November.	Mean steadiness. Variation of actual from normal, November 1903.	Mean wind direction. Actual, November 1903.	Mean wind direction. Normal, November.
Hazaribagh	68	45	+23	N 18° W	N 30° W
Darbhanga	20	40	−20	S 86 W	S 85 W
Allahabad	72	23	+49	N 70 W	N 52 W

In the upper sub-Himalayas the winds were generally more westerly than the average except at Roorkee, where there was an unusual and very unsteady south-easterly wind. The velocity was about normal, but the steadiness was in excess of the average, in some cases largely so.

Both at Kurrachee and Peshawar the winds were more southerly than usual and the velocity low. The winds were very unsteady in the upper Indus valley. The following gives data for the stations in this area:—

Station.	Mean steadiness. Actual percentage, November 1903.	Mean steadiness. Normal percentage, November.	Mean steadiness. Variation of actual from normal, November 1903.	Mean wind direction. Actual, November 1903.	Mean wind direction. Normal, November.	Mean wind velocity in miles per diem. Actual, November 1903.	Mean wind velocity in miles per diem. Normal, November.	Mean wind velocity in miles per diem. Variation of actual from normal, November 1903.
				°	°			
Peshawar	7	12	− 5	S 66 W	N 76 E	14	51	−37
Jacobabad	8	11	− 3	N 27 W	N 13 W	47	40	+ 7
Kurrachee	42	18	+24	S 35 W	N 85 W	129	193	−64

In southern Rajputana the winds were about normal, but at Jaipur the wind was more westerly and steadier than usual. The following gives data for Jaipur and Deesa:—

Station.	Mean steadiness. Actual percentage, November 1903.	Mean steadiness. Normal percentage, November.	Mean steadiness. Variation of actual from normal, November 1903.	Mean wind direction. Actual, November 1903.	Mean wind direction. Normal, November.	Mean wind velocity in miles per diem. Actual, November 1903.	Mean wind velocity in miles per diem. Normal, November.	Mean wind velocity in miles per diem. Variation of actual from normal, November 1903.
				°	°			
Jaipur	55	36	+19	N 57 W	N 19 W	55	66	−11
Deesa	53	48	+ 5	N 62 E	N 61 E	162	181	−19

The following gives comparative data of the strength and steadiness of the winds over the Bay Islands, Burma and northern India:—

Province or Division.	Mean steadiness. Actual percentage, November 1903.	Mean steadiness. Normal percentage, November.	Mean steadiness. Variation of actual from normal, November 1903.	Mean wind velocity in miles per diem. Actual, November 1903.	Mean wind velocity in miles per diem. Normal, November.	Mean wind velocity in miles per diem. Variation of actual from normal, November 1903.
Bay Islands	47	39	+ 8	194	165	+29
Burma	31	45	−14	139	139	0
Bengal	48	56	− 8	117	97	+20
Bihar	20	40	−20	15	41	−26
Chota Nagpur	68	45	+23	121	110	+11
Orissa	73	59	+14	144	153	− 9
United Provinces of Agra and Oudh.	43	21	+22	36	35	+ 1
Punjab	50	26	+24	29	28	+ 1
North-west Frontier Province.	7	12	− 5	14	51	−37
Rajputana	54	42	+12	109	124	−15
Sind	25	15	+10	88	117	−29

The above shows generally increased steadiness of the winds over a large part of northern India.

Ordinary north-east winds prevailed over the Deccan during the month, but the velocity in most places was lower than usual.

Along the west coast the wind, as in northern India, was more westerly than the average. The steadiness and velocity were below the normal at Bombay and above at Karwar. The following gives data for these two stations:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, November 1903.	Normal percentage, November.	Variation of actual from normal, November 1903.	Actual, November 1903.	Normal, November.	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
				•	•			
Bombay	33	52	—19	N 8 W	N 18 E	201	235	—34
Karwar	64	46	+18	N 40 W	N 31 W	71	60	+11

In southern India the winds were more northerly than the average, while the steadiness and velocity were generally below the normal. This is shown below:—

Station.	Mean steadiness.			Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual percentage, November 1903.	Normal percentage, November.	Variation of actual from normal, November 1903.	Actual, November 1903.	Normal, November.	Northerly deflection.	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
				•	•				
Salem	13	24	—11	S 4 7E	N 87 E	...	35	74	—38
Chitaldroog	68	72	— 4	N 64 E	N 74 E	+10	82	160	—78
Bangalore	42	64	—22	N 40 E	N 61 E	+21	129	108	+21
Mysore	32	72	—40	N 33 E	N 78 E	+45	148	219	—71
Hassan	75	77	— 2	N 67 E	N 71 E	+ 4	37	86	—49
Madras	31	64	—31	N 18 E	N 24 E	+ 6	122	156	—34
Bellary	53	55	— 2	N 48 E	N 81 E	+33	77	77	0

The following gives comparative data of the air movement over the Peninsula:—

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, November 1903.	Normal percentage, November.	Variation of actual from normal, November 1903.	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
Central Provinces	75	56	+19	57	80	—23
Berar	54	51	+ 3	83	104	—21
Bombay Deccan	74	65	+ 9	230	233	— 3
Madras Deccan	52	81	—29	79	83	— 4
West Coast	49	49	0	136	148	—12
Mysore	54	71	—17	99	143	—44
Madras Coast	33	64	—31	122	156	—34
South India	13	24	—11	36	74	—38

The above shows that the steadiness was lower than usual except in the Central Provinces, Berar and the Bombay Deccan and that the velocity was everywhere less than the average.

At the hill stations in northern India the wind directions were very variable, but at several places the increased westing, which was noticed at the plains stations, was shown on the hills. The following gives data for those stations at which this variation was present:—

Hill Station.	Mean wind direction.		
	Actual, November 1903.	Normal, November.	Westerly Deflection.
	•	•	
Quetta	N 63 W	N 51 W	+12
Leh	S 44 W	S 21 W	+23
Srinagar	N 48 W	N 16 E	...
Ranikhet	S 66 W	S 53 W	+13
Katmandu	N 83 W	N 80 W	+ 3

At some of the central Indian hill stations the wind was more easterly than the average and than at the neighbouring plains stations while the velocity was normal or above the normal. This is shown below:—

Hill station.	Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual, November 1903.	Normal, November.	Easterly deflection.	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	•	•				
Mount Abu	N 60 E	N 54 E	+ 6	93	94	— 1
Pachmarhi	N 69 E	N 46 E	+23	70	63	+ 7
Chikalda	N	N 7 W	...	149	114	+35

At Aden there was a slight northerly instead of southerly component in the prevailing easterly wind, while at Perim the direction was about the average. The velocity was lower than usual at both stations. The following gives data:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, November 1903.	Normal percentage, November.	Variation of actual from normal, November, 1903.	Actual, November 1903.	Normal, November.	Actual, November 1903.	Normal, November.	Variation of actual from normal, November, 1903.
				°	°			
Aden	23	66	−43	N 86 E	S 87 E	224	311	−87
Perim	84	82	+2	S 59 E	S 62 E	458	491	−33

In the south-east trades region the winds varied irregularly from the average. At Zanzibar the mean wind direction was east-north-east instead of south-east and at the Seychelles was south-south-east instead of east-south-east, while at Mauritius the direction was nearly normal. The steadiness was very low at the Seychelles, but exceeded the average at Zanzibar. Both at Zanzibar and the Seychelles the velocity was low. The following gives data:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, November 1903.	Normal percentage, November.	Variation of actual from normal, November 1903.	Actual, November 1903.	Normal, November.	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
				°	°			
Zanzibar	42	29	+13	N 87 E	S 31 E	98	115	−17
Seychelles	7	30	−23	S 25 E	S 70 E	104	140	−36
Mauritius	...	...	...	S 84 E	S 83 E	250	252	−2

Humidity and Cloud.

In October the variations in the mean absolute humidity exhibited a deficiency of moisture over the Peninsula and an excess in all other parts of the Indian area. Between October and November a large change had occurred. Over the greater part of Northern India the mean absolute humidity during the month under review was below the normal, the deficiency amounting to 0·050″ or more over Gujarat, the Central India plateau and the west Satpuras. The following gives data for the stations in this area:—

Station.	Absolute Humidity.		
	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	″	″	″
Rajkot	·301	·437	—·136
Surat	·402	·508	—·106
Seoni	·323	·412	—·089
Malegaon	·318	·406	—·088
Amraoti	·329	·412	—·083
Veraval	·398	·478	—·080
Ahmedabad	·325	·404	—·079
Nagpur	·360	·439	—·079
Akola	·330	·407	—·077
Chanda	·454	·522	—·068

Station.	Absolute Humidity.		
	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	″	″	″
Jaipur	·267	·330	—·063
Khandwa	·308	·370	—·062
Saugor	·294	·354	—·060
Hoshangabad	·347	·406	—·059
Deesa	·245	·300	—·055

The mean absolute humidity was in excess over the greater part of the Peninsula, more particularly in the interior, where at the following stations the variation exceeded 0·050″:—

Station.	Absolute Humidity.		
	Actual, November 1903.	Normal, November.	from normal, November 1903.
	″	″	″
Kurnool	·653	·582	+·071
Bellary	·613	·545	+·068
Gulbarga	·551	·500	+·051

The mean absolute humidity was also in excess over Burma, Assam, and the Bay Islands. The excess was greatest over central and upper Burma, and was more than 0·050" at the following places:—

STATION.	ABSOLUTE HUMIDITY. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	"	"	"
Thayetmyo	·771	·665	+·106
Minbu	·746	·653	+·093
Yamethin	·766	·675	+·091
Bhamo	·642	·568	+·074
Mandalay	·759	·687	+·072
Akyab	·817	·745	+·072
Diamond Island	·861	·790	+·071
Bassein	·832	·764	+·068
Rangoon	·822	·768	+·054
Toungoo	·792	·733	+·059

The air was damper than usual also in the Indus valley but, except at Jacobabad, where there has been a change in the local conditions, the variations were small and unimportant.

The variations in the mean relative humidity showed the same general distribution as those of the mean absolute humidity. There was a general excess over the Peninsula, more particularly at the Deccan and Mysore stations, where the variations exceeded +5 at the following places:—

STATION.	RELATIVE HUMIDITY. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	%	%	
Bellary	79·0	67·2	+11·8
Kurnool	83·0	71·1	+11·9
Chitaldroog	80·0	70·9	+9·1
Gulbarga	72·0	63·6	+8·4
Salem	85·0	77·6	+7·4
Bangalore	85·0	77·7	+7·3
Hassan	82·0	74·9	+7·1
Mysore	83·0	76·3	+6·7
Hyderabad (Deccan)	80·0	73·3	+6·7
Cuddapah	82·0	75·6	+6·4
Raichur	74·0	68·4	+5·6

Over Burma and Assam the variations in the mean relative humidity were irregular. The following gives data for the stations at which the variations exceeded +5:—

STATION.	RELATIVE HUMIDITY. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	%	%	
Minbu	84·0	76·4	+7·6
Thayetmyo	86·0	78·4	+7·6
Mergui	85·0	78·9	+6·1

At Jacobabad, in the central Punjab and at Dehra Dun the mean relative humidity of the month was also in excess of the normal, but in all other parts of northern and central India the air was drier than usual. The relative dryness was most marked over the area, where the mean absolute humidity was in greatest defect, *viz.*, in Gujarat, the Central India plateau and the west Satpuras, but in parts of eastern Rajputana and of the south-east Punjab the deficiency was also considerable. The following gives comparative data for those stations at which the defect was more than 5:—

STATION.	RELATIVE HUMIDITY. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	%	%	
Surat	50·0	64·0	−14·0
Rajkot	43·0	55·0	−12·0
Seoni	52·0	62·7	−10·7
Rawalpindi	55·0	65·2	−10·2
Peshawar	56·0	64·9	− 8·9
Amraoti	45·0	53·4	− 8·4
Akola	51·0	59·1	− 8·1
Saugor	46·0	53·9	− 7·9
Jaipur	46·0	53·8	− 7·8
Delhi	44·0	51·5	− 7·5
Hoshangabad	60·0	67·5?	− 7·5?
Malegaon	48·0	55·5	− 7·5
Ahmedabad	43·0	49·6	− 6·6
Meerut	63·0	69·6	− 6·6
Deesa	35·0	40·8	− 5·8

The air was drier than usual at most of the hill stations, but the mean relative humidity was in excess at Gilgit, Srinagar, Murree, Chaman, and Quetta. At Leh the deficiency and at Quetta the excess of the mean relative humidity was very large. The following gives data for the hill stations:—

Hill Station.	Relative Humidity.		
	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	%	%	
Quetta	68·0	51·6	+16·4
Chaman	48·0	42·8	+5·2
Murree	39·0	35·6	+3·4
Srinagar	90·0	88·2	+1·8
Gilgit	53·0	51·6	+1·4
Leh	49·0	66·7	—17·7
Mussooree	49·0	56·8	—7·8
Chakrata	45·0	52·8	—7·8
Simla	37·0	41·5	—4·5
Darjeeling	75·0	79·1	—4·1
Ranikhet	62·0	62·8	—0·8
Cherat	38·0	38·6	—0·6
Mount Abu	35·0	41·8	—6·8
Pachmarhi	49·0	54·4	—5·4
Wellington	77·0	77·3	—0·3

The mean relative humidity of the month was highest in Burma and Assam and exceeded 90 per cent. at the following stations:—

Station.	Relative Humidity.		
	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	%	%	
Sibsagar	99·0	98·3	+0·7
Akyab	94·0	89·4	+4·6
Bhamo	94·0	89·5	+4·5
Gauhati	92·0	...	...

The mean relative humidity of the month was absolutely lowest over parts of north-west India, and was less than 45 per cent. at the stations for which comparative data are given below:—

Station.	Relative Humidity.		
	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	%	%	
Delhi	44·0	51·5	— 7·5
Rajkot	43·0	55·0	—12·0
Montgomery	43·0	52·8?	— 9·8?
Jodhpur	43·0	...	...
Ahmedabad	43·0	49·6	— 6·6
Aurangabad	43·0	...	...
Pachpadra	39·0	53·2	—14·2
Deesa	35·0	40·8	— 5·8

At Aden and Perim the mean absolute humidity was less than usual, while the mean temperature was in slight excess, so that the mean relative humidity was considerably below the normal. The following gives data for these two stations:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
	"	"	"	%	%	
Aden	·627	·686	—·059	63·0	71·9	—8·9
Perim	·697	·742	—·045	66·0	71·0	—5·0

In the south-east trades region the variations were irregular. At Zanzibar the mean absolute humidity was in slight excess, but the temperature was high and the mean relative humidity was lower than usual. At the Seychelles and Mauritius the air was drier than the normal, but at both stations the mean temperature was low and hence the mean relative humidity was about normal. This is shown below:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.	Actual, November. 1903.	Normal, November.	Variation of actual from normal, November 1903.
	"	"	"	%	%	
Zanzibar	·826	·819	+·007	77	81	—4
Seychelles	·784	·819	—·035	83	82	+1
Mauritius	·546	·594	—·048	66	68	—2

There was a remarkable deficiency of cloud, relatively to the normal, over the Burma coast, Ceylon and the south of the Peninsula, the deficiency amounting to more than 1·0 at the following stations:—

Station.	Mean cloud amount. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
Tavoy	0·7	4·0	−3·3
Moulmein	2·1	3·7	−1·6
Tinnevelly	4·0	5·2	−1·2
Trivandrum	4·3	5·4	−1·1

The sky was also clearer than usual of cloud over the greater part of northern and central India, though a slight excess was shown over lower Sind and the central Punjab. The deficiency was generally slight and amounted to 1·0 or more at the stations for which comparative data are given below:—

Hill Station.	Mean cloud amount. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
Sibsagar	3·3	5·2	−1·9
Mainpuri	0·1	1·4	−1·3
Sirsa	0·6	1·8	−1·2
Hoshangabad	0·2	1·3	−1·1
Lucknow	0	1·0	−1·0
Ludhiana	1·1	2·1	−1·0
Montgomery	0·8	1·8	−1·0
Hyderabad (Sind)	0·7	1·7	−1·0
Nowgong	0·5	1·4	−1·0

Between these areas of deficient cloud amount in the south and in the north there was a broad band covering the greater part of the Peninsula, south-west and lower Bengal and upper and central Burma, where the sky was slightly to considerably more cloudy than usual.

The excess was greatest over the centre and east of the Peninsula, and was absolutely greatest over north-east Madras and Orissa. The excess was more than 1·0 at the following large number of stations:—

Station.	Mean cloud amount. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
Waltair	6·0	3·4	+2·6
False Point	5·9	3·3	+2·6
Cuttack	4·9	2·4	+2·5
Salem	7·2	4·7	+2·5
Kurnool	4·7	2·6	+2·1
Cuddalore	8·0	6·0	+2·0
Karwar	3·5	1·5	+2·0
Trichinopoly	6·5	4·6	+1·9
Masulipatam	5·5	3·6	+1·9
Cocanada	5·3	3·4	+1·9
Sambalpur	3·7	1·8	+1·9
Sholapur	4·3	2·4	+1·8
Calicut	5·2	3·4	+1·8
Bangalore	6·0	4·2	+1·8
Mysore	7·0	5·3	+1·7
Hassan	7·0	5·3	+1·7
Goa	3·3	1·6	+1·7
Hyderabad (Deccan)	4·4	2·7	+1·7
Mormugão	3·0	1·4	+1·6
Cuddapah	5·4	3·9	+1·5
Nellore	6·3	4·8	+1·5
Belgaum	3·7	2·3	+1·4
Bellary	5·4	4·0	+1·4
Calcutta	3·2	1·8	+1·2
Yamethin	3·5	2·1	+1·4
Mangalore	4·3	3·0	+1·
Bijapur	3·7	2·5	+1·2
Thayetmyo	3·8	2·6	+1·2
Bhamo	5·3	4·2	+1·1

At most of the hill stations the cloud amount, on the mean of the month, was less than usual. The following gives data:—

Hill Station.	Mean cloud amount. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
Gilgit	6·8	4·0	+2·8
Srinagar	3·5	2·9	+0·6
Cherat	2·5	2·4	+0·1
Simla	1·9	1·8	+0·1

Hill Station.	Mean cloud amount. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
Mussooree	1·2	1·2	0
Chaman	0·7	2·7	—2·0
Quetta	1·2	2·0	—0·8
Murree	1·1	2·8	—1·7
Leh	3·4	4·1	—0·7
Chakrata	1·1	1·4	—0·3
Ranikhet	1·0	1·3	—0·3
Darjeeling	2·1	3·4	—1·3
Mount Abu	0·4	1·8	—1·4
Pachmarhi	1·9	1·6	+0·3
Wellington	5·6	4·8	+0·8

Skies were practically clear of cloud (*i.e.*, the mean cloud amount of the month was 0·5 or less) at the following stations:—

Station.	Mean cloud amount. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
Benares	0·5	1·4	—0·9
Allahabad	0·5	1·3	—0·8
Indore	0·5	1·1	—0·6
Deesa	0·4	1·2	—0·8
Rajkot	0·4	1·0	—0·6
Nowgong	0·4	1·4	—1·0
Neemuch	0·4	0·9	—0·5
Bhavnagar Para	0·3	1·2	—0·9
Jubbulpore	0·3	1·2	—0·9
Hoshangabad	0·2	1·3	—1·1
Saugor	0·2	1·1	—0·9
Purnea	0·2	1·0	—0·8
Darbhanga	0·2	0·7	—0·5
Mainpuri	0·1	1·4	—1·3
Cawnpore	0·1	0·9	—0·8
Gorakhpur	0·1	0·9	—0·8
Jhansi	0·1	0·9	—0·8
Bahraich	0·1	0·6	—0·5
Pachpadra	0	1·7?	—1·7?
Lucknow	0	1·0	—1·0

Skies were, on the other hand, very cloudy (the mean cloud amount of the month having been 7·0 or more) at the stations for which comparative data are given below:—

Station.	Mean cloud amount. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
Cuddalore	8·0	6·0	+2·0
Salem	7·2	4·7	+2·5
Hassan	7·0	5·3	+1·7
Mysore	7·0	5·3	+1·7

At Aden and Perim, as also in the south-east trades region, the sky was less cloudy than usual, though at most stations the deficiency was small and unimportant. The following gives data for the stations in these two areas:—

Station.	Mean cloud amount. Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.
Aden	3·0	3·8	—0·8
Perim	1·0	3·0	—2·0
Zanzibar	5·7	5·7	0
Seychelles	6·7	6·9	—0·2
Mauritius	4·9	5·5	—0·6

Rainfall.

The principal features of the rainfall distribution of the month were the heavy precipitation which occurred over the southern half of the Peninsula during the first half of the month, due to the storms and disturbed weather of that period; the heavy rainfall over Burma and part of north-east India which occurred under the influence of the cyclone about the middle of the month, and finally the absence of rain over north-western and central India, due to the unusually fine and settled weather which prevailed over those regions throughout the month under review.

The actual distribution of rain, as indicated by the returns of the meteorological stations, is shown on Plate IV. To the north of a line running from Ratnagiri on the west coast to Dhubri in the Assam valley there was actually or practically no rain throughout the month; to the south of this line rain was general and in places heavy. The heaviest rainfall was received along the mid-Madras coast, and the total fall for the month amounted to 29·87″ at Nellore, to 18·80″ at Vellore, to 17·74″ at Madras, and to 11·72″ at Masulipatam. Heavyish rain was also received on the Arakan coast, where Akyab reported a total fall of 9·41″.

The principal periods of rainfall were—

(1) The 1st to the 3rd, when parts of Burma and of north-east India received rain;

(2) The 5th to the 12th, when the southern half of the Peninsula received daily heavy rain;

(3) The 14th to the 16th, when Burma received general rain; and—

(4) The 26th to the 30th, when moderate to heavy rain again fell over the southern half of the Peninsula

The following table gives mean actual, mean normal and variation data for the 57 meteorological divisions into which India is divided:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, November 1903.	Average normal, November.	Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.
				Inches.	Inches.	Inches.
Burma	Tenasserim	2·0	3·4	1·17	2·04	—0·87
	Lower Burma (Deltaic)	3·9	2·6	2·80	1·72	+1·08
	Central do.	3·4	1·6	1·91	1·09	+0·82
	Upper do.	3·4	2·2	2·06	1·25	+0·81
	Arakan	5·2	2·2	4·63	1·52	+3·11
Bengal and Assam	Eastern Bengal	2·3	1·2	2·33	1·01	+1·32
	Assam (Surma)	2·3	1·6	3·66	1·26	+2·40
	Do. (Hills)	3·5	2·0	4·06	1·12	+2·94
	Do. (Brahmaputra)	1·6	1·1	1·10	0·47	+0·63
	Deltaic Bengal	1·1	0·9	0·53	0·75	—0·22
	Central do.	0·1	0·6	0·07	0·42	—0·35
	North do.	0	0·4	0·01	0·18	—0·17
	Bengal Hills	0	0·8	0	0·32	—0·32
	Orissa	2·2	1·6	1·22	1·45	—0·23
	Chota Nagpur	0·1	0·6	0·03	0·37	—0·34
	Bihar (South)	0	0·3	0	0·22	—0·22
	Do. (North)	0	0·2	0	0·11	—0·11
United Provinces of Agra and Oudh.	United Provinces (East)	0	0·3	•	0·17	—0·17
	Oudh (South)	0	0·2	0	0·13	—0·13
	Do. (North)	0	0·2	0	0·12	—0·12
	United Provinces (Central)	0	0·2	0	0·15	—0·15
	Do. (West)	0	0·1	0	0·06	—0·06
	Do. (Submontane, East)	0	0·2	0	0·10	—0·10
	Do. (Do. West)	0	0·3	0	0·17	—0·17
	Do. (Hills)	0	0·6	0	0·26	—0·26
Punjab	Punjab (South-East)	0	0·2	0	0·10	—0·10
	Do. (South)	0	0·1	0	0·06	—0·06
	Do. (Central)	0	0·3	0	0·14	—0·14
	Do. (Submontane)	0	0·4	0·01	0·19	—0·18
	Do. (Hills)	0	0·8	0	0·53	—0·53
	Do. (West)	0·1	0·2	0·02	0·09	—0·07
North-West Frontier Province	North-West Frontier Province	0·3	0·7	0·06	0·50	—0·44
Bombay and Malabar Coast Districts (Madras).	Malabar	6·6	5·1	5·91	3·58	+2·33
	Travancore	5·9	...	5·12	...	...
	Madras (South Central)	10·0	6·1	8·75	3·84	+4·91
	Coorg	12·1	...	8·90	...	...
	Mysore	10·6	3·8	8·22	2·56	+5·66
	Konkan	1·4	1·4	0·64	0·87	—0·23
	Bombay Deccan	1·8	1·8	0·87	1·11	—0·24
	Khandesh	0	0·8	0	0·48	—0·48

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, November 1903.	Average normal, November.	Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November, 1903.
				Inches.	Inches.	Inches.
Central Provinces and Berar.	Berar	0	0·9	0	0·57	—0·57
	Central Provinces (West)	0	0·7	0	0·42	—0·42
	Do. do. (Central)	0·1	0·7	0·03	0·40	—0·37
	Do. do. (East)	0	0·8	0·01	0·49	—0·48
Bombay (North)	Gujarat	0	0·5	0	0·25	—0·25
	Kathiawar and Cutch	0	0·4	0	0·33	—0·33
	Sind	0	0·2	0	0·09	—0·09
	Baluchistan Hills	0·5	1·1	0·11	0·51	—0·40
Rajputana and Central India.	Central India (East)	0	0·5	0	0·25	—0·25
	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)	6·7	2·9	5·44	2·71	+2·73
	Madras (Central)	8·7	3·3	7·90	2·16	+5·74
	East Coast (Central)	11·2	6·9	22·34	8·12	+14·22
	East Coast (South)	9·9	9·1	10·68	9·20	+1·48
	Madras (South)	5·3	8·0	4·07	6·27	—2·20

The preceding data show that out of the 56 divisions for which data have been received, actually or practically no rain was received in thirtytwo divisions. These rainless divisions extended from central Bengal westward through Bihar, the United Provinces, the Central Provinces, Central India, Rajputana, Gujarat, and the Punjab to Sind and the North-west Frontier Province. Over the whole of this large area the rainfall was consequently in defect.

The rainfall was normal in Orissa, and the east coast south, but was generally excessive over the remainder of the Peninsula, north-east India and Burma. The excess was large in Burma, north-east India, and over the greater part of the Peninsula, and was more than 100% in the divisions, for which comparative data are given below:—

Division.	Rainfall.			
	Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Arakan	4·63	1·52	+3·11	+205
Eastern Bengal	2·33	1·01	+1·32	+131
Assam, Surma	3·66	1·26	+2·40	+190
Assam Hills	4·06	1·12	+2·94	+263
Assam, Brahmaputra	1·10	0·47	+0·63	+134
Mysore	8·22	2·56	+5·66	+221
Madras, South Central	8·75	3·84	+4·91	+128
East Coast, North	5·44	2·71	+2·73	+101
Madras, Central	7·90	2·16	+5·74	+266
East Coast, Central	22·34	8·12	+14·22	+175

The fifth figure column of the above table shows that the general rainfall of the whole Indian region (excepting the hill districts) for the month was 0·75″ above the normal.

The rainfall in Burma was mainly attributable to the cyclonic storm which occurred about the middle of the month, and as Tenasserim lay outside the influence of the storm, the rainfall over this region was generally very light. The following gives comparative data for the four districts in this division:—

District.	Rainfall.			
	Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Mergui	2·84	3·55	—0·71	—20
Tavoy	0·22	2·08	—1·86	—89
Amherst	0·09	1·44	—1·35	—94
Thaton	1·38	1·21	+0·17	+14

Other parts of Burma received showers about the beginning and end of the month and a general, moderately heavy burst of rain between the 13th and 17th from a cyclonic storm which struck the Arakan coast on the 16th. The rainfall was not very heavy, but the amounts 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.
Myitkyina	Myitkyina	1st November	4·57
Akyab	Akyab	" "	3·23
Southern Shan States.	Taunggyi	" "	3·06
Myitkyina	Sadon	" "	3·00
Akyab	Rathedaung	" "	2·55
Kyauk Pyu	Kyauk Pyu	2nd "	2·75
Katha	Kyaukpazat	" "	2·38
Bhamo	Shwegu	3rd "	4·78
Southern Shan States.	Taunggyi	" "	2·87
Bhamo	Bhamo	" "	2·65
Katha	Katha	" "	2·22
Thongwa	Danubyu	9th "	2·03
Lower Chindwin	Budalin	10th "	2·40
Bassein	Ngathainggyaung	11th "	2·10
Toungoo	Kyaukkyi	12th "	2·01
Pakokku	Pyinchaung	15th "	2·40
Do.	Pauk	16th "	3·42
Chin Hills	Fort White	" "	2·30
Ruby Mines	Tagaung	" "	2·14
Pakokku	Auyaban	" "	2·10
Thongwa	Danubyu	17th "	2·25
Thaton	Bilin	27th "	3·04

This general fall resulted in excessive rain over the whole of the province, as is shown by the following comparative data for the divisions :—

Division.	Rainfall.			
	Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Lower Burma Deltaic	2·80	1·72	+1·08	+63
Central Burma	1·91	1·09	+0·82	+75
Upper Burma	2·06	1·25	+0·81	+65
Arakan	4·63	1·52	+3·11	+205

In the Surma division of Assam the only rainfall of importance occurred on the 1st and 2nd, when general and in places heavy rain was received. Falls exceeding 3″ in 24 hours were recorded during this period at the following places :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Cachar	Jatinga Valley	1st November	5·35
Sylhet	Lalakhal	" "	5·30
Cachar	Haflong	" "	4·69
Sylhet	Sylhet	" "	4·50
Cachar	Bikrampur	" "	4·02
Sylhet	Karimganj	" "	3·80
Cachar	Barkhola	" "	3·64
Do.	Badarpur	" "	3·49
Do.	Do.	2nd "	3·51
Do.	Bikrampur	" "	3·20

In the Brahmaputra valley rain also fell generally on the 1st and 2nd, but in addition there occurred a showery period between the 26th and the 29th. The earlier fall was the heavier, and during that period the following amounts exceeding 3″ in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Nowgong	Lumding	1st November	5·20
Sibsagar	Dimapur	" "	3·04

On the hills there was very heavy rain on the 1st and 2nd, but the weather cleared thereafter, except in the Lushai hills, where showers were received between the 13th and 17th and again at the close of the month. The principal falls of rain (exceeding 4″ in 24 hours) were as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Khasi and Jaintia Hills.	Cherra Poonjee Roman Catholic Mission House	1st November	10·00
Do.	Cherra Poonjee Mr. Shadwell's house.	" "	9·37
Do.	Jowai	" "	9·20
Do.	Cherra Poonjee Police Station	" "	9·18
Do.	Cherra Poonjee Welsh Mission House	" "	8·65
Do.	Wahmaulien	" "	7·83
Do.	Mauphlang	" "	4·85

In all the divisions of the province, but particularly in the hill division, the rainfall of the month was excessive. This is shown below :—

Division.	Rainfall.			
	Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Assam, Surma	3·66	1·26	+2·40	+190
Assam Hills	4·06	1·12	+2·94	+263
Assam, Brahmaputra	1·10	0·47	+0·63	+134

The greater part of Bengal received deficient rainfall and in central Bengal, north Bengal, the Bengal hills, Chota Nagpur and Bihar the month's rainfall was actually or practically *nil*. The south-west division of Bengal received general showers on the 1st and sporadic showers on the 15th and 28th, but the total rainfall was only about half the normal and the only heavy falls in 24 hours (exceeding 2″) were as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Khulna	Morelganj	1st November.	4·05
Nadia	Krishnagar	,, ,,	2·28

East Bengal received general moderate to heavy rain on the 1st and 2nd, general showers on the 14th and 15th and scattered showers on the 29th. Falls exceeding 3″ in 24 hours were recorded at the following places on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Noakhali	Fenny	1st November.	6·95
	Chhagalnaya	,, ,,	4·45
Tippera	Commilla	,, ,,	3·60
Chittagong	Mirsarai	2nd ,,	3·11

The rainfall was irregularly distributed, but the general rainfall of the division was more than twice as heavy as usual, as is shown by the following comparative data for the contained districts :—

District.	Rainfall.			
	Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dacca	1·75	1·03	+0·72	+ 70
Mymensingh	0·49	0·60	—0·11	— 18
Faridpur	0·35	0·95	—0·60	— 63
Backergunge	0·68	1·05	—0·37	— 35
Tippera	2·78	0·94	+1·84	+196
Noakhali	4·25	1·45	+2·80	+194
Chittagong	4·56	1·29	+3·27	+253

In Orissa there were three showery periods during the month, the first on the 1st and 2nd, the second, on the 7th and 8th and the third on the 28th and 29th. The showers were not generally heavy and the rainfall of the division was about normal.

The following gives data for the different Bengal divisions :—

Division.	Rainfall.			
	Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Eastern Bengal	2·33	1·01	+1·32	+131
Deltaic ,,	0·53	0·75	—0·22	— 29
Central ,,	0·07	0·42	—0·35	— 83
North ,,	0·01	0·18	—0·17	— 94
Bengal Hills	0	0·32	—0·32	—100
Orissa	1·22	1·45	—0·23	— 16
Chota Nagpur	0·03	0·37	—0·34	— 92
South Bihar	0	0·22	—0·22	—100
North ,,	0	0·11	—0·11	—100

In the United Provinces there was no rain throughout the month, while in the Punjab the only rainfall reported was a few light showers in the hill and north-west and west divisions between the 5th and 7th. In the North-west Frontier Province light showers occurred moderately generally between the 5th and 7th, but the average actual rainfall for the whole province for the month was only 0·06″. Baluchistan also received showers from the same general disturbance on the 4th and 5th, but the total rainfall of the month (0·11″) was only about one-fifth of the normal.

In Kashmir showers fell between the 4th and the 8th and again on the 14th and 15th, the heaviest falls in 24 hours having been 2·04″ at Sonemarg on the 6th, 1·31″ at Utar Machhipore on the 5th and 1·00″ at Kolgam on the 7th. So far as can be judged, the rainfall was generally lighter than usual.

In Rajputana and Central India there was no rain throughout the month and the Central Provinces were almost equally rainless, though a few light showers occurred in the east division and in the Chanda district during the month. In Berar there was no rain whatever.

In the Bombay Presidency the rainfall was very light. The Konkan division received scattered showers during the first half of the month and again between the 28th and 30th, but the total rainfall was lighter than usual and in Thana practically no rain fell. The following gives comparative data for the contained districts :—

District.	Rainfall. Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
North Kanara . .	1·58	1·63	—0·05	— 3
Ratnagiri . . .	0·49	0·92	—0·43	—47
Kolaba	0·23	0·68	—0·45	—66
Thana	0·01	0·28	—0·27	—96

In the Karnatak three showery periods occurred, *viz.*, between the 3rd and the 5th, the 8th and the 13th and the 28th and the 30th. The showers were occasionally heavy, Muddebihal (Bijapur) reporting 2·23″ in 24 hours on the 2nd; Ilkal (Bijapur) 2·44″ on the 3rd and Chikodi (Belgaum) 1·75″ on the 3rd, but the total rainfall was, on the whole, less than usual. The following gives comparative data for the contained districts :—

District.	Rainfall. Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Dharwar . . .	0·92	1·47	—0·55	—37
Bijapur	2·06	1·39	+0·67	+48
Belgaum . . .	0·94	1·27	—0·33	—26

In the south Deccan similar conditions prevailed and in Satara the showers were heavy on the 2nd and 3rd. The divisions of Khandesh, Gujarat, Kathiawar and Sind were rainless throughout the month.

In Mysore rain fell heavily and more or less steadily between the 5th and 15th and again between the 28th and 30th, and the month's rainfall over that province was more than three times as heavy as usual.

In the Malabar coast districts of Madras there was daily rain between the 5th and the 15th and showers at the end of the month. The rainfall was heaviest on the 11th and the following amounts exceeding 3″ in 24 hours were recorded during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Travancore State	Peermade . .	6th November	3·09
	Kottarakaray .	,, ,,	3·02
Malabar	Ponnani . .	7th ,,	3·20
Travancore State .	Kottarakaray .	9th ,,	3·16
Malabar . . .	Nilambur . .	10th ,,	3·04
	Kuttiadi . .	11th ,,	4·50
South Canara . .	Beltangadi . .	,, ,,	3·86
Malabar . .	Badagara . .	,, ,,	3·65
	Angadipuram . .	,, ,,	3·21
	Manjeri . .	13th ,,	3·22

The total rainfall was heavier than usual, as is shown by the following data for the two districts:—

District.	Rainfall. Average actual November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Malabar . . .	6·18	3·95	+2·23	+56
South Canara . .	4·74	2·93	+1·81	+62

In south Madras the weather was very showery up to the 17th and fine from that date till the close of the month. The following amounts exceeding 3″ in 24 hours were recorded during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tinnevelly . .	Koilpatti . . .	5th November	3·10
Madura . .	Mana Madura . .	13th ,,	3·80
	Vedasandur . .	,, ,,	3·12
	Melur . . .	,, ,,	3·02
	Paramagudi . .	14th ,,	3·41
	Sivaganga . .	16th ,,	3·27
	Madura . . .	,, ,,	3·06

The total rainfall of the month was less than usual, the only division in the Madras Presidency where this was the case. The following gives data for the districts :—

District.	Rainfall. Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madura . . .	5·30	6·07	—0·77	—13
Tinnevelly . . .	3·06	6·63	—3·57	—54

In south-central Madras general rain occurred up to the 17th, then fine weather continued till the 27th when rain recommenced. The rainfall was heaviest on the 9th, 10th and 11th when the following amounts exceeding 3″ in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Salem . . .	Sendamangalam .	9th November	·04
	Atur . . .	10th ,,	·18
	Ravakotta . . .	,, ,,	4·10
	Valappadi . . .	,, ,,	3·57
	Pennagaram . .	,, ,,	3·40
	Omalur . . .	11th ,,	4·41
	Dharmapuri . .	,, ,,	4·09
	Krishnagiri . .	,, ,,	3·85
	Ravakotta . . .	,, ,,	3·14

The month's rainfall was largely in excess of the normal. The following gives data for the districts :—

District.	Rainfall. Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Salem . . .	10·37	3·89	+6·48	+167
Coimbatore . . .	5·94	3·69	+2·25	+ 61

In central Madras the weather was fine between the 14th and 26th and very rainy at other times. The rainfall was exceedingly heavy in Cuddapah on the 6th and heavy all over the division on the 9th, 10th and 11th. The heaviest falls exceeding 3″ in 24 hours during the month were as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Bellary . . .	Bellary . . .	3rd November .	6·38
Kurnool .	Ramallakota . .	,, ,, .	3·35
	Pyapali . . .	,, ,, .	3·24
	Kurnool . . .	,, ,, .	3·17
Cuddapah .	Rayachoti . .	6th ,, .	9·77
	Razampeta . .	,, ,, .	7·94
	Vayalpad . . .	,, ,, .	7·40
	Piler . . .	,, ,, .	7·02
	Kadiri . . .	,, ,, .	6·79
	Chitvel . . .	,, ,, .	6·26
	Madanapalle . .	,, ,, .	6·05
Anantapur . .	Bukkapatnam . .	,, ,, .	4·30
Cuddapah .	Sidhout . . .	,, ,, .	3·80
	Cuddapah . .	,, ,, .	3·34
	Pulivendla . .	,, ,, .	3·20
	Rayachoti . .	7th ,, .	5·89
	Vayalpad . . .	8th ,, .	5·03
Kurnool . .	Markapur . .	10th ,, .	4·59
	Allagadda . .	,, ,, .	3·25
Cuddapah .	Vayalpad . . .	11th ,, .	5·32
	Sidhout . . .	,, ,, .	4·10
	Chitvel . . .	,, ,, .	3·37
	Vayalpad . .	12th ,, .	3·08

The month's rainfall was more than three times the normal amount and was particularly excessive in the Cuddapah district. The following gives data for the districts :—

District.	Rainfall. Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah . . .	14·67	3·65	+11·02	+302
Anantapur . . .	7·31	1·85	+ 5·46	+295
Bellary . . .	3·85	1·40	+ 2·45	+175
Kurnool . .	4·54	1·41	+ 3·13	+222

In the north division of the east coast the weather was very rainy from the 1st to the 13th. The weather then cleared and was fine till the 26th when rain recommenced and was heavy in some places. The following were the falls exceeding 3″ in 24 hours during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Godavari	Coringa	7th November	3·28
	Mummidivaram	,, ,,	3·03
	Razole	8th ,,	5·52
	Coringa	,, ,,	5·30
	Narasapur	,, ,,	3·98
	Cocanada	,, ,,	3·80
	Ramachandrapuram	,, ,,	3·03
Kistna	Bapatla	9th ,,	4·69
	Chinna Ganjam	,, ,,	4·12
	Repalle	,, ,,	3·75
	Chinna Ganjam	10th ,,	5·75
	Repalle	,, ,,	4·35
	Bapatla	,, ,,	4·33
	Vinukonda	,, ,,	3·78
	Nizampatam	,, ,,	3·75
	Ponur	,, ,,	3·30
Ganjam	Tekkali	30th ,,	3·15

The total rainfall was twice as heavy as usual, as is shown by the following district data:—

District.	Rainfall.			
	Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	3·16	2·52	+0·64	+ 25
Vizagapatam	4·05	2·74	+1·31	+ 48
Godavari	8·09	3·23	+4·86	+150
Kistna	8·32	3·01	+5·31	+176

The central division of the east coast received daily heavy rain from the 4th to the 13th and another burst of heavy rain between the 26th and the 30th. The fall was particularly heavy on the 10th. The following amount exceeding 5″ in 24 hours were recorded during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Nellore	Venkatagiri	5th November	7·94
	Sulurpeta	6th ,,	8·34
	Tada	,, ,,	6·93
	Gudur	,, ,,	5·22
	Pakala	7th ,,	5·62
	Kandukur	8th ,,	7·30
	Pakala	,, ,,	5·47
	Ongole	9th ,,	6·50
	Kanuparti	,, ,,	5·09
	Kandukur	10th ,,	11·00
	Kanuparti	,, ,,	10·20
	Pakala	,, ,,	10·14
	Ongole	,, ,,	8·46
	Nellore	,, ,,	5·88
	Podili	,, ,,	5·85
	Pakala	12th ,,	8·44
	Iskapalle	,, ,,	6·72
	Nellore	26th ,,	9·96
	Kistnapatam	27th ,,	8·07
	Kota	,, ,,	6·27
	Gudur	,, ,,	5·94
	Dugarazpatnam	,, ,,	5·85
	Kandukur	28th ,,	6·49

The month's rainfall largely exceeded the normal, as is shown below:—

District.	Rainfall.			
	Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November. 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Nellore	22·34	8·12	+14·22	+175

The south division of the east coast reported almost daily rain up to the 16th and a second burst of rain between the 26th and the end of the month. The fall was very heavy in Chingleput and North Arcot on the 6th and

the following falls exceeding 5″ in 24 hours were recorded during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Chingleput	Attipat	5th November	6·81
	Kattur	" "	6·00
	Tiruvallur	6th "	11·23
	Poonamallee	" "	10·24
North Arcot	Puttur	" "	9·25
Chingleput	Sriperumbudur	" "	8·75
North Arcot	Tiruttani	" "	8·14
Chingleput	Saidapet	" "	8·03
North Arcot	Chandragiri	" "	8·00
	Kalahasti	" "	7·92
Chingleput	Vadasemmanjeri	" "	7·65
North Arcot	Sholinghur	" "	6·97
	Arkonam	" "	6·88
Chingleput	Conjeeveram	" "	6·72
North Arcot	Tirupati	" "	6·32
Chingleput	Sathiavedu	" "	6·30
	Chingleput	" "	6·27
	Kovelong	" "	6·22
North Arcot	Arni	" "	6·20
	Vellore	" "	5·78
Chingleput	Chittoor	" "	5·60
	Walajah	" "	5·59
North Arcot	Arcot	" "	5·44
	Palamner	" "	5·09

The rainfall was irregularly distributed but the total rainfall of the month was above the normal in this division, as is shown by the following data for the districts :—

District.	Rainfall.			
	Average actual, November 1903.	Average normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madras	17·74	13·48	+4·26	+ 32
Chingleput	15·45	12·17	+3·28	+ 27
North Arcot	15·21	6·74	+8·47	+ 126
South Arcot	7·89	9·47	−1·58	− 17
Tanjore	7·51	11·06	−3·55	− 32
Trichinopoly	6·60	5·54	+1·06	+ 19

The rainfall of the Bay area for the month of November 1903 suggests that large changes in the general motion of the atmosphere must have occurred. At the commencement of the month the only heavy rainfall was reported from the extreme north-east of India, but between the 5th and the 16th the general drift of the air currents was probably directed towards the Madras Presidency, the storms were carried along in that direction and exceedingly heavy rain fell. About the 16th the rainfall abruptly ceased over the Peninsula, and the cyclonic storms and rainfall were carried northward and north-eastward over the centre of the Bay to the Arakan coast, and this condition prevailed till the 26th when the previously existing direction of movement was abruptly restored.

The rainfall of the month was irregularly distributed at the extra-Indian stations. The following gives data :—

Station.	Rainfall.			
	Actual, November 1903.	Normal, November.	Variation of actual from normal, November 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee	6·40	13·57	−7·17	−53
Colombo	0·94	13·13	−12·19	−93
Amini Divi	0·75	1·58	−0·83	−53
Kashgar	0	0·03	−0·03	−100
Kabul	0·63	0·72	−0·09	−13
Meshed	0·21	0·51	−0·30	−59
Teheran	0	0·96	−0·96	−100
Ispahan	0·04	0·92	−0·88	−96
Bushire	0	1·79	−1·79	−100
Jask	0	0·49	−0·49	−100
Muscat	0·04	0·61	−0·57	−93
Baghdad	0·20	0·92	−0·72	−78
Aden	0·42	0·23	+0·19	+83
Perim	0	0·04	−0·04	−100
Zanzibar	8·15	9·28	−1·13	−12
Seychelles	12·09	9·34	+2·75	+29
Mauritius	1·01	1·78	−0·77	−43

At Aden and at the Seychelles the month's rainfall was in excess of the average while at Kabul and Zanzibar the fall was about normal. At all the remaining stations the fall was largely short of the average, and in Persia practically no rain fell throughout the month.

Crop Report.

Madras.—The rainfall was heavy generally and in parts of Godavari, Cuddapah, Trichinopoly and Tanjore the crops suffered from excessive rain and in parts of Kistna, Chingleput, north Arcot, and Salem from floods. Elsewhere the standing crops were in good condition, pasture was sufficient and fodder generally procurable. The condition of cattle was good but some cattle were lost in the Cuddapah floods. The early crops were being harvested with fair outturn.

Bombay.—The rainfall was generally light to moderate and more rain was required at the end of the month for the spring crops in parts of the Deccan and of Bijapur. Locusts had damaged the standing crops in parts of Kurrachee, Surat, Nasik, Poona, and Satara. The harvest of autumn crops was completed or continued during the month and the picking of cotton had commenced. The preparation of land and the sowing of spring crops continued during the month.

Bengal.—Light local showers were reported during the month. The harvesting of winter rice was in progress while the sowing of spring crops and of poppy was approaching completion at the end of the month. The prospects were generally good. Fodder and water were ample.

United Provinces.—The weather was seasonable. The harvesting of autumn and the sowing of spring crops were almost completed during the month. Germination was good. Threshing, winnowing of crops and the pressing of sugarcane continued and prospects were generally favorable.

Punjab.—Little or no rain fell during the month. The condition and prospects of autumn crops were generally good except in parts of Ferozepore, and the condition of the standing spring crops was good. Cattle were in good condition and fodder was sufficient.

North-west Frontier Province.—No rain fell. The sowing of spring crops and the cutting of autumn crops were nearly finished at the end of the month. The prospects on irrigated areas were generally good (except in the Bara Circle) and on unirrigated areas average.

Burma.—Heavy rain from a cyclone did some damage in Akyab about the middle of the month. At the close of the month the standing crops were in good condition.

Central Provinces.—The harvesting of the autumn crops was in progress at the end of the month and picking of cotton continued. Spring sowing had been completed in places and germination had been generally good. The crops prospects were good.

Assam.—The weather was seasonable. Plucking and manufacture of tea, sowing of mustard and linseed and the harvesting of late rice were in progress at the end of the month. The prospects were fair to good.

Mysore.—The general prospects were good.

Coorg.—The harvesting of autumn and sowing of spring crops were in progress at the end of the month, and the prospects of the outturn of the autumn crops were good.

Hyderabad.—The autumn harvest was nearly over at the end of the month, and the spring sowings were practically completed.

Central India.—Crops were good in Gwalior, Bhopal, Baghelkhand and Bhopawar, fair in Indore and Malwa and average in Bundelkhand, but had been slightly damaged in Indore.

Kashmir.—The condition of the standing crops, at the close of the month, was fair. The sowing of spring crops was in progress.

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 230 Stations in India, Burma, etc., in November, 1903.

Table

Abstract of Observations taken at 8 A.M. at 230

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.				−·003								86·8	0	73·4	+1·5	80·1	+0·8	13·4					21·0
1	Tenasserim and Bay Islands.	Car-Nicobar.	25																					
		Port Blair	61	29·890	+·007	29·882	29·935	12th	29·829	16th	·106	79·7	85·2	−1·6	76·9	−0·3	81·1	−1·0	8·3	88·2	8th	75·0	10th	13·2
		Mergui	96	29·900	+·038	29·929	29·989	12th	29·825	20th	·164	77·6	88·5	+1·1	71·9	+2·2	80·2	+1·7	16·6	92·1	26th	66·4	29th	25·7
		Tavoy	26	29·964	0	29·921	30·043	12th	29·885	20th	·158	76·4	88·0	+0·1	71·1	+2·6	79·6	+1·4	16·9	90·7	9th & 11th	62·5	29th	28·2
		Moulmein	94	29·885	−·001	29·918	29·976	12th	29·813	16th	·163	77·5	89·8	+1·4	72·5	+1·4	81·1	+1·4	17·3	92·5	9th	67·3	30th	25·2
2	Lower Burma	Rangoon*	57	29·929	+·001	29·924	30·007	12th	29·865	16th	·142	78·7	87·4	−0·1	74·1	+1·8	80·8	+0·9	13·3	89·1	7 days	71·9	15th & 22nd.	17·2
		Bassein	27	29·954	+·004	29·916	30·033	12th	29·869	16th	·164	77·7	86·3	+0·1	74·1	+2·6	80·2	+1·4	12·2	89·2	8th & 11th	69·7	22nd	19·5
		Diamond Island.	41	29·923	−·009	29·899	30·005	12th	29·820	15th	·185	80·7	85·2	−0·3	77·2	+2·0	81·2	+0·9	7·8	88·9	11th	74·2	14th	14·7
5	Arakan	Akyab	20	29·917	−·023	29·910	30·016	12th	29·723	15th	·293	74·6	88·8	−1·3	72·5	+1·1	78·1	−0·1	11·3	86·9	13th	68·2	30th	18·7
3	Central Burma.	Toungoo	183	29·809	+·006	29·936	29·888	12th	29·725	16th	·163	77·4	87·0	−0·3	70·0	0	78·6	−0·2	17·0	91·8	8th & 9th	65·6	22nd	26·2
	II.—Burma, Inland.				−·028								85·8	−1·1	68·9	+3·0	77·3	+1·0	16·8					27·6
3	Central Burma.	Thayetmyo	130	29·860	‖	29·934	29·947	12th	29·782	15th	·165	75·8	87·7	−0·3	67·7	+0·3	77·7	0	20·0	92·0	8th	62·0	22nd	30·0
4	Upper Burma	Minbu	165	29·834	−·034	29·955	29·915	12th	29·760	16th	·155	75·4	86·5	−2·1	71·0	+2·7	78·8	+0·3	15·5	91·7	9th	66·1	27th	25·6
		Yamethin	657	29·325	−·034	29·943	29·408	12th	29·248	15th	·160	75·7	88·1	−0·7	70·7	+3·7	79·4	+1·5	17·4	93·8	7th & 10th	66·2	3 days	27·6
		Monywa		29·726		29·945	29·810	12th	29·675	16th	·135	73·6	86·0		?		?		?	96·3	14th	?	?	?
		Mandalay	250	29·741	−·015	29·944	29·831	12th	29·682	16th	·149	75·2	86·0	−0·7	70·9	+3·6	78·4	+1·5	15·1	90·0	5th & 8th	64·1	19th	25·9
		Bhamo	381	29·623	−·029	29·972	29·709	12th	29·528	16th	·181	67·7	80·2	−1·7	64·1	+4·9	72·1	+1·6	16·1	87·0	2nd	58·2	21st	28·8
4(a)	Burma Hill Stations.	Maymyo	3,545	26·460			26·503	22nd	26·387	28th	·116	66·6	74·5		56·7		65·6		17·8	79·0	8th & 13th	49·8	20th & 21st.	29·2
		Lashio										64·1	79·0	+1·9	59·7	+5·4	69·4	+3·7	19·3	82·1	5th & 9th	54·0	3 days	28·1
	III.—Assam.				−·029								80·7	−0·1	62·3	+1·0	71·5	+0·5	18·4					31·3
7	Surma	Silchar	104	29·898	−·021	29·958	29·970	12th	29·754	16th	·216	70·7	84·4	−0·4	66·3	+2·7	75·4	+1·2	18·1	90·5	13th	56·4	30th	34·1
9	Brahmaputra	Sibsagar	333	29·689	−·041	29·993	29·806	12th	29·557	16th	·249	64·4	77·5	−0·7	61·0	+1·4	69·3	+0·4	16·5	82·3	4th	53·9	23rd	28·4
		Dhubri	115	29·894	−·025	29·989	29·992	12th	29·775	16th	·217	67·5	80·7	+0·9	62·5	−1·0	71·6	−0·1	18·2	84·1	4th & 5th	53·3	30th	30·8
		Gauhati	195	29·830		29·988	29·934	12th	29·717	16th	·217	67·0	81·6		62·0		71·8		19·6	85·5	12th	51·1	30th	34·4
		Tezpur	252	29·763		29·991	29·880	12th	29·645	16th	·235	65·2	80·5		61·7		71·2		18·8	85·1	4th & 5th	56·0	23rd	29·1
		Dibrugarh	353	29·670		29·997	29·786	12th	29·536	16th	·250	65·6	79·3		60·4		69·9		18·9	84·2	4th	53·4	22nd	30·8
	IV.—Bengal and Orissa.				−·018								81·6	−0·8	63·7	+0·5	72·7	−0·2	17·9					29·8
6	East Bengal	Chittagong	87	29·879	−·037	29·917	29·950	12th	29·693	15th	·257	72·3	82·3	−0·7	67·2	+1·4	74·8	+0·4	15·1	86·5	13th & 14th.	60·1	30th	26·4
		Noakhali	43	29·937		29·927	30·001	12th	29·777	15th	·224	73·2	82·4		65·7		74·1		16·7	85·6	14th	56·7	30th	28·9
		Comilla	36	29·953		29·938	30·023	12th	29·797	15th	·226	71·7	83·4		65·1		74·3		18·3	87·6	14th	55·8	30th	31·8
		Sirajganj	48	29·956		29·956	30·037	12th	29·843	16th	·194	67·5	81·5		63·5		72·5		18·0	84·1	14th	54·2	30th	29·9
		Narayanganj	26	29·977	−·005	29·952	30·057	12th	29·837	15th	·220	70·2	82·5	−1·0	68·4	+2·4	75·6	+0·7	14·1	85·1	1st & 4th.	58·8	30th	26·3
		Barisal	13	29·973	−·017	29·932	30·039	11th & 12th.	29·807	15th	·233	72·5	82·1	−0·7	66·5	+1·5	74·3	+0·4	15·6	84·8	14th	59·2	30th	25·6
		Mymensingh	59	29·939	−·022	29·954	30·019	12th	29·817	15th & 16th.	·202	69·9	82·2	+0·7	65·2	+1·5	73·8	+1·1	17·0	85·1	14th	56·6	30th	28·5
		Faridpur	46	29·954		29·949	30·037	12th	29·627	15th	·210	70·7‡	81·3‡		64·7‡		73·0‡		16·6‡	84·9	1st	59·2	18th	25·7
10	Deltaic Bengal	Jessore	33	29·970	−·015	29·951	30·055	12th	29·847	15th	·208	70·4	81·9	−1·2	63·9	−0·1	72·9	−0·7	18·0	86·0	1st	55·1	30th	30·9
		Calcutta	21	29·993	−·011	29·960	30·082	12th	29·872	15th	·210	70·4	81·5	+0·1	64·8	+0·3	73·1	+0·2	16·7	85·4	1st	57·9	30th	27·5
		Saugor Island	25	29·969	−·026	29·939	30·055	12th	29·849	15th	·206	72·1	81·9	+0·2	68·2	+1·1	75·1	+0·7	13·7	86·4	1st	62·0	18th & 20th.	24·4
		Krishnagar	47	29·972		29·969	30·056	12th	29·853	15th	·203	71·1	?		63·3		?		?	?		53·7	30th	?
		Midnapore	149	29·860		29·962	29·955	12th	29·763	15th	·192	69·4	82·7		64·1		73·4		18·6	86·3	3rd	56·6	20th	29·7

* Mean of 28 days. ‡ Mean of 25 days. ‖ Mean of 16 days.

Note 1.—When a query is inserted against any reading or in the returns

Note 2.—The divisional means of the figure columns Nos. 41, 43, and 45

I.

Stations in India, Burma, etc., in November, 1903.

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 (uncorrected).	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st May to 30th November.	Variation from normal of period, 1st May to 30th November 1903.	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	56	57	58
														85	+1·2	·815	+·046	3·3	−0·8				3·57	3·57	+0·01					**I.—Burma Coast and Bay Islands.**		
2		5	1	9	2	2	3	6	S 45° E	7·2	8·1	7·1	+1	88	+3·1	·889	+·006	5·6	−0·1	8			11·20	9·20	+2·00	101·35	105·86	−4·51	3·02	Car-Nicobar.	Tenasserim and Bay Islands.	1
20	4	3	1			1		1	N 35° E	1·5	1·3	1·6	−6	85	+6·8	·783	+·039	3·6	−0·7	1	5·60	−4·60	0·28	3·70	−3·42	148·26	155·53	−7·27	0·17	Port Blair.		
30									Calm	1·1				84	+3·2	·764	+·026	0·7	−3·3	1	3·90	−2·90	0·18	1·96	−1·78	183·33	203·34	−20·01	0·16	Mergui.		
19		1	2	6	1			1	N 58° E	1·6	1·8	2·4	−33	81	−2·1	·772	+·022	2·1	−1·6	0	2·50	−2·50	0·09	1·93	−1·84	198·72	179·79	+18·93	0·09	Tavoy.		
2	5	7	9	1	1	1	1	1	N 56° E	4·6	3·9	4·4	+5	85	−1·6	·822	+·054	3·8	+0·6	0	2·80	−2·80	0·07	2·43	−2·36	89·19	94·23	−5·04	0·07	Moulmein.		
1	6	12				1		10	N 2° E	7·0		3·1	+126	87	+0·6	·832	+·068	3·4	0	4	3·80	+0·20	4·49	3·51	+0·98	102·50	109·88	−7·38	1·56	Rangoon*	Lower Burma	2
1	2	14	10	2	1				N 66° E	8·8	8·8	8·6	+2	82	+4·4†	·861	+·071	3·4	−0·7	7	7·10	−0·10	3·69	5·41	−1·72	121·44	113·59	+7·85	1·14	Bassein.		
	11	13		2	1	1		2	N 25° E	2·8	2·7	2·2	+27	94	+4·6	·817	+·072	3·1	−0·6	7	2·80	+4·20	9·41	2·77	+6·64	231·47	186·52	+44·95	3·23	Diamond Island. Akyab	Arakan	5
16	1	5		1	1	1	1	4	N 3° W	1·0	1·0	1·7	−41	83	−5·2	·792	+·059	4·0	−0·5	4	2·00	+2·00	2·76	1·20	+1·56	85·60	76·32	+9·28	1·37	Toungoo	Central Burma.	3
														88	+4·7	·739	+·087	4·0	+0·8				2·30	1·15	+1·15					**II.—Burma Inland.**		
	6	3	2	4	8	2		5	S 73° E	1·5†		3·5	−57	86	+7·6	·771	+·106	3·8	+1·2	2	2·40	−0·40	0·84	1·74	−0·90	37·40	35·58	+1·82	0·44	Thayetmyo	Central Burma*	3
5				8	1			16	N 51° W	4·0	4·8			84	+7·6	·746	+·093	3·0	+0·4	5	1·30	+3·70	3·20	0·45	+2·75	29·55	30·31	−0·76	0·94	Minbu	Upper Burma	4
14	6			3	6			1	S 45° E	10·5	11·0			86	+1·6	·766	+·091	3·5	+1·4	4	2·60	+1·40	1·19	0·97	+0·22	30·76	34·88	−4·12	0·49	Yamethin.		
16	5			2				7	N 23° W	1·1	1·1			90		·751		4·2		2	2·10	−0·10	1·83	1·01	+0·82	26·61	27·30	−0·69	0·88	Monywa.		
9	5	3	3	3	4	1		2	N 71° E	11·7	11·8			87	+2·0	·759	+·072	3·9	+0·1	6	2·90	+3·10	1·56	1·71	−0·15	30·50	30·69	−0·19	0·48	Mandalay.		
20		6	1	1	2				N 77° E	1·7	2·0			94	+4·5	·642	+·074	5·3	+1·1	5	2·00	+3·00	5·15	1·01	+4·14	55·79	69·53	−13·74	2·65	Bhamo.		
29		1							N 45° E	1·3				89		·582		5·8		7	4·90	+2·10	2·48	3·01	−0·53	53·01	55·00	−1·99	0·79	Maymyo	Burma Hill Stations.	4(a)
	3	11	6	3	2	1	2	2	N 58° E	1·3				95	+3·6	·569	+·086	8·5	+1·6	7			1·30	2·18	−0·88	62·99	57·16	+5·83	0·18	Lashio.		
														90	−1·0	·597	+·017	3·7	−0·4				1·48	0·66	+0·82					**III.—Assam.**		
28			1	1					S 66° E	0·3‡	0·5	2·1‡	−86	84	−3·0	·644	+·015	4·6	−0·1	3	2·00	+1·00	3·52	1·25	+2·27	101·48	99·15	+2·33	1·79	Silchar	Surma	7
20	1	8		1					N 47° E	1·6	1·5	1·7	−6	99	+0·7	·608	+·032	3·3	−1·9	3	2·00	+1·00	2·52	0·93	+1·59	99·59	77·74	+21·85	1·78	Sibsagar	Brahmaputra	9
1	4	13	7			2	3		N 57° E	3·5	4·1	4·9	−29	87	−0·6	·596	+·004	2·6	+0·7	0	0·30	−0·30	0·04	0·22	−0·18	93·85	85·69	+8·16	0·04	Dhubri.		
11	6	6	1	2	3	1			N 49° E	1·2	1·3			92		·616		5·0		1	0·80	+0·20	0·36	0·31	+0·05	57·55	53·09	+4·46	0·31	Gauhati.		
7		9	11	1	1	1			N 78° E	2·3	2·4			83		·558		3·3		1	1·20	−0·20	0·53	0·41	+0·12	54·30	61·11	−6·81	0·53	Tezpur.		
4	6	12	6	2					N 50° E	0·3	0·3			88		·558		3·3		2	1·50	+0·50	1·88	0·81	+1·07	89·26	95·00	−5·74	1·10	Dibrugarh.		
														83	−1·4	·598	−·014	2·3	+0·6				0·82	0·91	−0·09					**IV.—Bengal and Orissa.**		
	3	19	2	3				3	N 43° E	2·5	2·4	3·0	−17	88	−0·9	·704	+·023	3·8	+0·3	5	1·80	+3·20	5·19	1·48	+3·71	77·15	87·80	−10·65	2·45	Chittagong	East Bengal	6
	5	9	2	4	2	1	3	4	N 29° E	1·8	2·0			84		·691		3·4		5	1·39	+3·61	3·27	1·61	+1·66	91·74	104·45	−12·71	2·15	Noakhali.		
13	12	1	1		1			2	N 1° E	1·2	1·0			85		·662		2·0†		2	1·55	+0·45	4·53	1·19	+3·34	77·21	79·50	−2·29	3·60	Comilla.		
16	5	1			1		1	6	N 29° W	1·3	1·3			89		·606		1·9†		0	0·84	−0·84	0·05	0·55	−0·50	45·50	55·68	−10·18	0·03	Sirajganj.		
3	4	6	1	1	1	1		13	N 15° W	1·8	1·6	1·9	−5	89	+4·1	·663	+·004	3·0†	+0·6	2	1·33	+0·67	1·70	1·07	+0·63	57·23	60·52	−3·29	1·47	Narayanganj.		
4	8	11				2	1	4	N 10° E	1·2				85	+1·7	·679	+·001	2·3	+0·4	1	1·32	−0·32	0·73	1·26	−0·53	71·29	70·21	+1·08	0·63	Barisal.		
14	3	1	2	2			1	7	N 16° W	0·9	0·8			85	−3·7	·622	−·017	?	?	1	0·90	+0·10	1·07	0·65	+0·42	111·37	78·57	+32·80	1·07	Mymensingh.		
8	8	1	1	1				11	N 17° W	1·6	1·4			85‡		·647‡		1·8		1	1·23	−0·23	0·20	1·03	−0·83	53·61	60·21	−6·60	0·20	Faridpur.		
19	8							3	N 11° W	0·9	0·9	1·8	−50	83	−3·3	·621	−·026	2·5†	+0·5	2	1·10	+0·90	0·35	1·38	−1·03	51·05	57·11	−6·06	0·21	Jessore	Deltaic Bengal	10
2	8	3	1				1	15	N 23° W	2·5		3·0	−17	81	−0·8	·610	−·001	3·2	+1·4	0	0·96	−0·96	0·02	0·68	−0·66	50·81	55·39	−4·58	0·02	Calcutta.		
	16	9	1					4	N 11° E	6·9		6·4	+8	85	−1·9	·667	−·021	4·1	+1·0	1	1·35	−0·35	0·19	1·71	−1·52	54·51	68·39	−13·88	0·11	Saugor Island		
3	4	2		1			7	13	N 45° W	1·7	1·8			79		·607		2·6		1	0·81	+0·19	2·30	0·74	+1·56	54·00	49·95	+4·05	2·28	Krishnagar.		
4	18							8	N 14° W	2·8	2·5			75		·541		2·2		1	1·14	−0·14	0·42	0·80	−0·38	45·71	55·97	−10·26	0·42	Midnapore.		

of any station, the data for that station are not utilized in calculating the provincial variations.
are derived only from the data available.

† Mean of 26 days.

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	29·692		29·955	29·782	12th	29·593	15th	·189	68·4	81·2		62·5		71·9		18·7	85·1	4th	55·5	19th	29·6
		Raniganj	334	29·679		29·979	29·772	12th	29·594	15th	·178	64·9	81·4		60·7		71·1		20·7	84·1	3rd & 4th.	54·0	30th	30·1
		Burdwan	99	29·913	−·019	29·963	29·999	12th	29·806	15th	·193	70·1	82·1	−1·1	64·9	+0·6	73·6	−0·3	17·2	84·9	4th	59·8	30th	25·1
		Naya Dumka	489	29·514		29·384	29·609	12th	29·418	16th	·191	66·5	79·5		59·0		69·3		20·5	82·8	3rd	49·9	30th	32·9
		Berhampore	67	29·948	−·015	29·965	30·044	12th	29·832	15th	·212	68·7	80·5	−1·4	64·3	+0·3	72·4	−0·6	16·2	83·1	3rd	55·4	30th	27·7
		Rampur Boalia	70	29·940		29·961	30·029	12th	29·834	15th	·195	69·1	80·9		62·9		71·9		18·0	83·3	3rd	54·1	30th	29·2
		Malda	72	29·913?		29·939	30·011	12th	29·810	15th	·201	68·6	80·4		60·8		70·6		19·6	84·1	3rd	49·5	30th	34·6
		Bogra	61	29·930?	−·016?	29·946?	30·009	12th	29·826	16th	·183	66·3	81·5	−0·5	62·2	−0·2	71·9	−0·4	19·3	84·5	14th	51·0	30th	33·5
12	North Bengal	Dinajpur	123	29·886	−·020	29·969	29·983	12th	29·787	16th	·196	67·6	81·6	−0·8	59·6	−1·4	70·6	−1·1	22·0	84·3	3rd & 5th.	46·9	30th	37·4
		Rangpur	123	29·896		29·979	29·990	12th	29·794	16th	·196	67·3	81·2		60·7		71·0		20·5	84·3	5th	49·8	30th	34·5
		Jalpaiguri	284	29·724	−·026	29·978	29·823	12th	29·608	16th	·215	66·1	80·7	−0·6	59·3	−1·4	70·0	−1·0	21·4	83·4	4th	53·3	16th	30·1
		Cooch Behar	156	29·855		29·973	29·952	12th	29·741	16th	·211	65·4	81·4		60·6		71·0		20·8	84·5	5th	54·2	30th	30·3
17	North Bihar	Purnea	125	29·895	−·014	29·980	29·988	12th	29·797	16th	·191	63·6	80·9	−1·0	56·9	−2·3	68·9	−1·7	24·0	84·0	5th	46·6	30th	37·4
1	Orissa	Balasore	50	29·967	−·025	29·962	30·060	12th	29·845	15th	·215	69·2	82·2	−1·4	63·3	+0·3	72·8	−0·6	18·9	85·4	1st	54·0	19th	31·4
		False Point	21	29·985	−·015	29·948	30·073	12th	29·848	14th	·225	72·2	81·3	−1·1	67·2	+1·7	74·3	+0·3	14·1	86·4	1st	56·5	20th	29·9
		Cuttack	80	29·929	−·013	29·954	30·012	12th	29·824	14th	·188	70·6	82·8	−2·3	67·2	+1·1	75·0	−0·6	15·6	88·9	1st	58·1	19th	30·8
		Puri	24	29·987		29·950	30·079	12th	29·869	14th	·210	72·0	82·0		69·0		75·5		13·0	85·7	7th	61·1	21st	24·6
		V.—Gangetic Plain and Chota Nagpur.			−·015								80·9	−1·3	56·8	−1·0	68·9	−1·2	24·1					35·9
15	Chota Nagpur	Hazaribagh	2,007	27·974	−·016	29·996	28·063	12th	27·894	16th	·169	63·6	75·7	−1·6	56·2	−1·7	66·0	−1·7	19·5	79·4	27th	50·2	30th	29·2
		Ranchi	2,128	27·851	−·015	29·993	27·939	12th	27·769	15th	·170	63·1	75·0	−2·8	56·5	−1·1	65·8	−2·0	18·5	80·5	27th	50·0	30th	30·5
16	South Bihar	Daltonganj	730?	29·304		30·031	29·404	12th	29·233	16th	·171	59·5	81·2		51·4		66·3		29·8	84·6	5th & 9th.	45·3	30th	39·3
15	Chota Nagpur	Purulia		29·186		29·980	29·277	12th	29·100	15th	·177	66·0	80·1		59·9		70·0		20·2	83·8	27th	53·4	30th	30·4
		Chaibassa	760	29·243	−·004	29·984	29·335	12th	29·159	15th	·176	65·0	80·1	−3·4	60·5	+0·1	70·3	−1·7	19·6	83·1	29th	53·2	26th	29·9
16	South Bihar	Gaya	375	29·654	−·011	30·001	29·756	12th	29·569	16th	·187	65·3	81·8	−1·4	58·0	−1·7	70·0	−1·6	23·8	85·7	15th	52·8	18th	32·9
		Dehri	351	29·670		29·993	29·769	12th	29·588	16th	·181	64·9	81·4		59·7		70·6		21·7	85·4	6th	54·6	30th	30·8
		Patna	183	29·847	−·018	29·992	29·958	12th	29·761	16th	·194	65·6	81·1	−0·6	58·8	−1·7	70·0	−1·2	22·3	85·2	5th	49·6	30th	35·6
		Arrah	190	29·839		29·991	29·942	12th	29·754	16th	·188	63·2	81·7		56·1		68·9		25·6	85·5	6th	50·1	30th	35·4
		Buxar	239	29·782		29·988	29·890	12th	29·702	16th	·188	65·1	81·8		57·8		69·8		24·0	85·5	6th	50·9	30th	34·6
17	North Bihar	Bhagalpur	160	29·860		29·979	29·961	12th	29·766	16th	·195	68·6	81·3		59·2		70·3		22·1	84·4	3rd	48·8	30th	35·6
		Darbhanga	166	29·850	−·022	29·978	29·951	12th	29·759	16th	·192	66·3	81·1	−0·2	60·0	−2·0	70·6	−1·1	21·1	84·2	3 days	49·8	30th	34·4
		Muzaffarpur	178	29·847		29·987	29·955	12th	29·753	16th	·202	66·1	80·1		59·3		69·7		20·8	83·7	5th	47·1	30th	36·6
		Motihari	224	29·807		29·997	29·911	12th	29·715	29th	·196	68·6	81·3		57·3		69·3		24·0	85·4	3rd	47·5	30th	37·9
		Chapra	181	29·831		29·974	29·939	12th	29·743	16th	·196	64·5	82·1		57·7		69·9		24·4	85·4	4th & 5th.	49·6	30th	35·8
18	United Provinces (East).	Benares	267	29·757	−·013	29·993	29·863	12th	29·681	16th	·182	63·6	81·7	−0·4	53·6	−2·5	67·7	−1·5	28·1	86·5	2nd	48·1	30th	40·4
		Allahabad	309	29·720	−·008	29·999	29·821	12th	29·646	16th	·175	63·3	81·8	−1·3	54·6	−0·5	68·2	−0·9	27·2	86·6	3rd	48·1	30th	38·5
23	United Provinces (East Submontane.)	Gorakhpur	257	29·751	−·019	29·976	29·860	12th	29·675	29th	·185	66·8	80·9	−0·7	58·3	0	69·6	−0·4	22·6	84·9	3rd	52·1	30th	32·8
19	South Oudh	Lucknow	368	29·646	−·016	29·992	29·753	12th	29·562	16th	·191	63·1	82·5	−0·8	53·5	+0·7	68·0	−0·1	29·0	87·3	5 days	46·2	30th	41·1
20	North Oudh	Bahraich	401	29·597	−·028	29·981	29·707	12th	29·513	7th	·194	65·4	81·6	−1·2	56·9	+0·3	69·3	−0·5	24·7	89·6	6th	47·0	30th	42·6
21	United Provinces (Central).	Cawnpore	416	29·601	−·011	29·995	29·705	12th	29·527	1st	·178	62·4	82·6	−1·5	53·5	−1·5	68·1	−1·5	29·1	87·8	5th, 6th & 7th.	46·8	30th	41·0
		Mainpuri	516	29·510	?	30·016	29·619	12th	29·415	29th	·204	59·6	83·3	−0·9	53·2	−1·0	68·3	−1·0	30·1	89·3	6th	46·2	30th	43·1

Note 1.—When a query is inserted against any reading or in the returns of any

Note 2.—The divisional means of the figure, columns Nos. 41, 43 and 45 are

I—*continued*.

in India, Burma, etc., in November, 1903—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 (uncorrected).	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 30th November.	Variation from normal of period, 1st May to 30th November, 1903.	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	56	57	58
30									Calm	0·7	0·8			74		·518		1·9		0	0·79	− 0·79	0	0·51	− 0·51	43·23	52·10	− 8·87	0	Baukura	Central Bengal	11
22	1						2	4	N 51° W	1·3				82		·512		2·1		0	0·63	− 0·63	0	0·54	− 0·54	39·04	52·22	−13·18	0	Raniganj.		
19	3							8	N 34° W	0·9	0·9	1·9	−53	78	+2·9†	·582	+·023†	2·3†	+0·3	1	0·81	+ 0·19	1·20	0·79	+ 0·41	52·80	52·65	+ 0·15	1·19	Burdwan.		
22	2	1						5	N 27° W	1·3	1·5			78		·516		1·5		0	0·50	− 0·50	0	0·31	− 0·31	42·02	55·37	−13·35	0	Naya Dumka.		
27	1							2	N 27° W	0·4	0·4	1·7	−76	83	−2·4	·586	−·019	2·0	+0·1	0	0·52	− 0·52	0	0·59	− 0·59	44·34	51·43	− 7·09	0	Berhampore.		
20	5	4					1		N 14° E	1·4	1·4			81		·579		1·2		0	0·68	− 0·68	0·04	0·31	− 0·27	50·46	53·41	− 2·95	0·01	Rampur Boalia.		
	10	1			1	3	3	12	N 39° W	4·2	3·8			81		·571		0·4		0	0·39	− 0·39	0·01	0·22	− 0·21	39·15	50·34	−11·19	0·01	Malda.		
14	2	3					1	10	N 29° W	1·2	1·0			84	−1·3	·550	−·058†	0·9†	−0·2	0	0·58	− 0·58	0	0·78	− 0·78	58·96	62·30	− 3·34	0	Bogra.		
	6	7		1	1	2	6	7	N 28° W	1·3	1·3			79	− 4·5	·540	−·036	1·4	+0·2	0	0·19	− 0·19	0	0·04	− 0·04	64·18	67·07	− 2·89	0	Dinajpur	North Bengal	12
15		9	1					5	N 22° E	1·4*	1·5*			86		·580		0·4		0	0·13	− 0·13	0	0·24	− 0·24	79·04	78·69	+ 0·35	0	Rangpur.		
	10	4	2	2	1		2	9	N 7° W	0·5	0·6			84	−0·2	·538	−·024	0·7	−0·5	0	0·32	− 0·32	0	0·13	− 0·13	118·84	117·13	+ 1·71	0	Jalpaiguri.		
21		4	4			1			N 72° E	0·8	0·8			87		·546		0·8†		0	0·37	− 0·37	0	0·14	− 0·14	131·96	120·16	+11·80	0	Cooch Behar.		
18	1	2	1			1	1	6	N 31° W	1·1	1·0	1·2	− 8	87	−1·8	·515	−·040	0·2	−0·8	0	0·16	− 0·16	0	0·08	− 0·08	46·12	62·09	−15·97	0	Purnea	North Bihar	17
	6							24	N 56° W	2·6	1·9			80	−4·1	·574	−·026	2·7	−0·1†	1	1·48	− 0·48	0·58	1·22	− 0·64	72·78	59·25	+13·43	0·54	Balasore	Orissa	14
	18	2					1	9	N 13° W	5·9	6·1	6·5	− 9	82	−1·5	·656	−·012	5·9	+2·6	2	2·45	− 0·45	0·42	2·92	− 2·50	55·86	61·71	− 5·85	0·22	False Point.		
13		9	1			2	2	3	N 16° E	1·6		1·7	− 6	76	−0·4	·577	−·004	4·9	+2·5	2	1·71	+ 0·29	0·55	1·67	− 1·12	64·95	56·60	+ 8·35	0·33	Cuttack.		
3	18							9	N 14° W	8·7	8·2			83		·668		3·7		4	2·45	+ 1·55	1·67	2·77	− 1·10	45·18	54·79	− 9·61	0·75	Puri.		
														74	−2·3	·459	−·026	0·7	−0·5				0·01	0·29	−0·28					V.—Gangetic Plain and Chota Nagpur.		
8	3					2	9	8	N 66° W	5·8	5·1	4·3	+35	61	−4·5	·367	−·051†	2·4	+0·3	0	0·65	− 0·65	0	0·30	− 0·30	42·99	50·77	− 7·78	0	Hazaribagh.	Chota Nagpur	15
4	5	1				1	2	17	N 39° W	3·2	3·8			65	−0·7	·401	−·024	2·2	+0·7	0	0·72	− 0·72	0·01	0·39	− 0·38	43·92	51·84	− 7·92	0·01	Ranchi.		
28	1				1				Calm	2·0	1·7			81		·419		0·5		0	0·68	− 0·68	0	0·35	− 0·35	23·14	42·05	−18·91	0	Daltonganj	South Bihar	16
							17	13	N 71° W	2·7	3·3			74		·479		2·1		0	0·74	− 0·74	0·03	0·24	− 0·21	45·63	49·07	− 3·44	0·03	Purulia	Chota Nagpur	15
21						3	3		S 68° W	0·7	0·6			84	+5·8†	·529	+·008†	2·0	+0·1	0	0·81	− 0·81	0·05	0·77	− 0·72	46·99	47·38	− 0·39	0·05	Chaibassa.		
12		1			5	8	4		S 42° W	2·4	1·9	1·2	+100	69	−1·7	·437	−·038	1·4	−0·2	0	0·48	− 0·48	0	0·47	− 0·47	34·88	44·91	−10·03	0	Gaya.	South Bihar	16
1				1	11	16	1		S 28° W	3·6	3·2			75		·469		1·0		0	0·44	− 0·44	0·02	0·28	− 0·26	34·07	41·14	− 7·07	0·02	Dehri.		
5				4	8	9	4		S 69° W	2·2	2·5	1·5	+ 46	74	+2·8†	·472	−·035	0·7	−0·6	0	0·32	− 0·32	0	0·22	− 0·22	24·81	46·12	−21·31	0	Patna.		
10			1	9	3	4	3		S 10° E	1·4				76		·450		0·1		0	0·42	− 0·42	0	0·21	− 0·21	27·40	43·48	−16·08	0	Arrah.		
2						9	18	1	S 76° W	4·3	4·1			71		·448		0·9		0	0·39	− 0·39	0	0·40	− 0·40	39·87	39·62	+ 0·25	0	Buxar.		
13	4	1			1	3	5	5	N 66° W	1·4	1·3			72		·506		0·4		0	0·23	− 0·23	0·01	0·17	− 0·16	30·18	46·74	−16·56	0·01	Bhagalpur	North Bihar	17
27							2	1	N 72° W	0·5		1·8	−72	81	−0·9	·526	−·026	0·2	−0·5	0	0·19	− 0·19	0	0·09	− 0·09	41·89	48·71	− 6·82	0	Darbhanga.		
18		1					6	5	N 66° W	1·5				83		·530		0·2		0	0·37	− 0·37	0	0·12	− 0·12	35·19	43·40	− 8·21	0	Muzaffarpur.		
16	1			2		1	9	1	S 87° W	2·2	2·1			78		·545		0·1		0	0·18	− 0·18	0	0·12	− 0·12	49·49	49·39	+ 0·10	0	Motihari.		
13			1		2	4	7	3	S 75° W	1·5	1·4			80		·492		0·5		0	0·39	− 0·39	0	0·25	− 0·25	25·82	38·87	−13·05	0	Chapra.		
16						5	6	3	S 83° W	1·5	1·7	2·1	−29	74	−5·6	·445	−·034	0·5	−0·9	0	0·30	− 0·30	0	0·31	− 0·31	49·15	39·27	+ 9·88	0	Benares	United Provinces (East).	18
5	1		1			5	14	4	N 89° W	2·5	2·1	2·0	+25	74	+2·5	·434	−·003	0·5	−0·8	0	0·30	− 0·30	0	0·25	− 0·25	47·01	38·87	+ 8·14	0	Allahabad.		
10	3	1		2	2	4	4	4	N 88° W	0·1		0·9	−89	74	−1·7	·495	−·004	0·1	−0·8	0	0·10	− 0·10	0	0·15	− 0·15	67·36	49·84	+17·52	0	Gorakhpur	United Provinces (East Submontane)	22
28							1	1	N 66° W	0·2	0·2	1·4	−86	70	−5·5	·411	−·033	0	−1·0	0	0·20	− 0·20	0	0·11	− 0·11	43·99	36·74	+ 7·25	0	Lucknow	South Oudh	19
	6	4	2		1	1	6	10	N 33° W	1·8	1·7			83	+5·7†	·522	+·040†	0·1	−0·5	0	0·30	− 0·30	0	0·40	− 0·40	61·79	45·67	+16·03	0	Bahraich	North Oudh	20
6	2	1				6	15		S 86° W	2·2				65	−0·7	·368	−·043	0·1	−0·8	0	0·10	− 0·10	0	0·44	− 0·44	31·23	34·32	− 3·09	0	Cawnpore	United Provinces (Central).	21
9	2				2	5	8	4	S 87° W	3·2	3·2			65	−3·8	·356	−·018	0·1	−1·3	0	0·10	− 0·10	0	0·31	− 0·31	33·70	29·21	+ 4·49	0	Mainpuri.		

station, the data for that station are not utilized in calculating the provincial variations.
derived only from the data available.

* Mean of 28 days. † Mean of 29 days.

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 month.	Date.	Lowest pressure recorded 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								80·9	0	50·9	+0·6	65·9	+0·3	30·0					45·3
24	United Provinces (West Submontane).	Bareilly	568	29·422	−·022	29·989	29·531	11th	29·318	29th	·213	59·5	79·8	−1·3	53·2	+0·5	66·6	−0·4	26·6	85·9	1st	42·1	30th	42·8
		Dehra Dun	2,233	27·741	−·024	30·023	27·845	12th	27·617	29th	·228	55·9	75·6	+0·6	50·7	−1·1	63·1	−0·3	24·9	81·0	1st	44·0	29th	37·0
		Roorkee	899	29·091	−·015	30·011	29·197	12th	28·979	29th	·218	54·9	79·4	−1·1	48·9	−0·9	64·3	−1·0	30·5	84·8	1st, 2nd & 7th.	40·0	30th	44·8
22	United Provinces, West.	Meerut	738	29·251	−·020	30·001	29·361	12th	29·161	16th	·200	56·1	82·4	+1·1	50·6	0	66·5	+0·6	31·8	89·1	4th & 6th.	44·7	30th	44·4
26	South-East Punjab.	Delhi	718	29·287	−·011	30·008	29·396	11th	29·205	16th & 29th.	·191	60·5	82·4	−0·5	56·3	+0·1	69·4	−0·2	26·1	89·2	6th	50·9	29th & 30th.	38·3
28	Central Punjab.	Lahore	702	29·302	−·012	30·020	29·398	12th	29·222	1st	·176	55·8	83·7	+0·1	49·3	+2·5	66·5	+1·3	34·4	92·9	3rd	42·1	29th & 30th.	50·8
27	South Punjab	Sirsa	662	29·360	+·003	30·027	29·463	11th	29·287	16th	·176	59·0	83·8	−1·1	51·1	+1·6	67·5	+0·3	32·7	92·3	3rd, 4th & 5th.	43·6	30th	48·7
		Patiala	818	29·178		30·010	29·295	12th	29·082	1st	·213	58·6	81·0		50·5		65·8		30·5	87·9	2nd	44·1	29th	43·8
29	Punjab (Submontane).	Ludhiana	812	29·185	−·009	30·039	29·293	12th	29·103	16th	·190	55·7	80·7	+0·1	51·2	+0·3	66·0	+0·2	29·5	88·1	4th	41·6	30th	46·5
		Sialkot	830	29·169	−·006	30·021	29·262	12th	29·074	16th	·188	56·9	81·7	+0·8	52·7	+2·7	67·2	+1·8	29·0	90·6	2nd	41·1	30th	49·5
		Umballa	892	29·096	−·017	30·011	29·195	13th	29·010	29th	·185	56·0	83·0	+0·7						90·0	1st & 4th.			
		Rawalpindi	1,674	28·326	−·015	30·076	29·406	12th	29·246	16th	·160	51·7	79·2	+2·0	45·4	+2·0	62·3	+2·0	33·8	86·9	2nd & 3rd.	35·0	30th	51·9
	VII.—Indus Valley and North-West Rajputana.				−·007								85·2	+0·2	53·0	−0·4	69·1	−0·1	32·2					48·8
32	N.-W. Frontier Province.	Peshawar	1,110	28·922	−·020	30·082	28·993	11th & 18th.	28·838	16th	·155	55·2	77·7	+0·6	47·9	+2·3	62·8	+1·7	29·8	86·1	1st	38·4	30th	47·7
		D. I. Khan	590	29·446	−·019	30·025	29·526	18th	29·357	1st	·169	55·5	81·8	−0·3	48·5	+1·5	65·2	+0·6	33·3	88·3	1st & 4th.	38·0	30th	50·3
31	West Punjab	Khushab	612	29·422	P	30·042	29·503	12th	29·338	16th	·165	59·1	83·1	+0·3	50·1	+0·4	66·6	+0·4	33·0	91·4	1st	39·4	30th	52·0
		Montgomery	558	29·469	−·005	30·027	29·565	12th	29·368	1st	·197	60·2	84·0	−0·2	50·3	−0·6	67·2	−0·4	33·7	93·3	2nd	42·0	30th	51·3
		Mooltan	420	29·604	−·021	30·019	29·695	11th	29·494	1st	·201	59·2	84·6	+0·2	53·1	+0·7	69·0	+0·5	31·5	92·3	1st	45·9	29th	46·4
47	Sind	Jacobabad	186	29·856	−·005	30·014	29·946	8th & 11th.	29·736	1st	·210	60·8	88·0	+1·2	57·6	+0·8	69·8	+1·0	36·4	98·5	5th	42·1	28th, 29th & 30th.	56·4
		Hyderabad	96	29·945	−·003	29·999	30·051	8th	29·825	16th	·226	66·3	88·9	+0·9	57·3	−2·7	73·1	−0·9	31·6	98·1	1st & 2nd.	47·5	29th	50·6
		Kurrachee	30	30·031	+·007	30·013	30·133	12th	29·918	16th	·215	68·9	88·6	+1·2	61·2	−0·6	74·9	+0·3	27·4	94·4	1st	51·2	29th	43·2
51	West Rajputana	Bikaner	771	29·256	+·010	30·034	29·351	11th	29·162	1st	·189	62·3	84·5	−0·2	56·2	−3·2	70·3	−1·7	28·3	93·2	2nd & 3rd.	46·1	30th	47·1
		Pachpadra	380	29·680	P	30·040	29·772	11th	29·576	16th	·196	61·1	89·5	−1·3	51·5	−2·6	70·5	−2·0	38·0	96·5	7th	45·1	29th	51·4
		Jodhpur	782	29·252		30·054	29·353	12th	29·160	16th	·193	63·8	86·7		55·5		71·1		31·2	92·6	3rd & 4th.	51·7	10th	40·9
	VIII.—East Rajputana, Central India and Gujarat.				+·002								86·0	−0·9	56·2	−2·5	71·1	−1·7	29·8					40·5
50	East Rajputana	Jaipur	1,431	28·602	+·001	30·055	28·709	12th	28·516	16th	·184	62·9	85·7	−0·1	52·2	−3·0	68·9	−1·6	33·5	91·2	3rd & 5th.	44·5	29th	46·7
		Bharatpur	585	29·438		30·015	29·548	12th	29·347	16th	·201	61·5	84·8		54·0		69·4		30·8	90·5	7 days	47·9	30th	42·6
		Kotah	819	29·217		30·073	29·310	11th	29·137	16th	·173	64·7	85·0		56·8		70·9		28·2	90·5	2nd, 4th & 7th.	51·5	14th	39·0
		Sambhar	1,254	28·773	+·005	30·056	28·869	12th	28·688	16th	·181	58·4	84·0	−0·5	50·6	−2·3	67·3	−1·4	33·4	90·4	4 days	43·0	29th	47·4
		Ajmer	1,611	28·421	P	30·081	28·519	12th	28·334	16th	·185	56·9	83·3	−0·6	51·9	+0·9?	67·6	+0·2?	31·4	88·4	2nd & 3rd.	47·3	11th	41·1
		Udaipur	1,925	28·114		30·079	28·195	12th	28·026	30th	·169	60·2	82·2		48·2†		65·2†		34·0	86·5	2nd, 3rd & 6th.	43·7	12th	42·8
		Deesa	466	29·563	+·001	30·003	29·653	12th	29·469	30th	·184	68·2	91·7	+0·2	54·6	−3·1	73·2	−1·5	37·1	96·6	1st	51·1	15th	45·5
45	Kathiawar and Cutch.	Bhuj	395	29·640	+·012	30·001	29·717	12th	29·547	30th	·170	71·4	88·2	−1·0	60·6	−2·1	74·4	−1·6	27·6	95·3	1st	55·0	29th	40·3
		Jamnagar	61	29·960		29·987	30·059	12th	29·895	30th	·164	70·0	88·3		59·0		73·6		29·3	95·1	1st & 5th.	54·3	28th	40·8
		Rajkot	429	29·586	+·001	29·983	29·659	19th & 20th.	29·505	30th	·154	68·3	89·2	−1·2	56·5	−2·8	72·9	−2·0	32·7	93·9	3rd & 4th	50·0	29th	43·9
		Veraval	18	29·929	−·004	29·949	30·061	20th	29·913	30th	·148	72·3	88·5	+0·2	65·7	−2·0	77·1	−0·9	22·8	93·1	7th	61·3	29th	31·8
		Dwarka	37	29·992		29·976	30·060	11th	29·914	16th	·146	74·6	85·2		65·1		75·2		20·1	88·4	1st, 22nd & 23rd.	60·6	29th	27·8
		Bhavnagar Para.	55	29·983	−·012	29·982	30·060	19th	29·884	30th	·176	67·9	89·5	−0·5	58·6	−5·7?	74·0	−3·1?	30·9	94·6	2nd, 5th & 6th.	53·0	24th	41·6
49	Central India	Nowgong	757	29·265	−·012	30·024	29·360	11th	29·187	16th	·173	57·8	79·0	−3·3	50·9	−2·3	65·0	−2·8	28·1	83·0	1st, 5th & 6th.	44·0	30th	39·0
		Indore	1,823	28·201	+·012	30·035	28·284	12th	28·123	30th	·161	64·3	81·6	−1·6	50·2	−3·9	65·9	−2·8	31·4	85·3	4 days	45·6	13th	39·7

* Mean of 30 days. † Mean of 29 days.

Note 1.—When a query is inserted against any reading or in the returns

Note 2.—The divisional means of the figure columns Nos. 41, 43, and 45

I—*continued.*

in India, Burma, etc., in November, 1903—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 (uncorrected).	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 30th November.	Variation from normal of period, 1st May to 30th November, 1903.	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	56	57	58
														65	−2·7	·303	−·022	1·1	−0·5				0	0·19	−0·19					VI.—Upper Sub-Himalayas.		
23	1	1					3	2	N 50° W	0·7	0·7	1·7	− 59	75	−1·8	·390	−·019	0·9	+0·1?	0	0·27	−0·27	0	0·18	− 0·18	41·87	44·81	− 2·94	0	Bareilly .	United Provinces (West Submontane).	24
21	1				1	3	1	3	W	1·4		1·7	− 18	72	+1·5	·328	−·010	1·0	−0·9	0	0·60	−0·60	0	0·40	− 0·40	57·66	82·27	−24·61	0	Dehra Dun.		
26			2	1				1	E	1·5		1·1	+ 36	76	−1·2	·343	−·015	0·6	−0·5	0	0·50	−0·50	0	0·28	− 0·28	35·65	38·53	− 2·88	0	Roorkee.		
12	1	1	2			1	12	1	N 81° W	1·0	1·0	1·3	− 23	63	−6·6	·293	−·033	0·8	−0·1?	0	0·20	−0·20	0	0·13	− 0·13	24·78	28·52	− 3·74	0	Meerut .	United Provinces, West.	22
2	2						11	15	N 59° W	3·5	3·1	2·3	+ 52	44	−7·5	·239	−·048	1·2	−0·2	0	0·30	−0·30	0	0·11	− 0·11	12·34	24·91	−12·57	0	Delhi .	South-East Punjab,	26
27	1							2	N 31° W	1·2		1·4	− 14	68	+1·4	·301	−·012	1·5	0	0	0·20	−0·20	0	0·07	− 0·07	13·17	16·43	− 3·26	0	Lahore .	Central Punjab	28
15	1	1	1	2	1	1	1	7	N 45° W	2·0	1·8	2·0	0	56	−2·5	·282	−·006	0·6	−1·2	0	0·10	−0·10	0	0·01	− 0·01	13·15	12·37	+ 0·78	0	Sirsa .	South Punjab .	27
4	5	4	7	2		1		7	N 29° E	3·6	3·6			66		·332		1·1		0			0			14·72			0	Patiala.		
20		3	1				5	1	N 43° W	1·3	1·2	0·8	+ 63	64	+0·1	·287	−·023	1·1	−1·0	0	0·20	−0·20	0	0·06	− 0·06	20·88	23·25	− 2·37	0	Ludhiana .	Punjab (Submontane),	29
21	3		3				1	2	N 8° E	0·7		1·0	− 30	65	+0·5	·305	+·001	0·9	−0·6	0	0·30	−0·30	0·01	0·09	− 0·08	34·80	24·98	+ 9·82	0·01	Sialkot.		
25							2	3	N 62° W	4·1				71	−3·6	·318	−·037	1·2	+0·1?	0	0·30	−0·30	0	0·46	− 0·46	25·41	27·43	− 2·02	0	Umballa.		
28		1						1	N	2·2	2·0	1·1	+100	55	−10·2	·217	−·041	1·8	−0·3	0	0·80	−0·80	0	0·29	− 0·29	17·61	24·67	− 7·06	0	Rawalpindi.		
														51	−1·4	·286	−·002	1·3	−0·3				0·01	0·13	−0·11					VII.—Indus Valley and North-West Rajputana.		
28					2				S	0·5	0·5	2·1	− 76	56	−8·9	·252	−·009	2·5	−0·2	0	0·90	−0·90	0·08	0·47	− 0·39	4·89	6·15	− 1·26	0·08	Peshawar .	N.-W. Frontier Province.	32
26	1	2						1	N 23° E	0·3	0·3	0·7	− 57	64	−0·8	·284	+·005	1·9	+0·4	0	0	0	0·03	0·18	− 0·15	17·02	5·50	+11·52	0·03	D. I. Khan		
16	1	4	1		3	2	2	1	N 72° W	3·3	2·8			45	−2·6	·228	+·002	1·5	+0·2	0	0·30	−0·30	0	0·02	− 0·02	10·52	10·32	+ 0·20	0	Khushab .	West Punjab .	31
8	2	3		7	2	1	2	5	E	4·0	3·7			43	−9·8?	·225	−·061?	0·8	−1·0	0	0·20	−0·20	0·03	0·06	− 0·03	7·45	7·84	− 0·39	0·03	Montgomery.		
26				3				1	S 45° E	1·0	1·2	1·5	− 33	61	−0·6	·309	−·015	1·2	0	0	0·10	−0·10	0·02	0·07	− 0·05	6·58	5·74	+ 0·84	0·02	Mooltan.		
21	1		1	2			2	3	N 45° W	1·5	1·6	1·6	− 6	59	+5·4	·360	+·063	1·2	−0·5	0	0·20	−0·20	0	0·11	− 0·11	2·77	2·78	− 0·01	0	Jacobabad .	Sind . . .	47
5	4	1		3	1	4		12	N 49° W	4·3	4·4	6·1	− 30	49	−0·6	·328	−·012	0·7	−1·0	0	0·20	−0·20	0	0·12	− 0·12	5·07	6·19	− 1·12	0	Hyderabad.		
2	2	15	6	4			1		N 61° E	4·2	5·3	7·9	− 47	58	−3·3	·423	−·025	1·4	+0·1	0	0·30	−0·30	0	0·07	− 0·07	3·68	6·72	− 3·04	0	Kurrachee.		
10		1	2	2	7	5	1	2	S 14° W	2·7		2·4	+ 13	48	−0·1	·270	−·027	1·1	−0·4	0	0·10	−0·10	0	0·05	− 0·05	10·00	10·17	− 0·17	0	Bikaner .	West Rajputana	51
	9	9	8	1	2	1			N 49° E	3·5	3·1	2·1	+ 67	39	−14·2?	·211	−·098?	0	−1·7?	0	0·30	−0·30	0	0·08	− 0·08	9·62	12·57	− 2·95	0	Pachpadra.		
7	4	7	5	2	1	4			N 66° E	2·8	2·5			43		·255		1·8		0	0·20	−0·20	0	0·16	− 0·16	19·81	12·59	+ 7·22	0	Jodhpur.		
														54	−7·0	·345	−·066	0·8	−0·5				0	0·24	−0·24					VIII.—East Rajputana, Central India and Gujarat.		
15	6					2	1	6	N 37° W	2·3		3·0	− 23	46	−7·8	·267	−·063	1·4	−0·2	0	0·20	−0·20	0	0·20	− 0·20	23·21	24·68	− 1·47	0	Jaipur .	East Rajputana.	50
24							6		W	1·9	1·8			70		·389		0·6		0			0			22·03			0	Bharatpur.		
17	2	3		1	1	2	1	3	N 29° W	1·8‡	1·4‡			48		·292		0·1		0	0·30	−0·30	0	0·03	− 0·03	35·50	29·14	+ 6·36	0	Kotah.		
27	2	1							N 15° E	2·2		3·4	− 35	50	−3·1	·246	−·039	0·6	−0·7	0	0·20	−0·20	0	0·18	− 0·18	23·72	19·45	+ 4·27	0	Sambhar.		
27		1		1				1	N 45° E	1·6		1·4	+ 14	64	−0·5	·300	−·029	1·3	0	0	0·40	−0·40	0	0·20	− 0·20	17·84	20·58	− 2·74	0	Ajmer.		
28	1							1	N 24° W	1·7	1·5			50		·262		0·8		0	0·50	−0·50	0			26·39			0	Udaipur.		
	2	14	13	1					N 64° E	6·7		7·5	− 11	35	−5·8	·245	−·055	0·4	−0·8	0	0·18	−0·18	0	·17	− 0·17	19·43	23·78	− 4·35	0	Deesa.		
	4	1	4	3	3	7	7	1	S 51° W	5·3	4·6	4·7	+ 13	58	−1·0?	·451	−·001?	1·2	+0·2	0	0·30	−0·30	0	0·12	− 0·12	16·18	14·11	+ 2·07	0	Bhuj .	Kathiawar and Cutch.	46
	2	11	7	3	5	2			N 85° E	7·0	8·5			50		·371		1·0		0			0			26·64			0	Jamnagar.		
6	1	4	17	2					N 84° E	4·0	4·0	4·9	− 18	43	−12·0	·301	−·136	0·4	−0·6	0	0·50	−0·50	0	0·33	−0·33	22·92	27·95	− 5·03	0	Rajkot.		
1	13	12		1				3	N 17° E	7·4	7·4	5·0	+ 48	51	−4·0	·398	−·080	1·6	0	0	0·30	−0·30	0	0·59	− 0·59	24·17	18·14	+ 6·03	0	Veraval.		
	11	10	6					3	N 28° E	9·8				67		·580		1·6		0			0			25·13			0	Dwarka.		
	8	1				1	4	16	N 39° W	3·2†	3·8†			48	−17·8?	·332	−·154?	0·3	−0·9	0	0·40	−0·40	0	0·47	− 0·47	23·69	19·46	+ 4·23	0	Bhavnagar Para.		
7	4	1			1	5	9	3	N 81° W	1·2	1·2	1·0	+ 20	77	+7·2?	·375	−·025	0·4	−1·0	0	0·70	−0·70	0	0·27	− 0·27	43·53	42·95	+ 0·58	0	Nowgong .	Central India	49
14		5	10					1	N 72° E	2·1	1·7	2·0	+ 5	58	+1·5?	·352	−·030?	0·5	−0·6	0	0·50	−0·50	0	0·35	− 0·35	46·88	32·96	+13·92	0	Indore.		

of any station, the data for that station are not utilized in calculating the provincial variations.
are derived only from the data available.

‡ Mean of 28 days.

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
49	Central India	Neemuch	1,630	28·412	+·014	30·066	28·500	12th	28·328	16th	·172	62°6	83°4	−1°1	50°2	−4°7	66°8	−2·9	33°2	87°5	2nd	45°8	13th	41°7
45	Gujarat	Surat	39	29·974	−·002	29·957	30·058	19th	29·896	30th	·162	72°1	91°0	+0·4?	62°5	−0·3?	76°8	+0·1?	28°5	96°2	5th	57°5	28th	38°7
		Ahmedabad*	163	29·872	+·007	29·987	29·948	12th	29·792	16th	·156	70°7	91°0	−0·4	62°0	−3·7	76°5	−2·1	29°0	99°2	5th	59°2	12th, 14th & 16th.	40°0
22	United Provinces, West.	Agra	555	29·476?	−·014?	30·022?	29·586	11th	29·389	16th	·197	61°0	82°7	−1°7	55°9	0	69°3	−0·9?	26°8	89°5	7th	48·9	30th	40°6
21	United Provinces, Central.	Jhansi	858	29·178	+·001	30·029	29·279	12th	29·092	16th	·187	66°3	84°7	−0°6	58°4	−0·2	71°5	−0·4	26°3	90·2	4th & 5th.	53°2	30th	37·0
	1A.—Deccan.				−·002								83·2	−1·3	58·0	−2·0	70·6	−1·7	25·2					37·5
38	Bombay Deccan.	Belgaum	2,539	27·434	−·005	29·934	27·510	19th	27·381	30th	·129	69°2	81°8	−0·3	60°4	−0·7	71°1	−0·5	21°4	85°3	1st	49·9	26th	35°4
		Sholapur	1,590	28·402	−·004	29·974	28·492	19th	28·329	30th	·163	70°7	87°0	−0·5	61°4	−0·9	74°2	−0·7	25°6	91°3	1st & 2nd.	51·6	14th & 23rd.	39°7
		Poona	1,840	28·160	−·009	29·997	28·215	19th	28·075	30th	·170	66°0	87°4	+1·1?	57°6	−1·7	72°5	−0·3?	29°3	91·5	29th	48·5	24th & 26th.	43°0
		Bijapur	1,948	28·036	−·018	29·963	28·122	19th	27·970	30th	·152	69°4	83°2	−2°4	59°6	−1°4	71°4	−1°9	23°6	88°4	1st	48·1	24th	40°3
40	Khandesh	Malegaon	1,430	28·590	+·004	30·023	28·664	19th	28·518	30th	·146	65°7	87°1	0	54°2	−2°9	70°7	−1°5	32°9	93·9	1st	47°2	14th & 24th.	46°7
		Ahmednagar	2,152	27·867	−·002	30·005	27·943	19th	27·794	30th	·149	68°2	84°1	−1°2	55°9	−0·3	70°0	−0·8	28°2	87·9	5th	45·4	26th	42°5
4	Berar	Akola	930	29·102	+·012	30·017	29·186	19th	29·040	16th & 30th	·146	66°4	86°8	−0°2	53°7	−3°7	70°3	−2°0	33°1	90·9	1st	46·9	15th	44°0
		Amraoti	1,215	28·811	+·011	30·014	28·890	19th	28·739	30th	·151	69°4	85°4	−0°9	60°8	−0·8?	73°2	−0·9?	24°6	89°2	1st & 3rd.	55°5	14th & 25th.	33°7
4	Central Provinces, West.	Khandwa	1,044	28·983	+·008	30·029	29·064	12th & 19th.	28·902	30th	·162	63°3	88°1	+1°3	52°0	−4°2	70°1	−1°5	36°1	92°2	3rd & 4th.	47·1	13th & 14th.	45°1
		Hoshangabad*	1,006	29·048?	+·018?	30·059?	29·135	11th	28·971	30th	·164	63°0	83°0	−1°3	54°3	−3°0	68°6	−2°2	28°7	87°7	8th	50°3	23rd	37°4
		Nagpur	1,025	29·004	+·016	30·025	29·082	12th & 19th.	28·941	16th	·141	64°9	84°6	−0°4	57°0	−3°3	70°8	−1°9	27°6	87·6	3rd & 4th	52·2	13th & 17th,	35°4
43	Central Provinces, Central.	Chanda	634	29·398	+·016	30·004	29·496	19th	29·334	30th	·162	64°3	83°1	−2°1	57°5	−1·8	70°3	−2·0	25°6	87·6	29th	48·6	24th	39°0
		Seoni	2,033	27·987	+·004	30·021	28·081	12th	27·911	16th	·170	64°7	80°2	−1°1	52°2	−3·2	66°2	−2·2	28°0	82·8	2nd & 3rd.	47·0	13th & 22nd	35°8
		Jubbulpore	1,327	28·689	−·002	30·045	28·778	11th	28·615	16th	·163	56°5	79°8	−2°1	48°5	−4·6	61°2	−3·4	31°3	82·4	9th	44·4	21st, 22nd & 23rd.	38·0
		Saugor	1,807	28·221	+·012	30·035	28·306	11th	28·150	16th	·156	66°1	80°6	−1°4	56°5	−0·7?	68°6	−1·1?	24°1	84·9	5th & 6th.	51·1	16th	33°8
49	Central India	Sutna	1,040	28·972	−·010	30·026	29·068	11th	28·890	16th	·178	59°9	79°6	−1°5	53·2	−0·7	66°4	−1·1	26°4	83·9	5th	47·8	30th	36°1
44	Central Provinces, East.	Raipur	970	29·039	−·005	30·030	29·135	11th	28·894	29th	·241	65°9	80°5	−2°7	58°2	−2°5	69°4	−2°6	22°3	84·1	3rd	52·4	23rd	31°7
		Pendra	2,123?	27·965?		30·020?	28·050	11th	27·891	16th	·156	61°2	77°1		53°1		65°1		24°0	80·3	28th	46·6	30th	33°7
		Sambalpur	486	29·537	−·011	29·991	29·633	12th	29·462	15th	·171	67°9	81°5	−2·3	61°9	−0·4	71°7	−1·4	19°6	85°6	3rd	52·7	19th & 20th.	32°9
39	Hyderabad (North).	Aurangabad	1,905	28·111?*		29·994?*	28·201	23rd	28·038	30th	·163	71°3	85°1		55°4		70°2		29°7	88°3	4th	47·2	23rd & 25th.	41°1
		Indur		28·579			28·680	2nd	28·465	19th & 20th	·215	70°0	82°4		59°1		70°8		23°3	86·9	5th & 30th	48·1	23rd & 25th.	38·8
		Bidar	2,165	27·829		29·970	27·925	19th & 23rd.	27·738	2nd	·167	69°4	80°8		63°4		72°2		17·1	86·6	4th	57·0	25th	29°6
53	Hyderabad (South).	Gulbarga	1,503	28·485	−·0 0	29·967	28·562	29th	28·427	15th & 28th.	·135	70°6	86°6	−0°4	63·6	+1·0?	75·1	+0·3?	23·0	90·3	2nd & 5th.	51·9	14th	38°4
		Raichur	1,326	28·650	−·016	29·953	28·750	19th	28·587	1st	·163	71°5	83°2	−2·9	66°4	−0·9	74°8	−1·9	16·8	91·1	2nd	57·2	21st	33·9
		Hyderabad (Deccan).	1,690	28·298	−·019	29·974	28·304	19th	28·243	29th	·151	68°5	81°8	−2·0	62°8	+0·7	72°3	−0·7	19·0	89·4	3rd	52·3	23rd	37·1
		Secunderabad	1,787	28·204	−·007	29·977	28·293	19th	28·150	7th	·143	69°3	82°2	−0·7	62°2	+0·2	72°2	−0·3?	20·0	87·6	3rd & 4th.	51·7	21st & 24th.	35·9
		Hanumkonda	871	29·112		29·952	29·210	19th	29·054	7th	·156	70°8	82°1		64·8		73·5		17·3	88·0	4th	55·7	22nd & 24th.	32·3
	X.—West Coast.				+·001								85·7	−1·4	71·9	−0·8	78·8	−1·1	13·7					22·6
37	Konkan	Bombay	37	29·957	−·005	29·934	30·043	19th	29·871	30th	·172	75°2	86°4	−0·5	72·3	−1·0	79·4	−0·8	14·1	90·5	11th & 12th.	68·5	25th & 27th.	22·0
		Ratnagiri	110	29·868	+·010	29·919	29·948	20th	29·803	30th	·145	76°8	88·5	−2·0	68°7	−1·3	78·6	−1·7	19·8	92·8	13th	60·9	24th	31·9
		Mormugao	60	29·920	−·005	29·916	30·000	19th	29·867	30th	·133	74°7	85·4	−1·6	72·3	−0·5	78·9	−1·1	13·1	88·0	12th, 13th & 14th	66·3	24th	21·7
		Goa	199									77.7	84·6	−2·8	73·7	+1·5?	79·2	−0·7?	10·9	87·0	12th, 13th & 14th.	67·0	22nd & 25th.	20·0
		Karwar	44	29·923	−·003	29·899	29·994	19th	29·854	30th	·140	72·5	86·9	−0·5	68·9	−0·5	77·9	−0·5	18·0	89·8	7th	59·5	23rd	30·3
3	Malabar	Cochin	10	29·953	+·004	29·891	30·000	19th	29·904	29th	·096	77·8	86·3	−1·2	73·7	−0·7	80·0	−1·0	12·6	83·3	4th & 22nd.	70·7	24th	17·6
		Calicut	27	29·937	+·003	29·894	29·997	19th	29·888	30th	·109	77·4	85·2	−2·2	72·9	−0·2	79·1	−1·2	12·3	83·3	5th	68·2	3rd & 24th,	21·1
		Mangalore	65	29·902	0	29·900	29·969	19th	29·851	30th	·118	77·5	85·2	−3·1	72·3	−0·5	78·8	−1·8	12·9	89·2	22nd	66·0	2nd	23·2
		Trivandrum	198	29·761	+·006	29·892	29·817	19th	29·723	30th	·094	76·7	82·6	0	72·7	−1·7	77·7	−0·9	9·9	84·0	1st, 5th & 29th.	68·6	27th	16·0

† Mean of 25 days.

NOTE 1.—When a query is inserted against any reading or in the returns

NOTE 2.—The divisional means of the figure columns Nos. 41, 43, and 45

* Mean of 29 days.

I—*continued.*

in India, Burma, etc., in November, 1903—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.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 30th November.	Variation from normal of period, 1st May to 30th November, 1903.	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	56	57	58
8	7	8	4		1			2	N 33° E	4·1	3·7	7·5	− 45	55	+8·0?	·317	−·001?	0·4	−0·5	0	0·50	− 0·50	0	0·19	− 0·19	33·60	29·29	+ 4·31	0	Neemuch	Central India	49
1	3	6	14	3		1	1	1	N 74° E	4·3	4·0	5·9	− 27	50	−14·0	·402	−·106	0·7	−0·6	0	0·40	− 0·40	0	0·16	− 0·16	40·19	43·89	− 3·70	0	Surat	Gujarat	45
		14	13				1	1	N 61° E	2·7	4·4			43	−6·6	·325	−·079	1·3	−0·5	0	0·30	− 0·30	0	0·38	− 0·38	26·32	32·94	− 6·62	0	Ahmedabad.		
9					4			17	N 53° W	2·4	2·8	2.5	− 4	56	−2·5	·300	−·044	0·9	−0·1	0	0·10	− 0·10	0	0·11	− 0·11	23·40	26·92	− 3·52	0	Agra	United Provinces, West.	22
4	1			2	15	5	3		S 62° W			1·8		61	+11·4?	·393	+·047?	0·1	−0·8	0	0·10	− 0·10	0	0·13	− 0·13	35·08	36·86	− 1·78	0	Jhansi	United Provinces, Central.	21
														63	−1·5	·424	−·036	2·4	+0·4				0·48	0·79	−0·30					IX.—Deccan.		
9	2	6	10	3					N 76° E	8·7*		11·7	− 26	66	+1·9	·477	+·017	3·7	+1·4	2	2·20	− 0·20	0·63	1·76	− 1·13	42·01	47·61	− 5·57	0·34	Belgaum	Bombay Deccan	38
1		17	4	3		1		1	N 59° E	8·4	10·2	7·7	+ 9	53	+0·1	·409	−·020	4·2	+1·8	2	1·50	+0·50	0·40	1·19	− 0·79	41·72	29·76	+11·96	0·21	Sholapur.		
	5	5	7	2	1	4	4	2	N 38° E	6·6		5·8	+ 14	60	−0·6	·394	−·034	1·7	0	0	1·70	− 1·70	0	1·06	− 1·06	21·02	26·88	− 5·86	0	Poona.		
4	4	8	8	3	2			1	N 67° E	3·1	3·0			68	−1·5?	·503	−·032?	3·7	+1·2	3	2·10	+ 0·90	2·15	1·25	+ 1·20	28·59	23·19	+ 5·40	1·30	Bijapur.		
	2	2				1	15	10	N 63° W	3·6	4·1	4·0	− 10	48	−7·5	·318	−·088	2·7	+1·0	0	1·00	− 1·00	0	0·50	− 0·50	24·82	23·54	+ 1·28	0	Malegaon	Khandesh	40
19		3	1	2	1			4	N 35° E	3·6	4·4			49	−15·1?	·349	−·121?	2·2	+0·5	0	1·50	− 1·50	0	0·59	− 0·59	33·51	20·86	+12·65	0	Ahmednagar.		
17		3	7	3					E	2·5	2·5	3·4	− 26	51	−8·1	·330	−·077	0·9	−0·6	0	0·80	− 0·80	0	0·54	− 0·54	30·14	32·28	− 2·14	0	Akola	Berar	41
	3	16	11						N 58° E	5·5	4·9	3·0	+ 83	45	−8·4	·329	+·083	1·0	−0·5	0	0·60	− 0·60	0	0·59	− 0·59	42·40	32·95	+9·45	0	Amraoti.		
	2	20	5	1				2	N 48° E	2·5	.	2·6	− 4	53	−4·2?	·308	−·062	0·8	−0·3	0	0·60	− 0·60	0	0·23	−0·23	29·79	30·36	− 0·57	0	Khandwa	Central Provinces, West.	42
		29							N 45° E	1·2	1·2	1·9	− 37	60	−7·5?	·347	−·059?	0·2	−1·1	0	0·50	− 0·50	0	0·45	− 0·45	46·50	50·69	− 4·19	0	Hoshangabad.		
3	19	5						3	N 3° E	2·9	2·3	4·0	− 28	57	−4·5	·360	−·079	2·1	+0·2	0	0·90	− 0·90	0	0·81	− 0·81	56·46	47·24	+ 9·22	0	Nagpur.		
29	1								N	1·3	1·2	1·8	− 28	73	+0·4	·454	−·068	2·5	+0·5	0	1·00	− 1·00	0	0·96	− 0·96	61·11	52·84	+ 8·27	0	Chanda	Central Provinces, Central.	43
	11	13	2				1	3	N 20° E	4·3	3·6	2·6	+ 65	52	−10·7	·323	−·089	3·3	+2·0?	0	0·90	− 0·90	0	0·61	− 0·61	63·49	52·36	+11·13	0	Seoni.		
3			2	13	11	1			S 26° E	1·6	1·4	1·8	− 11	80	+7·3?	·373	−·038	0·3	−0·9	0	0·60	− 0·60	0	0·48	− 0·48	54·30	56·92	− 2·62	0	Jubbulpore.		
	4	5	7	3	5	5	1		S 69° E	3·2	2·8	2·3	+ 39	46	−7·9	·291	−·060	0·2	−0·9	0	0·50	− 0·50	0	0·33	− 0·33	43·99	46·44	− 2·45	0	Saugor.		
7	2	5	5				6	5	N 6° W	1·8	1·6	3·2	− 44	74	+11·5?	·387	+·010?	1·3	+0·2	0	0·70	− 0·70	0	0·34	− 0·34	42·58	43·34	− 0·76	0	Sutna	Central India	49
2	8	11	4			2		3	N 27° E	2·5	3·0	3·3	−24	68	+1·8	·443	−·022	3·0	+1·0	0	0·90	− 0·90	0·01	0·46	− 0·45	41·94	48·67	− 6·73	0·01	Raipur	Central Provinces, East.	44
7	7	1	1				1	13	N 26° W	3·5	3·0			66		·366		1·3		0			0			55·61‡			0	Pendra.		
	2	13	8	7					N 71° E	4·3	4·2	1·4	+ 207	77	+0·6	·538	−·013	3·7	+1·9	0	1·00	− 1·00	0·03	0·59	− 0·56	52·70	64·69	−11·99	0·93	Sambalpur.		
5		7	16	1	1				N 79° E	6·8	6·7			43		·340		0·8		0	1·00	− 1·00	0	0·59	− 0·59	29·33	29·25	+ 0·08	0	Aurangabad.	Hyderabad (North).	40
28								2	N 45° W	4·3	3·6			73		·544		2·1		1	1·40	− 0·40	0·22	0·95	− 0·73	47·08	38·09	+ 8·99	0·22	Indur.		
	3	17	6	2	1	1			N 58° E	5·2	4·4			62		·454		2·5		3	2·20	+ 0·80	1·42	1·30	+ 0·12	48·13	37·51	+10·62	0·81	Bidar.		
7	1	2	11	6		3			S 75° E	7·6	7·3			72	+8·4	·551	+·051	3·3	+0·9	3	1·50	+ 1·50	·57	0·47	+ 0·10	55·03	29·82	+25·21	0·27	Gulbarga	Hyderabad (South).	52
1	7	6	11	3	1			1	N 62° E	6·3	6·0			74	+5·6	·587	+·019	3·4	+0·9	5	1·80	+ 3·20	3·44	0·76	+ 2·68	39·41	29·40	+10·01	1·19	Raichur.		
20	1	1	6	1				1	N 75° E	3·5	3·4			80	+6·7	·570	+·031	4·4	+1·7	5			2·03	1·48	+ 0·55	48·74	29·93	+18·81	0·85	Hyderabad (Deccan).		
10	1	6	9	2					N 75° E	3·0		3·5	− 14	70		·518		4·1		2	2·50	−0·50	1·15	1·48	− 0·33	47·66	29·93	+17·73	0·50	Secunderabad.		
2	14	2		1	1	10			N 36° W	4·7	4·0			77		·591		5·0		1	1·90	− 0·90	0·52			61·58			0·29	Hanumkonda.		
														77	+0·5	·707	−·001	3·5	+0·9		.		2·75	2·78	−0·03					X.—West Coast.		
	1	12	12	3	1	1			N 75° E	8·4		9·9	− 15	75	+1·1	·669	−·010	1·4	−0·1	0	0·60	− 0·60	0	0·49	− 0·49	84·32	74·94	+ 9·38	0	Bombay	Konkan	37
4		5	18	3					N 87° E	8·1	8·0	9·0	− 10	62	+3·5?	·560	+·007?	1·5	+0·1	0	1·00	− 1·00	0·08	0·42	−0·34	105·69	107·03	− 1·34	0·07	Ratnagiri.		
7	3	1	8	11					S 76° E	6·3				82	+0·7	·709	−·020	3·0	+1·6	3			1·38	1·16	+ 0·22	104·35	92·34	+12·61	1·01	Mormugao.		
2	2	7	19						N 74° E					71	+0·6	·682	+·014	3·3	+1·7	2			1·20	1·14	+ 0·06	110·86	97·80	+13·06	1·03	Goa.		
8	2	11	9						N 59° E	3·0				83	+1·3	·674	+·018	3·5	+2·0	3	2·50	+ 0·50	1·06	2·08	− 1·02	136·10	123·05	+13·05	0·49	Karwar.		
4		21	4			1			N 52° E	4·0				82	+1·4	·789	−·010	4·8	+1·0	10	7·70	+ 2·30	10·47	6·25	+ 4·22	128·93	105·21	+23·72	2·45	Cochin	Malabar	32
8		7	10	4				1	N 81° E	3·4	4·3			82	+0·8	·773	−·012	5·2	+1·8	7	5·50	+ 1·50	5·16	4·72	+ 0·44	117·38	108·84	+ 8·54	2·50	Calicut.		
9		2	16	2	1				S 87° E	2·2		3·0	− 27	79	+2·5	·748	+·013	4·3	+1·3	3	3·80	− 0·80	3·01	2·65	+ 0·36	136·11	121·69	+14·42	1·90	Mangalore.		
8	10	8	1					3	N 14° E	4·2				80	−4·7	·743	−·058?	4·3	−1·1	4	9·10	− 5·10	2·38	6·12	− 3·74	47·96	52·75	− 4·79	1·20	Trivandrum.		

of any station, the data for that station are not utilized in calculating the provincial variations.
are derived only from the data available.

§ Mean of 17 days.

‡ Rainfall since 23rd June.
‖ Mean of 28 days.

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
	XI.—South India.				−·014								83·7	−1·6	69·1	0	76·4	−0·8	14·6					28·7
57	Madras (South)	Pamban	37	29·931		29·895	30·001	24th	29·873	6th	·128	80·2	85·7		76·9		81·3		8·8	89·3	2nd	73·2	17th & 19th.	16·1
		Tinnevelly	168	29·801	−·008	29·900	29·893	19th	29·744	9th	·149	79·5	91·6	+2·9	74·1	−0·5	82·9	+1·2	17·5	96·2	3rd & 13th.	69·9	18th	26·3
		Madura	447	29·505	−·005	29·891	29·591	19th	29·451	5th & 6th.	·140	77·8	88·0	+0·7	72·2	−0·3	80·1	+0·2	15·8	92·4	3rd & 4th.	67·1	18th & 23rd.	25·3
		Periyakulam	945	29·010			29·088	19th	28·947	6th	·141	74·7	85·8		69·5		76·8		16·3	90·1	2nd	61·0	23rd	29·1
34	Madras (South Central).	Salem	940	29·033	−·015	29·928	29·114	20th	28·961	6th	·153	74·6	85·0	−2·3	69·5	+1·0	77·3	−0·7	15·5	91·2	2nd	62·4	21st & 24th.	28·8
		Coimbatore	1,348	28·611	−·006	29·920	28·691	19th	28·558	6th	·133	73·6	84·9	−1·3	68·5	−0·4	76·7	−0·9	16·4	89·4	30th	59·8	23rd	29·6
35	Coorg	Mercara	3,781	26·261	+·004		26·316	19th	26·222	9th	·094	64·1	74·5	−1·4	59·7	−0·4	67·1	−0·9	14·8	78·0	2nd	53·1	23rd & 25th.	24·9
36	Mysore	Chitaldroog	2,405	27·570	−·025	29·928	27·668	19th	27·516	29th	·152	69·5	79·0	−3·1	63·3	−0·7	71·2	−1·9	15·7	83·1	2nd	54·9	23rd	29·2
		Bangalore	3,021	26·972	−·019	29·026	27·057	19th	26·907	6th	·150	67·0	76·8	−2·5	61·9	0	69·3	−1·3	14·9	84·3	3rd	52·4	22nd	31·9
		Hassan	3,091	26·909	−·026	29·947	26·979	19th	26·864	29th	·115	67·6	78·0	−1·8	60·3	+0·6	69·2	−0·6	17·7	82·6	3rd	48·5	23rd	34·1
		Mysore	2,518	27·467	−·019	29·930	27·540	19th	27·414	29th	·126	69·6	80·3	−2·2	63·5	−0·6	71·9	−1·4	16·8	85·1	2nd & 3rd.	54·4	22nd & 23rd.	30·7
56	Madras, (East Coast, South).	Negapatam	31	29·921	−·007	29·881	29·998	23rd	29·827	6th	·171	78·3	84·9	+0·8	74·2	+0·1	79·6	+0·5	10·7	91·8	4th	68·5	26th & 27th.	23·3
		Cuddalore	12	29·953	−·011	29·894	30·041	24th	29·842	6th	·199	76·8	83·8	−1·0	72·5	+0·9	78·2	−0·1	11·3	89·7	2nd	65·7	26th	24·0
		Trichinopoly	255	29·702	−·011	29·855	29·800	19th	29·620	6th	·180	76·6	87·3	+0·2	71·8	−0·2	79·6	0	15·5	94·0	3rd	64·9	22nd	29·1
		Madras	22	29·944	−·013	29·897	30·024	24th	29·782	6th	·252	76·4	83·1	−2·0	72·2	−0·1	77·7	−1·1	10·9	90·0	2nd	66·0	25th	24·0
		Vellore	707	29·246		29·907	29·346	19th	29·108	6th	·238	73·6	81·2*		68·7		76·3*		15·5	90·9	3rd	59·9	22nd & 25th.	31·0
55	Madras, (East Coast, Central).	Nellore	71	29·900	−·019	29·906	30·012	19th	29·769	6th	·243	74·9	83·6	−3·1	71·3	−0·3	77·5	−1·7	12·3	92·3	3rd	65·6	24th	26·7
		Masulipatam	15	29·979	−·001	29·929	30·081	23rd	29·892	6th	·189	74·9	82·3	−2·8	70·6	−0·7	76·5	−1·8	11·7	88·5	3rd	63·2	21st, 23rd & 24th.	25·3
54	Madras, (Central).	Cuddapah	133	29·537	−·027	29·919	29·650	19th	29·421	6th	·229	74·8	85·5	−3·0	69·3	0	77·4	−1·5	16·2	95·7	2nd	58·3	21st	37·4
		Kurnool	945	29·025	−·025	29·935	29·132	19th	28·959	6th	·173	71·6	85·0	−3·1	64·9	+0·9	75·0	−1·1	20·1	93·7	2nd	52·7	21st	41·0
		Bellary	1,475	28·496	−·014	29·945	28·566	19th	28·438	30th	·158	70·8	84·4	−2·3	65·5	−0·1	75·0	−1·2	18·9	93·0	2nd & 3rd.	55·1	21st	37·9
52	Madras, (East Coast, North).	Cocanada	26	29·964	−·016	29·925	30·063	23rd	29·893	14th	·160	74·7	81·8	−1·7	70·3	−0·2	76·1	−1·0	11·5	89·1	1st	62·0	23rd	27·1
		Waltair(Vizag.)	226	29·767	−·009	29·938	29·849	23rd	29·687	14th	·162	76·5	82·7	?	71·2	?	77·0	?	11·5	87·9	2nd	64·9	21st	23·0
		Gopalpur	21	29·995	−·007	29·956	30·052	11th	29·887	14th	·195	73·2	81·4	−2·0	67·5	+0·7	74·5	−0·7	13·9	85·7	1st	57·0	20th	28·7
	XII.—Hill Stations.																							
48	Baluchistan	Pishin											64·7		28·3		46·5		36·4	73·3	1st	14·0	30th	59·3
		Quetta	5,502	24·779	+·011		24·859	8th	24·640	16th	·219	39·7	64·7	−0·1	32·8	+0·7	48·8	+0·3	31·9	72·2	2nd & 3rd.	21·6	30th	50·6
		Kalat																						
		Chaman	4,311	25·829	−·009		25·923	22nd	25·652	16th	·271	49·9	67·2	−2·2	42·9	−1·9	55·0	−2·1	24·3	76·3	1st	31·1	30th	45·2
30	Punjab	Leh	11,503	19·753	−·025		19·943	11th	19·584	28th	·359	25·1	45·3	−2·3	19·0	−1·5	32·2	−1·9	26·3	53·1	3rd	11·9	30th	41·2
		Srinagar	5,204	25·028	−·006		25·164	11th	24·914	28th	·250	37·1	57·9	−2·4	33·4	+1·8	45·7	−0·3	24·5	66·1	1st & 2nd.	26·1	30th	40·0
		Gulmarg																						
		Sonemarg		21·882†			21·959	24th	21·781	28th	·178	25·9	49·1		20·2		34·6		28·9	56·8	4th & 13th.	9·6	10th	47·2
		Skardu		22·957			23·204	11th	22·836	6th	·368	34·2	52·4		30·0		41·2		22·4	62·4	2nd	21·1	30th	41·3
		Dras		20·859			21·062	11th	20·714	28th	·348	23·0	41·7		17·7		29·7		24·0	53·8	1st	9·1	30th	44·7
		Gilgit	4,890	25·287			25·509	11th	25·137	16th	·372	45·9	61·0	−1·0	41·9	−0·9	51·5	−1·0	19·1	73·2	10th	34·1	30th	39·1
		Chitral		24·671			24·800	23rd	24·475	26th	·325	41·1	63·1		36·3		49·7		26·8	74·1	1st	30·0	28th & 29th.	44·1
		Killa Drosh										45·4	62·1		43·2		52·8		19·2	74·3	1st	36·5	28th	37·8
		Murree	6,333	23·926	−·012		24·067	12th	23·807	29th	·260	49·2	59·4	−1·5	42·6	−3·0	51·0	−2·3	16·8	67·2	1st	36·5	7th & 28th.	30·7

* Mean of 29 days.

Note 1.—When a query is inserted against any reading or in the returns

Note 2.—The divisional means of the figure columns Nos. 41, 43, and 45

—continued.

in India, Burma, etc., in November, 1903—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. Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 30th November.	Variation from normal of period, 1st May to 30th November, 1903.	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	56	57	58
												82	+4·5	·703	+·009	5·6	+1·2				8·77	6·05	+2·72					**XI.—South India.**		
2	8	1	2	1	5	4	3	4	N 59° W	11·1	11·3	80		·833		4·0		7	12·00	− 5·00	3·60	11·89	− 8·29	13·71	23·48	− 9·77	1·02	Pamban	Madras (South)	57
	10	1		1	1	4	6	7	N 47° W	3·5	3·4	71	−7·3	·719	−·042	4·0	−1·2	3	9·90	− 6·90	3·18	7·79	− 4·61	10·02	15·07	− 8·05	1·99	Tinnevelly.		
5	6	10	1			1		6	N 10° E	3·3†	3·8†	3·8	− 13	78	+2·2	·746	+·015	4·4	−0·1	8	7·00	+ 1·00	6·93	4·71	+ 2·22	32·41	27·96	+ 4·45	3·06	Madura.		
15		3	2	3	2	2	1	2	S 45° E	1·5	1·7	83		·711		4·5		9	7·40	+ 1·60	3·38	4·81	− 1·43	14·55	21·28	− 6·73	0·71	Periyakulam.		
18			7				5		E	1·6	1·4	3·3	− 52	85	+7·1	·737	+·035	7·2	+2·5	11	5·70	+ 5·30	7·63	3·93	+ 3·70	51·57	36·13	+15·44	1·62	Salem	Madras, (South Central),	34
14		2	5		1	5	2	1	S 5° E	2·2	2·0	2·6	− 15	86	+0·7	·725	+·002	5·1	−0·5	6	6·60	− 0·60	2·48	3·38	− 0·90	20·86	16·96	+ 3·90	0·80	Coimbatore.		
12	7	2	9						N 51° E	5·7	5·3	3·7	+ 54	85	+4·2	·522	+·019	7·6	+2·4	9	4·90	+ 4·10	6·84	2·86	+ 3·98	135·06	121·79	+13·27	1·05	Mercara	Coorg	35
2	1	7	13	2		1	1	2	N 73° E	4·0	3·5	80	+9·1	·582	+·025	5·2	+0·8?	8	2·80	+ 5·20	2·91	2·85	+ 0·06	37·78	23·85	+13·93	0·65	Chitaldroog	Mysore	36
2	4	12	4	1	1	3	1	2	N 41° E	6·1	5·3	3·7	+ 65	85	+7·3	·570	+·027	6·0	+1·9	12	4·20	+ 7·80	9·20	3·33	+ 5·87	50·03	32·61	+17·42	4·09	Bangalore.		
3	2	10	10	3			1	1	N 66° E	1·8	1·5	82	+7·1	·559	+·014	7·0	+1·7	11	4·00	+ 7·00	8·56	2·65	+ 5·91	48·31	31·37	+16·94	1·80	Hassan.		
2	2	7	6			6	4	3	N 7° E	5·7	6·2	83	+6·7	·601	+·019	7·0	+1·7	12	4·10	+ 7·90	9·10	2·28	+ 6·82	48·75	27·29	+21·46	2·56	Mysore.		
13	3	1	2	1	2	2	4	2	N 74° W	5·5	4·8	5·2	+ 6	82	−1·9	·804	−·014	6·2	−0·6	9	13·36	− 4·36	11·43	15·99	− 4·56	39·81	39·74	+ 0·07	3·57	Negapatam	Madras, (East Coast, South)	56
28								2	N 45° W	2·4	3·0	84	−5·5?	·795	−·041	8·0	+2·0	6	11·80	−5·80	4·59	12·74	− 8·15	29·18	41·75	−12·27	1·42	Cuddalore.		
15	7	2			1		3	2	N 19° W	2·3		4·2	− 45	83	+4·0	·758	+·008	6·5	+1·9	6	8·00	− 2·00	7·32	5·09	+ 2·23	32·82	26·25	+ 6·57	2·21	Trichinopoly.		
	10	2	1	3	2	1	3	8	N 23° W	5·1		6·6	− 25	86	+2·6	·792	−·004	6·1	+0·6	12	13·00	− 1·00	17·74	14·08	+ 3·66	53·26	43·01	+10·25	4·95	Madras.		
21	1	1		1	1		2	3	N 56° W	1·4	1·4	87		·730		4·9		13	7·50	+ 5·50	18·80	5·89	+12·91	51·94	34·07	+17·87	5·78	Vellore.		
2	2	2	3	2		1		18	N 29° W	4·1		87	+4·2	·762	−·024	6·3	+1·5	12	8·60	+ 3·40	29·87	7·82	+22·05	49·61	27·96	+21·65	9·96	Nellore	Madras, (East Coast, Central).	55
9	12	5	2	2					N 27° E	4·3	4·1	5·5	− 22	86	+4·3	·745	+·032	5·5	+1·9	9	3·80	+ 5·20	11·72	6·30	+ 5·42	60·47	39·25	+21·22	2·40	Masulipatam		
		3	1	9			5	3	9	S 67° W				82	+6·4	·710	+·015	5·4	+1·5	10	4·80	+ 5·20	11·67	4·01	+ 7·66	46·19	30·74	+15·45	3·34	Cuddapah	Madras, (Central)	54
7		2				10	7	4	S 80° W	2·9		83	+11·9	·653	+·071	4·7	+2·1	4	2·30	+ 1·70	4·08	1·03	+ 3·05	34·26	26·84	+ 7·42	3·17	Kurnool.		
4	6	5	1	1	2	1	2	8	N 15° W	3·1	3·3	3·3	− 6	79	+11·8	·613	+·068	5·4	+1·4	6	2·60	+ 3·40	8·76	1·98	+ 6·78	28·88	18·63	+10·25	6·38	Bellary.		
12	5	10						3	N 20° E	9·2	7·7			87	+13·6	·762	+·112?	5·3	+1·9	11	3·90	+ 7·10	11·55	6·10	+ 5·45	52·25	37·74	+14·51	3·80	Cocanada	Madras, (East Coast, North).	52
5	2	19				2	1	1	N 35° E	11·4		66	−20·2	·609	−·041	6·0	+2·6	8	3·70	+ 4·30	5·09	6·11	− 1·02	29·88	40·50	−10·62	2·51	Waltair (Vizag.).		
1	14							15	N 24° W	8·7	8·5	7·0	+ 24	80	+6·5	·664	+·039	3·4	+0·2	6	2·80	+ 3·20	2·20	4·34	− 2·14	38·72	44·84	− 6·12	1·01	Gopalpur.		
																													XII.—Hill Stations.		
																		2	1·30	+ 0·70	0·35	0·52	− 0·17	0·97	1·07	− 0·10	0·25	Pishin	Baluchistan	48
28				1			1		S 23° W	1·6	1·7	2·7	−41	68	+16·4	·168	+·015	1·2	−0·8	1	1·60	− 0·60	0·22	0·31	− 0·09	1·26	2·72	− 1·46	0·16	Quetta.		
																				0·90		0·31			2·04			Kalat.		
	2	3	9	9			4	3	S 89° E	5·8	6·4			48	+5·2	·179	−·022	0·7	−2·0	0	1·90	− 1·90	0	0·26	− 0·26	0·55	0·58	− 0·03	0	Chaman.		
		1	3		10	10	4	2	S 29° W	2·3		49	-17·7	·069	−·034	3·4	−0·7	0	0·20	− 0·20	0	0·02	− 0·02	0·92	1·77	− 0·85	0	Leh	Punjab	30
10	1	1	2	6	7	1	1	1	S 26° E	2·9	2·7			90	+1·8	·202	+·011	3·5	+0·6	1	1·20	− 0·20	0·26	0·46	− 0·20	20·08	11·71	+ 8·37	0·11	Srinagar.		
																													Gulmarg.		
15		1	5	3	2	1	2	1	S 52° E	2·5	2·3			95		·132		3·0		6			4·28			34·67			2·04	Sonemarg.		
20			2	1	2	3	2		S 17° W	2·9	2·9			85		·167		3·8		0	0·30	− 0·30	0	0·08	− 0·08	5·73	3·03	+ 2·75	0	Skardu.		
26				1			2	1	W	3·0	2·4	82		·103		3·5		1	2·70	− 1·70	0·16	1·14	− 0·98	7·78	7·59	+ 0·19	0·12	Dras.		
25				2	1	1	1		S 6° W	2·7	2·4	53	+1·4	·168	+·003	6·8	+2·8	0	0·10	− 0·10	0	0·05	− 0·05	2·76	2·60	+ 0·16	0	Gilgit.		
28				1	1				S 27° E	0·8	0·7	72		·183		1·9		2			0·25			10·71			0·13	Chitral.		
19	3	1	4		2	1			N 76° E			52		·158		4·2		2			0·25			10·09			0·15	Killa Drosh.		
17	1	1	2	2	4	2		1	S 25° E	5·3	5·7	5·1	+ 4	39	+3·9	·137	+·008	1·1	−1·7	2	2·10	− 0·10	0·38	0·90	− 0·52	36·21	39·80	− 3·59	0·14	Murree.		

of any station, the data for that station are not utilized in calculating the provincial variations, are derived only from the data available.

† Mean of 27 days.

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 during recorded month.	Date.	Lowest pressure during recorded 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
20	Punjab—*concld.*	Kailang	10,087	21·019			21·167	11th	20·866	28th	·301	30·1	51·4	−0·2	24·7	−0·8	38·1	−0·5	26·7	60·2	1st	19·0	29th	41·2
		Poo											59·2		34·7		47·0		24·5	65·0	23rd	30·4	30th	34·6
		Simla	7,224	23·183	−·003		23·256	12th	23·043	29th	·213	47·6	55·6	−0·5	44·4	−0·6	50·0	−0·6	11·2	59·9	1st	36·2	29th	23·7
	North-West Frontier Provinces.	Para Chinar	6,000	24·564			24·652	10th	24·462	29th	·190	47·8	62·4		39·2		50·8		23·2	71·9	1st	29·4	28th	42·5
		Cherat		25·814	−·001		25·902	21st	25·723	29th	·179	53·9	65·4	−1·8	49·9	+0·8	57·7	−0·5	15·5	75·3	3rd	43·0	6th	32·3
25	United Provinces.	Chakrata	7,022	23·337	−·017		23·416	12th	23·201	29th	·215	48·2	52·3	+2·3	44·3	+0·4	53·4	+1·4	18·0	66·5	21st, 23rd & 26th.	39·4	28th	27·1
		Mussooree	6,705	23·610	−·023		23·693	12th	23·465	29th	·228	49·5	57·3	−0·3	45·1	−0·3	51·2	−0·3	12·2	61·7	26th	39·0	28th & 29th.	22·7
		Ranikhet	6,069	24·171	−·009		24·257	12th	24·026	29th	·231	50·8	62·2	−0·3	47·4	−0·1	54·8	−0·2	14·8	65·1	2nd, 21st & 26th.	43·0	28th	22·1
		Muktesar	7,600	22·902			22·982	12th	22·763	29th	·219	50·0	60·3		43·2		51·8		17·1	65·7	23rd	38·2	28th	27·5
		Tanga (Sikkim)										40·4	44·6		20·7		32·7		23·9	51·5	24th	16·0	19th	35·5
13	Bengal	Yatung	10,480										50·8		27·7		39·3		23·1	58·1	7th	22·9	16th & 17th.	35·2
		Darjeeling	7,376	23·067	−·033		23·175	12th	22·923	29th	·252	47·6	55·4	+1·2	42·1	−0·3	48·8	+0·5	13·3	61·2	2nd	37·6	30th	23·6
8	Assam Hill Tracts	Shillong	4,920	25·203			25·303	12th	25·093	29th	·210	56·7	67·2		46·9		57·0		20·3	72·6	2nd	39·0	30th	33·6
		Cherra Poonjee	4,309	25·725			25·861	12th	25·571	29th	·290	59·6	68·9		54·3		61·7		14·6	79·8	15th	49·0	29th	30·8
	Central India	Mount Abu	3·945	26·155	−·009		26·246	19th	26·064	16th	·182	64·2	71·7	−1·8	56·4	−1·5	64·0	−1·7	15·3	77·1	2nd	52·4	11th & 14th.	24·7
		Pachmarhi	3,528	26·555	+·002		26·633	19th	26·486	16th	·147	62·1	73·7	+0·4	46·5	−4·8	60·1	−2·2	27·2	76·1	5th & 6th	41·3	12th	34·8
	South India	Wellington	6,200	24·267	−·012		24·326	19th	24·223	6th	·103	60·6	69·2	+1·9	52·7	+0·7	61·0	+1·3	16·5	73·2	25th	39·2	23rd	34·0
		Kodaikanal	7,388	22·842			22·879	2nd & 19th.	22·792	6th	·087	55·9	62·9		50·1		55·0		12·8	69·8	24th	45·7	21st	24·1
		Ootacamund		23·072			23·115	19th	23·029	26th	·086	56·4	63·2		48·9		56·0		14·3	67·5	24th	36·6	23rd	30·9
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·952	+·022	29·890	30·000	19th	29·897	5th	·103	77·4	86·1	+0·8	74·2	−0·5	80·2	+0·2	11·9	90·0	11th, 12th & 13th.	70·0	17th	20·0
		Colombo	40	29·933	+·016	29·899	29·991	19th	29·886	26th	·105	81·3	88·4	+2·0	74·8	+0·7	81·6	+1·4	13·6	90·5	14th	70·5	27th	20·0
	Persia	Meshed	3,104									44·6			33·4	−2·7						23·0	23rd	
		Teheran		26·067‡			26·340	22nd & 23rd.	25·840	16th	·500	45·8	62·8	+1·4	40·0	−2·2	51·4	−0·4	22·8	73·0	10th	28·0	24th	45·0
		Ispahan		24·383			24·520	22nd	24·200	16th & 17th.	·320	40·1	61·9	0	33·9	−1·9	47·9	−1·0	28·0	74·3	1st	22·4	25th	51·9
		Bushire	14	30·104	+·030	30·077	30·208	21st & 23rd.	29·991	16th	·217	63·2	74·9	−3·2	58·8	−3·5	66·9	+3·4	16·1	86·6	2nd	47·8	22nd	38·8
		Bahrein§	30	30·085			30·200	23rd	29·996	3rd & 30th.	·204	69·4	77·1		65·7		71·4		11·4	89·2	8th	57·8	23rd	31·4
		Jask*		30·068	−·005	30·038	30·165	9th	29·868	4th	·297	73·2	82·8	−0·4	66·7	−2·0	71·8	−1·2	16·1	87·8	1st	55·3	25th	32·5
	Arabia	Muscat	20	29·998	−·070?	29·967?	30·064?	8th	29·855?	16th	·229?	77·8	80·1	+0·1	75·9	+0·6	78·0	+0·4	4·2	84·9	2nd	71·1	28th	13·8
		Baghdad	220	29·994	+·019	30·204	30·151	27th	29·806	10th	·345	51·7	72·9	−1·8	47·6*	−2·0	60·4*	−1·9	25·3	83·0	1st	34·8	18th	48·2
		Busrah††		30·123			30·245	22nd	29·988	15th	·257		73·9		48·8		61·4		25·1	85·3	12th	39·5	24th	45·8
		Aden	94	29·972	+·021	29·999	30·010	22nd	29·870	16th	·140	79·2	84·5	−0·4	74·3	−0·4	79·4	−0·4	10·2	91·3	4th & 5th.	70·9	27th, 28th & 30th	20·4
		Dthala										65·3	81·3		52·3		66·8		29·0	85·7	7 days	50·0	25th	35·7
		Perim	201	29·823	+·021	29·959	29·881	23rd	29·769	4th	·112	81·3	87·5	+0·6	77·7†	+0·6†	82·6†	+0·6	9·8	91·7	5th	74·6	26th, 27th & 30th.	17·1
	Afghanistan	Kabul										33·4	61·6	−5·9	28·2	−6·9◊	44·9	−6·3	33·4	66·2	23rd	25·4	30th	40·8
	Central Asia	Kashgar	4,255									82·5												
	Arabian Sea Islands.	Amini Divi	13	29·956	−·005	29·897	30·008	19th	29·880	30th	·128	82·5	86·7	+1·7	75·4	−0·1	81·1	+0·8	11·3	89·9	13th	68·0	26th	21·9
		Minicoy	7																					
	Africa	Zanzibar	73	29·964	+·002	29·964	30·032	7th	29·859	26th	·173	80·9	84·9	+1·2	77·5	+0·4	81·3	+0·8	7·4	88·3	28th	75·7	2nd & 7th.	12·6
		Do. Dunga		29·892‡			29·911	30th	29·868	29th	·043	79·2	88·5		73·1		80·8		15·4	94·5	2nd	69·4	6th & 8th.	25·1
	Straits Settlements.	Penang§§	20	29·923		29·867	29·968	2nd	29·867	15th	·101	80·3	87·1		73·5		80·3		13·6	90·0	10th & 14th.	72·0	2nd & 8th.	18·0
		Singapore§§	10	29·924		29·856	29·992	8th	29·871	20th	·121	80·9	85·9		73·5		79·7		12·4	89·9	5th & 6th.	72·0	3rd, 11th & 28th.	17·9

Note.—When a query is inserted against any reading or in the returns of

§ Mean of 25 days.
‡ Aneroid uncorrected.
* Mean of 29 days.
† Mean of 28 days.
†† Observations of 2 days.
§§ 9 A.M. observations.

I—*concluded.*

in India, Burma, etc., in November, 1903—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 (uncorrected.)	Percentage variation.	Hygrometry 8 A.M. Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st May to 30th November.	Variation from normal of period, 1st May to 30th November, 1903.	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	56	57	58
	1	4	9	9	5	2			S 62° E	1·0				51		·086		3·0		0			0	0·51	− 0·51	8·32	9·28	− 0·96	0	Kailarg .	Punjab—*concld.*	30
20		1		1	2	4		2	S 45° W									1·1		0			0	0·78	− 0·78	2·63	4·55	− 1·92	0	Poo.		
5	20			1	3				N 3° E	3·6	3·5	1·9	+89	37	−4·5	·121	−·020	1·9	+0·1	0	0·70	−0·70	0·03	0·61	− 0·58	44·08	52·88	− 8·80	0·03	Simla.		
17		2	5	2	4				S 63° E	5·1	4·7			49		·162		2·6		2	2·00	0	0·45	1·05	− 0·60	13·99	13·88	+ 0·11	0·33	Para Chinar	North-West Frontier Province.	
6	17			1	1			5	N 9° W	6·6	6·1			38	−0·6	·157	−·014	2·5	+0·1	0			0	0·12	− 0·12	12·03	12·04	− 0·01	0	Cherat.		
5	18	3						4	N 2° W	7·0	8·4	4·5	+56	45	−7·8	·149	−·036	1·1	−0·3	0	0·70	−0·70	0	0·55	− 0·55	65·88	57·68	+ 8·00	0	Chakrata .	United Provinces.	25
	1	2	6	3	1		9	8	N 46° W					49	−7·8	·179	−·031	1·2	0	0	0·60	−0·60	0	0·81	− 0·81	71·73	84·84	−13·11	0	Mussooree.		
29						1			S 45° W	1·3	1·5	1·2	+ 8	62	−0·8	·229	−·016	1·0	−0·3	0	0·80	−0·80	0	0·32	− ·32	32·15	45·75	−13·60	0	Ranikhet.		
9	1		2	4	1	1	3	9	N 59° W	4·9	4·5			39		·141		1·3		0			0			28·69			0	Muktesar.		
10	1			1	13	2	1	2	S 13° W	2·3				89		·223				0			0			4·94*			0	Tanga (Sikkim).		
																				0	0·86	−0·86	0	0·29	− 0·29	43·33	40·77	+ 2·56	0	Yatung .	Bengal . .	13
6	2	10	5	3	1		1	2	N 60° E	2·2	2·0	1·7	+29	75	−4·1	·253	−·009	2·1†	−1·3	0	0·68	−0·68	0	0·36	− 0·36	98·23	116·54	−18·31	0	Darjeeling.		
16	1	1	5	4		3			S 63° E	1·3	1·5			75	.	·352		1·8		2	1·90	+0·10	2·19	0·78	+ 1·41	90·49	72·01	+18·48	1·99	Shillong .	Assam Hill Tracts.	8
5	1	10	5			2	5	2	N 28° E	3·7	4·3			76		·394		3·7		3	1·20	+1·80	11·12	0·92	+10·20	367·70	388·98	−21·28	10·22	Cherra Poonjee.		
13	1	9	2	1		2		2	N 43° E	3·9	3·9	3·7	+ 5	35	−6·8	·212	−·054	0·4	−1·4	0	0·40	−0·40	0	0·28	− 0·28	47·45	60·73	−13·28	0	Mount Abu	Central India.	
6		6	9	8		1			S 84° E	2·9	3·0	2·5	+16	49	−5·4	·277	−·066	1·9	+0·3	0	0·80	−0·80	0	0·56	− 0·56	86·93	74·04	+12·89	0	Pachmarhi.		
21	3	1		3	2				S 82° E	1·7		2·7	−37	77	−0·3	·411	+·016	5·6	+0·8	11	10·50	+0·50	7·78	7·34	+ 0·44	46·26	38·68	+ 7·58	2·01	Wellington .	South India.	
	5	2	2	3	3	1	1	13	N 27° W	9·8				71		·313		4·3		12	11·30	+0·70	5·85	8·17	− 2·32	50·88	47·72	+ 3·16	1·18	Kodaikanal.		
19	1	1	5	1	1	2			S 79° E	2·5	2·4			77		·349		6·2		12	6·30	+5·70	8·58	4·00	+ 4·58	71·17	39·76	+31·41	2·16	Ootacamund.		
														‡																XIII.—Extra India.		
4				1		18		7	S 64° W					89	+3·0	·838	−·024	2·8	−0·7	9			6·40	13·57	− 7·17	38·53	35·85	+ 2·68	1·18	Trincomalee	Ceylon.	
	9	1	5	4	3	6	2		S 82° E	8·3		5·8	+43	79	+0·7	·852	+·014	4·2	−0·6	4			0·94	13·13	−12·19	58·53	60·83	− 2·30	0·17	Colombo.		
														62		·155		3·0	−1·6	1			0·21	0·51	− 0·30	3·94	1·94	+ 2·00	0·21	Meshed .	Persia.	
9	8	10		1		1	1		N 23° E	2·2	2·8			50	−7·4	·160	−·032	2·6	−0·9	0			0	0·96	− 0·96	1·06	2·03	−0·97	0	Teheran.		
28			1				1		Calm	1·0	1·3			73	−1·9	·185	−0·31	1·6	−2·1	0			0·04	0·92	− 0·88	0·76	1·30	− 0·54	0·02	Ispahan.		
2	10	12	2					4	N 20° E	6·0	7·1			70	+3·1	·424	−0·34	1·3	−1·8	0			0	1·79	− 1·79	0	1·87	− 1·87	0	Bushire.		
2	7	1		3	1	1	3	7	N 34° W					80		·581				0			0			0			0	Bahrein.		
2	9	8	6					4	N 27° E	10·6	8·8			58	−9·0	·481	−·098	0·6	−1·2	0			0	0·49	− 0·49	0	0·66	−0·66	0	Jask.*		
3								27	N 45° W	2·7	2·8			66	−2·4	·647	−·010	0·6	−0·9	0			0·04	0·61	− 0·57	0·07	1·03	− 0·96	0·04	Muscat .	Arabia.	
19	2			1	2		2	4	N 63° W	1·7	2·3	2·3	−26	59	−4·6	·242	−·045	1·8*	+0·5	1			0·20	0·92	− 0·72	0·20	1·29	− 1·09	0·14	Baghdad .		
																				0			0			1·28a			0	Busrah.††		
	1	16	13						N 63° E	12·2	9·9	11·6	+ 5	63	−8·9	·627	−·059	3·0	−0·8	1			0·42	0·23	+ 0·19	0·47	0·74	− 0·27	0·39	Aden.		
	4	18	5	3					N 53° E	6·3†	6·4†							0		1			0·29			3·83b			0·29	Dthala.		
		16	2	12					N 82° E	18·8	19·0			66	−5·0	·697	−·045	1·0	−2·0	0			0	0·04	− 0·04	1·27	0·95	+ 0·32	0	Perim.		
	6		6		1	2	7	7	N 38° W					72		·139		2·0	+0·3	2			0·63	0·72	− 0·09	4·53a	2·20		0·45	Kabul** .	Afghanistan.	
																								0·03			3·09			Kashgar .	Central Asia.	
11	3	6	1	1	1	1	2	4	N 3° E					70	−8·5	·783	−·075	5·9	+1·9	4			0·75	1·58	− 0·83	56·59	45·32	+11·27	0·26	Amini Divi.	Arabian Sea Islands.	
																								4·15			45·73			Minicoy.		
1	3	10	5	10	1				N 64° E	4·3	4·1			83	+0·5	·868	+·030	6·0	0	11			8·15	9·28	− 1·13	26·81	30·63	− 3·82	2·22	Zanzibar .	Africa.	
		8		11	2	6		2	S 49 E	8·7*	8·5*			85		·844		5·0		3			4·19			28·93			3·00	Do. Dunga.	(*a*)	
3	13	6	2	4				2	N 27° E	6·3								3·0		15			14·70			85·25			3·97	Penang .	Straits Settlements.	
	2	9				1	2	16	N 23° W									6·8		15			10·13			49·35			2·12	Singapore.		

any station, the data for that station are not utilized in calculating the provincial variations.

‡ Mean of 15 days.

(*a*) Wind observations of 29 days.

** Wind variable.

(*a*) Total rainfall from 1st May to 30th September and 1st to 30th November.
(*b*) Rainfall since 1st August 1903 to date.

Table II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63 Stations in India, Burma, etc., in November 1903.

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 of daily mean pressures.	Departure from normal.	Mean reduced to S. L. and 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 of daily means.	Departure from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.
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	29·906	29·792	·114	29·848	+·004	29·840	85·2	76·9	8·3	88·2	75·0	13·2	83·1	83·1	80·2	− 0·4	74·7	79·2	78·5	77·5
	Rangoon‡‡	57	·923	·815	·108	·869	−·012	·864	87·5	74·1	13·4	89·4	71·8	17·6	82·4	84·9	79·1	+ 1·2	72·4	75·3	76·5	74·7
	Diamond Island	41	·938	·827	·111	·882	−·015	·858	85·3	77·2	8·1	88·9	74·2	14·7	82·9	84·0	80·6	+ 1·5	73·5	77·4	76·8	75·9
	Cocos Island	119	·846	·739	·107	·792	?	·843	84·9	77·1	7·8	87·4	74·1	13·3	82·9	81·6	79·8	+ 0·6	73·2			
	Akyab	20	·964	·855	·109	·913	−·026	·876	83·7	72·5	11·2	86·9	68·2	18·7	79·2	80·4	77·7	− 0·2		75·9	75·4	
Bengal and Orissa.	Chittagong	87	·902	·789	·113	·844	−·033	·880	82·2	67·2	15·0	86·7	60·0	26·7	77·3	78·8	74·3	+ 0·3	66·5	72·4	72·4	70·4
	Calcutta (Alipore)	21	30·005	·893	·112	·941	−·020	·908	81·3	64·8	16·5	84·4	57·9	26·5	76·6	79·4	72·5	+ 0·1	63·4	68·6	68·9	67·0
	Saugor Island	25	29·983	·874	·109	·923	−·028	·892	81·7	68·1	13·6	85·9	62·0	23·9	77·5	78·9	73·9	+ 0·5	65·5	70·5	70·0	68·7
	False Point	21	·998	·891	·107	·944	−·028	·907	81·1	67·2	13·9	83·4	56·4	27·0	77·9	78·3	73·1	+ 0·1	65·5	70·1	70·2	68·6
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·992	27·894	·098	27·939	−·027	·925	75·9	56·2	19·7	79·4	50·2	29·2	70·4	73·7	65·2	− 1·6	52·1	58·1	58·9	56·4
	Darbhanga	166	29·870	29·752	·118	29·806	−·017	·928	80·9	60·0	20·9	84·5	49·8	34·7	76·2	78·4	69·4	− 1·9	58·3	67·2	66·8	64·1
	Allahabad	369	·739	·630	·109	·674	−·011	·944	81·8	54·6	27·2	86·5	48·1	38·4	73·0	79·4	66·7	− 2·3	52·1	62·8	61·9	60·0
Upper Sub-Himalayas.	Dehra Dun	2,233	27·763	27·685	·078	27·713	−·031	·953	75·2	50·7	24·5	79·7	44·1	35·6	66·1	70·7	61·1	− 1·3	47·4	56·0	58·6	54·0
	Roorkee	899	29·108	29·008	·100	29·046	−·039	·936	79·4	48·8	30·6	85·0	40·1	44·9	69·0	75·3	62·4	− 1·5	47·7	58·8	60·1	55·5
	Meerut	738	·276	·178	·098	·218	−·029	·941	82·1	50·7	31·4	89·1	44·9	44·2	68·3	77·8	64·7	− 0·1	47·4	56·4	60·1	54·6
	Lahore	702	·323	·233	·090	·268	−·027	·955	83·3	49·3	34·0	92·9	42·1	50·8	70·8	80·8	64·3	+ 1·9	46·6	58·4	62·7	55·9
	Ludhiana	812	·205	·114	·091	·149	−·017	·950	80·3	51·2	29·1	88·1	41·7	46·4	68·8	77·6	63·9	+ 0·9	48·2	53·8	58·2	53·4
Indus Valley and N. W. Rajputana.	Peshawar	1,110	28·944	28·850	·094	28·887	−·018	30·010	77·2	48·0	29·2	84·1	38·6	45·5	69·0	73·9	60·3	+ 1·7	42·4	56·1	58·0	52·2
	Jacobabad	186	29·674	29·762	·112	29·808	−·008	29·956	87·8	51·6	36·2	97·9	41·9	56·0	76·6	82·6	67·0	+ 1·3	47·9	62·8	66·6	59·1
	Kurrachee	30	30·043	·938	·105	·986	+·002	·967	88·2	61·1	27·1	91·6	51·4	40·2	81·3	83·0	74·0	− 0·1	55·8	66·4	70·2	64·1
East Rajputana, Central India and Gujarat.	Jaipur	1,431	28·620	28·521	·099	28·560	−·062	·963	85·3	52·1	33·2	91·2	44·6	46·6	77·5	82·6	67·0	− 0·7	45·2	57·7	59·7	54·2
	Udaipur	1,925	·125	·014	·111	·070		·965	82·2	48·2†	34·0	86·7	43·8	42·9	75·3	80·0	64·7†		45·1	57·1	58·9	53·7
	Deesa	466	29·576	29·463	·113	29·512	+·001	·933	91·4	54·6	36·8	96·3	50·9	45·4	83·4	88·9	72·8	− 1·2	47·1	60·6	62·4	56·7
	Jamnagar	61	·991	·872	·119	·931		·938	88·0	58·9	29·1	94·8	54·3	40·5	81·3	85·8	72·9		52·1	63·2	63·2	59·5
Deccan.	Belgaum	2,539	27·435†	27·336	·099	27·380	−·004	·833†	81·3	60·4	20·9	84·5	50·0	34·5	75·4†	79·0	70·2	− 0·6	57·6	63·9†	64·5	62·2
	Sholapur	1,590	28·405	28·277	·128	28·339	−·008	·873	86·8	61·5	25·3	91·0	51·8	39·2	78·7	84·2	73·1	− 0·6	56·5	63·8	65·0	61·8
	Akola	930	29·106	·977	·129	29·037	+·005	·926	86·7	53·7	33·0	90·6	46·8	43·8	78·3	85·4	70·8	− 1·6	49·9	62·9	64·7	59·2
	Buldana	2,132	27·890	27·781	·109	27·831	−·001	·908	81·6	60·2	21·4	85·7	54·1	31·6	77·0	79·9	71·3	− 0·9	51·6	59·9	60·1	57·2
	Khandwa	1,044	28·986	28·862	·124	28·920	+·002	·927	87·7	52·0	35·7	92·2	47·1	45·1	77·2	85·3	69·3	− 1·2	48·0	60·5	63·5	57·3
	Nagpur	1,025	29·015	·894	·121	·951	+·014	·941	84·8	57·0	27·8	88·6	52·2	36·4	75·7	82·7	71·3	− 1·4	52·3	61·6	63·7	59·2
	Nagpur (Sanitary Commr.'s Office)	1,013	·018	·894	·124	·952		·933	84·8	57·2	27·6	88·2	52·1	36·1	77·1	82·5	70·4		52·6	62·6	64·3	59·8
	Hyderabad (Deccan)	1,690	28·304	·193	·111	·247	−·028	·893	81·7	62·8	18·9	89·0	52·5	36·5	75·8	78·8	71·5	− 0·5	61·3	67·3	68·9	65·8
West Coast.	Bombay	37	29·961	29·853	·108	29·901	−·009	·879	86·3	72·3	14·0	90·5	68·3	22·2	79·1	82·3	78·0	− 1·1	67·4	71·6	74·3	71·1
	Karwar	11	·934	·821	·113	·871	+·006	·847	86·9	68·9	18·0	89·9	59·6	30·3	79·8	84·3	76·9	− 0·6	66·6	72·3	74·6	71·2

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

II.

Stations in India, Burma, etc., in November, 1903.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Total number of 10 hours and 16 hours winds from										Wind steadiness.		Wind velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.	Departure from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.	Departure from normal.	Mean 10 hours.	Mean 16 hours.	Mean of two previous columns.	Departure 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
																									%	%						
·832	·948	·914	·898	−·025	90	83	81	85	+3	5·5	5·2	5·4	+0·1		2	11	3	23	7	3	4	7	S. 56° E.	N. 81° E.	32	44	191* (a)	165	11·20	3·02	Port Blair	Burma Coast and Bay Islands.
·777	·784	·802	·788	+·006	92	71	68	77	−1	1·7	2·0	1·9	−2·3		12	9	17	10	5			3	N. 65° E.	N. 63° E.	36	56	39*	97	0·07	0·07	Rangoon	
·772	·868	·824	·821	+·030	83	77	70	77	−1	3·5	3·7	3·6	−0·9	4	1	13	14	16	2	2	2	6	S. 87° E.	N. 60° E.	45	59	210*	222	3·69	1·14	Diamond Island.	
·772					82					4·3	4·4	4·4	−0·2		6	16	18	13	5	1		1	N. 85° E.	N. 80° E.	62	33		?	3·81	1·46	Cocos Island.	
	·856	·818				86	79			4·3	2·9	3·6	+0·4		3	10	10	6	6	4	3	18	N. 15° E.	N. 3° E.	17	31	68*	55	9·41	3·23	Akyab	
·647	·733	·714	·698	+·014	96	78	72	82	+3	3·3	3·2	3·3	+0·4		7	18	3	6	1	3	5	17	N. 2° E.	N. 19° W.	40	48	73*	63	5·19	2·45	Chittagong	Bengal and Orissa.
·571	·598	·570	·580	−·001	92	65	57	71	−2	2·4	3·9	3·2	+0·7	2	15	7	1	1		1		33	N. 23° W.	N. 14° W.	76	59	73	62	0·02	0·02	Calcutta (Alipore).	
·600	·656	·618	·625	−·012	86	69	62	72	−3	3·6	4·4	4·0	+1·1		32	10	2	1	1	1	1	12	N. 1° W.	N. 3° E.	28	60	204	167	0·19	0·11	Saugor Island.	
·621	·638	·635	·631	+·003	92	66	65	74	0	5·5	5·6	5·6	+2·0		28	17	8			2	1	4	N. 20° E.	N. 27° E.	73	59	144*	153	0·42	0·22	False Point	
·344	·336	·318	·333	−·027	75	44	37	52	−2	2·0	1·7	1·9	−0·6	4	23	8			1	2	4	18	N. 18° W.	N. 30° W.	68	45	121*	110	0	0	Hazaribagh	Gangetic Plain and Chota Nagpur.
·470	·551	·507	·509	−·025	90	60	51	67	−3	0·2	0·3	0·3	−0·5	43			1	1		2	11	2	S. 86° W.	S. 85° W.	20	40	15†	41	0	0	Darbhanga	
·359	·439	·423	·407	−·005	84	54	42	60	−2	0·6	0·8	0·7	−0·5	6	3		1		1	4	23	22	N. 70° W.	N. 52° W.	72	23	53*	49	0	0	Allahabad	
·291	·327	·344	·321	−·021	78	51	46	58	−3	1·2	1·0	1·1	−0·3	7	4	1		3	8	9	16	11	S. 82° W.	S. 89° W.	47	17	338	34	0	0	Dehra Dun	Upper Sub-Himalayas.
·373	·365	·322	·337	−·008	92	51	37	60	+2	0·9	0·7	0·8	−0·2	28		1	2	13	3			13	S. 49° E.	N. 88° W.	7	4	35	26	0	0	Roorkee	
·288	·301	·291	·293	−·042	77	43	30	50	−6	0·6	0·6	0·6	−0·2	24	3		2			2	22	7	N. 76° W.	N. 57° W.	45	40	21*	29	0	0	Meerut	
·286	·328	·333	·316	+·001	80	44	32	52	+2	1·4	2·1	1·8	+0·4	25	10		1	1	3	1	12	7	N. 57° W.	N. 45° W.	32	18	29	32	0	0	Lahore	
·301	·220	·233	·251	−·062	80	31	24	45	−8	0·9	1·3	1·1	−0·8	13		2	1				43	1	N. 87° W.	N. 45° W.	68	33	28*	23	0	0	Ludhiana	
·206	·299	·292	·266	−·006	61	42	35	46	−7	2·0	1·7	1·9	−0·4	48	1		1		4	1	2	3	S. 66° W.	N. 76° E.	7	12	14*	51	0·08	0·08	Peshawar	Indus Valley and N.-W. Rajputana.
·293	·407	·453	·384	+·036	75	44	40	53	+9	0·9	1·2	1·1	−0·3	49	2	1	1	1		1	1	4	N. 27° W.	N. 13° W.	8	11	47*	40	0	0	Jacobabad	
·389	·463	·573	·475	+·025	70	43	51	55	+1	1·4	0·9	1·2	0	2		8	3	7	4	26	9	1	S. 35° W.	N. 85° W.	42	18	125*	193	0	0	Kurrachee	
·218	·235	·231	·228	−·069	55	24	20	33	−10	1·4	1·0	1·2	−0·3	2	12	2	2		1	12	9	20	N. 57° W.	N. 19° W.	55	36	55	66	0	0	Jaipur	East Rajputana, Central India and Gujarat.
·265†	·244	·239	·249		78†	28	23	43		0·6	0·9	0·8		33		7	11	4	3		1	1	S. 89° E.		28		36*		0	0	Udaipur	
·228	·228	·212	·222	−·059	53	20	15	29	−5	0·7	0·6	0·7	−0·8		9	16	17	7	4		1	6	N. 62° E.	N. 61° E	53	48	152	181	0	0	Deesa	
·308	·343	·281	·310		61	32	23	38		0·9	0·9	0·9		2	26	23	2					7	N. 17° E.		82		204*		0	0	Jamnagar	
·455	·458†	·432	·453	−·011	84	52†	45	61	+2	4·2	4·0	4·1	+0·7	2	5	19	23	5		1	2	1	N. 68° E.	N. 76° E.	68	64	217*	267	0·63	0·34	Belgaum	Deccan.
·413	·415	·385	·404	−·056	72	42	33	49	−4	3·9	4·1	4·0	+0·4	1	4	35	11	8				1	N. 60° E.	N. 77° E.	79	65	243*	199	0·49	0·21	Sholapur	
·317	·374	·338	·343	−·067	76	38	27	47	−6	1·0	1·6	1·3	−0·4	21	2	15	14	6			1	1	N. 72° E.	N. 61° E.	48	49	61*	85	0	0	Akola	
·281	·307	·279	·289	−·106	53	33	27	38	−12	0·9	1·7	1·3	−1·0		13	16	15	9				7	N. 50° E.	N. 61° E.	60	52	194*	122	0	0	Buldana	
·289	·323	·314	·309	−·000	73	35	26	45	−4	0·6	0·8	0·7	−0·9		4	39	10	6				1	N. 56° E.	N. 58° E.	84	52	59	64	0	0	Khandwa	
·340	·376	·358	·358	−·073	72	42	32	49	−6	2·0	2·6	2·3	−0·2	7	20	15	13	2				3	N. 36° E.	N. 54° E.	65	60	54*	95	0	0	Nagpur	
·346	·394	·378	·373		73	42	34	50		2·0	2·8	2·4		10		31		1				18	N. 16° E.		59		27*		0	0	Do. (Sanitary Commr.'s Office).	
·539	·570	·587	·565	+·033	92	63	60	72	+5	4·9	4·7	4·8	+1·6	23	5	9	21	2					N. 71° E.	S. 72° E.	50	67	81*	88	2·03	0·85	Hyderabad (Deccan)	
·609	·682	·745	·679	−·015	76	68	67	70	0	1·1	1·6	1·4	−0·7		1	11	12	3	2		9	22	N. 8° W.	N. 18° E.	33	52	261	235	0	0	Bombay	West Coast.
·634	·699	·729	·687	−·019	89	68	62	73	−1	3·0	3·5	3·3	+0·9	5	11	8				1	16	19	N. 40° W.	N. 31° W.	64	46	71	60	1·06	0·49	Karwar	

(a) Mean of 27 days. § Mean of 29¾ 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.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean of daily mean pressures.	Pressure. Departure from normal.	Pressure. Mean reduced to S. L., and 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 of daily means.	Departure from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.
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	29·012	28·890	·122	28·960			85·6	69·5	16·1	90·1	61·0	29·1	80·3	81·9	76·6		67·6	72·6	73·3	71·1
	Salem	940	·037	·913	·124	·980	−·019	29·864	84·9	69·5	15·4	91·2	62·1	29·1	77·9	80·1	75·6	−0·5	68·0	73·0	73·9	71·6
	Chitaldroog	2,405	27·579	27·468	·111	27·524	−·022	·867	78·9	63·4	15·5	83·9	54·9	29·0	73·5	76·2	70·5	−1·3	61·3	66·2	66·5	64·7
	Bangalore	3,021	26·981	26·876	·105	26·932	−·015	·867	76·8	61·9	14·9	84·1	52·2	31·9	71·6	73·9	68·6	−1·2	61·2	65·5	66·2	64·3
	Hassan	3,091	·915	·815	·100	·868	−·027	·867	77·9	60·3	17·6	82·6	48·5	34·1	72·6	73·9	68·1	−1·5	59·4	65·0	65·2	63·2
	Mysore	2,518	27·468	27·359	·109	27·414	−·022	·863	80·4	63·6	16·8	85·1	54·2	30·9	74·5	76·1	70·9	−2·0	63·0	67·4	67·9	66·1
	Madras	22	29·952	29·840	·122	29·395	−·023	·847	82·9	72·1	10·8	89·8	66·0	23·8	79·3	79·6	76·9	−1·2		74·5	74·6	73·7
	Bellary	1,475	28·504	28·381	·123	28·443	−·018	·870	84·1	65·5	18·6	93·0	55·3	37·7	76·4	80·4	73·5	−1·7	63·0	69·4	70·4	67·6
	Waltair	226	29·777	29·671	·106	29·724		·894	82·5	71·2	11·3	87·8	64·9	22·9	79·6	79·8	76·2		66·5	69·2	70·3	68·7
Hill Station, Baluchistan.	Quetta	5,502	24·788	24·706	·082	24·737	+·011		64·3	32·7	31·6	72·2	21·4	50·8	55·3	59·1	47·2	−0·2	30·7	43·3	44·5	39·5
Hill Stations, Northern India.	Leh	11,503	19·760	19·655	·105	19·709	−·024		45·0	18·9	26·1	53·2	11·9	41·3	33·9	42·0	32·0	−0·5	15·5	23·2	26·6	21·8
	Srinagar	5,204	25·044	24·948	·096	24·986	−·013		57·4	33·3	24·1	65·7	26·0	39·7	45·3	55·5	44·9	−0·1	31·8	42·9	51·2	42·0
	Simla (Ridge)	7,224	23·207	23·151	·056	23·169	−·001		55·4	44·4	11·0	59·1	36·2	22·9	51·0	51·3	48·7	−1·0	36·3	39·8	41·2	39·1
	Chakrata	7,022	·361	·307	·054	·324	−·019		62·2	44·3	17·9	66·5	37·9	28·6	55·1	53·9	51·0	+0·5	37·2	44·1	44·3	41·9
	Ranikhet	6,069	24·191	24·123	·068	24·144	−·014		62·0	47·4	14·6	65·1	42·8	22·3	57·8	57·6	53·4	−0·6	42·3	48·2	48·4	46·3
	Muktesar	7,600	22·925	22·864	·061	22·895			60·1	43·2	16·9	65·7	38·2	27·5	54·7	53·2	49·9		35·8	43·3	43·9	41·0
	Katmandu	4,388	25·764	25·680	·084	25·718	†		71·1	45·9	25·2	76·1	40·3	35·8	59·5	65·8	57·2	−1·1	44·7	54·6	56·8	52·0
	Darjeeling	7,376	23·075	23·027	·048	23·047	−·020		54·8	42·1	12·7	61·2	37·6	23·6	51·1	53·0	48·0	+0·6	39·7	47·0	49·3	45·3
Hill Stations, Central India.	Mount Abu	3,945	26·171	26·099	·072	26·128	−·014		71·5	56·3	15·2	76·9	52·3	24·6	68·3	68·8	63·2	−1·5	46·1	52·0	52·8	50·3
	Pachmarhi	3,528	·567	·492	·075	·526	−·001		73·5	46·5	27·0	76·1	41·5	34·6	67·3	70·1	59·9	−2·1	43·6	51·0	55·8	51·1
	Chikalda	3,642	·441	·347	·094	·390	−·014		74·7	56·3	18·4	78·2	51·2	27·0	69·9	71·0	65·4	−1·5	49·0	56·4	57·7	54·3
Hill Stations, S. India.	Kodaikanal	7,688	22·853	22·774	·079	22·812			62·8	50·1	12·7	69·8	45·7	24·1	60·0	57·1	55·0		44·7	53·1	54·1	50·5
	Ootacamund		23·062	23·008	·074	23·045			63·2	48·8	14·4	67·5	36·6	30·9	60·5	57·9	54·7		46·1	53·6	54·7	51·5
	Dodabetta		22·025	21·927	·098	21·976			56·4	48·2	8·2	61·9	44·8	17·1	55·1	53·2	51·5		44·3‡	50·5	49·5	48·1
Extra India.	Aden	94	29·982	29·842	·140	29·916	+·010	·942	84·3	74·3	10·0	91·5	70·7	20·8	81·7	83·4	79·3	+0·4	67·6‖	71·8	70·4	69·9
	Perim	201	·828	·720	·108	·778	+·010	·913	87·3	77·7§	9·6	91·7	74·6	17·1	84·6	83·7	81·6§	+0·7	69·3	74·1	73·4	72·3
	Minicoy	7											Imperfect.									
	Zanzibar	73	·967	·853	·114	·910	−·010	·910	85·1	77·5	7·6	88·4	75·7	12·7	81·9	84·6	81·2	+1·6	73·0	77·2	77·4	75·9
	Port Victoria (Seychelles).	15	30·004	·916	·088	·960	+·018	·899	81·9	71·5	10·4	83·7	67·9	15·8	80·8	81·0	76·4	−2·6	70·8	75·4	74·8	73·
	Mauritius (Pamplemouses).	191				·903	+·013	30·031				88·4	60·1	28·3			73·6	−1·5				66·6

† Mean of 29 days. ‡ Mean of 23 days. § Mean of 28 days.

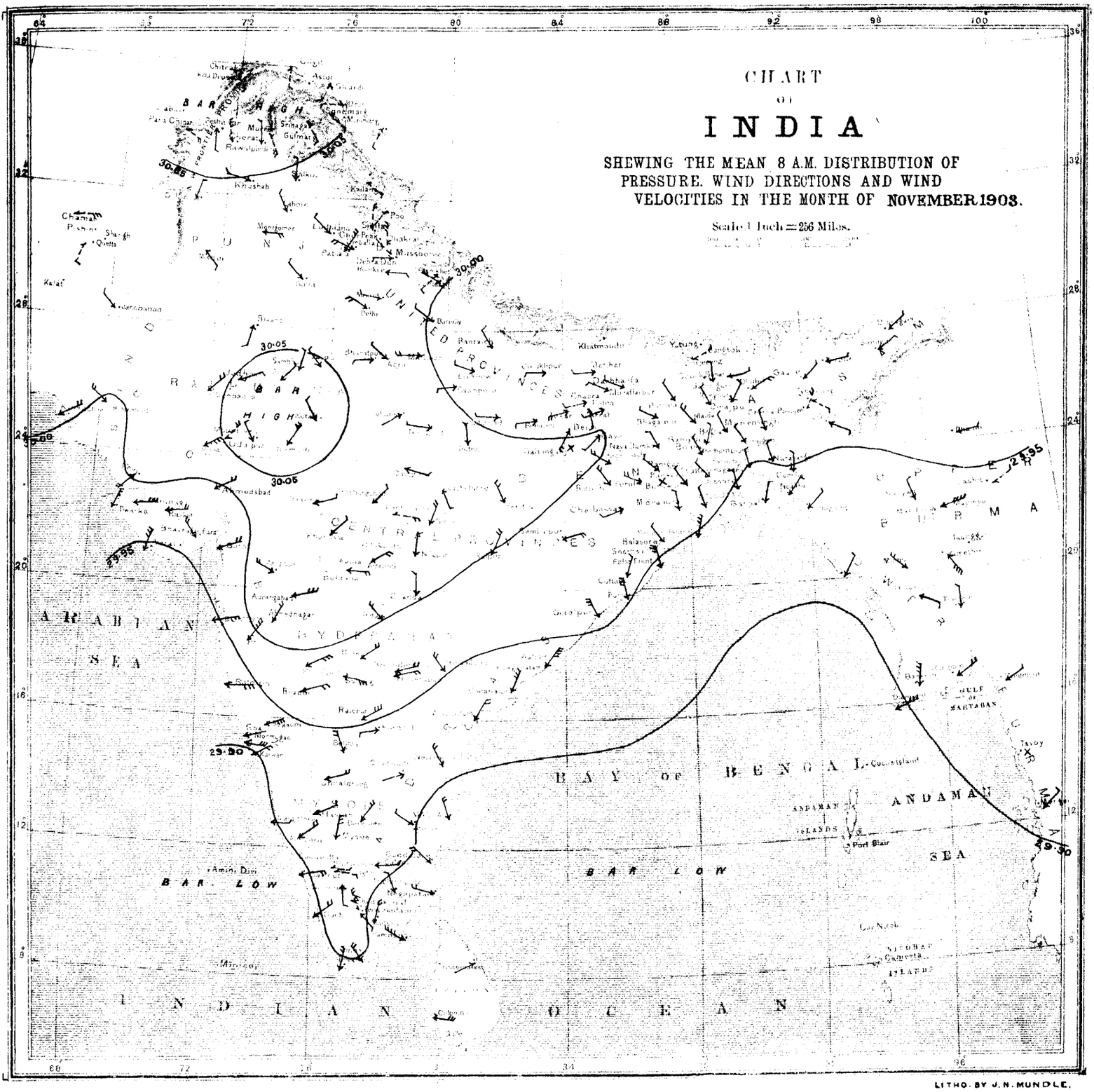
II—*concluded.*

Stations in India, Burma, etc., for November, 1903—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind direction.										Wind steadiness.		Wind velocity.		Rainfall.		Station.	Meteorological Province.
														Total number of 10 hours and 16 hours winds from																	
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.	Departure from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.	Departure from normal.	Mean 10 hours.	Mean 16 hours.	Mean of two previous columns.	Departure 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
																									%	%						
																									15		40*		3·38	0·71	Periyakulam	South India.
·655	·700	·702	·690		90	68	66	75		4·4	7·1	5·8		6	10	5	5	11	13	1	5	4	S. 56° E.								
·670	·751	·765	·729	+·069	92	78	74	81	+ 6	7·7	8·0	7·9	+2·7	26	1	3	13	2	2	7	6		S. 47° E.	N. 87° E.	13	24	36*	74	7·63	1·62	Salem.	
·528	·558	·535	·540	+·046	88	68	60	72	+ 7	5·6	5·6	5·6	+0·9	4	4	18	26	2			2	4	N. 64° E.	N. 74° E.	68	72	82*	160	2·91	0·65	Chitaldroog.	
·540	·561	·559	·553	+·021	96	72	68	79	+ 6	6·1	6·7	6·4	+1·5	2	10	17	10	4	5	2	1	9	N. 40° E.	N. 61° E.	42	64	129	108	9·20	4·09	Bangalore.	
·509	·541	·527	·526	−·010	94	67	64	75	+ 2	6·7	6·8	6·8	+0·4		2	26	22	6		1		3	N. 67° E.	N. 71° E.	75	77	37*	86	8·56	1·80	Hassan.	
·576	·588	·587	·584	+·014	97	68	66	77	+ 9	6·9	6·8	6·9	+0·4		10	16	10	4	2	7	5	6	N. 33° E.	N. 78° E.	32	72	148*	219	9·10	2·56	Mysore.	
	·796	·793	·794	+·023		80	78	86	+ 5	6·7	6·6	6·7	+0·7		24	7	4	6	9	3		7	N. 18° E.	N. 24° E.	33	64	122	156	17·74	4·95	Madras.	
										5·3	6·5	5·9	+1·0	3	10	14	19	3	1	1	2	7	N. 48° E.	N. 81° E.	53	55	77*	77	8·76	6·38	Bellary.	
·560	·642	·631	·611	+·071	87	70	61	73	+11																80		119		5·09	2·51	Waltair.	
·599	·587	·625	·604		77	58	61	65		6·1	5·7	5·9			3	42	8	3	2	1		1	N. 54° E.								
																																Hill Station, Baluchistan.
·156	·162	·148	·155	+·004	82	37	30	50	+ 3	0·8	1·7	1·3	−0·2	13	6	1		2	2	4	13	19	N. 63° W.	N. 51° W.	50	40	39*	54	0·22	0·16	Quetta.	
·063	·048	·046	·052	−·040	59	23	16	33	−21?	3·4	4·5	4·0	−0·1			2	1		15	27	14	1	S. 44° W.	S. 21° W.	75	34	57	44	0	0	Leh.	
·166	·251	·334	·250	+·023	86	82	74	81	+ 3	3·4	3·6	3·5	+0·3	10	8	1	3	7	4	2	7	18	N. 48° W.	N. 16° E.	28	18	64*	6	0·26	0·11	Srinagar.	
·133	·133	·157	·141	−·033	46	36	41	41	− 7	2·0	2·0	2·0	−0·3	17	22	2			18			1	N. 7° E.	S. 12° W.	10	18	82*	101	0·03	0·03	Simla (Ridge).	
·151	·178	·194	·174	−·025	52	40	46	46	− 9	1·6	1·8	1·7	0	16	5	1		12	24			2	S. 17° E.	S. 61° W.	45	30	202*	115	0	0	Chakrata.	Hill Stations, Northern India.
·220	·240	·248	·236	−·014	67	50	52	56	− 3	1·5	1·1	1·3	−0·2	29						19	8	4	S. 66° W.	S. 53° W.	43	35	34*	37	0	0	Ranikhet.	
·138	·166	·196	·167		49	39	48	45		1·7	1·8	1·8		25	3	1	1	3	3	5	4	15	N. 69° W.		25		108*		0	0	Muktesar.	
·287	·376	·365	·343	+·006	91	73	57	74	+ 2	2·1	1·9	2·0	−0·5		3	2	11	1	2	2	35	4	N. 83° W.	N. 80° W.	43	45	20	14	0	0	Katmandu.	
·222	·283	·317	·274	+·009	82	75	79	79	− 1	3·1†	4·7†	4·1	−0·3	3	3	17	7	9	2		7	12	N. 33° E.	N. 79° W.	30	12	61*	64	0	0	Darjeeling.	
·195	·204	·216	·205	−·039	43	29	31	34	− 5	0·9	0·9	0·9	−0·6	2	10	13	6	10	6	5	1	7	N. 60° E.	N. 54° E.	25	21	93*	91	0	0	Mount Abu.	Hill Stations, Central India.
·255	·266	·283	·268	−·045	80	40	38	53	− 2	1·7	2·2	2·0	−0·1	3	2	28	9	13		2		3	N. 69° E.	N. 46° E.	62	41	70*	63	0	0	Pachmarhi.	
·266	·302	·325	·297	−·069	59	41	43	47	− 8	0·7	0·5	0·6	−1·8	53	7								N	N. 7° W.	12	19	149*	114	0	0	Chikalda.	
·253	·341	·392	·328		68	67	84	76		5·9	6·3	6·1		1	7	3	4	5	12	1	4	23	N. 51° W.		25		237		5·85	1·18	Kodaikanal.	
·294	·347	·398	·346		82	67	83	77		6·4	7·5	7·0		26	4	8	11	2	1	4	1	3	N. 62° E.		23		57*		8·58	2·16	Ootacamund	Hill Stations, S. India.
·254‖	·322	·317	·298		75‡	74	78	76		5·0	6·2	5·6		17	7	2	5	6	5	11	4	3	S. 25° W.		12		172		6·79	1·40	Dodabetta.	
																											†					
·581‖	·650	·573	·601	−·052	67‖	60	50	59	− 7	2·6	0·4	1·5	−0·7		3	17	7	12	2	12		7	N. 86° E.	S. 87° E.	23	66	224*	311	0·42	0·39	Aden.	
·611§	·718	·638	·656	−·016	64§	62	49	58	− 4	0·9	0	0·5	−1·3			11	2	47					S. 59° E.	S. 62° E.	84	82	458*	491	0	0	Perim.	Extra India.
																															Minicoy.	
·755	·872	·850	·826	+·007	80	80	71	77	− 4	6·9	4·4	5·7	0	1	7	15	15	6	10	4	1	1	N. 87° E.	S. 31° E.	42	29	98*	115	8·15	2·22	Zanzibar.	
·751	·816	·785	·784	−·035	97	77	74	83	+ 1	6·4	6·9	6·7	−0·2	18	4	4	5	6	9	4	2	8	S. 25° E.	S. 70° E.	7	30	104	140	12·09	5·17	Port Victoria (Seychelles).	
			·546	−·048				66	− 2			4·9	−0·6										S. 84° E.	S. 83° E.			250	252	1·01	0·41	Mauritius (Pamplemousses).	

‖ Mean of 18 days. * Corrected.

G.I.C.P.O.—No. 9 Meteo.—30·4·04.—385—W. H. D'R.

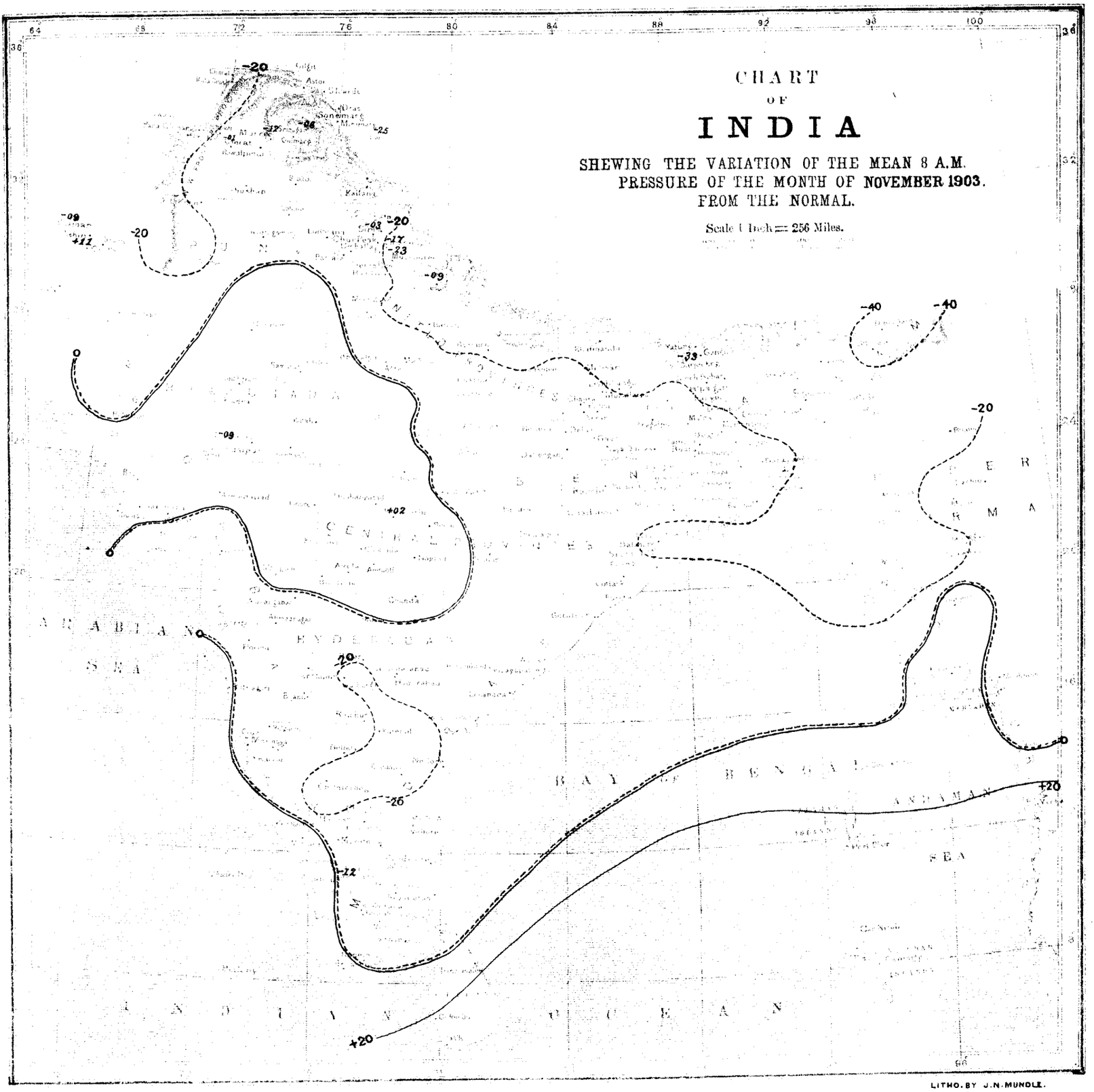


Explanation.

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.

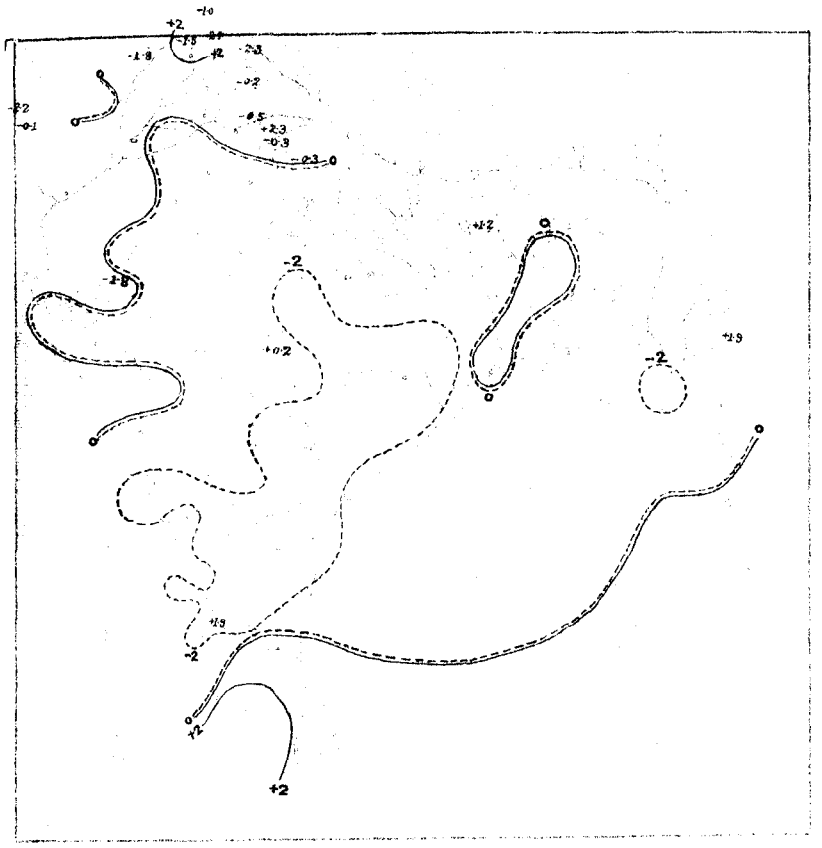
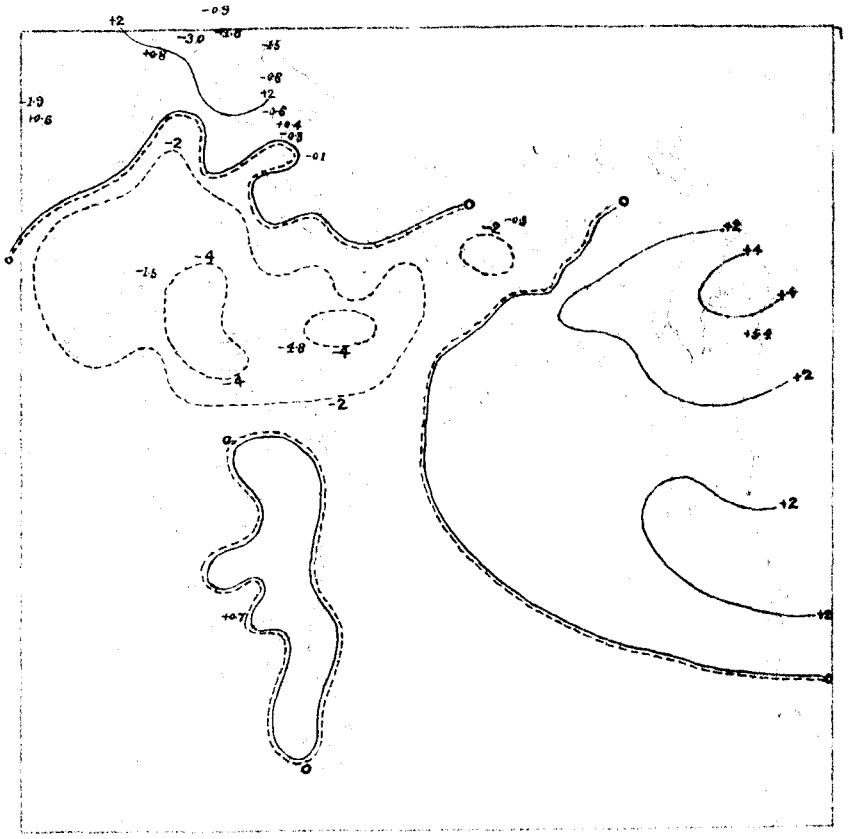


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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 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 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.

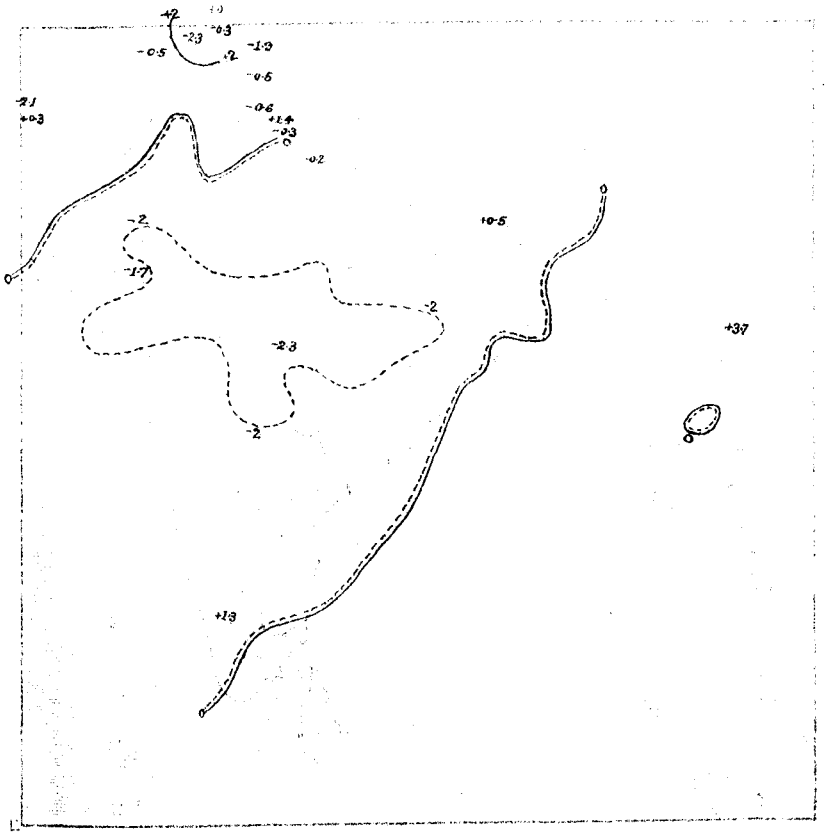
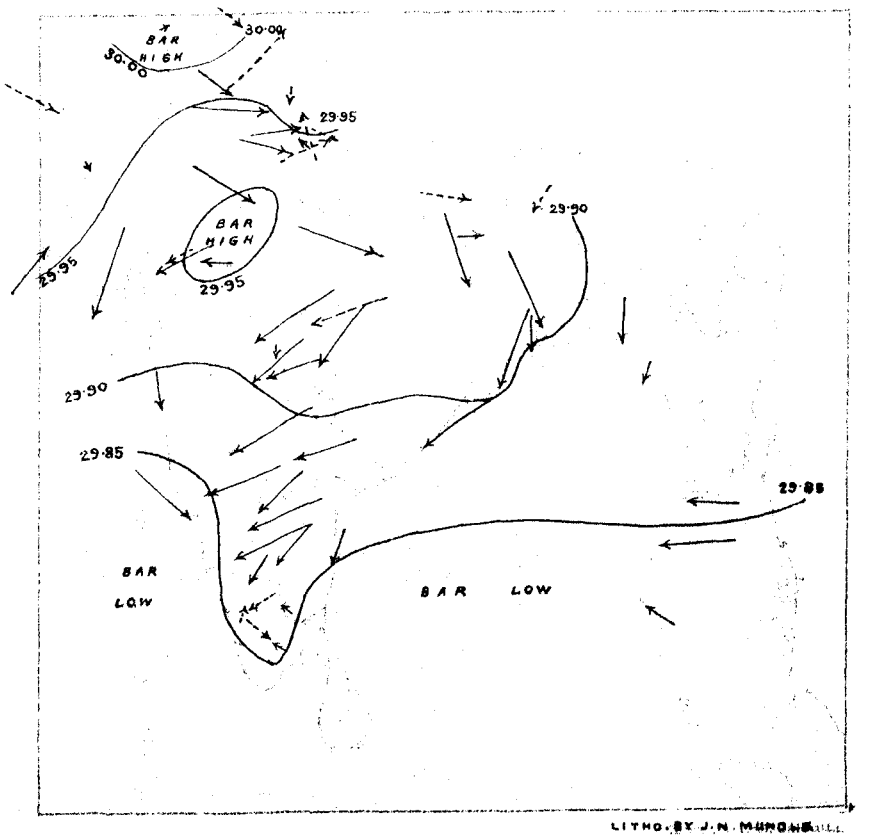


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF NOVEMBER 1903.



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 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 ⅜th of an inch being equal to 100 per cent.

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN ABSOLUTE HUMIDITY OF THE MONTH FROM THE NORMAL.

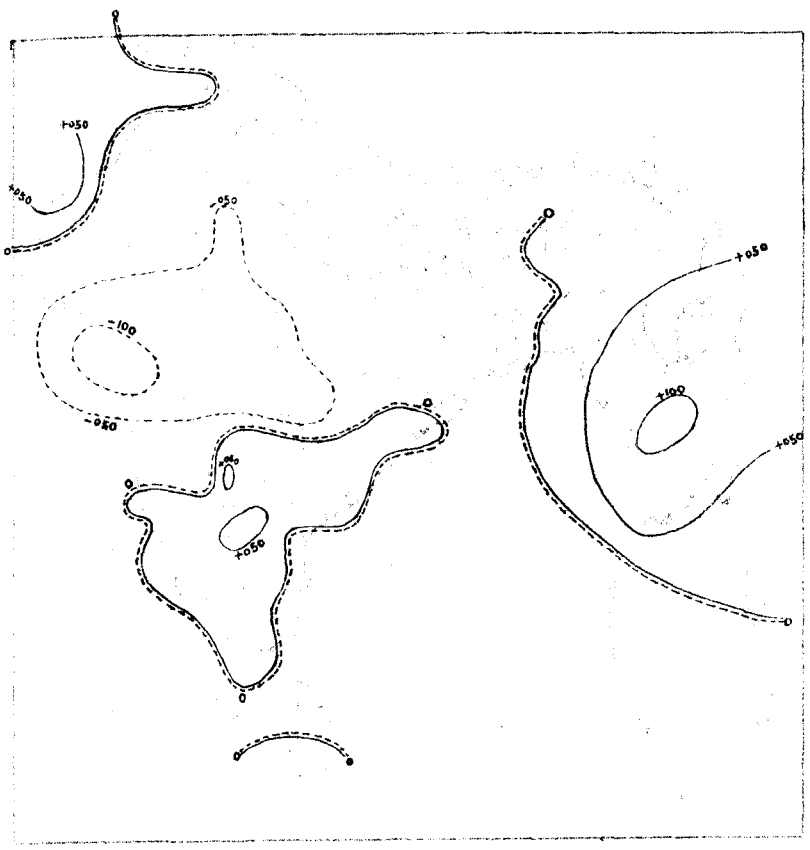
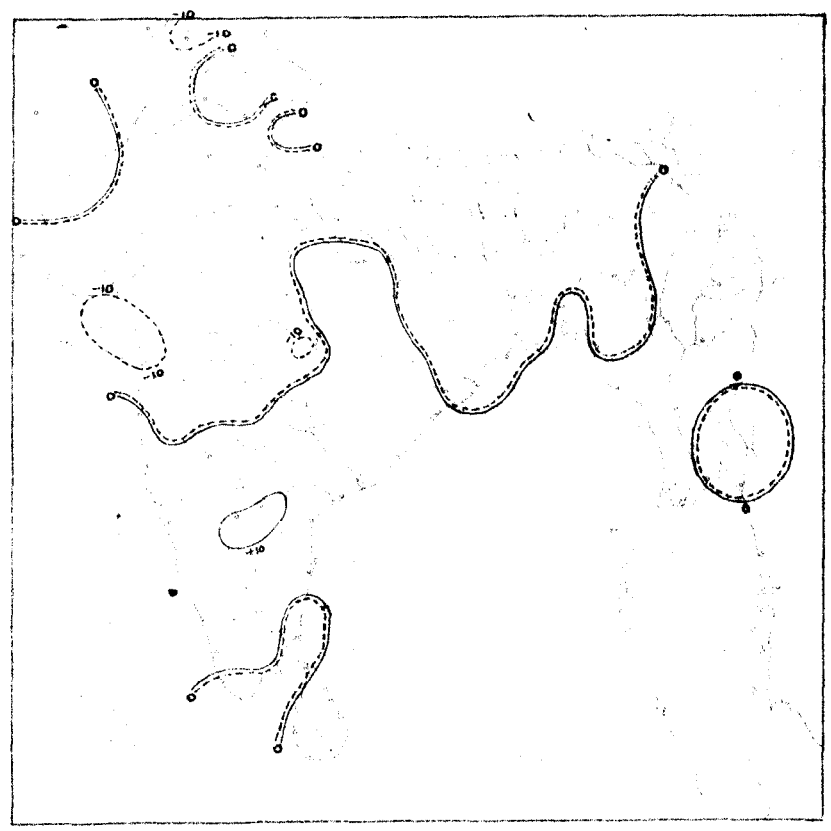


CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN RELATIVE HUMIDITY OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN CLOUD AMOUNT OF THE MONTH FROM THE NORMAL.

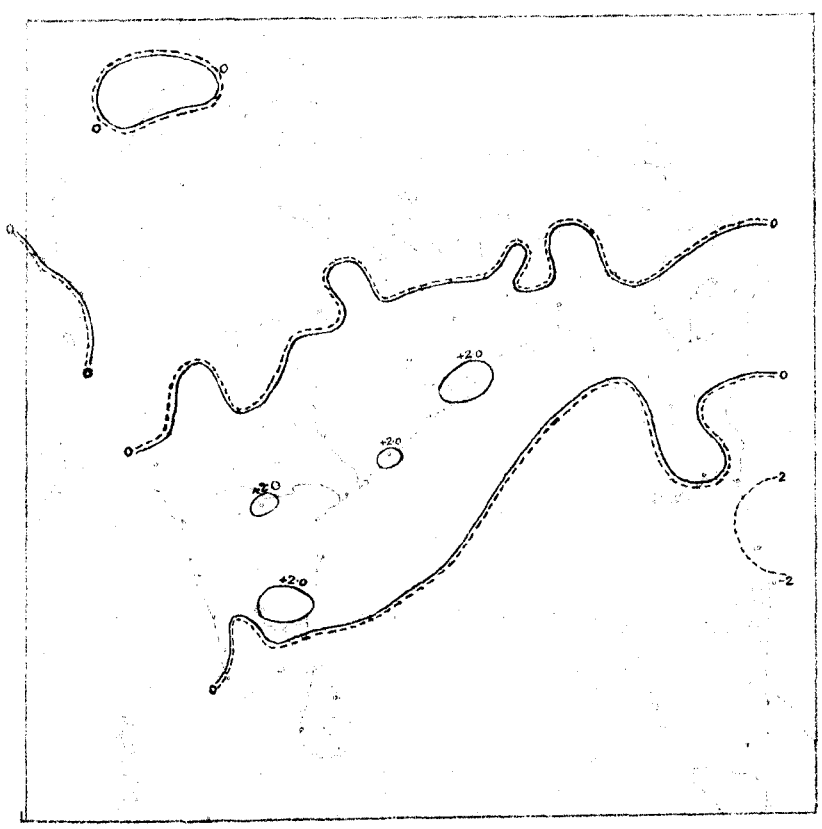
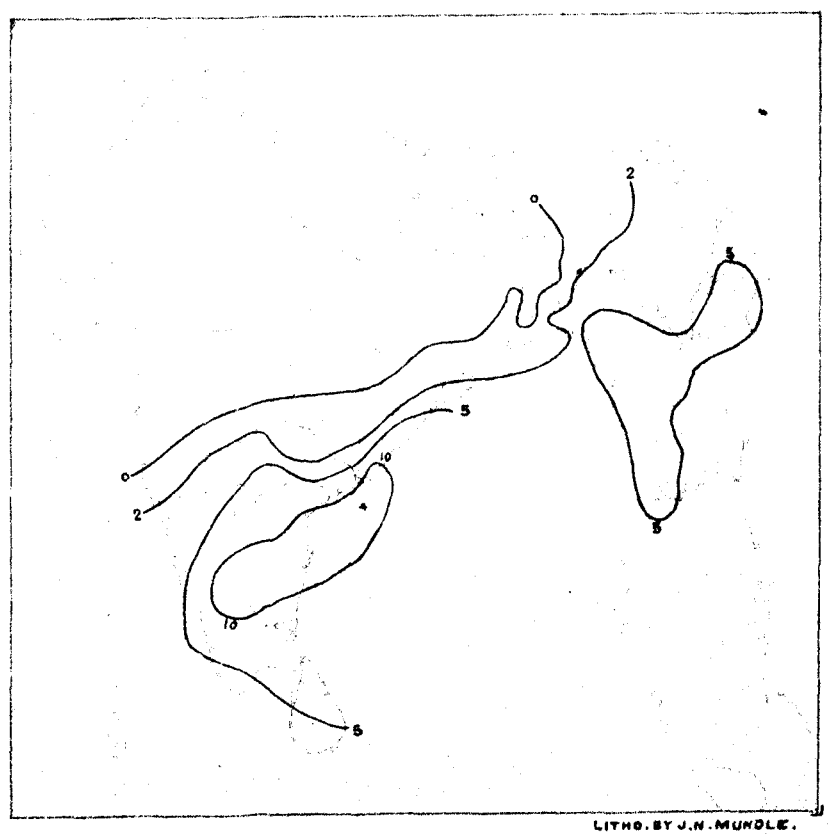


CHART SHEWING THE TOTAL NUMBER OF RAINY DAYS IN THE MONTH OF NOVEMBER 1903.



LITHO. BY J.N. MUNDLE.

Explanation.

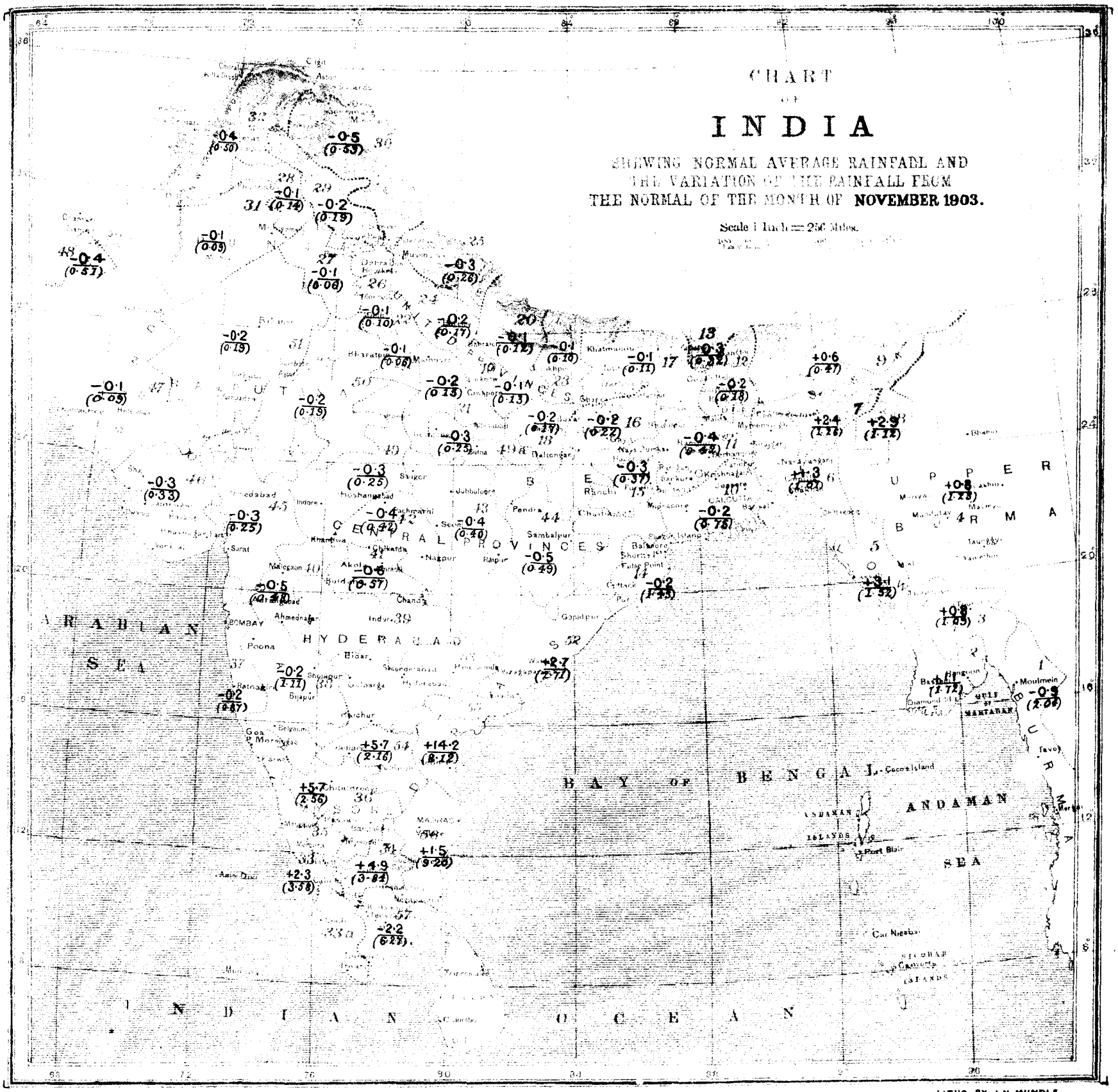
Continuous lines indicate that the mean cloud amount of month was in excess by amounts indicated by the attached numbers; broken or dotted lines that it was in defect by amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficie

A rainy day is one on which 0·10 inch or more of rain is received within 24 hours.

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.



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. 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 Central
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. West Punjab
32. North West Frontier Province
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 and Cutch
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
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, 1903.

INTRODUCTION.

THIS review of the weather in India, during the month of December 1903, is based on observations taken daily at 8 A.M. at 231 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, 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 1903.

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 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 principal features of the weather over the Indian area during December 1903 were the succession of small storms in the south, which gave excessive rain and very unsettled weather to the Peninsula, and the early appearance, relatively to recent years, of a well-defined depression in the north-west of India.

During the first few days of the month the weather was fine over northern India and the mean temperature below the normal, due principally to abnormally cool nights. The opposite conditions prevailed over the Peninsula, where the weather was cloudy and showery, and the minimum temperature, in consequence, largely above the average.

These conditions prevailed between the 1st and the 3rd. On the 4th the weather became disturbed over the south-west of the Bay, and during the 4th and 5th a shallow, ill-defined storm passed from the south-west of the Bay across the south of the Peninsula out into the Arabian Sea. In consequence the rainfall became heavier in the south, resulting in a brisk fall of temperature. The following gives data for the divisions in the south of the Peninsula for the 4th, 5th, and 6th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	4th December.	5th December.	6th December.
	°	°	°
Mysore	+1·8	—3·6	—0·4
Madras Coast	+0·4	—0·7	+0·2
Madras Deccan	+1·5	—1·1	—0·8
South India	+0·9	—4·9	—1·6

The following were the principal falls of rain, exceeding 4″ in 24 hours, recorded during this disturbed period :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tinnevelly	Vilattikulam	5th December.	9·10
	Srivilliputtur	,, ,,	6·80
	Ottappidaram	,, ,,	5·77
	Koilpatti	,, ,,	5·69
	Sivakasi	,, ,,	4·53
	Tuticorin	,, ,,	4·50
	Virudupatti	,, ,,	4·47
Madura	Uttamapalaiyam	,, ,,	4·41
Tinnevelly	Sattur	,, ,,	4·25
Madura	Melur	,, ,,	4·25
	Theelhandathanam	6th ,,	4·68
Tinnevelly	Ambasamudram	,, ,,	4·55
Madura	Vattanam	,, ,,	4·10

During this time there was no change of weather over northern and central India, where the sky remained clear and the temperature below the normal.

From the 7th to the 17th the weather was quiet and fine and practically rainless over India, but the period was marked by the passage of a well-defined wave of heat and cold across northern and central India, the wave progressing from west to east. On the 8th temperature was increasing and was high over Gujarat and Rajputana, the mean temperature abnormals having been +4°·9 at Deesa and +4°·2 at Rajkot; on the 9th these conditions continued, the abnormals having been +5°·6 at Ajmer and Deesa and +5°·9 at Rajkot; on the 10th the warm wave commenced an eastward movement, and the largest abnormals were +6°·2 at Sambhar, +6°·9 at Jaipur, and +8°·3 at Ajmer; the easterly movement continued, and on the 11th the greatest excess was 5°·8 at Jhansi, on the 12th 5°·7 at Seoni, and on the 13th 3°·4 at Nagpur. In the meantime the succeeding cold wave made its appearance in the extreme north-west on the 10th, reached the Punjab on the 11th, Rajputana on the 12th, Central India and Gujarat on the 13th and 14th, and had spread all over the country by the 15th, and general low temperatures were recorded on the 16th and 17th.

On the 18th the weather again became disturbed over the south-west of the Bay, but the disturbance was never of any importance and, beyond a few showers over the south of the Peninsula on the 18th and 19th, conditions were practically unchanged.

High temperatures appeared over the greater part of north-western and western India on the 18th and continued over those areas until the 24th. The following gives comparative data for the contained divisions for these seven days :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A. M. of						
	18th December.	19th December.	20th December.	21st December.	22nd December.	23rd December.	24th December.
	°	°	°	°	°	°	°
Punjab	+1·4	+2·1	+2·5	+1·3	+0·8	+1·9	+0·9
North-West Frontier Province.	+4·1	+4·4	+6·5	+1·3	+2·5	+2·3	+1·3
Sind	+0·4	+1·5	+1·6	+4·3	+4·1	+2·8	+4·5
Rajputana	—2·4	—1·0	—0·7	+0·8	+1·4	+0·1	—0·7
Gujarat	—1·4	—0·4	+1·0	+1·2	+0·5	+0·6	—1·0

On the 23rd a shallow storm appeared over the Indus valley accompanied with showers over Baluchistan. This storm was succeeded by another storm in the extreme north-west on the 25th. Both storms advanced eastward, and unsettled weather with showers of rain on the plains and of snow on the hills prevailed over north-western India until the 27th or 28th. On these days pressure increased rapidly to very rapidly and the weather was fine till the close of the month. The rainfall on the plains and the snow on the hills were followed by a rapid fall of temperature over north-western and western India, where the mean temperature was more than 12° below the normal at the following places between the 23rd and 28th :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
25TH DECEMBER	Chaman	—12·7
26TH ,,	Chaman	—19·0
	Quetta	—17·0
27TH ,,	Chaman	—18·9
	Quetta	—17·6
	Rajkot	—17·4
	Deesa	—17·1
	Bhuj	—16·9
	Mount Abu	—15·9
	Kurrachee	—14·7
	Hyderabad, Sind	—13·7
28TH ,,	Rajkot	—14·7
	Chakrata	—14·5
	Mount Abu	—14·1
	Chaman	—13·9
	Deesa	—13·7
	Indore	—12·9
	Bhuj	—12·9

The temperature did not recover from this depression for several days, and the mean temperature was more or less below the normal over the whole of northern and central India until the close of the month.

Between the 28th and the 31st a third small depression appeared over the south-west of the Bay and advancing north-westward crossed into Madras, giving moderate to heavy rain to several stations in the south of the Peninsula, where also a brisk decrease of temperature was recorded on the 30th.

The following were the principal falls of rain (exceeding 6″ in 24 hours) recorded during the existence of this disturbance:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
TANJORE	Tirulluraippundi	30th December	10·10
CHINGLEPUT	Poonamallee	,, ,,	7·81
TANJORE	Muttupet	,, ,,	7·78
NORTH ARCOT	Wandiwash	,, ,,	7·30
	Arkonam	,, ,,	7·00
TANJORE	Tiruvalur	,, ,,	6·95
CHINGLEPUT	Tiruvallur	,, ,,	6·80
	Madurantakam	,, ,,	6·78
	Cheyur	,, ,,	6·50
	Saidapet	,, ,,	6·46
TANJORE	Tiruppundi	30th December	6·30
CHINGLEPUT	Sriperumbudur	,, ,,	6·05
SOUTH ARCOT	Tiruvannamalai	31st ,,	8·95
	Chengam	,, ,,	8·81
CHINGLEPUT	Conjeeveram	,, ,,	8·20
SOUTH ARCOT	Tirukkoyilur	,, ,,	8·18
CHINGLEPUT	Poonamallee	,, ,,	7·25
	Vadasemmanjeri	,, ,,	7·18
SOUTH ARCOT	Kailakurichi	,, ,,	7·16
CHINGLEPUT	Saidapet	,, ,,	6·98
NORTH ARCOT	Arkonam	,, ,,	6·76
	Polur	,, ,,	6·60
CHINGLEPUT	Kovelong	,, ,,	6·43
	Tiruvallur	,, ,,	6·32
MADRAS	Madras	,, ,,	6·18

Pressure.—The mean pressure of the Indian land area was 0·018″ below the normal. Relatively to this general condition pressure was above the normal within a broad band stretching across the head of the Peninsula, as well as over the east of the Punjab, Ceylon, and part of inland Burma. Elsewhere it was below the normal. The anomalies were, however, generally small and unimportant, and the general distribution of pressure, on the mean of the month, was approximately normal. Pressure was generally lower than usual at the hill stations in India, but the deficiency was slightly less than at the neighbouring plains stations and the vertical pressure anomalies were hence slightly positive in most areas. Pressure was generally lower than usual over Arabia and the north of the equatorial belt.

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 Dec., 1903.	Pressure anomaly, Dec., 1903.
	″	″
Burma Coast and Bay Islands	—·022	—·004
Burma, Inland	—·019	—·001
Assam	—·017	+·001
Bengal and Orissa	—·017	+·001
Gangetic Plain and Chota Nagpur	—·016	+·002
Upper Sub-Himalayas	—·020	—·002
Indus Valley and North-West Rajputana	—·024	—·006
East Rajputana, Central India and Gujarat	—·012	+·006
Deccan	—·015	+·003
West Coast	—·018	0
South India	—·024	—·006

Temperature.—The variations of the mean maximum or day temperature from the normal were irregular and on the whole unimportant. They exhibited some excess over the west of the Central Provinces, the north Deccan, Khandesh, and north Bombay, over parts of the Punjab, of the United Provinces, and of Sind, over Bihar, over the Brahmaputra valley, and over Ceylon; but the variations in these areas were generally small and only exceeded 1°·0 at Nagpur and Poona (each +1°·9), Khandwa (+1°·8), Seoni (+1°·4), Amraoti and Malegaon (each +1°·3), Akola (+1°·2), Secunderabad (+1°·5), and Negapatam and Umballa (each +1°·1) Elsewhere the mean day or maximum temperature was in defect of the normal, the deficiency amounting to over 2° in parts of the United Provinces (Agra—2°·3), of Orissa (Cuttack—2°·8), of Burma (Rangoon—3°·4), and of Madras (Salem—2° 9).

At the hill stations, except those in Baluchistan, the mean maximum temperature was generally in excess.

The mean night or minimum temperature was in slight excess over the south-west and south-east of the Peninsula and on the Burma coast, but was generally in defect elsewhere. The deficiency amounted to over 2°·0 over the greater part of northern India and of inland Burma, and reached 4°·7 at Bikaner and Toungoo, 4°·6 at Hyderabad (Sind), 3°·5 at Montgomery, and 3°·4 at Thayetmyo.

At the hill stations in the extreme north-west the mean minimum temperature of the month was in defect of the normal, and at these stations, as well as over the plains of north-west India, there occurred a period of very low minimum temperatures between the 26th and the end of the month.

The mean temperature of the month was about normal at the foot of the Kumaun hills, over the south Madras coast, and the central parts of India, but was in defect in practically all other parts of the country. The deficiency exceeded 2°·0 over the western desert, the west of the United Provinces, part of Central India, Orissa, and inland Burma. At the north-western hill stations and in Baluchistan the mean temperature was lower than usual.

The following table gives mean comparative data of temperature for the eleven meteorological provinces or divisions into which India is divided :—

Meteorological Province.	Variation of actual from normal of		
	Mean maximum temperature, Dec., 1903.	Mean minimum temperature, Dec., 1903.	Mean daily temperature, Dec., 1903.
	°	°	°
Burma Coast and Bay Islands	—1·7	—1·0	—1·3
Burma, Inland	—1·2	—1·2	—1·2
Assam	+0·1	—1·3	—0·6
Bengal and Orissa	—0·8	—1·4	—1·1
Gangetic Plain and Chota Nagpur	—0·8	—1·5	—1·2
Upper Sub-Himalayas	—0·7	—1·3	—1·0
Indus Valley and North-West Rajputana.	—0·1	—2·6	—1·4
East Rajputana, Central India and Gujarat.	—0·2	—2·4	—1·3
Deccan	+0·4	—1·6	—0·6
West Coast	—1·0	—0·5	—0·8
South India	—1·6	—0·4	—1·0

Winds.—The winds blew from about the normal directions over the Bay and north-east India, but the steadiness was unusually high and over a large part of that area the velocity exceeded the normal. In north-west India there was more westing than usual in the wind's direction, except in the Indus valley, where very variable light breezes prevailed. At the hill stations also the mean directions were very variable, but the steadiness was, on the whole, above the average. Over the Deccan and the Peninsula the wind was more northerly than the normal. It was very steady over south India. The south-east trades, at Mauritius, blew from about the normal direction and with the average force. At the Seychelles the mean wind was somewhat more northerly than usual, while at Zanzibar the wind's direction was normal.

Humidity.—The mean relative humidity was in excess of the average over the south and east of the Peninsula, part of the Central India plateau, along the foot of the eastern Himalayas, on the Arakan coast, and in Tenasserim. The excess was most pronounced over the inland districts of southern India, and amounted to 13·5 at Kurnool, to 9·0 at Mysore, to 8·5 at Bangalore, and to 8·4 at Hassan. It was moderate over the Central India plateau, amounting to 6·5 at Jhansi and to 7·7 at Indore. In other parts the excess was generally unimportant. Over the remainder of the country the air was drier than usual, the deficiency in the mean relative humidity amounting to 15 at Bhavnagar Para, to 14 at Rajkot, Seoni, Pachpadra, and Kurrachee and to over 10 at Rawalpindi, Montgomery, Jaipur, and Saugor. At the more northern hill stations the mean relative humidity was generally in defect of the normal.

The following table gives variation data of the mean aqueous vapour pressure and of mean humidity of the nine meteorological provinces of India for the month of December, 1903 :—

Meteorological Province.	Mean absolute humidity.		Mean relative humidity.	
	Average actual, December, 1903.	Variation of actual from normal, December, 1903.	Average actual, December, 1903.	Variation of actual from normal, December, 1903.
	"	"	%	
Burma Coast and Bay Islands.	·682	—·038	72	— 2
Bengal and Orissa	·454	—·033	71	— 3
Gangetic Plain and Chota Nagpur.	·315	—·030	58	—5
Upper Sub-Himalayas	·241	—·039	58	— 4
Indus Valley and North-West Rajputana.	·244	—·034	49	— 4
East Rajputana, Central India, and Gujarat.	·189	—·074	33	—10
Deccan	·311	—·047	46	— 5
West Coast	·565	—·044	64	— 4
South India	·535	—·029	71	+ 6

Cloud.—The mean cloud amount of the month was generally in slight excess over parts of the west and south of the Peninsula, and of Burma, as well as locally at Dera Ismail Khan, but the excess was generally small and unimportant. Over the whole of the remainder of the

country the sky was clearer than usual. The deficiency in the mean cloud amount was most marked over north-east India, the adjacent parts of Burma, and the east of the Punjab, and amounted to 3·4 at Sibsagar, to 2·5 at Silchar, to 2·2 at Akyab, to 2·0 at Mandalay, to 2.0 at Mainpuri and to 2·3 at Ludhiana. At most of the more northern hill stations also the sky was clearer than usual, but at the southern and central hill stations the mean cloud amount was in slight excess.

The following table gives variation data of the mean cloud amount of the nine meteorological provinces of India for the month of December, 1903:—

METEOROLOGICAL PROVINCE.	MEAN CLOUD AMOUNT.	
	Average actual, December, 1903.	Variation of actual from normal, December, 1903.
Burma Coast and Bay Islands	2·5	—0·9
Bengal and Orissa	1·1	—1·1
Gangetic Plain and Chota Nagpur	0·5	—1·0
Upper Sub-Himalayas	1·8	—0·7
Indus Valley and North-West Rajputana	2·3	—0·3
East Rajputana, Central India, and Gujarat	1·3	—0·7
Deccan	1·1	—1·2
West Coast	1·2	—0·4
South India	4·1	+0·1

Rainfall.—During the month under review the weather was more disturbed and rainy than usual over the Peninsula and was more disturbed than for many years past over north-west India. The principal periods of rainfall were the 1st to the 7th, when general rain fell over the Peninsula and was very heavy in some areas on the 4th and 5th; the 18th to the 21st, when showers fell over the south of the Peninsula; the 25th to the 28th, when general rain fell over the plains of north-west India and heavy snow on the hills; and the 29th to the 31st, when light to heavy rain fell over the south of the Peninsula. Between the areas of rainfall over north-west India and over the Peninsula there was a broad band, where no rain fell throughout the month. The month's rainfall was in excess of the average over all the Peninsular divisions, but especially so in the east coast south, where the normal average fall is 4·97″ and the actual average fall in the month under review was 13·83″. Rain was normal or in excess in the submontane, hill and west divisions of the Punjab, and the North-West Frontier Province, and was deficient or altogether wanting elsewhere.

The rainfall was generally below the normal over Asiatic Turkey, Persia, Afghanistan and northern Arabia, but was in excess over the Gulf of Aden. In the south-east trades region the rainfall was in defect at the Seychelles and Mauritius, but was in large excess at Zanzibar.

The following table gives comparative rainfall data of the eleven meteorological provinces or divisions for the month of December, 1903:—

METEOROLOGICAL PROVINCE.	RAINFALL.			
	Mean actual for December, 1903.	Mean normal for December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	2·73	0·99	+0·18*	+ 18
Burma, Inland	0	0·36	—0·36	—100
Assam	0·07	0·42	—0·35	— 83
Bengal and Orissa	0·01	0·22	—0·21	— 95
Gangetic Plain and Chota Nagpur	0	0·18	—0·18	—100
Upper Sub-Himalayas	0·35	0·57	—0·23*	— 40
Indus Valley and North-West Rajputana.	0·16	0·22	—0·06	— 27
East Rajputana, Central India, and Gujarat.	0	0·19	—0·19	—100
Deccan	0·22	0·36	—0·12*	— 33
West Coast	0·70	0·62	+0·09	+ 15
South India	4·69	2·63	+2·06	+ 78

* 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.

General Remarks for the Indian monsoon area.—December is ordinarily a month of generally quiet and settled weather over the Indian monsoon area, during which the north-east monsoon winds blow steadily and conditions are for the most part, at least compared with January, undisturbed over the north-west frontier of India, as well as over the countries to the westward.

During the month under review conditions were perhaps slightly more disturbed than usual over the north-west frontier districts and adjacent areas. On the 5th and 6th there occurred a rapid fall of the barometer over the Caspian area and western Siberia, and this fall apparently extended over north-west India, Persia, etc., but the relative distribution of pressure was not disturbed and no depression advanced into the Indian area. A second rapid fall of the barometer occurred over western Siberia on the 9th and 10th. This fall did not apparently extend to north-west India or neighbouring countries, but on the 12th and 13th a decrease of pressure was recorded over Asiatic Turkey and Persia, the distribution of pressure changed and a very shallow storm was shown near Baghdad. On the 15th and 16th the barometer fell briskly in the Caspian region, and on the 18th a very shallow depression was shown near Bushire, at the head of the Persian Gulf

This depression apparently passed eastward and reached India on the 20th. Between the 19th and the 21st pressure gave way rapidly over western Siberia. This was accompanied with a rise over Asiatic Turkey, Persia, and north-west India, but on the 22nd there occurred a general fall over the countries to the west of India, resulting in the production of a depression which subsequently passed into India, appearing there on the 23rd. A rapid fall of the barometer occurred over western Siberia, as well as at Kashgar, Gilgit, and Chitral, on the 24th and 25th, and on the morning of the latter day a fresh depression appeared on the north-west frontier of India. At this time pressure was rising over Persia, etc., so that the depression did not, apparently, advance to India from the westward, but travelled from north-west or north.

The Russian charts and reports show that a high pressure area existed over the Caspian region and eastern Russia from the 1st to the 10th, after which it moved northward and a depression passed into the Black Sea, where it remained until the 17th. High pressures then reappeared and held till the 25th. On the 26th a depression again appeared over the Black Sea area, and continued till the end of the month.

In Egypt the weather was fine till the 6th. On the 7th a brisk fall of the barometer commenced and an extensive low pressure area passed eastward, affecting the weather till the 14th. Between the 14th and the 21st the weather was fine, but on the 22nd another low pressure area advanced eastward and resulted in the lowest pressures and the most disturbed weather of the month. By the 26th the cyclone had passed away and the weather remained fine till the close of the month.

The mean atmospheric pressure of the month was above the normal at Alexandria, below at Cairo, and above over the Sudan. The barometer fell from the 1st to the 9th, then rose till the 13th, and was steady till the 21st, when a sharp fall commenced. The barometer rose from the 24th to the end of the month.

The mean temperature was above the normal on the north coast and over the Sudan, but below at Cairo, where the mean minimum for the month was lower than that of the same month of the past twelve years, except 1897. The winds were more northerly than usual.

Rain was in defect at Alexandria, but at Cairo the total of 0·39″ (which fell on the 23rd) has only been exceeded in December, 1891, during the past twelve years.

The preceding reports appear to show that at certain times during the month conditions favourable to the development of cyclonic storms were produced over the whole area, extending from Egypt to north-west India. There are no definite indications of the eastward transmission of a storm from one end of this tract of country to the other, but apparently over different parts of the band cyclonic storms were developed on or about the same dates, and these storms travelled eastward for varying distances and then filled up and disappeared. Accepting rainfall as the surest indication of disturbed weather, the following were the dates on which rain fell over the countries within this area:—

Countries.	Days of the month																											
	1	2	3	4	6	7	8	11	12	13	14	15	17	18	19	23	24	25	26	27	28
Egypt					r	r			r	r	r	r				r			r		
Asiatic Turkey							r							r					r		
Persia	r	r	r	r						r	r	r		r	r						
Afghanistan									Nil												
Baluchistan																	r				
Kashmir													r					r	r		
North-West India																		r	r	r	r
Kashgar									Nil												

The preceding table shows that rain occurred in Persia between the 1st and the 4th, but was confined to that country. Rain occurred in Egypt on the 6th and 7th, and in Asiatic Turkey on the 8th, and in Kashmir on the 11th. Rain fell in Egypt on the 12th, 13th, 14th and 15th and in Persia on the 13th, 14th, and 15th; rain fell in Asiatic Turkey on the 18th and in Persia on the 18th and 19th, and finally rain fell in Egypt on the 23rd, 24th, and 26th; in Asiatic Turkey on the 26th; in Baluchistan on the 24th; in Kashmir on the 25th and 26th, and in north-west India on the 25th, 26th, 27th and 28th. The above shows that, generally speaking, the disturbed weather commenced fairly simultaneously over the whole area, though there were some indications of a retardation on proceeding eastward. It is also interesting to note the large area over which the unsettled conditions prevailed, as, in addition to the above, rain was received at Aden on the 21st, at Perim on the 4th and 29th, and at Muscat on the 20th, 21st, and 24th.

In the south of the monsoon area the general conditions call for little remark. The mean monthly pressure was below the normal at Zanzibar and the Seychelles and above at Mauritius, while at all three stations the mean monthly temperature was in defect of the average. At Mauritius the month under review was cooler than any December since 1875.

The following table shows the daily pressure abnormals for various selected stations in the monsoon area:—

DECEMBER, 1903.

Pressure variation from normal of

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	″	″	″	″	″	″	″	″	″
1	—·113	—·173	...	—·050	—·011	+·004	—·077	—·039	—·065
2	—·079	—·104	—·070	—·060	—·006	—·004	—·042	—·042	—·051
3	—·010	—·017	—·001	—·035	—·016	+·005	—·015	—·027	—·015
4	+·104	—·004	+·051	—·028	—·015	—·011	+·013	—·065	+·006

PRESSURE VARIATION FROM NORMAL OF

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	"	"	"	"	"	"	"	"	"
5	+·113	−·069	+·093	+·010	−·066	−·044	−·031	−·040	−·004
6	+·099	−·075	0	−·008	−·077	−·037	−·035	−·013	−·018
7	+·046	+·007	−·046	+·001	−·042	−·025	−·019	+·006	−·009
8	+·008	−·060	−·068	−·022	−·032	−·067	−·049	−·015	−·038
9	−·023	−·163	−·211	−·051	−·084	−·047	−·053	−·012	−·081
10	+·016	−·030	−·053	−·018	−·060	−·021	−·026	−·020	−·027
11	−·005	−·041	0	−·022	−·078	−·018	−·035	−·036	−·029
12	−·065	−·078	+·001	−·031	−·033	−·029	−·055	−·052	−·043
13	−·085	−·060	−·058	−·049	−·028	−·025	−·035	−·027	−·043
14	−·109	−·111	−·114	−·094	−·039	−·015	−·054	−·033	−·071
15	−·016	−·071	−·066	−·077	−·020	+·012	−·029	−·017	−·036
16	−·016	+·001	+·005	−·112	−·028	+·033	+·004	+·011	−·013
17	−·018	+·005	+·012	−·038	−·012	+·029	+·021	+·002	0
18	−·111	−·023	−·022	−·047	−·018	+·022	+·001	−·035	−·029
19	−·014	−·044	−·040	−·045	−·026	+·010	−·009	−·015	−·023
20	+·123	+·060	+·053	+·021	+·031	+·008	+·012	+·021	+·041

PRESSURE VARIATION FROM NORMAL OF

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Madras.	Whole.
	"	"	"	"	"		"	"	"
21	+·141	+·066	+·099	+·079	+·070	+·042	+·035	+·045	+·072
22	+·067	−·009	+·024	+·065	+·017	+·004	−·045	−·004	+·015
23	+·052	−·063	−·028	+·029	+·018	−·022	−·052	−·029	−·012
24	+·088	−·016	+·082	+·039	+·009	−·007	−·017	+·002	+·023
25	+·026	+·055	+·102	+·037	+·026	+·032	+·003	−·023	+·052
26	+·050	+·119	+·150	+·012	−·001	−·010	−·026	−·027	+·033
27	+·043	+·058	+·099	−·004	−·007	−·012	+·016	−·046	+·018
28	+·085	+·059	+·100	−·015	−·024	−·025	−·014	−·043	+·015
29	+·053	+·045	+·092	−·010	+·034	+·005	0	−·070	+·019
30	−·010	−·123	−·050	+·071	+·029	+·045	−·042	−·092	−·022
31	−·100	−·052	−·143	−·020	+·008	−·012	−·075	−·085	−·060

Pressure was rising over the monsoon area from the 1st to the 4th; it then fell till the 9th. After a temporayt recovery on the 10th it again fell till the 14th, after which it was fairly steady till the 19th. It exceeded the normal from the 20th to the 29th, after which it fell quickly.

Magnetic and Solar disturbances.

Kodaikanal.—The Director of the Kodaikanal observatory telegraphed as follows during the month:—

December 1st.—Fairly large new spot on south-eastern limb of sun; rain and clouds prevent chromospheric observations.

" *3rd.*—Two large new spots each with double umbra, chromosphere not observable.

" *7th.*—Very large new spot east limb of sun. Only seen through mist.

" *8th.*—Another very large new spot east limb, slightly north of yesterday's spot; accompanied by three medium prominences.

" *10th.*—Another fairly large spot south-east limb; numerous prominences.

" *15th.*—Large new spot eastern limb.

" *16th.*—Small spot developed on disc; numerous large prominences.

" *17th.*—New double spot near east limb; eastern chromosphere very disturbed; prominences, large and numerous.

December 28th.—Yesterday large spot, south-east limb; to-day another below; several large prominences.

The following gives a complete statement of the disturbances recorded at this observatory:—

SOLAR PHYSICS OBSERVATORY, KODAIKANAL.

Spots, Prominences, etc., December, 1903.

Date.	Spots.		Prominences.		Faculæ (groups).	Magnetic disturbances.	Remarks.
	Large.	Small.	Large.	Small.			
1	3	many	W.	U.	1 (I) . .	Small.	
2	3	4	W.	U.	1 (I); 1 (III)	Moderate.	
3	5	many	W.	U.	1 (I); 1 (II)	Small.	
4	...	...	W.	U.	...	Moderate	Overcast.
5	...	...	W.	U.	...	Small	Do.
6	3	many	No	obsns.	...	"	Cloudy.

Date.	Spots.		Prominences.		Faculæ (groups).	Magnetic disturbances.	Remarks.
	Large.	Small.	Large.	Small.			
7	10 groups		W.	U.	...	Small	Cloudy and foggy.
8	5	many	1	5	1 (I); 3 (II).	,,	
9	5	,,	1	7	1 (I); 2 (II).	...	
10	5	,,	15	7	3 (I) . .	...	
11	4	,,	4	3	2 (I) . .	...	
12	2	,,	W.	U.	2 (I) . .	...	
13	2	,,	No obsns.		2 (I); 2 (III)	Great.	
14	3	,,	W.	U.	3 (I); 1 (II); 1 (III).	,,	
15	2	,,	3	2	2 (I); 1 (III)	Moderate.	
16	3	7	about 6	8	1 (I); 2 (II); 1 (III).	...	
17	3	many	10	14	2 (II); 1 (III)	...	
18	3	,,	W.	U.	2 (I); 1 (II).	...	
19			W.	U.		Small	Rainy and foggy.
20	1	8	No obsns.		1 (III). .	Moderate.	
21	2	many	W.	U.	1 (I) . .	Small.	
22	4	,,	Series of large & small		1 (I); 2 (II); 1 (III).	...	
23	1	7			2 (II); 1 (III)	Small.	
24	1	8	5	2	3 (I); 1 (II)	...	
25	...	3	1	3	2 (I); 1 (II)	Small.	
26	...	1	4	3	4 (II) . .	Small, Moderate.	
27	...	4	No obsns.		1 (I); 1 (II).	Moderate, Small.	
28	1	1	4	11	1 (I); 1 (III)	Small.	
29						Small	Overcast.
30						Great, Small.	Overcast.
31	2	many	W.	U.	1 (I); 1 (II)	Moderate.	

NOTE 1.—The Roman figures within brackets under "Faculæ" indicate their relative extent; (I) showing that they are very extensive, (II) that they form a moderately big group, and (III) that they only consist of points and streaks.

" 2.—W. U. under "Prominences" indicate weather unfavourable.

Colaba, Bombay.—The following notes have been supplied by the Director of the Colaba Observatory.

The means of the observed absolute values of the several elements for the twelve months of 1903 were as follows:—

Months.	January, 1903.	February, 1903.	March, 1903.
Declination . . .	0° 18′ 17″ E.	0° 8′ 1″ E.	0° 17′ 58″ E.
Horizontal force . .	C. G. S. unit 0·37430.	C. G. S. unit 0·37436.	C. G. S. unit 0·37442.
Dip	21° 40′·7	21° 40′·3	21° 41′·3

Months.	April, 1903.	May, 1903.	June, 1903.
Declination . . .	0° 16′ 29″ E.	0° 15′ 8″ E.	0° 16′ 0″ E.
Horizontal force . .	C. G. S. unit 0·37431.	C. G. S. unit 0·37425.	C. G. S. unit 0·37437.
Dip	21° 40′·7	21° 41′·0	21° 42′·0

Months.	July, 1903.	August, 1903.	September, 1903.
Declination . . .	0° 16′ 36″ E.	0° 15′ 29″ E.	0° 15′ 26″ E.
Horizontal force . .	C. G. S. unit 0·37439.	C. G. S. unit 0·37418.	C. G. S. unit 0·37404.
Dip	21° 43′·7	21° 45′·41	21° 45′·3

Months.	October, 1903.	November, 1903.	December, 1903.
Declination . . .	0° 16′ 48″ E.	0° 16′ 45″ E.	0° 16′ 54″ E.
Horizontal force . .	C. G. S. unit 0·37415.	C. G. S. unit 0·37392.	C. G. S. unit 0·37390.
Dip	21° 45′·4	21° 47′·6	21° 47′·6

The following table gives the ranges of the mean monthly diurnal inequalities of the horizontal force and declination, and also Σ ranges, or sums without regard to sign of all 24 ordinates of the inequalities, for each month of the year:—

Months.	Horizontal Force.		Declination.	
	Range.	Σ Range.	Range.	Σ Range.
	C. G. S.	C. G. S.		
January, 1903 . .	·000275	·001646	1′·37	6′·40
February ,, . .	308	2038	1′·19	4′·82
March ,, . .	460	2952	2′·12	7′·59
April ,, . .	491	3232	3′·45	13′·38
May ,, . .	397	2797	3′·91	15′·53
June ,, . .	411	2710	4′·64	19′·62
July ,, . .	419	2868	4′·62	19′·11
August ,, . .	390	2356	4′·74	18′·90
September ,, . .	326	1951	5′·06	19′·42
October ,, . .	618	3186	2′·54	9′·65
November ,, . .	347	2256	1′·04	5′·65
December ,, . .	·000338	·002194	1′·26	6′·44

During the month of December, 1903, the traces showed 15 calm days and 11 days of small, 3 days of moderate, and 2 days of great disturbance, the last being noted on the 13th and 14th.

The selected quiet days of the month were the 3rd, 10th, 15th, 22nd and 28th.

The following is the daily record of magnetic disturbances recorded at Colaba :—

December, 1903.		December, 1903.		December, 1903.	
1	S	12	C	23	C
2	S	13	G	24	C
3	S	14	G	25	C
4	M	15	S	26	S
5	S	16	C	27	S
6	S	17	C	28	C
7	S	18	C	29	C
8	C	19	C	30	M
9	C	20	S	31	M
10	C	21	S		
11	C	22	C		

The magnitudes of the disturbances are determined from horizontal force traces.

C=Calm ; S=Small ; M=Moderate ; G=Great ; V. G.=Very great.

Days are reckoned from midnight to midnight.

Five small seismic disturbances were recorded on 4th, 5th, 10th, 23rd and 28th, the amplitude of all of which was less than 3 m.m.

Mauritius.—The Director of the Royal Alfred Observatory reports as follows :—

Magnetic disturbances were recorded from 11 hours on the 1st to 24 hours on the 2nd, from 13 hours to 24 hours on the 4th, from 16 hours on the 13th to 7 hours on the 14th and from 7 hours to 21 hours on the 30th.

Groups of sunspots were observed on all days of the month, except the 2nd, 5th, and 24th, and in addition individual spots were recorded between the 1st and the 9th and the 12th and the 20th. Faculæ were observed throughout the month.

Atmospheric Pressure.

The mean 8 A.M. pressure of the whole Indian land area was 0·018″ below the normal. There had hence been comparatively little change since the previous month, when the general anomaly was —·009″.

Plate I shows the actual distribution of the mean pressure of the month. The barometer was highest in the extreme north-west, in the north of the North-West Frontier Province, and the north of the Punjab, and was relatively high over the Central India plateau. Thence pressure decreased southward and was lowest over Ceylon. The mean pressure of the month was about normal over the Central India plateau, but was in defect elsewhere. The deficiency was greatest in the upper Indus valley.

Compared with the general condition, *viz.*, —0·018″, the mean pressure was above the normal within a broad band stretching across the head of the Peninsula from Bengal to Gujarat; it was likewise slightly excessive over the east Punjab, Ceylon, and part of inland Burma. In all other places pressure was relatively low. The anomalies were generally moderate or small and unimportant. The following gives the largest reported :—

Areas of greatest positive anomalies.		Areas of greatest negative anomalies.	
Station.	Pressure anomaly, Dec., 1903.	Station.	Pressure anomaly, Dec., 1903.
Hoshangabad	+·019	Peshawar	—·020
Neemuch	+·018	D. I. Khan	—·019
Bhuj	+·017	Mooltan	—·019
Saugor	+·016	Balasore	—·016
		Salem	—·016

In the countries to the westward of north-west India the variations of pressure from the normal were irregular. In Baluchistan the mean pressure was in excess of the normal, but at Jask the excess disappeared, though over western Persia and in Asiatic Turkey the pressure was greater than usual. In Egypt also the variations of pressure were irregular. Over Arabia the mean pressure of the month was lower than usual, and this deficiency apparently extended southward as far as the Seychelles and Zanzibar, but, further to the southward, at Mauritius, pressure exceeded the normal.

Although the mean pressure was higher than the normal in Baluchistan, it was relatively low at all the hill stations in India—most so at Wellington. The deficiency at the hill stations in northern India was, however, generally less than that at the neighbouring plains stations, so that the vertical pressure anomalies were positive, except in the extreme east. In the Baluchistan-Sind area the vertical pressure anomaly was strongly positive. The following gives data for ten pairs of stations :—

Hill Station.	Variation from normal pressure, December, 1903.	Plain Station.	Variation from normal pressure, December, 1903.	Vertical pressure anomaly (Hill—Plain).
	″		″	″
Quetta	+·024	Jacobabad	—·019	+·043
Leh	—·014	Lahore	—·025	+·011
Murree	—·016	Peshawar	—·038	+·022
Simla	—·005	Ludhiana	—·013	+·008
Ranikhet	—·010	Bareilly	—·022	+·012
Chakrata	—·016	Roorkee	—·017	+·001
Darjeeling	—·020	Dhubri	—·019	—·001
Pachmarhi	—·015	Hoshangabad	+·001	—·016
Mount Abu	—·020	Deesa	—·015	—·005
Wellington	—·029	Coimbatore	—·018	—·011

The following is a summary of the chief abnormal features of the pressure distribution during the month under review:—

(1) The mean 8 A.M. pressure of the whole Indian land area was 0·018″ lower than usual.

(2) Compared with this condition, pressure was in slight excess or the anomalies were positive within a broad band which stretched across the head of the Peninsula from Bengal to Gujarat.

(3) Pressure was also in slight excess over the east of the Punjab, Ceylon, and part of inland Burma.

(4) Pressure was in slight defect elsewhere.

(5) The vertical pressure anomalies were feebly positive in the north.

(6) Pressure was in slight defect of the normal over the north of the equatorial belt and in slight excess at Mauritius.

Barometric depressions and cyclonic storms of the month.

Slight storm in the extreme south—December 3rd.—On the morning of the 3rd the barometer was falling very slightly over Ceylon and at Tinnevelly, while it had risen briskly to rapidly over central and northern India. Barometric gradients were in consequence unusually steep over India. The winds were blowing from cyclonic directions over the south-west of the Bay, while the sky was cloudy and a few light showers had fallen over the south of the Peninsula. No distinct storm could be traced over the Bay, but the *City of Corinth* in Lat. 11°52′ N. and Long. 84°12′ E. and the *Zillah* in Lat. 12°23′ N. and Long. 84°24′ E. reported north-east winds, strong to a moderate gale in force, with hard squalls of wind and rain.

December 4th.—The barometer was falling briskly over Ceylon and at Tinnevelly and Negapatam, and slightly over the south of the Peninsula, and barometric gradients remained very steep over the Peninsula. The winds were strong on both coasts of the Peninsula—particularly at Negapatam, but the cyclonic circulation was ill-defined and, so far as the observations showed, no well-developed cyclonic storm existed at this time. Moderate to heavy rain had, however, fallen over the south of the Peninsula, and the weather was disturbed over that region and Ceylon.

December 5th.—The barometer had risen briskly over Ceylon and slightly over the south-east of the Peninsula, while it had fallen briskly over the south-west. The disturbed area had moved westward, and at 8 A.M. was apparently crossing the Travancore hills and passing out into the south-east of the Arabian Sea. The wind had shifted to south-east and east-south-east in the south and was blowing strongly. At Kodaikanal the average velocity of the wind during the 24 hours preceding 8 A.M. of the 5th was 38 miles per hour, while at Belgaum the velocity at 8 A.M. was at the rate of 50 miles per hour. At Negapatam, between 8 A.M. and 2 P.M. of the 4th, the velocity averaged 45 miles per hour. Moderate to heavy rain was again reported from the south of the Peninsula. Notwithstanding these strong winds and gales and the heavy rainfall, the disturbance in the south was at no time well-defined, and passed across the south of the Peninsula and out into the Arabian Sea without the development of a recognisable centre.

December 6th.—The barometer was rising briskly over Ceylon and the south of the Peninsula, while it was falling along the west coast, and the area of disturbance was apparently moving northward over the Arabian Sea. Cloudy weather and showers were reported from the south of the Peninsula, but along the Bombay coast the weather was fine. The *Knight of the Garter* in Lat. 17°52′ N. and Long. 67°14′ E., the *City of Delhi* in Lat. 18°8′ N. and Long. 69°18′ E., the *City of Oxford* in Lat. 17°42′ N. and Long. 66°49′ E. and the *Oriental* in Lat. 17°45′ N. and Long. 67°44′ E., all lay to the north of the disturbance and experienced fresh north-east winds and a rough sea, but fine weather, while the *Bavaria* in Latitude 9°9′ N. and Long. 69°36′ E. to the southward of the disturbance, reported a strong south-south-west wind, a rough sea, and frequent heavy showers.

The disturbance apparently travelled north-westward during the next two days, but the marine observations on these two days were scanty and gave but little evidence of the continued presence of the disturbance.

Another slight and ill-defined disturbance gave unsettled weather to the extreme south of the Peninsula on the 19th and 20th.

Shallow depression of the 23rd to 25th December:—

December 23rd.—The barometer was falling everywhere, but especially in the north-west, where over the western desert the fall exceeded 0·10″. A shallow depression was shown over this area, and the winds in surrounding regions exhibited a feeble and irregular indraught towards this centre. The sky was clouding over in the north-west. The barometer continued to fall on the 24th over north-west India, and a fairly well-defined depression was then shown over Sind and the south-west Punjab, where pressure was in considerable defect. The cyclonic circulation of the winds around the depression was much better defined than on the preceding day, while light showers of rain had fallen in Baluchistan and light snow at Dras in Kashmir. The storm moved eastward during the 24th, and at 8 A.M. on the 25th lay near Agra, pressure increasing briskly over the western desert. During this period pressure had fallen briskly to rapidly over the Punjab and Kashmir, and a fresh depression appeared from the north-westward. This new depression occasioned snow over the western Himalayas and light showers of rain over the North-West Frontier Province and the west Punjab. This depression advanced south-eastward along the hills, and was lying over the south-east of the Punjab at 8 A.M. on the

26th Strong winds had been experienced over the Punjab, snow had fallen over the Kashmir Himalayas, and light showers of rain in the adjacent submontane districts. On the 27th pressure was increasing, except in the Kumaun hills, where it was falling briskly. Snow was falling heavily in the Kumaun Himalayas, and the depression, which lay over the south-east Punjab on the previous day, was apparently breaking up in that area.

Small storm of the 29th and 30th.—On the 27th and 28th pressure was relatively low over the south of the Bay. South-south-east winds were recorded at Port Blair, and a southerly wind on board the *Rudesheimer* in Lat. 8°40′ N. and Long. 85° 26′ E., while all over the Bay to the north of Lat. 12° N. the wind was north-easterly. Rain squalls were reported from the centre of the Bay. The storm advanced westward during the 28th, and at 8 A.M. on the 29th was approaching the south Madras coast. The barometer had fallen briskly in south Madras, and pressure at Negapatam was 0·147″ below the normal. The winds were cyclonic over the south-west of the Bay, but the force was not high, though the sea was tremendous at Negapatam. The reports of the 30th showed that the storm had crossed the coast, and that the centre lay between Salem and Cuddalore, where pressure was at least 0·165″ below the normal. Strong cyclonic winds and gales prevailed over Madras, where also heavy rain had fallen. The storm apparently broke up during the 30th, though a small residual depression apparently advanced northward along the Madras coast during the 31st.

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.*—Snow fell as follows:—

December	20th	0 ft. 1 in.
„	23rd	a few flakes
„	24th	0 ft. 2½ ins.
„	31st	0 „ ¾ „

Snow fell on all the hills surrounding Kabul, and the accumulation of snow was as follows:—

Kabul	3 ins.
Pagman	6 „
Kohdaman	5 „
Balahessar	4 „
Balakoh	5¾ „
Tabe Shah	5 „

The snowfall was heavier than in the previous year.

(2) *Wano.*—On the 25th December snow fell on the highest peaks as follows:—

Marwattai and Pirghal (11,000 feet)	0 ft. 2 ins.
Janimela (9,000 feet)	0 „ ½ „

The snow was lying in patches down to 8,000 feet, and fairly heavy drifts lay on the Marwattai down to 10,000 feet. The snowfall of the month under review was lighter than in the corresponding month of the previous year.

(3) *Kurram.*—Snow fell on the 20th, 24th, 25th, and 31st December on the Sufedkoh and the adjacent hills. The fall of the 24th and 25th extended to Marukhel at a distance of 33 miles from Parachinar towards Thull, where the elevation is about 3,500 feet above M. S. L. The fall of snow was earlier than usual.

(4) *Kohat.*—On the Samana range snow was recorded on the following dates:—

December	24th	1 ft. 0 ins.
„	25th	0 „ 11 „

The snow fell as low as Fort Lockhart. At the close of the month snow was lying deep on the top of the Samana range and as far down the south slope as 5,000 feet. Snow also fell on the 12th and 15th December on the highest peaks of the Khatak hills, but melted.

The following were the depths of snow recorded:—

Balandar Stor	2 ft. 0 ins.
Jorhad Bostekhel	1 „ 0 „
Had Akhor Lakka	1 „ 0 „
Khangisar	0 „ 6 „
Tor Chappar	1 „ 0 „
Landeka	3 „ 0 „
Maziogarh	3 „ 0 „
Khamal Mahura	3 „ 0 „
Kurram	2 „ 0 „
Tehri hills	2 „ 3 „
Candagarh	1 „ 10½ „
Gopal and Spar Kote	2 „ 0¾ „
Toragarh	2 „ 0¾ „
Alizai hills	3 „ 0 „

(5) *Hazara.*—Snow fell on the 14th, 24th, 25th, and 31st December. The amounts were as follows:—

Malkandi	(4,500 feet)	0 ft. 3 ins.
Kagan	(6,700 feet)	1 „ 5½ „
Pleedran	(7,500 feet)	2 „ 0 „
Narang	(8,000 feet)	3 „ 2½ „
Jachcha	(6,500 feet)	0 „ 11 „

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Leh.*—No snow fell at Leh up to the end of December. There were, however, occasional falls on the hills down to 14,000 feet, but in no case had any depth of snow fallen. The Khardong Pass, to the north of Leh and 17,600 feet above M. S. L., was quite practicable and had very little snow on it. Pilgrims arriving from Yarkand within the last week of December reported little or no snow on the Lasser and Karakoram passes. On the 31st December the snowline was about 15,000 feet on the northern slopes with a very light covering down to 16,000 feet on the southern slopes of the hills.

(2) *Simla.*—Snow fell as follows on the Bashahr hills:—

December	25th	4 ins.
„	27th	10 „
„	31st	3 „

The snow fell down to an elevation of 9,000 feet and the amount was about the average. The accumulation of snow was as follows:—

Rupin Pass	(16,000 feet)	2 ft. 0 ins.
Bruin	„ (16,000 „)	2 „ 0 „
Harang	„ (12,000 „)	1 „ 6 „
Shatul	„ (10,000 „)	2 „ 0 „
Buldar	„ (16,000 „)	2 „ 3 „
Runang	„ (14,000 „)	2 „ 0 „

(3) *Sarain (Simla Hills).*—Snow fell as follows:—

December 25th	5 ins.
„ 27th	29 „
„ 28th	6 „

(4) *Kulu.*—There was a fall of 13 inches of snow between the 26th and 28th December, and the fall descended to 3,080 feet. The snowfall during the month was heavier than that in previous years.

(5) *Chamba.*—Snow fell over the Chamba state between the 24th and 31st of December, the snowfall descending to 7,300 ft. The amount received varied from only a few inches at the lower elevations to as much as 60 inches at Kalatop. The accumulated snow, at the close of the month, measured—

Pangi Range.

Kilar	0 ft. 4 ins.

Sach Pass closed to travellers.

Tisa Range.

Alwas	3 ft. 0 ins.
Khanga	2 „ 10 „
Chatri	3 „ 0 „

Dalhousie Range.

Kaithli	3 ft. 0 ins.
Chaori Pass	4 „ 0 „

(6) *Dalhousie.*—Snow fell as follows at Dalhousie:—

December 25th	8 ins.
„ 26th	4 „
„ 27th	21 „
„ 28th	6 „

III.—UNITED PROVINCES HIMALAYAS.

(1) *Almorah.*—Snow fell as under:—

Malla Johar.—	December 25th	1 ft. 0 ins.
„	„ 26th	2 „ 0 „
Malla Danpur.—	„ 25th to 27th	1 „ 6 „
Byans, Chandas and Darma	„ 26th	2 „ 0 „
	„ 27th	2 „ 6 „
	„ 31st	0 „ 6 „

The following was the depth of snow at the close of the month:—

Utadhura	3 ft. 0 ins.
Ralam Dhura	1 „ 0 „
Pindari, Kaphini, Kantela	1 „ 6 „
Byans, Chandas, Darma	5 „ 0 „

The snowfall was greater than in the previous year.

(2) *Garhwal.*—Snow fell on the 25th, 26th, 27th and 28th December, the amount varying from 2 to 3 inches on the lower ranges and from 2 to 3 feet on the perpetual snows.

Summary of Special Storm Reports.

The following notices of storms have been received from the meteorological observers during the month:—

December 7th.—A north-west gale passed over Srinagar between 6 P.M. and 9 P.M. Fresh snow fell on the surrounding hills.

„ *24th.*—Two slight thunderstorms passed over Srinagar, one between 2 A.M. and 6 A.M. and the other between 3 P.M. and 6 P.M.

„ *27th.*—A thunderstorm commenced at Simla at 5 A.M. and continued till 7 A.M., snow falling heavily.

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

Arabian Sea.—During the first four days of the month ordinary north-west winds prevailed down the Persian Gulf and north-east winds over the Arabian Sea, but on the 5th a depression, which had apparently crossed the south of the peninsula, passed out into the south-east of the Arabian Sea, and from the 6th to the 10th irregular cyclonic winds prevailed over the south of the sea. Between the 11th and the end of the month ordinary north to east winds were reported over the Arabian Sea, the force and direction varying slightly with the changes in atmospheric pressure progressing over northern India and neighbouring regions.

The mean force of the wind over the Arabian Sea for the month was 3·6, the normal force being 3·3. The force exceeded the normal from the 4th to the 6th, on the 8th and 12th, and between the 17th and 30th, the days with the strongest winds having been the 4th and the 28th, when the mean force was 4·5. The calmest day was the 2nd, when the mean force was 2·3.

Bay of Bengal.—North-easterly to northerly winds prevailed over the Bay of Bengal from the 1st to the 17th, but on the 18th a small depression appeared over the south-west of the Bay, and winds were variable over that region

for two days. On the 20th the wind returned to its normal direction and continued to blow more or less steadily from north-east until the 29th, when another depression made its appearance, and south-easterly winds were experienced over the south of the Bay.

The mean force for the month over the Bay was 3·3, the normal being 3·2. The force of the wind equalled or exceeded the normal between the 2nd and the 5th and, with some exceptions, between the 14th and the 29th. It was highest on the 4th, when the force averaged 4·6, and was lowest on the 1st, when it averaged 2·3.

Equatorial Belt.—Light north-westerly winds prevailed over the centre of the west of the belt, and north-easterly winds on the African coast from the 1st to the 9th, then followed a period of variable breezes lasting till the 15th, when easterly winds set in and continued till the 20th. On the 21st normal north-westerly and north-easterly winds again appeared and prevailed more or less steadily till the close of the month.

Temperature of the Air.

The mean temperature conditions of the month of December 1903 differed considerably from those of the preceding month of November, due largely to the low night temperatures registered in the former month.

The mean maximum or day temperature varied irregularly from the normal. Areas of slight excess were shown over the west Punjab and upper Sind; over the west of the United Provinces, over Bihar, over the Brahmaputra valley, over the Central Provinces, Khandesh, Gujarat and the Bombay coast and over Ceylon. Over these areas the excess was generally small and unimportant, and was more than 1°·0 only at the following stations:—

Station.	Mean maximum temperature.		
	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	°	°	°
Poona	86·2	84·3	+1·9
Nagpur	83·2	81·3	+1·9
Khandwa	84·8	83·0	+1·8
Secunderabad	83·1	81·6	+1·5
Seoni	79·1	77·7	+1·4
Amraoti	84·0	82·7	+1·3
Malegaon	85·5	84·2	+1·3
Akola	84·8	83·6	+1·2
Umballa	73·2	72·1	+1·1
Negapatam	82·6	81·5	+1·1?

Over the remainder of the country the mean maximum temperature of the month was below the normal. The negative variations were, on the whole, larger than the positive variations, and amounted to 2°·0 or more at the following stations:—

Province or Division.	Station.	Mean maximum temperature.		
		Actual, December, 1903.	Normal, December.	Variation of actual from normal, December 1903.
		°	°	°
Peninsula	Salem	83·5	86·4	—2·9
	Raichur	82·1	84·9	—2·8?
	Nellore	82·2	84·8	—2·6
	Gopalpur	77·7	80·3	—2·6
	Mangalore	87·2	89·5	—2·3?
	Cuddapah	84·7	86·8	—2·1
	Mysore	79·6	81·6	—2·0
Orissa	Cuttack	79·3	82·1	—2·8
Chota Nagpur	Chaibassa	76·9	79·7	—2·8
Central India	Nowgong	72·8	75·2	—2·4?
United Provinces	Agra	73·8	76·1	—2·3?
Burma	Rangoon	83·9	87·3	—3·4?
	Diamond Island	81·2	83·9	—2·7
	Akyab	79·2	81·7	—2·5
	Toungoo	81·9	84·0	—2·1

In Baluchistan and at Mount Abu the mean day temperature was lower than usual, but at the Himalayan hill stations, as well as at Pachmarhi and Wellington, the mean maximum temperature was higher than the average. The

following gives the stations at which the variations from the normal exceeded 1°·0:—

Hill Station.	Mean maximum temperature. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	°	°	°
Chakrata	57·8	54·9	+2·9
Simla	51·7	49·4	+2·3
Pachmarhi	72·2	70·3	+1·9
Ranikhet	58·7	57·5	+1·2
Chaman	57·0	59·0	—2·0
Quetta	54·8	56·6	—1·8
Mount Abu	67·5	68·6	—1·1

The mean minimum or night temperature exceeded the normal in Tenasserim and at a few places in the south-west and south-east of the Peninsula, but the variations from the average were small, and at no station amounted to 1°·0. In practically all other parts of the Indian land area the mean minimum temperature was lower than usual. The deficiency was considerable over north-west India, moderate over the Bombay Deccan, Bihar, and the east Satpuras and moderate to considerable over central and lower Burma. The deficiency amounted to over 2°·0 at the following large number of stations:—

Area.	Station.	Mean minimum temperature. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
		°	°	°
North-West India.	Bikaner	46·6	51·3	—4·7
	Hyderabad (S)	47·7	52·3	—4·6
	Montgomery	39·5	43·0	—3·5
	Bhuj	53·0	56·1	—3·1
	Deesa	49·7	52·7	—3·0
	Jaipur	46·1	49·1	—3·0
	Hoshangabad	48·7	51·7	—3·0
	Nowgong	43·5	46·4	—2·9
	Cawnpore	44·6	47·6	—3·0
	Sambhar	43·5	46·3	—2·8
	Jacobabad	41·2	44·0	—2·8
	Indore	46·6	49·3	—2·7
	Veraval	59·6	62·0	—2·4
	Kurrachee	53·6	55·9	—2·3
	Pachpadra	44·0	46·3	—2·3
	Khushab	39·6	41·9	—2·3
North West India—*contd.*	Ludhiana	41·8	44·0	—2·2
	Meerut	42·5	44·7	—2·2
	Ahmedabad	57·9	60·1	—2·2
	Rajkot	50·7	52·9	—2·2
	Delhi	46·8	48·9	—2·1
Bihar and East Satpuras.	Benares	44·9	48·3	—3·4
	Jubbulpore	42·9	46·0	—3·1
	Chittagong	55·5	58·0	—2·5
	Purnea	47·2	49·7	—2·5
	Jessore	52·4	54·9	—2·5
	Gaya	49·1	51·5	—2·4
	Raipur	51·7	54·1	—2·4
	Balasore	52·4	54·7	—2·3
	Sambalpur	51·9	54·0	—2·1
	Patna	49·5	51·6	—2·1
	Darbhanga	51·6	53·7	—2·1
	Dhubri	53·0	55·1	—2·1
Central and Lower Burma.	Toungoo	57·4	62·1	—4·7
	Thayetmyo	54·9	58·3	—3·4
	Moulmein	64·5	66·9	—2·4
	Rangoon	65·0	67·3	—2·3
Bombay Deccan	Bijapur	53·4	56·0	—2·6
	Poona	51·5	53·8	—2·3

At the Baluchistan and north-west Himalayan hill stations, as well as at Mount Abu, Pachmarhi, and Wellington, the mean night temperature was more or less in defect. This is shown below:—

Hill Station.	Mean minimum temperature. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	°	°	°
Chaman	33·5	38·4	—4·9
Quetta	25·2	29·7	—4·5
Srinagar	26·0	28·5	—2·5
Gilgit	32·2	34·5	—2·3
Murree	37·5	39·0	—1·5
Leh	12·6	13·2	—0·6
Pachmarhi	43·3	45·7	—2·4
Wellington	47·2	48·1	—0
Mount Abu	52·5	52·9	—0·4

On the other hand, in the Kumaun and eastern Himalayas, the mean minimum temperature was normal or in excess. The following gives data :—

Hill Station.	Mean minimum temperature.		
	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	°	°	°
Simla	41·5	39·1	+2·4
Ranikhet	44·4	42·6	+1·8
Chakrata	40·9	39·3	+1·6
Mussooree	41·2	40·2	+1·0
Darjeeling	36·9	36·6	+0·3

On the 24th December light rain was reported from Baluchistan and light snow from Kashmir. These unsettled conditions extended on the 25th and were followed by a very rapid fall of temperature over Baluchistan and north-west India. These low temperatures extended quickly over northern India, and the absolute minimum temperatures of the month were recorded between the 26th and the end of the month. The following table gives some of the lowest temperatures recorded over north-western and western India, and shows that at some places —more especially in north Bombay—the temperatures were lower than had previously been recorded in December :—

Station.	Lowest minimum temperature recorded in December, 1903.	Date on which recorded.	Lowest minimum temperature recorded in December previous to 1903	Year in which recorded.
	°		°	
Sirsa	35·0	28th and 30th.	29·9	1878
D. I. Khan	34·0	27th	26·0	1878
Montgomery	30·5	28th	31·5	1896
Kurrachee	38·6	27th	41·0	1886
Hyderabad, Sind	38·0	27th	38·8	1886
Jacobabad	34·0	27th	31·6	1885
Kotah	42·5	28th	43·0	1902
Deesa	35·5	27th	39·5	1878
Jaipur	35·0	27th	34·5	1886
Sambhar	35·0	28th	34·0	1902
Udaipur	34·2	27th	35·2	1902
Pachpadra	34·0	28th	32·3	1886
Dwarka	47·1	27th	52·1	1902
Veraval	46·2	27th	49·3	1897
Surat	43·9	27th	45·3	1879
Ahmedabad	43·7	27th	49·2	1902
Bhavnagar Para	43·0	27th	46·7	1901
Bhuj	41·0	27th	42·3	1886
Chaman	17·6	27th	21·1	1898
Pishin	8·0	27th	8·9	1894

The mean temperature of the month was about normal at the foot of the Kumaun Himalayas, at a few stations in the Deccan, Berar, and Khandesh, over the south Madras coast and locally at Mymensingh. In all other places the mean temperature was lower than usual. The deficiency was greatest over the western desert, the west of the United Provinces, and part of Central India, Orissa, and part of central and lower Burma, and amounted to over 2°·0 at the following places :—

Province.	Station.	Mean daily temperature.		
		Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
		°	°	°
Western Desert.	Bikaner	60·4	63·3	— 2·9
	Hyderabad (S)	63·3	65·8	— 2·5
	Bhuj	67·0	69·2	— 2·2
United Provinces	Cawnpore	59·7	62·0	— 2·3
Orissa	Cuttack	68·3	70·4	— 2·1
Arakan	Akyab	70·9	73·0	— 2·1
Lower and Central Burma.	Toungoo	69·7	73·1	— 3·4
	Rangoon	74·5	77·4	— 2·9
	Thayetmyo	69·2	71·5	— 2·3

At the Baluchistan and north-west Himalayan hill stations the mean temperature was lower, and at the Kumaun and eastern Himalayan stations was higher, than usual, while, at the central and southern hill stations, the variations were unimportant. The following gives data :—

Province or Division.	Hill Station.	Mean daily temperature.		
		Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
		°	°	°
Baluchistan	Chaman	45·3	48·8	—3·5
	Quetta	40·0	43·2	—3·2
North-West Himalayas.	Srinagar	36·9	38·2	—1·3
	Gilgit	40·8	41·9	—1·1
	Murree	45·4	45·9	—0·5
	Leh	24·1	23·9	+0·2
Kumaun Himalayas.	Simla	46·6	44·2	+2·4
	Chakrata	49·4	47·1	+2·3
	Ranikhet	51·6	50·1	+1·5
	Mussooree	46·3	45·2	+1·1
Central Hill Stations.	Mount Abu	60·0	60·8	—0·8
	Pachmarhi	57·8	58·1	—0·3
Southern Hill Station	Wellington	57·0	57·2	—0·2

The following gives mean temperature data for the extra Indian stations :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, December, 1903.	Normal, December.	Variation of actual from normal; December, 1903.
	°	°	°
Trincomalee	78·1	78·5	−0·4
Colombo	80·0	80·0	0
Kabul	37·5	41·4	−3·9
Kashgar*	26·7	23·7	+3·0
Teheran	40·9	42·6	−1·7
Ispahan	39·1	40·8	−1·7
Bushire	60·3	62·4	−2·1
Jask	70·1	71·0	−0·9
Muscat	72·4	73·1	−0·7
Baghdad	53·3	53·3	0
Aden	76·5	77·5	−1·0
Perim	78·3	79·5	−1·2
Zanzibar	81·7	82·3	−0·6
Seychelles	77·8	79·0	−1·2
Mauritius	75·8	77·8	−2·0

* Data for the last 14 days only.

At Baghdad and Colombo the mean temperature was exactly normal, and at Kashgar, where observations for the last fourteen days of the month only were recorded, the mean temperature was in excess, but in all other places the heat, on the mean of the month, was less than usual, the deficiency amounting to 3°·9 at Kabul, to 2°·1 at Bushire, and to 2°·0 at Mauritius.

The following summarises the chief features of the temperature conditions :—

(1) The mean maximum temperature was in slight excess, the mean minimum temperature in slight defect, and the mean temperature about normal over the centre and north-west of the Peninsula.

(2) The mean maximum temperature varied irregularly from the normal, the mean night temperature was in moderate to considerable defect, and the mean temperature in moderate defect over north-west India.

(3) The mean temperature was in slight defect over north-east India.

(4) Both the day and night temperatures and consequently also the mean temperature were, on the mean of the month, in general defect over Burma.

(5) The mean day temperature was low, the mean night temperature about normal, and the mean temperature in slight defect over the southern half of the Peninsula.

(6) At most of the extra Indian stations the mean temperature was below the normal.

The following table gives mean temperature data of the month for the 57 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	85·9	68·4	77·2	17·5	29·0	−1·2	−0·4	−0·8
	Lower Burma (Deltaic)	82·5	67·5	75·0	15·1	25·0	−2·3	+0·1	−2·4
	Central do.	82·7	56·2	69·5	26·5	36·4	−1·7	−4·1	+2·4
	Upper do.	80·6	55·9	68·3	24·6	35·6	−1·2	−0·5	−0·7
	Arakan	79·2	62·4	70·9	16·8	23·8	−2·5	−1·6	−0·9
BENGAL AND ASSAM	Eastern Bengal	77·1	54·7	66·0	22·4	28·7	−0·4	−0·8	+0·4
	Assam (Surma)	79·1	53·4	66·3	25·7	33·4	−0·6	−1·6	+1·0
	Do. Hills	62·1	43·5	52·9	18·7	30·7	...	...	...
	Do. (Brahmaputra)	74·1	51·8	63·0	22·2	28·6	+0·5	−1·1	+1·6
	Deltaic Bengal	76·9	54·6	65·8	22·3	31·1	−0·3	−2·0	+1·7
	Central do.	75·9	52·9	64·4	23·0	32·0	−1·0	−0·7	−0·3
	North do.	75·7	51·5	63·7	24·2	30·4	−0·5	−1·4	+0·9
	Bengal Hills	48·5	31·0	39·7	17·6	32·8	+0·6	+0·3	+0·3
	Orissa	78·4	56·4	67·4	22·0	32·3	−1·7	−1·9	+0·2
	Chota Nagpur	74·3	50·3	62·4	24·0	33·3	−1·4	−1·3	−0·1
	South Bihar	75·4	48·2	61·8	27·2	36·4	+0·1	−2·3	+2·4
	North do.	74·8	49·0	62·0	25·8	35·3	−0·5	−2·3	+1·8

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)	74·6	45·7	60·2	29·0	38·6	−1·1	−1·4	+0·3
	Oudh (South)	74·3	45·0	59·7	29·3	39·6	−1·4	−1·2	−0·2
	Do. (North)	74·0	47·8	60·9	26·2	37·0	−1·0	−0·2	−0·8
	United Provinces (Central)	75·9	47·0	61·5	28·8	40·5	−0·4	−1·4	+1·0
	Do. (West)	73·5	44·9	59·2	28·7	38·5	+0·3	−2·2	+2·5
	Do. (Submontane, East)	73·3	49·2	61·3	24·1	34·2	−0·9	−1·2	+0·3
	Do. (Submontane, West)	70·6	43·9	57·3	26·7	38·4	−0·7	−1·1	+0·4
	Do. (Hills)	56·2	41·6	48·8	14·7	33·8	+1·8	+1·5	+0·3
Punjab	Punjab (South-East)	72·3	46·8	59·6	25·5	36·7	−1·4	−2·1	+0·7
	Do. (South)	71·8	41·9	56·9	30·0	43·0	−1·9	−1·5	−0·4
	Do. (Central)	72·5	40·0	56·3	32·5	41·2	−0·7	−0·3	−0·4
	Do. (Submontane)	69·1	40·1	54·5	29·0	39·0	−0·5	−1·1	+0·6
	Do. (Hills)	44·9	24·7	34·9	20·2	38·5	+0·8	−0·9	+1·7
	Do. (West)	73·1	40·9	57·0	32·2	45·8	+0·2	−2·2	+2·4
N.-W. F. Province	N.-W. F. Province	69·3	38·1	53·7	31·2	44·3	−0·7	−1·5	+0·8
Bombay and Malabar Coast Districts (Madras).	Malabar	85·7	71·5	78·6	14·2	21·5	−1·2	−0·2	−1·0
	Madras (South Central)	83·7	65·3	74·5	18·4	28·0	−2·1	−0·5	−1·6
	Coorg	74·4	57·8	66·2	16·6	32·9	−0·8	0	−0·8
	Mysore	78·3	58·3	68·3	20·1	30·4	−1·7	−0·2	−1·5
	Konkan	85·7	68·5	77·1	17·2	30·1	−0·8	−0·8	0
	Bombay Deccan	84·0	54·4	69·3	29·6	40·1	+0·2	−2·0	+2·2
	Hyderabad (North)	82·0	53·6	67·8	28·4	38·2	...	...	...
	Khandesh	84·3	50·0	67·2	34·4	44·8	+0·7	−1·5	+2·2
Central Provinces and Berar.	Berar	84·4	53·4	68·9	31·1	39·6	+1·2	−1·6	+2·8
	Central Provinces (West)	82·4	49·9	66·2	32·5	43·2	+1·2	−2·2	+3·4
	Do. (Central)	78·6	48·1	63·4	30·5	42·0	+0·5	−1·3	+1·8
	Do. (East)	77·9	50·4	64·1	27·4	38·3	−0·2	−2·3	+2·1
Bombay (North)	Gujarat	86·8	57·5	72·2	29·3	49·9	+0·2	−1·4	+1·6
	Kathiawar and Cutch	82·8	54·9	68·9	28·0	47·4	−0·7	−2·6	+1·9
	Sind	79·1	47·5	63·3	31·6	48·6	+0·4	−3·2	+3·6
	Baluchistan Hills	55·9	25·8	40·9	30·1	54·3	−1·9	−4·7	+2·8
Rajputana and Central India.	Central India (East)	76·2	45·5	60·9	30·7	44·2	−0·3	−2·5	+2·2
	Rajputana (East), Central India (West)	78·0	46·3	62·2	31·7	47·1	0	−2·9	+2·9
	Do. (West)	78·1	47·0	62·5	31·1	49·9	−0·9	−3·5	+2·6
Madras	East Coast (North)	79·3	63·6	71·5	15·7	25·2	−1·7	−1·2	−0·5
	Hyderabad (South)	82·7	58·2	70·5	24·5	35·0	+0·3	−0·6	+0·9
	Madras (Central)	84·9	61·2	73·1	23·8	35·3	−1·5	−0·6	−0·9
	East Coast (Central)	82·0	67·1	74·6	14·9	22·5	−2·0	−0·3	−1·7
	Do. (South)	82·5	69·2	75·9	13·3	21·8	−1·2	+0·1	−1·3
	Madras (South)	83·9	70·4	77·0	13·5	23·3	−1·3	−0·7	−0·6

The preceding data show that the mean maximum temperature was highest and averaged over 85° in the west of the Peninsula and Tenasserim and over 86° in Gujarat, while the mean minimum temperature was 38°·1 in the North-west Frontier Province, 25°·8 in the Baluchistan hills and 24°·7 in the Punjab hills. The mean daily range of temperature was generally greater than usual except over the south of the Peninsula.

During the first four days of the month the weather was unsettled over a large part of the Peninsula, and, owing to the cloudy state of the sky, the night temperature was considerably in excess of the normal over this area. The following gives comparative data for the Peninsular divisions for the first four days :—

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

The preceding data show that the mean temperature during this period was universally in excess of the normal, but, as stated above, this excess was generally attributable to the excess of the night or minimum temperature, which was more than 10° above the normal at the following places on the following dates:—

Date.	Station.	Minimum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
1st December	Akola	65·3	53·3	+12·0
,, ,,	Chanda	65·0	53·9	+11·1
3rd ,,	Kurnool	71·9	60·1	+11·8

During the 4th and 5th a storm in the south gave moderate to heavy rain over the south of the Peninsula, causing a brisk fall of temperature over that area and causing the area of greatest excess of temperature to be transferred north-westward to Gujarat, where temperature was in moderate to slight excess from the 5th to the 7th. The following gives data:—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	5th December.	6th December.	7th December.
	°	°	°
Gujarat	+3·3	+1·5	+0·9

Throughout these seven days the mean temperature was generally low over northern India and Burma. This is shown below:—

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

On the 8th temperature commenced to rise over northern India, and was generally slightly above the average over that area from the 8th to the 11th. The change was most marked in Rajputana, where on the 10th and 11th both the day and night temperatures considerably exceeded the normal. On the night of the 9th—10th the minimum temperature at Ajmer rose to 58°·2, or 12°·3 above the normal and at Jaipur to 60°·0, or 10°·2 above the normal. On the 11th a sudden fall of temperature commenced in Baluchistan and the extreme north-west of India, and this fall extended quickly eastward and south-eastward, so that by the 15th it had reached all parts of the Indian land area, except Tenasserim, where the heat was considerably in excess of the normal. The following gives data for all divisions for the 15th and 16th in illustration:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	15th December.	16th December.
	°	°
Burma	−0·6	−1·5
Assam	−0·3	+0·2
Bengal	−3·2	−2·9
Orissa	−2·3	−5·9
Bihar	−3·6	−3·5
Chota Nagpur	−3·7	−4·4
United Provinces of Agra and Oudh	−3·4	−2·4
Punjab	−1·6	−0·2
North-West Frontier Province	−1·9	+0·6
Sind	−0·8	−1·9
Rajputana	−4·0	−2·6
Gujarat	−2·4	−0·8
Central India	−4·2	−4·0
Central Provinces	−2·0	−4·1
Berar	−0·2	−1·4
West Coast	−2·5	−1·3
Bombay Deccan	−0·6	−2·5
Mysore	−3·2	−3·8
Madras Coast	−1·0	−1·8
Madras Deccan	−1·6	−3·2
South India	−1·0	−1·9

During the 17th, 18th and 19th the mean temperature increased in nearly all parts of the Indian land area. It exceeded the normal over Tenasserim and the extreme north-west of India, but was lower than usual in the intervening region, though this deficiency gradually diminished

under the influence of the general rise noticed above. The following gives comparative data :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	17th December.	18th December.	19th December.
	°	°	°
Burma	−0·4	+0·6	+1·1
Assam	−0·3	−1·7	−1·1
Bengal	−1·9	−0·9	−1·4
Orissa	−4·4	−3·9	−3·2
Bihar	−2·6	−1·8	−1·4
Chota Nagpur	−3·0	−2·2	−1·1
United Provinces of Agra and Oudh	−1·5	−0·9	+0·1
Punjab	+0·9	+1·4	+2·1
North-West Frontier Province	+2·1	+4·1	+4·4
Sind	−1·5	+0·4	+1·5
Rajputana	−1·7	−2·4	−1·0
Gujarat	+0·5	−1·4	−0·4
Central India	−3·1	−3·1	−2·7
Central Provinces	−3·0	−2·5	−1·6
Berar	−1·9	−1·2	−0·5
West Coast	−2·6	−2·0	−0·2
Bombay Deccan	−3·8	−4·3	−2·6
Mysore	−5·3	−2·5	+1·5
Madras Coast	−2·8	−2·3	−1·5
Madras Deccan	−5·6	−3·1	+1·0
South India	−2·5	−1·1	+0·3

During these three days there was a very marked excess of temperature at the hill stations in the Kumaun Himalayas. The following gives variation data of maximum, minimum and mean temperature for the 17th, 18th and 19th :—

DATE.	Hill Station.	VARIATION FROM NORMAL OF		
		Maximum temperature of date.	Minimum temperature of date.	Mean temperature of date.
		°	°	°
17th December	Ranikhet	+8·1	+7·6	+7·9
	Mussooree	+5·3	+6·1	+5·7
	Chakrata	+9·7	+5·4	+7·6
	Simla	+8·4	+7·1	+7·8
18th „	Ranikhet	+5·9	+6·7	+6·3
	Mussooree	+4·9	+5·8	+5·4
	Chakrata	+8·4	+4·1	+6·3
	Simla	+7·5	+5·4	+6·5
19th December	Ranikhet	+5·0	+6·4	+5·7
	Mussooree	+5·5	+5·4	+5·5
	Chakrata	+8·5	+4·6	+6·6
	Simla	+5·2	+5·2	+5·2

Between the 20th and 23rd the changes of temperature over India were generally irregular and unimportant. The mean temperature was generally above the normal in the north-west and generally more or less in defect elsewhere, but the variations were, on the whole, small. The following gives comparative temperature data for all divisions for the 23rd, illustrating the conditions prevailing at this time :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 23rd Dec.	Mean minimum temperature, 23rd Dec.	Mean daily temperature, 23rd Dec.
	°	°	°
Assam	+1·6	−1·6	0
Bengal	+0·2	−0·3	−0·1
Orissa	−1·5	−1·8	−1·7
Bihar	+1·7	−0·7	+0·5
Chota Nagpur	−0·2	−1·0	−0·6
United Provinces of Agra and Oudh	+1·5	−1·6	−0·1
Punjab	+3·1	+0·7	+1·9
North-West Frontier Province	+4·2	+0·3	+2·3
Sind	+5·1	+0·5	+2·8
Rajputana	+2·1	−2·0	+0·1
Gujarat	+1·9	−0·8	+0·6
Central India	0	−5·0	−2·5
Central Provinces	−0·1	−4·0	−2·1
Berar	+1·6	−2·2	−0·3
West Coast	−0·8	−1·8	−1·3
Bombay Deccan	+1·2	−2·3	−0·6
Mysore	−1·6	−3·3	−2·5
Madras Coast	−0·8	−1·8	−1·3
Madras Deccan	−2·0	−2·3	−2·2
South India	−2·8	−4·5	−3·7

In lower Burma and Tenasserim, on the contrary, a considerable change occurred. On the 20th the mean temperature was in general excess in this region, but on the 21st it commenced to fall, and by the 22nd and 23rd was in considerable to large defect. The following gives daily variation data for representative stations :—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	21st Dec.	22nd Dec.	23rd Dec.
	°	°	°
Rangoon	—0·3	—3·2	—5·9
Moulmein	—0·6	—5·0	—5·4
Tavoy	+0·6	—3·4	—4·4
Mregui	+3·4	—2·4	—2·6

On the 24th the mean temperature was still excessive in the Indus valley, but showers had commenced at Quetta and Chaman, and on the 25th a sudden and rapid fall of temperature had taken place over Baluchistan and the stations on the north-west frontier. The following table gives the temperature variations at certain representative stations on the 24th and 25th and shows the extent of the change during those 24 hours :—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	24th Dec.	25th Dec.
	°	°
Peshawar	—0·1	—5·3
Cherat	+3·0	—7·1
D. I. Khan	+2·6	—9·1
Jacobabad	+3·0	—1·8
Kurrachee	+7·1	—0·8

Rain fell over the Punjab plains and snow on the north-west Himalayas between the 25th and the 28th, and an extensive and intense cold wave spread over north-west India and thence extended to practically all parts of India. The following gives comparative temperature data for all divisions from the 25th to 28th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	25th Dec.	26th Dec.	27th Dec.	28th Dec.
	°	°	°	°
Assam	+0·6	+1·4	+0·7	+0·4
Bengal	+1·0	+0·4	+0·2	+0·1
Orissa	—1·6	—1·2	—1·4	—2·1
Bihar	+0·6	+1·0	+1·2	+1·9
Chota Nagpur	+0·7	+1·3	+1·2	+0·3
United Provinces of Agra and Oudh.	+1·3	+1·2	+2·9	—5·0
Punjab	+1·1	—2·9	—3·1	—7·2
North-West Frontier Province	—7·2	—8·7	—6·0	—3·7
Sind	—1·1	—3·2	—12·6	—6·2
Rajputana	—0·1	—6·0	—9·4	—11·5
Gujarat	—0·9	—4·6	—13·6	—12·5
Central India	+1·2	—0·9	—1·0	—8·1
Central Provinces	+1·5	+0·9	+0·8	—3·1
Berar	+1·6	+2·6	+1·9	—3·0
West Coast	—2·2	—1·9	—2·9	—3·3
Bombay Deccan	+1·7	+0·8	—0·8	—2·9
Mysore	—1·5	—2·2	—2·5	—1·7
Madras Coast	—0·6	—0·6	—0·7	—0·5
Madras Deccan	—1·3	—1·5	—1·1	—2·2
South India	—2·1	—2·0	—2·5	—0·6

The lowest temperatures recorded during this cold period are given in an earlier portion of this section, but it may be noted here that the largest variations from the normal were recorded in Baluchistan and north Bombay. On the 27th the mean temperature at Quetta was 24°·2, or 17°·6 below the normal, at Chaman 27°·4, or 18°·9 below the normal, at Rajkot 50°·8, or 17°·4 below the normal, and at Deesa 50°·8, or 17°·1 below the normal.

In Burma the mean temperature was steadily lower than usual during this period. This is shown below :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	25th Dec.	26th Dec.	27th Dec.	28th Dec.
	°	°	°	°
Burma	—2·8	—3·7	—3·2	—2·7

From the 29th to the end of the month temperature rose steadily in the north-west, though, except in Baluchistan, the deficiency previously noticed had not disappeared by the 31st. The following gives comparative data for the different divisions of northern India and Burma from the 29th to the 31st:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	29th December.	30th December.	31st December.
	°	°	°
Burma	−1·9	−1·7	−1·9
Assam	−0·4	−0·8	−0·7
Bengal	+0·1	−1·1	−1·4
Orissa	−2·1	−3·0	−1·5
Bihar	+0·3	−4·2	−4·9
Chota Nagpur	−2·7	−2·3	−2·7
United Provinces of Agra and Oudh	−4·6	−3·5	−2·5
Punjab	−4·8	−3·5	−1·8
North-West Frontier Province	−4·0	−2·3	−4·2
Sind	−6·2	−5·4	−2·0
Rajputana	−8·7	−5·7	−2·1
Gujarat	−8·0	−5·6	−3·4
Central India	−8·8	−6·9	−4·4

Over the Peninsula temperature conditions were unsteady during this period. A depression appeared over the south-west of the Bay, occasioning first cloudy weather and a considerable excess in the minimum temperature, and secondly moderate to heavy rain and a consequent fall of temperature. The following gives daily variation data for the Peninsular divisions:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	29th December.	30th December.	31st December.
	°	°	°
Central Provinces	−4·2	−4·0	−2·9
Berar	−2·6	−2·2	−1·1
West Coast	−1·0	+0·4	+1·4
Bombay Deccan	−3·5	−1·3	+1·4
Mysore	−0·9	+1·0	−0·6
Madras Coast	−0·9	−1·7	−2·3
Madras Deccan	−1·6	+1·6	−2·2
South India	+1·4	−0·7	+1·5

Winds.

The winds were approximately normal in direction over the east of the Bay, but the steadiness and velocity were both generally above the average. This is shown below:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, December, 1903.	Normal percentage, December.	Variation of actual from normal, December, 1903.	Actual, December, 1903.	Normal, December.	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
				°	°			
Port Blair	69	66	+ 3	N 57 E	N 58 E	183	181	+ 2
Cocos Island	90	85	+ 5	N 38 E	N 34 E	...	...	...
Diamond Island	71	48	+23	N 61 E	N 58 E	305	212	+93
Akyab	43	41	+ 2	N 1 W	N 8 W	54	57	− 3

At the head of the Bay the direction was also about the normal, except that at Chittagong the direction was more northerly and easterly than usual. The steadiness was exceptionally high, but the velocity was generally below the average. The following gives data:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, December, 1903.	Normal percentage, December.	Variation of actual from normal, December, 1903.	Actual, December, 1903.	Normal, December.	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
				°	°			
Chittagong	66	53	+13	N 3 E	N 24 W	66	66	0
Calcutta	79	62	+17	N 26 W	N 23 W	54	61	− 7
Saugor Island	84	59	+25	N 5 E	N 3 E	169	150	+19
False Point	66	58	+ 8	N 20 E	N 32 E	128	151	−3

In the Gangetic plain the wind varied between north-north-west and west-north-west and was approximately normal, while the steadiness and velocity, except at Darbhanga, were normal or exceeded the average. The following gives data :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, December, 1903.	Normal percentage, December.	Variation of actual from normal, December, 1903.	Actual, December 1903.	Normal, December.	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
				°	°			
Hazaribagh . .	64	56	+ 8	N 21 W	N 44 W	118	119	— 1
Darbhanga . .	29	53	—24	N 80 W	S 81 W	22	49	—27
Allahabad . .	56	25	+31	N 64 W	N 47 W	53	60	— 7

The wind was more westerly than usual over the western districts of the upper Sub-Himalayas, but varied irregularly from the normal direction at Dehra Dun and Roorkee. The steadiness, on the whole, exceeded the normal, but the velocity was slightly lower than usual, except at Roorkee and Ludhiana. This is shown below :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, December, 1903.	Normal percentage, December.	Variation of actual from normal, December, 1903.	Actual, December, 1903.	Normal, December.	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
				°	°			
Dehra Dun . .	37	17	+20	S 16 W	S 75 W	28	31	— 3
Roorkee . .	13	15	— 2	N 44 W	N 67 W	50	32	+18
Meerut . .	52	44	+ 8	N 86 W	N 61 W	33	37	— 4
Lahore . .	23	20	+ 3	N 47 W	N 35 W	28	33	— 5
Ludhiana . .	60	27	+33	N 88 W	N 43 W	33	27	+ 6

Light unsteady winds prevailed, on the mean of the month, in the Indus valley and irregular winds in Rajputana and Gujarat, though at Deesa the wind was about normal.

The following gives comparative data of air movement for 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, December, 1903.	Normal percentage, December.	Variation of actual from normal, December, 1903.	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
Bay Islands . . .	80	76	+ 4	183	181	+ 2
Burma . . .	57	45	+12	180	135	+45
Bengal . . .	76	58	+18	103	99	+ 4
Bihar	29	53	—24	22	49	—27
Chota Nagpur . .	64	56	+ 8	118	119	— 1
Orissa . . .	66	58	+ 8	128	151	—23
United Provinces of Agra and Oudh.	40	25	+15	41	40	+ 1
Punjab . . .	42	24	+18	31	30	+ 1
North-West Frontier Province.	3	8	— 5	9	61	—52
Rajputana . . .	35	37	— 2	126	133	— 7
Sind	9	21	—12	139	217	—78

The velocity of the wind was higher than usual over Burma, the Bay Islands, Bengal, the United Provinces and the Punjab and lower than usual elsewhere, while the steadiness exceeded the average, except in Bihar and the extreme north-west.

Over the Deccan the wind was generally slightly more northerly than the average. This is shown below :—

Station.	Mean wind direction.	
	Actual, December, 1903.	Normal, December.
	°	°
Belgaum	N 63 W	N 88 E
Sholapur	N 85 E	S 83 E
Akola	N 57 E	N 61 E
Buldana	N 42 E	N 82 E
Khandwa	N 60 E	N 62 E
Nagpur	N 48 E	N 57 E
Hyderabad (Deccan)	S 89 E	S 72 E

The steadiness and velocity of the wind in this division varied irregularly from the normal.

At Bombay, as over the Deccan, the wind was more northerly than the average, while at Karwar there was more westing than usual. The following gives data:—

Station.	Mean wind direction.	
	Actual, December, 1903.	Normal, December.
	°	°
Bombay	N 4 E	N 16 E
Karwar	N 32 W	N 6 W

The wind was very unsteady, but the velocity exceeded the normal at Karwar, while at Bombay both the steadiness and velocity were below the average.

Increased northing characterised the wind direction over south India. The following gives data:—

Station.	Mean wind direction.		
	Actual, December, 1903.	Normal, December.	Northerly, Deflection.
	°	°	
Salem	N 68 E	N 77 E	+9
Chitaldroog	N 77 E	N 83 E	+6
Bangalore	N 62 E	N 70 E	+8
Hassan	N 67 E	N 76 E	+9
Mysore	N 76 E	N 80 E	+4
Madras	N 24 E	N 25 E	+1
Bellary	N 79 E	S 86 E	...

The winds were generally very steady over this division, but the velocity was generally below the normal. This is shown below:—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, December, 1903.	Normal percentage, December.	Variation of actual from normal, December, 1903.	Actual, December 1903.	Normal, December.	Variation of actual from normal, December, 1903.
Salem	45	50	— 5	62	92	—30
Chitaldroog	87	82	+ 5	126	199	—73
Bangalore	87	84	+ 3	166	116	+50
Hassan	89	82	+ 7	65	95	—30
Mysore	84	84	0	226	261	—35
Madras	79	79	0	167	178	—11
Bellary	69	69	0	72	76	— 4

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

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, December, 1903.	Normal percentage, December.	Variation of actual from normal, December, 1903.	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
Central Provinces	49	48	+ 1	58	73	—15
Berar	40	50	—10	82	106	—24
Bombay Deccan	39	67	—28	228	241	—13
Madras Deccan	51	67	—16	69	79	—10
West Coast	27	56	—29	144	151	— 7
Mysore	87	83	+ 4	146	168	—22
Madras Coast	79	79	0	167	178	—11
South India	45	50	— 5	62	92	—30

Winds were, on the whole, somewhat stronger than usual at the western and lighter than usual at the eastern Himalayan stations, but in general the winds were steadier than the average. The directions were very variable. The winds were strong and steady at the central hill stations, the direction ranging from north by east at Pachmarhi to north-west at Mount Abu and Chikalda.

At Aden and Perim the wind's direction was approximately normal, and, though the steadiness was relatively low, the velocity was above the average.

In the equatorial belt the wind's direction was also nearly normal, though at the Seycheles there was slightly more northing and at Mauritius slightly more southing than usual. The steadiness and velolcity were below the average, except at Mauritius. The following gives data for these three stations:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, December, 1903.	Normal percentage, December.	Variation of actual from normal, December, 1903.	Actual, December, 1903.	Normal, December.	Actual, December 1903.	Normal, December.	Variation of actual from normal, December, 1903.
				°	°			
Zanzibar	52	62	—10	N 34 E	N 35 E	142	152	—10
Seychelles	43	61	—18	N 34 W	N 44 W	107	156	—49
Mauritius	...	...	...	S 82 E	S 89 E	266	262	+ 4

Humidity and Cloud.

On the mean of the month the air was damper than usual, *i.e.*, the mean absolute humidity was in excess of the normal, in three areas. The first included the inland districts of the south of the Peninsula, the second, parts of upper Burma and of upper Assam and the third, parts of central Burma. The variations were generally slight, as is shown by the following data of the stations contained in these areas:—

Area.	Station.	Absolute Humidity.		
		Actual, December, 1903.	Normal, December.	Variation of actual from normal, December 1903.
		"	"	"
First area	Kurnool	·549	·493	+·056
	Mysore	·553	·503	+·050
	Chitaldroog	·498	·460	+·038
	Bangalore	·516	·483	+·033
	Hassan	·505	·477	+·028
	Salem	·647	·626	+·021
	Madura	·677	·659	+·018
	Bellary	·499	·482	+·017
	Goa	·573	·559	+·014
	Mangalore	·610	·601	+·009
	Cochin	·705	·696	+·009
	Belgaum	·390	·383	+·007
	Madras	·736	·730	+·006
Second area	Bhamo	·431	·422	+·009
	Sibsagar	·427	·418	+·009
Third area	Thayetmyo	·505	·494	+·011
	Minbu	·496	·494	+·002

Over the whole of the remainder of India and of Burma the vapour tension was in defect of the normal, and over a large part of central and north-west India the variations exceeded —0·050". The following gives comparative data for these stations:—

Station.	Absolute Humidity.		
	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	"	"	"
Bhavnagar Para	·251	·371	—·120
Rajkot	·213	·324	—·111
Kurrachee	·229	·329	—·100
Pachpadra	·166	·252	—·086
Seoni	·259	·344	—·085
Malegaon	·251	·331	—·080
Hyderabad (Sind)	·189	·266	—·077
Jaipur	·196	·269	—·073
Saugor	·222	·294	—·072
Veraval	·292	·362	—·070
Deesa	·189	·258	—·069
Jubbulpore	·287	·353	—·066
Bikaner	·180	·241	—·061
Nagpur	·292	·353	—·061
Hoshangabad	·269	·329	—·060
Amraoti	·267	·327	—·060
Montgomery	·170	·230	—·060
Sambhar	·190	·248	—·058
Sholapur	·289	·346	—·057
Surat	·342	·399	—·057
Delhi	·194	·250	—·056
Ahmedabad	·259	·312	—·053
Meerut	·209	·261	—·052
Agra	·233	·285	—·052
Ahmednagar	·327	·378	—·051

The distribution of the variations of mean relative humidity differed somewhat from the distribution of the vapour tension variations. The mean relative humidity was in excess over the greater part of the Peninsula, except the north-west, but the excess was generally small, except within the area of excessive absolute humidity in the south

of the Peninsula. The following gives comparative data of those stations where the excess was more than 5·0:—

Station.	Relative humidity. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	%	%	
Kurnool	83·0	69·5	+13·5
Mysore	83·0	74·0	+ 9·0
Bangalore	86·0	77·5	+ 8·5
Hassan	81·0	72·6	+ 8·4
Chitaldroog	73·0	65·3	+ 7·7
Gopalpur	84·0	76·6	+ 7·4
Bellary	74·0	67·1	+ 6·9
Salem	83·0	76·2	+ 6·8
Trichinopoly	83·0	77·2	+ 5·8

Relative humidity also exceeded the normal, on the mean of the month, in Tenasserim, part of Burma, and along the foot of the eastern Himalayas, but, except at Bahraich (+5·1), the variations in these regions were unimportant.

A more or less local excess of relative humidity was reported over part of the Central India plateau, the excess amounting to over 5·0 at the two following stations:—

Station.	Relative humidity. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	%	%	
Indore	67·0	59·3	+7·7
Jhansi	63·0	56·5	+6·5

In all other parts of the Indian land area the mean relative humidity was in defect, and over large parts of central and north-western India the deficiency was considerable to large. The following gives comparative data:—

Station.	Relative humidity. Actual, December, 1903.	Normal December.	Variation of actual from normal, December, 1903.
	%	%	
Bhavnagar Para	47·0	62·1	−15·1
Seoni	52·0	66·6	−14·6
Pachpadra	45·0	59·6	−14·6
Kurrachee	45·0	59·4	−14·4
Rajkot	39·0	53·1	−14·1
Jaipur	50·0	62·1	−12·1
Saugor	46·0	57·8	−11·8
Rawalpindi	63·0	74·4	−11·4
Montgomery	54·0	64·5	−10·5
Bikaner	46·0	55·8	− 9·8
Sambhar	54·0	63·7	− 9·7
Malegaon	48·0	57·7	− 9·7
Deesa	38·0	47·3	− 9·3
Khushab	51·0	60·0	− 9·0
Surat	53·0	61·8	− 8·8
Meerut	66·0	74·6	− 8·6
Hyderabad (S)	46·0	54·3	− 8·3
Ahmedabad	41·0	48·9	− 7·9
Umballa	74·0	81·7	− 7·7
Ludhiana	68·0	75·6	− 7·6
Amraoti	43·0	50·6	− 7·6
Delhi	54·0	61·2	− 7·2

The following gives comparative data for all divisions for the month of December:—

Province or Division.	Relative humidity. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	%	%	
Burma	83·0	83·3	−0·3
Assam	94·0	93·7	+0·3
Bengal	85·0	85·4	−0·4
Orissa	81·0	80·1	+0·9
Bihar	78·0	77·1	+0·9
Chota Nagpur	67·0	68·5	−1·5
United Provinces of Agra and Oudh	74·0	75·6	−1·6

PROVINCE OR DIVISION.	RELATIVE HUMIDITY. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	%	%	
Punjab	63·0	70·2	—7·2
North-West Frontier Province	67·0	70·1	—3·1
Sind	51·0	58·9	—7·9
Rajputana	51·0	60·9	—9·9
Gujarat	45·0	55·5	—10·5
Central India	63·0	60·2	+2·8
Central Provinces	61·0	64·6	—3·6
Berar	48·0	53·9	—5·9
West Coast	77·0	76·0	+1·0
Bombay Deccan	52·0	55·1	—3·1
Mysore	81·0	72·6	+8·4
Madras Coast	86·0	81·6	+4·4
Madras Deccan	73·0	69·8	+3·2
South India	82·0	77·8	+4·2

The humidity conditions at the hill stations varied irregularly from the normal. At Murree, Srinagar, Quetta and Wellington the mean relative humidity was in excess. This is shown below:—

HILL STATION.	RELATIVE HUMIDITY. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	%	%	
Murree	47·0	45·5	+1·5
Srinagar	92·0	89·0	+3·0
Quetta	82·0	74·3	+7·7
Wellington	71·0	70·9	+0·1

On the other hand, at all the remaining hill stations the mean relative humidity was less than usual, and in the Kumaun Himalayas and Further Kashmir the deficiency was large. The following gives data:—

HILL STATION.	RELATIVE HUMIDITY. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	%	%	
Mussooree	37·0	55·2	—18·2
Ranikhet	47·0	58·9	—11·9
Chakrata	38·0	49·0	—11·0
Leh	41·0	58·2	—17·2

The following table gives the driest and dampest places on the plains of India as measured by the records of mean relative humidity at 8 A.M:—

STATION.	Mean relative humidity exceeding 90%.	Station.	Mean relative humidity less than 40%.
Sibsagar	100	Rajkot	39
Gauhati	97	Deesa	38
Tezpur	95	Jodhpur	36
Bhamo	95		
Cooch Behar	94		
Dhubri	93		
Dibrugarh	92		
Chittagong	92		
Rangpur	92		
Akyab	91		

The air was thus dampest over Assam and Burma, and was driest over the western desert.

Both the absolute and relative humidities were in defect at Perim and Aden. The following gives data:—

STATION.	ABSOLUTE HUMIDITY. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.	RELATIVE HUMIDITY. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	"	"	"	%	%	
Aden	·642	·655	—·013	74·0	74·2	— 0·2
Perim	·670	·700	—·030	73·0	74·0	— 1·0

In the south-east Trades region the mean absolute humidity was, except at Zanzibar, less than usual, but the mean temperature was low and the mean relative humidity

was normal or approximately so. This is shown below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
	"	"	"	%	%	
Zanzibar . .	·895	·872	+·023	84·0	80·7	+3·3
Seychelles . .	·794	·811	—·017	82·0	81·0	+1·0
Mauritius . .	·644	·687	—·043	72·0	72·0	0

The variations in the mean cloud amount of the month showed that the sky was clearer than usual of cloud over the greater part of the country. There was, however, some excess of cloud in three areas, *viz.*, the south and west of the Peninsula, parts of lower Burma and of Tenasserim, and locally at Dera Ismail Khan. The excess was moderate or small at all stations, except the hill station of Mercara in Coorg, as is shown by the following comparative data of the contained stations:—

AREA.	STATION.	MEAN CLOUD AMOUNT.		
		Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
SOUTH OF THE PENINSULA.	Mercara . .	7·2	4·8	+2·4
	Cochin . .	3·5	2·4	+1·1
	Mysore . .	4·8	3·8	+1·0
	Salem . .	4·0	3·6	+0·4
	Tinnevelly . .	4·8	4·5	+0·3
	Hassan . .	3·7	3·6	+0·1
WEST OF THE PENINSULA.	Belgaum . .	2·1	1·6	+0·5
	Karwar . .	1·5	1·1	+0·4
	Mormugao . .	1·3	0·9	+0·4
	Goa . . .	1·7	1·4	+0·3
TENASSERIM .	Mergui . .	3·7	3·4	+0·3
LOWER BURMA	Rangoon . .	2·6	2·3	+0·3
	Thayetmyo .	1·8	1·7	+0·1
N.-W. FRONTIER PROVINCE.	Dera Ismail Khan	2·7	2·6	+0·1

Over the whole of the remainder of the country the mean cloud amount was in defect of the normal. The deficiency was greatest over north-east India and the adjacent parts of Burma, but was considerable in Orissa, the Satpuras, the east Punjab and the west of the United Provinces and over part of the western desert. The deficiency amounted to over 1·0 at the following stations:—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
Sibsagar	1·9	5·3	—3·4
Silchar	1·5	4·0	—2·5
Akyab	0·1	2·3	—2·2
Mandalay	0·4	2·4	—2·0
Bhamo	2·1	3·7	—1·6
Chittagong	0·9	2·5	—1·6
Diamond Island	1·9	3·4	—1·5
Bassein	1·6	2·9	—1·3
Dhubri	0·3	1·6	—1·3
Narayanganj	1·1	2·3	—1·2
Toungoo	1·1	2·3	—1·2
Tavoy	1·5	2·7	—1·2
Minbu	1·0	2·1	—1·1
Jessore	0·1	1·2	—1·1
Saugor Island	0·7	2·5	—1·8
Balasore	0·5	2·1	—1·6
Gopalpur	0·9	2·1	—1·2
Seoni	0·3	1·9	—1·6
Jubbulpore	0·2	1·6	—1·4
Hoshangabad	0·2	1·6	—1·4
Amraoti	0·4	1·7	—1·3
Akola	0·5	1·8	—1·3
Mainpuri	0·3	2·3	—2·0
Lucknow	0·2	1·6	—1·4
Ludhiana	1·5	3·8	—2·3
Sirsa	1·1	3·0	—1·9
Meerut	0·8	2·0	—1·2
Pachpadra	1·1	2·5	—1·4
Jacobabad	1·6	2·8	—1·2
Kurrachee	1·1	2·2	—1·1

The following table gives the clearest and cloudiest stations on the plains of India, as shown by the mean 8 A.M. amounts of cloud :—

STATION.	Mean cloud amount, over 6.	STATION.	Mean cloud amount, under 0·5.
Gauhati	8·3	Mandalay	0·4
Negapatam	6·4	Chaibassa	0·4
		Chapra	0·4
		Jhansi	0·4
		Amraoti	0·4
		Aurangabad	0·4
		Dhubri	0·3
		Faridpur	0·3
		Cooch Behar	0·3
		Daltonganj	0·3
		Arrah	0·3
		Muzaffarpur	0·3
		Mainpuri	0·3
		Seoni	0·3
		Pendra	0·3
		Barisal	0·2
		Darbhanga	0·2
		Lucknow	0·2
		Hoshangabad	0·2
		Jubbulpore	0·2
		Akyab	0·1
		Jessore	0·1
		Rangpur	0·1
		Bhagalpur	0·1
		Motihari	0·1
		Bahraich	0·1
		Malda	0

At nearly all the more northern hill stations and in Baluchistan the mean cloud amount of the month was less than usual. The following gives comparative data :—

HILL STATION.	MEAN CLOUD AMOUNT. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
Murree	2·1	4·1	−2·0
Srinagar	4·5	6·0	−1·5
Leh	4·6	5·9	−1·3
Gilgit	5·5	6·4	−0·9
Ranikhet	1·5	2·7	−1·2
Mussooree	2·5	2·7	−0·2
Chakrata	2·9	3·0	−0·1
Simla	3·8	3·9	−0·1
Cherat	3·8	3·7	+0·1
Chaman	1·4	3·5	−2·1
Quetta	2·5	3·2	−0·7

At the central and southern hill stations, except Mount Abu, on the contrary, the mean cloud amount was in excess. This is shown below :—

STATION.	MEAN CLOUD AMOUNT. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
Pachmarhi	2·1	1·9	+0·2
Wellington	4·2	3·7	+0·5
Mount Abu	1·0	1·7	−0·7

At Aden and Perim the mean cloud amount was in defect of the normal, and at the latter station the sky was almost clear of cloud on the mean of the month. The following gives data :—

STATION.	MEAN CLOUD AMOUNT. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
Aden	3·5	5·2	−1·7
Perim	1·2	4·1	−2·9

At Zanzibar the sky was considerably more cloudy than usual, while at Mauritius the mean cloud amount was exactly normal, and at the Seychelles it was less than the normal. This is shown below :—

STATION.	MEAN CLOUD AMOUNT. Actual, December, 1903.	Normal, December.	Variation of actual from normal, December, 1903.
Zanzibar	6·3	3·9	+2·4
Mauritius	6·1	6·1	0
Seychelles	5·5	6·8	−1·3

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 the south, south-central and 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 the weather was more disturbed than usual over the Peninsula, where a series of small storms occasioned heavy rain, and was more disturbed than has been the case for several years past over north-west India at the close of the month.

The principal periods of rainfall were as follows:—

1st.—The 1st to the 7th, when general rain fell over the Peninsula and was heavy on the 4th and 5th.

2nd.—The 18th to the 21st, when showers fell over the south of the Peninsula.

3rd.—The 25th to the 28th, when snow fell on the hills and rain on the plains of north-west India.

4th.—The 29th to the 31st, when light to heavy rain fell over the south of the Peninsula.

The following table gives comparative rainfall data of the 57 rainfall divisions of India:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, December, 1903.	Average normal, December.	Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.
				Inches.	Inches.	Inches.
Burma	Tenasserim	1·1	0·3	0·67	0·11	+0·56
	Lower Burma (Deltaic)	0	0·3	0·08	0·08	0
	Central do.	0	0·4	0·09	0·17	—0·08
	Upper do.	0	0·7	0·01	0·36	—0·35
	Arakan	0·1	0·5	0·04	0·41	—0·37
Bengal and Assam	Eastern Bengal	0	0·4	0	0·24	—0·24
	Assam (Surma)	0	0·5	0	0·35	—0·35
	Do. (Hills)	0	1·1	0·01	0·49	—0·48
	Do. (Brahmaputra)	0·3	1·1	0·08	0·46	—0·38
	Deltaic Bengal	0	0·3	0	0·14	—0·14
	Central do.	0	0·2	0	0·10	—0·10
	North do.	0	0·3	0	0·12	—0·12
	Bengal Hills	0	0·6	0	0·22	—0·22
	Orissa	0·2	0·4	0·06	0·23	—0·17
	Chota Nagpur	0	0·4	0	0·22	—0·22
	Bihar (South)	0	0·3	0	0·17	—0·17
	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	0·33	—0·33
	Do. (North)	0	0·6	0	0·30	—0·30
	United Provinces (Central)	0	0·7	0	0·34	—0·34
	Do. do. (West)	0	0·8	0	0·36	—0·36
	Do. do. (East Submontane)	0	0·4	0	0·15	—0·15
	Do. do. (West do.)	0·5	1·1	0·28	0·55	—0·27
	Do. do. (Hills)	1·3	1·4	0·39	0·81	—0·42
Punjab	Punjab (South-East)	0·1	0·8	0·04	0·39	—0·35
	Do. (South)	0·1	0·8	0·04	0·36	—0·32
	Do. (Central)	0·7	0·8	0·18	0·43	—0·25
	Do. (Submontane)	1·2	1·1	0·79	0·72	+0·07
	Do. (Hills)	2·9	1·8	2·63	1·26	+1·37
N.-W. F. Province	Do. (West)	0·6	0·5	0·17	0·21	—0·04
	North-West Frontier Province	1·5	1·0	0·74	0·52	+0·22
Bombay and Malabar Coast Districts (Madras).	Malabar	1·4	1·1	1·16	0·63	+0·53
	Travancore	4·5	...	4·09	...	...
	Madras (South Central)	4·5	2·2	2·53	1·28	+1·25
	Coorg	1·9	...	1·98	...	...
	Mysore	...	...	...	...	...
	Konkan	0·3	0·2	0·09	0·07	+0·02
	Bombay Deccan	0·5	0·4	0·35	0·23	+0·12
	Hyderabad, North	0·7	0·7	0·37	0·41	—0·04
	Khandesh	0·1	0·4	0·02	0·22	—0·20
Central Provinces and Berar.	Berar	0	0·4	0	0·28	—0·28
	Central Provinces (West)	0	0·6	0	0·39	—0·39
	Do. (Central)	0	0·5	0	0·27	—0·27
	Do. (East)	0	0·4	0	0·21	—0·21

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, December, 1903.	Average normal, December.	Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.
				Inches.	Inches.	Inches.
Bombay (North)	Gujarat	0	0·1	0	0·04	−0·04
	Kathiawar and Cutch	0	0·2	0	0·06	−0·06
	Sind	0	0·3	0	0·11	−0·11
	Baluchistan Hills	0·4	2·3	0·13	0·99	−0·86
Rajputana and Central India	Central India (East)	0	0·9	0	0·39	−0·39
	Rajputana (East), Central India (West)	0	0·9	0	0·40	−0·40
	Rajputana (West)	0	0·4	0	0·15	−0·15
Madras	East Coast (North)	0·8	0·6	0·70	0·58	+0·12
	Hyderabad (South)	0·6	0·3	0·43	0·15	+0·28
	Madras (Central)	1·6	0·8	0·96	0·43	+0·53
	East Coast (Central)	4·9	2·2	4·78	2·07	+2·71
	Do. (South)	8·6	5·2	13·83	4·97	+8·86
	Madras (South)	7·3	4·5	6·69	3·55	+3·14

The preceding data show that in 40 of the rainfall divisions the average actual rainfall was in defect of the normal, and that in 36 divisions actually or practically no rain fell during the month. In lower Burma the average actual rainfall was exactly normal, and in 14 divisions the month's rainfall was more or less in excess of the normal. The excess was considerable (over +50%) in the divisions for which comparative data are given below :—

Division.	Rainfall.			
	Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Tenasserim	0·67	0·11	+0·56	+509
Punjab Hills	2·63	1·26	+1·37	+109
Malabar	1·16	0·63	+0·53	+ 84
Madras (South Central)	2·53	1·28	+1·25	+ 98
Bombay (Deccan)	0·35	0·23	+0·12	+ 52
Hyderabad (South)	0·43	0·15	+0·28	+187
Madras (Central)	0·96	0·43	+0·53	+123
East Coast (Central)	4·78	2·07	+2·71	+131
East Coast (South)	13·83	4·97	+8·86	+178
Madras (South)	6·69	3·55	+3·14	+ 88

This heavy rainfall in the south largely balanced the deficiency over central and north-east India, and the general rainfall of the whole country (excluding the hill districts), as determined from the fifth figure column of the table on pages 539 and 540, was 0·20″ above the normal.

The rainfall distribution for the month as determined from the meteorological observatories is shown on Pl. IV. This plate shows that light to moderate rain was received over the north-west Himalayas, the North-West Frontier Province, the Punjab and the west of the United Provinces, and light to heavy rain over the Peninsula, while over the whole of the intervening region the month was actually or practically rainless. At Negapatam and Madras the total rainfall was over 18 inches.

Light to moderate showers fell in Tenasserim between the 13th and 19th, and local showers were received in lower Burma on the 16th and 18th, in central Burma on the 1st, 2nd, 4th and 5th, and in upper Burma and Arakan on the 5th and 6th. The rainfall in Tenasserim, though averaging only 0·67″, was heavier than usual, while in other parts of the province it was very light. The following gives comparative data for the divisions :—

Division.	Rainfall.			
	Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Tenasserim	0·67	0·11	+0·56	+509
Lower Burma Deltaic	0·08	0·08	0	0
Central Burma	0·09	0·17	−0·08	−47
Upper Burma	0·01	0·36	−0·35	−97
Arakan	0·04	0·41	−0·37	−90

No rain fell during the month in the Surma valley of Assam, but in the Brahmaputra valley and in the hills there occurred light insignificant showers on the 11th, 12th and 13th. The average actual rainfall was much less than usual, as is shown below :—

Division.	Rainfall.			
	Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Assam (Surma)	0	0·35	—0·35	—100
Assam (Hills)	0·01	0·49	—0·48	— 98
Assam (Brahmaputra)	0·08	0·46	—0·38	— 83

In Bengal there was no rain, but in Orissa a few light scattered showers fell on the 1st and 2nd.

No rain fell during the month over the greater part of the United Provinces, but in the west submontane division some rain occurred between the 24th and the 28th, when also snow fell on the hills. Over one inch of rain was recorded on the 27th at Mussooree (1·37″) and on the 28th at Rajpur (1·25″), Chakrata observatory (1·62″), Naiashahr (1·02) and Ambari (1·09″). Even in these divisions, however, the average actual rainfall of the month was less than the normal. The following gives comparative data for the west submontane and hill divisions :—

Division.	Rainfall.			
	Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
United Provinces (West Submontane).	0·28	0·55	—0·27	—49
United Provinces (Hills)	0·39	0·81	—0·42	—52

Rain fell in all parts of the Punjab during the month, but in the southern and central districts the fall was restricted to a few light showers. In other parts of the province light to moderately heavy falls of rain in the plains and of snow on the hills were recorded between the 24th and 28th. The principal amounts registered (exceeding 1″ in 24 hours) were as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Rawalpindi	Attock	25th December	1·04
Simla	Barauli	26th ,,	1·32
Gurdaspur	Dalhousie	,, ,,	1·05
Kangra	Kangra	27th ,,	3·35
Kangra	Dera	,, ,,	3·10
Kangra	Nurpur	,, ,,	2·70
Kangra	Hamirpur	,, ,,	2·60
Kangra	Dharmsala	,, ,,	2·28
Gurdaspur	Pathankot	,, ,,	2·18
Hoshiarpur	Una	,, ,,	2·10
Gurdaspur	Madhopur	,, ,,	1·90
Umballa	Naraingarh	,, ,,	1·62
Hoshiarpur	Sadar station	,, ,,	1·50
Hoshiarpur	Hoshiarpur	,, ,,	1·46
Hoshiarpur	Dasuya	,, ,,	1·38
Gurdaspur	Tibri	,, ,,	1·38
Hoshiarpur	Garhshankar	,, ,,	1·17
Simla	Kotkhai	,, ,,	1·15
Simla	Kotgarh	,, ,,	1·08
Gurdaspur	Gurdaspur	,, ,,	1·05
Gurdaspur	Shakargarh	,, ,,	1·02
Kangra	Hamirpur	28th ,,	1·75
Simla	Kotgarh	,, ,,	1·70
Kangra	Plach	,, ,,	1·33
Simla	Simla	,, ,,	1·18
Kangra	Palampur	,, ,,	1·15

The average actual rainfall of the month equalled or exceeded the normal in the submontane, hills and west divisions. The following gives data :—

Division.	Rainfall.			
	Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
South-East Punjab	0·04	0·39	—0·35	— 90
South Punjab	0·04	0·36	—0·32	— 89
Central Punjab	0·18	0·43	—0·25	— 58
Punjab (Submontane)	0·79	0·72	+0·07	+ 10
Punjab Hills	2·63	1·26	+1·37	+109
West Punjab	0·17	0·21	—0·04	— 19

The weather was rainless over the North-West Frontier Province up to the 24th, but on the 25th and 26th general light to moderate rain was received. The rainfall ceased

abruptly, and the last few days of the month were fine. The average actual rainfall exceeded the normal, and on the 25th and 26th the following falls, exceeding or equalling 1·00″ in 24 hours, were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Malakand	Malakand	25th December	1·60
Kohat	Fort Lockhart	,, ,,	1·20
Peshawar	Lahore	,, ,,	1·00
	Nahakki	,, ,,	1·00
Kohat	Fort Lockhart	26th ,,	1·10

A large part of Baluchistan received showers on the 23rd and 24th, but at other times the weather was fine and rainless. The average actual rainfall was only about one-seventh of the normal.

In Kashmir there occurred a general and moderately heavy fall of rain and snow between the 24th and 27th, while light scattered showers were received on the 11th, 17th and 31st. The heaviest falls (exceeding 1·00″ in 24 hours) recorded during the general rainy period at the end of the month were as follows:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jummoo	Riasi	24th December	1·10
	Ramnagar	,, ,,	1·08
	Ramban	,, ,,	1·02
Kashmir	Kolgam	25th ,,	1·98
	Anantnag	,, ,,	1·92
Jummoo	Rampore Rajauri	,, ,,	1·60
	Ramban	,, ,,	1·32
	Punch	,, ,,	1·13
Kashmir	Vantipore	,, ,,	1·10
Jummoo	Pader	,, ,,	1·03
Kashmir	Kolgam	26th ,,	1·89
	Anantnag	,, ,,	1·74
Jummoo	Jasmairgarh	,, ,,	1·61
Kashmir	Sonemarg	,, ,,	1·60
Jummoo	Sambha	,, ,,	1·55
	Kathua	,, ,,	1·52
	Ramban	,, ,,	1·44
	Ramnagar	,, ,,	1·25
	Bisolee	27th ,,	2·30
Kashmir	Srinagar	,, ,,	1·38

The rainfall and snowfall were apparently irregularly distributed, but probably were, on the whole, heavier than usual. In Rajputana, Central India, the Central Provinces and Berar there was no rainfall during the month.

In the Bombay Presidency the rainfall was as usual very light, but in the Konkan showers occurred on the 1st, which gave an average of 00·9″ for the division, or 0·02″ more than the normal. In the Deccan similar showers were experienced, and the average actual rainfall of this division was 0·35″, the normal average for December being 0·23″. Except in these areas and on this day, there was no rainfall over the Bombay Presidency during the month.

In Madras the rainfall was considerably heavier than in other parts of the country. In Malabar showers fell between the 1st and the 9th, with more general rain on the 5th and 6th, and showers again occurred in Travancore on the 20th and 21st and the 30th and 31st. The total rainfall, on the whole, was nearly twice as heavy as usual, as is shown by the following data for the contained districts:—

District.	Rainfall.			
	Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Malabar	1·93	0·76	+1·17	+154
South Canara	0·32	0·40	−0·08	−20

In south Madras rain fell between the 1st and the 8th, the 18th and 21st, and the 29th and the 31st, and was heavy on the 5th. The following gives the falls exceeding 3″ in 24 hours:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tinnevelly	Vilattikulam	5th December	9·10
	Srivilliputtur	,, ,,	6·80
	Ottappidaram	,, ,,	5·77
	Koilpatti	,, ,,	5·69
	Sivakasi	,, ,,	4·53
	Tuticorin	,, ,,	4·50
	Virudupatti	,, ,,	4·47
Madura	Uttamapalaiyam	,, ,,	4·41
Tinnevelly	Sattur	,, ,,	4·25
Madura	Melur	,, ,,	4·25

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tinnevelly	Tenkasi	5th December	3·98
Tinnevelly	Arasadi	,, ,,	3·90
Tinnevelly	Sankaranayinarkoy	,, ,,	3·85
Madura	Chuttrapatti	,, ,,	3·70
Madura	Palni	,, ,,	3·67
Madura	Usilampatti	,, ,,	3·65
Madura	Tiruppattur	,, ,,	3·38
Madura	Tiruchuli	,, ,,	3·37
Tinnevelly	Watrap	,, ,,	3·35
Madura	Theelhandathanam	6th ,,	4·68
Tinnevelly	Ambasamudram	,, ,,	4·55
Madura	Vattanam	,, ,,	4·10
Tinnevelly	Tenkan	,, ,,	3·68
Madura	Manakkudi	,, ,,	3·30

The general rainfall was nearly twice as heavy as usual, as is shown by the following district data:—

District.	Rainfall. Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madura	7·35	3·40	+3·95	+116
Tinnevelly	6·11	3·73	+2·38	+ 64

In south-central Madras rain fell between the 1st and the 7th and showers on the 19th, 20th, and 29th to 31st. The rainfall was very general on the 4th and 5th, but was not very heavy. The total rainfall was, however, twice as great as usual. The following gives data for the districts:—

District.	Rainfall. Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Salem	3·34	1·28	+2·06	+161
Coimbatore	1·77	1·32	+0·45	+ 34

In central Madras there were moderate showers about the commencement and end of the month, and the total rainfall in Cuddapah and Bellary largely exceeded the normal. The following gives district data:—

District.	Rainfall. Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah	2·37	1·04	+1·33	+128
Anantapur	0·20	0·23	—0·03	— 13
Bellary	0·82	0·15	+0·67	+447
Kurnool	0·13	0·17	—0·04	— 24

In the east coast (north) showers fell at the commencement of the month. Rain practically ceased after the 3rd, but the fall had been heavy in some places on the 1st, and the month's rainfall, on the whole, exceeded the normal. The following gives data for the districts:—

District.	Rainfall. Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inches.	Inch.	Inch.	
Ganjam	1·61	0·88	+0·73	+83
Vizagapatam	0·60	0·90	—0·30	—33
Godavari	0·30	0·41	—0·11	—27
Kistna	0·35	0·33	+0·02	+ 6

In the central division general rain fell between the 1st and the 6th and the 29th and the 31st. The latter fall was the heavier, and the following amounts, exceeding 3″ in 24 hours, were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Nellore	Venkatagiri	30th December	3·33
Nellore	Kota	31st ,,	3·58
Nellore	Nellore	,, ,,	3·32
Nellore	Gudur	,, ,,	3·29
Nellore	Rapur	,, ,,	3·09

The month's rainfall was more than twice the average. This is shown below:—

District.	Rainfall. Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Nellore	4·78	2·07	+2·71	+131

In the south division rain fell between the 1st and the 8th, on the 19th and 20th, and between the 29th and 31st. All three falls were heavy, but particularly the first and last, during the latter of which the following amounts, exceeding 6″ in 24 hours, were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tanjore	Tirulluraippundi	30th December	10·10
Chingleput	Poonamallee	" "	7·81
Tanjore	Muttupet	" "	7·78
North Arcot	Wandiwash	" "	7·30
	Arkonam	" "	7·00
Tanjore	Tiruvallur	" "	6·95
Chingleput	Tiruvallur	" "	6·80
	Madurantakam	" "	6·78
	Cheyur	" "	6·50
	Saidapet	" "	6·46
Tanjore	Tiruppundi	" "	6·30
Chingleput	Sriperumbudur	" "	6·05
South Arcot	Tiruvannamalai	31st "	8·95
	Chengam	" "	8·81
Chingleput	Conjeeveram	" "	8·20
South Arcot	Tirukkoyilur	" "	8·18
Chingleput	Poonamallee	" "	7·25
	Vadasemmanjeri	" "	7·18
South Arcot	Kailakurichi	" "	7·16
Chingleput	Saidapet	" "	6·92
North Arcot	Arkonam	" "	6·76
	Polur	" "	6·60
Chingleput	Kovelong	" "	6·43
	Tiruvallur	" "	6·32
Madras	Madras	" "	6·18

The following gives comparative data of the contained districts:—

District.	Rainfall. Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madras	18·55	5·28	+13·27	+251
Chingleput	17·65	5·05	+12·60	+250
North Arcot	10·46	2·63	+7·83	+298
South Arcot	11·81	5·20	+6·61	+127
Tanjore	18·08	7·72	+10·36	+134
Trichinopoly	7·73	3·31	+4·42	+134

The following gives a comparative statement of the rainfall of December, 1903, at the extra-Indian stations:—

Station.	Rainfall. Average actual, December, 1903.	Average normal, December.	Variation of actual from normal, December, 1903.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee	11·13	15·90	—4·77	— 30
Colombo	2·22	6·79	—4·57	— 67
Kabul	0	0·29	—0·29	—100
Meshed	0·75	0·70	+0·05	+ 7
Teheran	0·66	1·37	—0·71	— 52
Ispahan	0·04	0·54	—0·50	— 93
Bushire	2·62	3·24	—0·62	— 19
Jask	0·77	0·78	—0·01	— 1
Muscat	0·13	0·26	—0·13	— 50
Baghdad	0·21	1·64	—1·43	— 87
Aden	0·52	0·37	+0·15	+ 41
Perim	0·09	0·08	+0·01	+ 13
Zanzibar	7·50	2·77	+4·73	+171
Seychelles	8·52	14·27	—5·75	— 40
Mauritius	2·82	4·68	—1·86	— 40

There was no rain during the month at Kabul and practically none at Ispahan and Perim, but elsewhere

more or less rain was received. The month's fall was normal at Meshed and in the Persian Gulf region, and was excessive in the Gulf of Aden and very excessve at Zanzibar. Elsewhere the fall was short of the normal.

Crop Report.

Madras.—Rain fell generally during the month, and was heavy in the Carnatic and in parts of the central districts at the close of the month. Irrigation supplies were sufficient. Ploughing, sowing, and transplanting progressed during the month. The standing crops were generally good. The harvest continued with fair outturn. Pasture was sufficient. Fodder was procurable. The condition of the cattle was good.

Bombay.—Slight rain fell in parts of Sind and the Deccan during the month. More rain was needed for the spring crops in parts of Nasik and Poona. The standing crops had been damaged by locusts in parts of Kurrachee, Ratnagiri, Nasik, Poona and Satara, by rats in parts of Nasik, Sholapur, and Bijapur, by frost in parts of Kurrachee, Larkana, Hyderabad, Ahmedabad, the Panch Mahals and Baroda, and by blight in parts of the Carnatic. At the close of the month they were suffering from insufficient moisture in parts of Poona and Sholapur. They were generally in good condition elsewhere. The fodder supply was sufficient and the water supply generally adequate.

Bengal.—There was no rain till close to the end of the month, when scanty showers fell. The harvesting of the *bhadoi* crop was completed during the first fortnight, and that of winter rice continued; the outturn of the former was estimated at 80 and that of the latter at 90% of a normal crop. At the close of the month rain was needed for the spring crops in parts of Bhagalpur and for the poppy crop in Hazaribagh. In Palamau the standing crops were reported to have been slightly damaged by frost and to have been in need of rain. Prospects were otherwise good, and the harvesting of winter rice and the pressing of sugarcane continued. Fodder and water were sufficient.

United Provinces.—Light rain fell in places towards the end of the month. In Bijnor, Moradabad, Muzaffarnagar, Bulandshahr, Aligarh, Pilibhit, Cawnpore and Benares the crops, at the end of the month, were in good condition, but in Shahjahanpur and Pilibhit *arhar* (*Cajanus indicus*) had been slightly damaged by frost. The spring crops and poppy were being irrigated. Supplies and fodder were sufficient.

Punjab.—Rain fell over a considerable portion of the Punjab towards the close of the month. The rainfall benefited the standing crops, but more was required in most districts. The pressing of sugarcane, picking of cotton, and harvesting of other autumn crops were in progress, at the end of the month, in some districts, and the sowing of spring crops continued in Sialkot and Shahpur. The condition of the spring crops was generally good, except in parts of Hissar, Delhi, and Ferozepur.

North-West Frontier Province.—General rain fell towards the close of the month, greatly benefiting the standing crops. Wheat and barley were sown after the rain. The canal supply of water was much improved.

Burma.—Light rain fell in a few districts during the month. The crop prospects were good, and an outturn of from 15 to 18 annas was estimated for upper Burma. The reaping of paddy was almost over at the end of the month, and the cotton harvest was completed in some places. The standing crops were in good condition.

Central Provinces.—No rain fell during the month. The harvesting of the autumn crops was generally completed during the month, and the yield was a bumper one in rice, below normal in *juar* and cotton, and normal in the other crops. The spring crops, at the close of the month, were in excellent condition, wheat, gram and linseed promising good outturns. A little rain was required to improve prospects.

Assam.—The weather was seasonable during the month. The plucking and manufacture of tea were finished during the first fortnight, the outturn having been good. The sowing of mustard and linseed and harvesting of late rice, pruning of tea, and pressing of sugarcane were in progress at the end of the month. The outturn of late rice and prospects of pulse, mustard, and sugarcane were fair to good.

Mysore.—At the close of the month the standing crops were in good condition, paddy and *ragi* (*Eleusine coracana*) were being harvested, and the prospects of the season were good.

Coorg.—The reaping of rice and picking of coffee progressed during the month.

Hyderabad.—There was no rain during the month. The early rice harvest continued during the month, and late rice sowings were in progress. The spring crops were in good condition.

Rajputana.—The harvesting of autumn crops and the sowing of spring crops were practically completed during the month. The autumn outturn was generally satisfactory. The standing crops were in fair condition.

Central India.—No rain fell during the month. The crops were good in Gwalior, Bhopal, Baghelkhand, Bundelkhand and Bhopawar and fair in Indore and Malwa, but had been slightly damaged by frost and cold in parts of Malwa and Bhopawar. Opium was good in parts of Gwalior and in Bhopal and Malwa.

Kashmir.—The rainfall was good. The condition of the standing crops was fair, the recent rain having been most timely and beneficial to the standing crops. The sowing of spring crops was almost finished at the close of the month.

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 231 Stations in India, Burma, etc., in December, 1903.

Table

Abstract of Observations taken at 8 A.M. at 231 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
	I.—Burma Coast and Bay Islands.				-·022								83·6	-1·7	67·1	-1·0	75·4	-1·3	16·4					26·6
1	Tenasserim and Bay Islands.	Car Nicobar*	25	29·893		29·845	29·945	20th	29·800	15th	·145	78·7	83·3		75·3		79·3		8·0	87·7	4th	71·9	12th	15·8
		Port Blair	61	29·892	-·028	29·884	29·957	31st	29·808	12th	·149	79·3	85·1	-0·8	76·3	-0·3	80·7	-0·6	8·8	87·2	11th	72·5	10th	14·7
		Mergui	96	29·903	P	29·933	29·963	25th	29·809	13th	·154	73·1	86·5	-0·8	67·1	+0·4	76·8	-0·2	19·4	92·1	15th	60·3	31st	31·8
		Tavoy	26	29·977	-·022	29·934	30·048	29th	29·873	13th	·175	70·5	85·9	-1·8	65·6	+0·8	75·8	-0·5	20·3	92·2	14th	57·5	25th	34·7
		Moulmein	94	29·915	-·027	29·950	29·985	25th	29·805	12th	·180	68·9	86·0	-1·2	64·5	-2·4	75·3	-1·3	21·5	92·0	18th	57·4	26th	34·6
2	Lower Burma	Rangoon	57	29·966	-·014	29·963	30·042	21st	29·862	13th	·180	68·6	83·9	-3·4?	65·0	-2·3	74·5	-2·9?	18·9	89·1	19th	58·7	24th	30·4
		Bassein	27	29·989?	-·018?	29·952?	30·059	29th	29·887	12th	·172	68·2	82·5	-1·9	65·1	0	73·8	-1·0	17·4	86·1	19th	58·8	27th	27·3
		Diamond Island	41	29·961	-·025	29·937	30·037	21st	29·867	12th	·170	74·9	81·2	-2·7	72·6	+0·4	76·9	-1·2	8·6	85·4	1st	68·2	25th	17·2
5	Arakan	Akyab	20	30·006	-·025	29·969	30·080	20th	29·907	11th	·173	65·3	79·2	-2·5	62·4	-1·6	70·9	-2·1	16·8	81·9	5th	58·1	16th	23·8
3	Central Burma	Toungoo	183	29·849	-·010	29·979	29·926	21st	29·736	12th	·190	66·4	81·9	-2·1	57·4	-4·7	69·7	-3·4	24·5	86·3	3rd	51·1	25th	35·2
	II.—Burma Inland				-·019								81·0	-1·2	56·2	-1·2	68·7	-1·2	24·9					34·1
3	Central Burma	Thayetmyo	130	29·915	-·012	29·989	29·996	21st	29·801	12th	·195	65·3	83·4	-1·2	54·9	-3·4	69·2	-2·3	28·5	87·5	1st	50·0	3 days	37·5
4	Upper Burma	Minbu	165	29·891	-·027	30·006	29·981	21st	29·777	12th	·204	65·7	82·1	-1·9	59·5	-0·5	70·8	-1·2	22·6	84·2	4th & 6th.	54·0	28th	30·2
		Yamethin	657	29·373	-·025	30·007	29·465	21st	29·260	12th	·205	64·2	83·1	-1·9	57·4	+0·2?	70·3	-0·9?	25·7	87·3	3rd	51·2	23rd	36·1
		Monywa		29·795		30·014	29·891	21st	29·679	12th	·212	63·0	80·6							82·8	3rd			
		Mandalay	250	29·808	-·011	30·019	29·910	21st	29·697	11th	·213	64·7	82·5	+0·2	57·8	-1·5	70·2	-0·7	24·7	85·5	1st	53·0	28th	32·5
		Bhamo	381	29·689	-·021	30·049	29·784	21st	29·562	12th	·222	56·2	74·5	-1·8	51·3	+0·6	62·8	-0·6	23·2	79·5	3rd	45·2	29th & 30th.	34·3
4(a)	Burma Hill Stations.	Maymyo	3,545	26·467			26·549	3rd	26·381	14th	·167	54·1	70·4		41·5		55·9		28·9	74·0	4th	34·8	27th, 28th & 29th.	39·2
		Lashio										52·9	73·9	+0·2	46·5	-1·4	60·2	-0·6	27·4	77·6	20th	40·1	23rd	37·5
	III.—Assam				-·017								74·9	+0·1	52·1	-1·3	63·5	-0·6	22·8					27·7
7	Surma	Silchar	104	29·974	-·007	30·037	30·049	20th	29·867	11th	·182	57·7	79·1	-0·6	53·4	-1·6	66·3	-1·1	25·7	82·9	8th	49·5	18th	33·4
9	Brahmaputra	Sibsagar	333	29·759	-·026	30·071	29·854	20th	29·616	11th	·238	54·4	71·5	0	50·6	-0·1	61·0	-0·1	20·9	74·3	10th & 11th.	45·9	31st	28·4
		Dhubri	115	29·963	-·019	30·041	30·052	20th	29·841	11th	·211	57·6	75·3	+1·0	53·0	-2·1	64·2	-0·6	22·3	78·1	9th & 15th.	50·8	4 days	27·3
		Gauhati	195	29·897		30·060	29·982	20th	29·765	11th	·217	55·8	75·3		51·3		63·3		24·0	77·6	7th & 10th.	43·1	30th	29·5
		Tezpur	252	29·837		30·067	29·932	21st	29·699	11th	·233	55·0	74·6		53·3		64·0		21·3	76·5	10th & 11th.	49·0	22nd	27·5
		Dibrugarh	353	29·738		30·074	29·838	20th	29·591	11th	·247	55·3	73·6		50·9		62·3		22·7	76·6	3 days	46·4	31st	30·2
	IV.—Bengal and Orissa				-·017								76·6	-0·8	53·7	-1·4	65·2	-1·1	22·9					31·0
6	East Bengal	Chittagong	87	29·952	-·024	29·992	30·028	20th	29·852	11th	·176	60·6	77·3	-0·8	55·5	-2·5	66·4	-1·7	21·8	79·4	4 days	52·1	21st	27·3
		Noakhali	43	30·003		29·995	30·075	20th	29·896	11th	·179	62·3	77·7		53·0		65·4		24·7	80·0	13th	50·1	15th	29·9
		Comilla	36	30·022		30·007	30·092	20th	29·928	11th	·164	60·5	78·4		53·6		66·0		24·8	80·6	12th	50·1	15th	30·5
		Sirajganj	49	30·027		30·028	30·098	20th	29·924	11th	·174	58·3	75·9		55·0		65·5		20·9	78·5	8th & 9th.	51·2	15th	27·3
		Narayanganj	26	30·042	-·004	30·018	30·116	3rd	29·936	11th	·180	60·8	77·2	-0·8	57·1	-0·2	67·2	-0·5	20·1	80·1	9th	52·3	15th	27·8
		Barisal	13	30·042	-·022	30·001	30·118	24th	29·953	12th	·165	62·4	77·2	-0·4	55·1	-1·0	66·2	-0·7	22·1	80·3	12th	50·1	15th	30·2
		Mymensingh	59	30·011	-·019	30·028	30·083	3rd	29·904	11th	·179	59·2	76·6	+0·4	55·2	+0·6	66·0	+0·5	21·4	79·5	9th	52·4	28th	27·1
		Faridpur	46	30·026		30·022	30·103	30th	29·918	11th	·185	59·9	76·5		53·4		65·0		23·1	79·4	1st.	49·8	27th	29·6
10	Deltaic Bengal	Jessore	33	30·045	-·005	30·026	30·123	20th	29·938	11th	·185	59·7	76·4	-1·2	52·4	-2·5	64·4	-1·9	24·0	79·1	10th	46·1	15th	33·0
		Calcutta	21	30·065	-·008	30·033	30·144	20th	29·950	11th	·194	59·6	76·5	0	54·0	-2·0	65·2	-1·0	22·5	80·4	13th	49·9	3 days	30·5
		Saugor Island	25	30·039?	-·027?	30·010?	30·122	20th	29·931	11th	·191	61·6	76·5	+0·2	57·3	-1·8	66·9	-0·8	19·2	81·0	1st	52·9	15th	28·1
		Krishnagar	47	30·051?		30·049?	30·147	20th	29·928	11th	·219	62·1	P		52·5		P		P	P		46·1	15th	P
		Midnapore	149	29·928		30·033	30·014	20th	29·819	11th	·195	60·1	78·1		54·5		66·4		23·6	82·3	13th	49·6	16th & 17th.	32·7

* Mean of 29 days.

Note 1.—When a query is inserted against any reading or in the returns of any

Note 2.—The divisional means of the figure columns Nos. 41, 43 and 45

I.

in India, Burma, etc., in December, 1903.

WIND DIRECTION. NUMBER OF WINDS FROM										WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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 uncorrected.	Percentage variation.	Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period, 1st to 31st December 1903.	Variation from normal of period, 1st to 31st December 1903.				
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	57	58
														82	−0·2	·641	−·024	2·9	−0·8				2·73	0·99	+0·18					I.—Burma Coast and Bay Islands.		
2	5	5	7	4	4	2			N 89° E	6·3	6·3			84		·820		8·5		13			16·76			16·76			3·61	Car Nicobar.	TENASSERIM AND BAY ISLANDS.	1
	3	15	3	6	1			3	N 56° E	6·8	7·7	7·2	−6	83	+2·0	·839	+·020	5·5	+·2	14			8·86	6·62	+2·24	8·86	6·62	+2·24	1·73	Port Blair.		
16	6	7	1					1	N 24° E	2·3	2·0	1·8	+28	75	+0·6	·614	−·052	3·7	+0·3	0	0·70	−0·70	0·07	0·38	− 0·31	0·07	0·38	− 0·31	0·07	Mergui.		
28	2	1							N 15° E	1·2				85	+4·4	·642	−·007	1·5	−1·2	1	0·20	+0·80	1·60	0·06	+ 1·54	1·60	0·06	+ 1·54	1·57	Tavoy.		
26	1			1		3			S 38° W	2·3	2·6	2·6	−12	79	−3·5	·570	−·075	2·2	−0·3	0	0·20	−0·20	0	0·05	− 0·05	0	0·05	− 0·05	0	Moulmein.		
	5	17	7		1				N 50° E	5·6	4·7	4·9	+14	82	−0·6	·577	−·042	2·6	+0·3	0	0·40	−0·40	0	0·09	− 0·09	0	0·09	− 0·09	0	Rangoon .	LOWER BURMA.	2
	12	11			1			7	N 7° E	9·6		2·7	−256	83	−1·6	·583	−·022	1·6	−1·3	0	0·50	−0·50	0	0·13	− 0·13	0	0·13	− 0·13	0	Bassein.		
	3	16	11	1					N 60° E	12·6	12·6	7·5	+68	73	−0·8?	·637	−·030	1·9	−1·5	0	0·90	−0·90	0	0·70	− 0·70	0	0·70	− 0·70	0	Diamond Island.		
	23	8							N 11° E	2·2	2·1	2·2	0	91	+1·8	·572	0	0·1	−2·2	0	0·70	−0·70	0	0·70	− 0·70	0	0·70	− 0·70	0	Akyab .	ARAKAN.	5
15	3	3		1			1	8	N 21° W	1·8	1·8	2·3	−22	84	−4·6	·556	−·039	1·1	−1·2	0	0·40	−0·40	0	0·17	− 0·17	0	0·17	− 0·17	0	Toungoo .	CENTRAL BURMA.	3
														84	−0·1	·492	−·004	1·2	−1·0				0	0·36	−0·36					II.—Burma Inland.		
	12	10	2	2	1			4	N 21° E	4·4		3·2	+ 38	81	+4·4	·505	+·011	1·8	+0·1	0	0·40	−0·40	0	0·15	− 0·15	0	0·15	− 0·15	0	Thayetmyo.	CENTRAL BURMA.	3
2	1							28	N 44° W	3·9	4·6			77	+0·3	·496	+·002	1·0	−1·1	0	0·30	−0·30	0	0·63	− 0·63	0	0·63	− 0·63	0	Minbu .	UPPER BURMA.	4
12	11				1			7	N 19° W	10·6	11·1			82	−2·4	·494	−·013	0·7	−0·4	0	0·70	−0·70	0	0·49	− 0·49	0	0·49	− 0·49	0	Yamethin.		
12	7						3	7	N 35° W	2·1	2·2			89		·520		1·3		0	0·30	−0·30	0	0·15	− 0·15	0	0·15	− 0·15	0	Monywa.		
19	5	2			1	2		2	N 15° W	9·4	9·5			82	−4·5	·505	−·029	0·4	−2·0	0	0·70	−0·70	0	0·29	− 0·29	0	0·29	− 0·29	0	Mandalay.		
24	1	3	2		1				N 62° E	1·8	2·1			95	+1·9	·431	+·009	2·1	−1·6	0	1·00	−1·00	0	0·42	− 0·42	0	0·42	− 0·42	0	Bhamo.		
29			2						E	1·8				86		·365		3·2		0	0·80	−0·80	0	0·45	− 0·45	0	0·45	− 0·45	0	Maymyo .	BURMA HILL STATIONS.	4(a)
	7	10	2	2	1	1	4	4	N 12° E	1·8				94	+0·9	·361	−·022	4·5	−1·8	0			0	0·66	− 0·66	0	0·66	− 0·66	0	Lashio.		
														94	+0·3	·427	−·013	2·7	−2·4				0·07	0·42	−0·35					III.—Assam.		
30				1					S 45° E	0·1	0·2	1·9	− 95	88	−1·9	·424	−·048	1·5	−2·5	0	0·80	−0·80	0	0·46	− 0·46	0	0·46	− 0·46	0	Silchar .	SURMA .	7
28	1	1		1					N 52° E	1·2	1·1	1·6	− 25	100	+0·7	·427	+·009	1·9	−3·4	1	1·90	−0·90	0·21	0·57	− 0·36	0·21	0·57	− 0·36	0·21	Sibsagar .	BRAHMAPUTRA .	9
1		5	21	1		1		2	N 81° E	3·7	4·4	4·5	− 18	93	+2·2	·446	−·001	0·3	−1·3	0	0·20	−0·20	0	0·07	− 0·07	0	0·07	− 0·07	0	Dhubri.		
22	1	5		1	2				N 66° E	1·5	1·7			97		·441		8·3		0	0·70	−0·70	0	0·24	− 0·24	0	0·24	− 0·24	0	Gauhati.		
9		6	10	6					E	2·1	2·2			95		·419		2·0		1	1·00	0	0·13	0·43	− 0·30	0·13	0·43	− 0·30	0·13	Tezpur.		
8	9	8	5	1					N 39° E	0·3	0·3			92		·405		2·4		0	1·40	−1·40	0·07	0·76	− 0·69	0·07	0·76	− 0·69	0·05	Dibrugarh.		
														84	−0·1	·424	−·027	0·7	−0·9				0·01	0·22	−0·21					IV.—Bengal and Orissa.		
	6	22	1					2	N 33° E	2·8	2·8	3·2	−13	92	+2·5	·487	−·026	0·9*	−1·6	0	0·81	−0·81	0	0·85	− 0·85	0	0·85	− 0·85	0	Chittagong.	EAST BENGAL .	6
	16	6	1			1		7	N 1° W	1·5	1·7			87		·490		1·0		0	0·48	−0·48	0	0·38	− 0·38	0	0·38	− 0·38	0	Noakhali.		
21	6	3						1	N 6° E	0·9	0·8			88		·468		0·6†		0	0·45	−0·45	0	0·22	− 0·22	0	0·22	− 0·22	0	Comilla.		
13	4		1				5	8	N 45° W	1·1	1·1			88		·434		0·9†		0	0·39	−0·39	0	0·11	− 0·11	0	0·11	− 0·11	0	Sirajganj.		
6	10	5	1				1	8	N 6° W	1·8	1·6	1·9	− 5	89	+2·2	·476	−·010	1·1	−1·2	0	0·44	−0·44	0	0·16	− 0·16	0	0·16	− 0·16	0	Narayanganj		
8	10	8						5	N 6° E	1·6				86	−0·5	·485	−·022	0·2†	−1·0	0	0·52	−0·52	0	0·60	− 0·60	0	0·60	− 0·60	0	Barisal.		
20	3	4	1	1				2	N 23° E	1·0	0·9			89	−2·2	·451	−·018	?	?	0	0·26	−0·26	0	0·05	− 0·05	0	0·05	− 0·05	0	Mymensingh.		
11	8						11	11	N 29° W	1·7	1·5			88		·455		0·3		0	0·26	−0·26	0	0·08	− 0·08	0	0·08	− 0·08	0	Faridpur .		
20	9							2	N 6° W	1·2	1·2	1·7	− 29	83	−3·1	·431	−·027	0·1†	−1·1	0	0·35	−0·35	0	0·18	− 0·18	0	0·18	− 0·18	0	Jessore .	DELTAIC BENGAL	10
10	7	1	1				11	11	N 24° W	2·4		3·0	− 20	80	−0·7	·412	−·030	0·8	−0·3	0	0·38	−0·38	0	0·22	− 0·22	0	0·22	− 0·22	0	Calcutta.		
	16	12	1					2	N 17° E	7·9		6·0	+ 32	88	+0·2	·486	−·037	0·7 (a)	−1·8	0	0·58	−0·58	0	0·33	− 0·33	0	0·33	− 0·33	0	Saugor Island.		
2	9	1					4	15	N 35° W	1·4	1·5			76		·426		0·7		0	0·16	−0·16	0	0·10	− 0·10	0	0·10	− 0·10	0	Krishnagar.		
3	21							7	N 11° W	2·5	2·2			70		·369		0·5		0	0·28	−0·28	0	0·20	− 0·20	0	0·20	− 0·20	0	Midnapore.		

station, the data for that station are not utilized in calculating the provincial variations, are derived only from the data available.

* Mean of 26 days. † Mean of 30 days. (a) Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 231 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	29·760		30·029	29·838	20th	29·647	11th	·191	58·9	76·8		53·0		64·9		23·8	81·1	13th	48·6	16th	32·5
		Raniganj	334	29·748		30·056	29·837	20th	29·626	11th	·211	55·3	77·1		51·9		64·6		25·2	80·7	13th	46·2	16th	34·5
		Burdwan	99	29·982	—·020	30·035	30·065	20th	29·870	11th	·195	59·6	77·5	—0·7	55·3	—0·7	66·4	—0·7	22·2	82·9	1st	49·3	16th	33·6
		Naya Dumka	489	29·577		30·060	29·670	20th	29·448	11th	·222	56·7	74·6		50·2		62·4		24·4	78·0	13th	45·5	20th	32·5
		Berhampore	67	30·017	—·013	30·036	30·111	20th	29·900	11th	·211	58·8	75·3	—1.2	55·0	—0·3	65·2	—0·8	20·3	81·2	11th	50·2	15th	31·0
		Rampur Boalia.	70	30·013		30·036	30·097	20th	29·893	11th	·204	58·6	75·4		53·2		64·3		22·2	78·6	9th	48·9	16th	29·7
		Malda	72	29·984?		30·012?	30·074	3rd	29·855	11th	·219	58·1	74·2		51·2*		62·7*		23·0	77·7	8th	46·0	16th	31·7
		Bogra	61	29·999?	—·014?	30·016?	30·066	29th	29·892	11th	·174	55·5	75·9	—1·0	53·0	—1·0	64·4	—1·0	22·9	79·7	8th	49·4	14th	30·3
12	North Bengal	Dinajpur	123	29·959	—·014	30·045	30·045	20th	29·838	11th	·197	58·2	76·1	—0·8	49·8*	—1·6	63·0*	—1·2	26·3	78·8	7th & 8th.	45·9	14th	32·9
		Rangpur	123	29·963		30·049	30·047	3rd	29·845	11th	·202	57·4	75·6		51·7		63·7		23·9	77·7	7th	46·8	14th & 15th.	30·9
		Jalpaiguri	284	29·784	—·030	30·043	29·868	21st	29·665	11th	·203	57·5	75·1	—0·1	51·7	—1·2	63·5	—0·7	23·4	78·2	8th	48·7	31st	29·5
		Cooch Behar	156	29·918		30·041	30·005	20th	29·806	11th	·199	56·1	75·9		52·8		64·4		23·1	78·3	7th	50·2	15th	28·1
17	North Bihar	Purnea	125	29·964	—·009	30·054	30·051	20th	29·830	11th	·221	51·7	75·2	—0·6	47·2	—2·5	61·2	—1·6	26·0	78·2	8th	40·3	31st	37·9
14	Orissa	Balasore	50	30·033	—·034	30·029	30·124	20th	29·922	11th	·202	58·7	78·3	—1·7	52·7	—2·3	65·5	—2·0	25·6	82·4	12th & 13th.	46·4	16th	36·0
		False Point	21	30·054	—·018	30·018	30·144	20th	29·957	12th	·187	62·9	77·3	—0·6	55·4	—1·9	66·4	—1·3	21·9	82·4	12th	48·5	16th	33·9
		Cuttack	80	30·000	—·012	30·027	30·081	20th	29·897	11th	·184	60·7	79·3	—2·8	57·3	—1·4	68·3	—2·1	22·0	83·3	13th	52·1	16th	31·2
		Puri	24	30·055		30·019	30·136	20th	29·952	11th	·184	63·7	78·6		60·2		69·4		18·4	83·7	12th	55·6	16th	28·1
	V.—Gangetic Plain and Chota Nagpur.				—·016								74·7	—0·8	48·1	—1·5	61·5	—1·2	26·6					36·2
15	Chota Nagpur	Hazaribagh.	2,007	28·012	—·016	30·067	28·095	20th	27·899	11th	·196	56·2	72·4	+0·2	48·9	—1·6	60·7	—0·7	23·5	77·1	12th	44·9	29th	32·2
		Ranchi	2,128	27·884	—·024	30·059	27·964	20th	27·775	11th	·189	56·1	72·0	—1·7	49·5	—1·1	60·8	—1·4	22·5	76·5	12th	44·9	16th	31·6
16	South Bihar	Daltonganj.	730?	29·364?		30·107?	29·450	21st	29·239	11th	·211	51·3	76·4		42·5		59·4		33·9	83·0	12th	37·9	16th	45·1
15	Chota Nagpur	Purulia		29·240		30·051	29·335	20th	29·128	11th	·207	57·3	75·8		51·7		63·8		24·1	80·6	12th	47·3	19th	33·3
		Chaibassa	760	29·298	—·013	30·059	29·380	20th	29·184	11th	·196	54·4	76·9	—2·8	51·2	—1·2	64·1	—2·0	25·7	82·9	12th	46·8	16th	36·1
16	South Bihar	Gaya	375	29·717	—·011	30·073	29·803	21st	29·580	11th	·223	55·5	76·2	0	49·1*	—2·4	62·6*	—1·2	27·1	80·3	3 days	44·9	15th & 21st.	35·4
		Dehri	351	29·731		30·063	29·823	20th	29·590	11th	·233	55·2	75·6		51·5		63·6		24·1	81·0	12th	48·1	21st	32·9
		Patna	183	29·917	—·015	30·066	30·010	20th	29·772	11th	·238	54·7	74·3	+0·1	49·5	—2·1	61·9	—1·0	24·8	78·3	13th	45·3	14th	33·0
		Arrah	190	29·908		30·065	29·992	3 days	29·762	11th	·230	52·9	74·5		47·6		61·1		26·9	79·4	12th	43·2	30th	36·2
		Buxar	239	29·850		30·063	29·938	21st	29·707	11th	·231	55·3	75·2		49·0		62·2		26·2	79·8	12th	43·9	29th	35·9
17	North Bihar	Bhagalpur	160	29·932		30·053	30·025	20th	29·789	11th	·236	58·2	75·6		49·5		62·6		26·1	79·3	13th	45·4	17th	33·9
		Darbhanga.	166	29·921	—·010	30·052	30·015	20th	29·782	11th	·233	55·7	74·2	—0·3	51·6	—2·1	62·9	—1·2	22·6	78·7	8th	45·1	31st	33·6
		Muzaffarpur	178	29·917		30·061	30·013	20th	29·770	11th	·243	55·2	73·4		48·1		60·8		25·3	77·2	8th	41·8	30th	35·4
		Motihari	224	29·880		30·075	29·984	20th	29·743	11th	·241	59·2	74·9		48·6‖		62·2‖		26·3	78·8	8th	43·0	14th	35·8
		Chapra	181	29·896?		30·045?	29·984	20th	29·752	11th	·232	52·9	75·2		48·7		62·0		26·5	79·2	12th	44·2	30th	35·0
18	United Provinces (East).	Benares	267	29·821	—·013	30·064	29·911	21st	29·680	11th	·231	53·2	74·6	—0·4	44·9	—3·4?	59·8	—1·9?	29·7	80·5	12th	41·0	29th & 30th.	39·5
		Allahabad	309	29·782	—·012	30·069	29·886	28th	29·662	11th	·224	53·5	74·6	—1·1	46·4	—1·4	60·5	—1·3	28·2	79·7	12th	42·1	18th	37·6
23	United Provinces (East Sub-montane).	Gorakhpur	257	29·812	—·018	30·043	29·902	3rd	29·672	11th	·230	56·4	73·3	—0·9	49·2	—1·2	61·3	—1·1	24·1	76·3	22nd	42·1	30th	34·2
19	South Oudh	Lucknow	368	29·765	—·017	30·061	29·810	3rd & 28th.	29·567	11th	·243	51·3	74·3	—1·4	45·0	—1·2	59·7	—1·3	29·3	80·2	12th	40·6	30th & 31st.	39·6
20	North Oudh	Bahraich	401	29·660	—·017	30 053	29·783	3rd	29·520	11th	·263	54·4	74·0	—1·0	47·8	—0·2	60·9	—0·6	26·2	78·1	12th	41·1	29th	37·0
21	United Provinces (Central).	Cawnpore	416	29·660	—·018	30·065	29·770	28th	29·534	11th	·236	50·8	74·8	—1·5	44·7	—2·9	59·8	—2·2	30·1	80·2	12th	39·8	28th	40·4
		Mainpuri	516	29·550	—·020	30·067	29·674	21st	29·425	11th	·249	49·9	75·1	0	45·4	—1·9	60·3	—1·0	29·7	80·3	11th & 12th.	39·6	28th	40·7

† Mean of 26 days. ‖ Mean of 15 days.

Note 1.— When a query is inserted against any reading or in the returns of any

Note 2.—The divisional means of the figure columns Nos. 41, 43 and

I—*continued.*

in India, Burma, etc., in December, 1903—continued.

WIND DIRECTION. Number of winds from										Wind velocity.				Hygrometry, 8 A.M.				Cloud.		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. (uncorrected).	Percentage variation.	Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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 1903.	Normal rainfall for period 1st to 31st December.	Variation from normal of period 1st to 31st December 1903.				
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	57	58
25							4	2	N 79° W	1·0	1·2			69		·349		0·6		0	0·34	− 0·34	0	0·13	− 0·13	0	0·13	− 0·13	0	Bankura	Central Bengal	11
22							3	6	N 60° W	1·2				78		·342		0·6		0	0·26	− 0·26	0	0·08	− 0·08	0	0·08	− 0·08	0	Raniganj.		
22	4	1					4		N 14° W	1·0	1·0	1·9	−47	75	+3·6	·388	P	0·7	−0·7	0	0·23	− 0·23	0	0·11	− 0·11	0	0·11	− 0·11	0	Burdwan.		
24	2		1				1	3	N 27° W	1·4	1·6			77		·356		0·7		0	0·33	− 0·33	0	0·16	− 0·16	0	0·16	− 0·16	0	Naya Dumka.		
19	1						1	10	N 45° W	1·0	0·9	1·6	−38	82	−3·9	·410	−·026	1·1	−0·3	0	0·34	− 0·34	0	0·11	− 0·11	0	0·11	− 0·11	0	Berhampore.		
19	8	4							N 15° E	0·8	0·8			82		·407		0·5		0	0·22	− 0·22	0	0·06	− 0·06	0	0·06	− 0·06	0	Rampur Boalia.		
	13	2	1		1		2	12	N 20° W	4·7	4·3			85		·413		0		0	0·19	− 0·19	0	0·24	− 0·24	0	0·24	− 0·24	0	Malda.		
15	6	1				1	1	7	N 29° W	1·5	1·3			86	+0·7	·381	−·050	?	P	0	0·23	− 0·23	0	0·02	− 0·02	0	0·02	− 0·02	0	Bogra.		
	6	5	2			4	11	3	N 48° W	1·0	0·9			83	−2·8	·406	−·004	0·5*	−0·2	0	0·32	− 0·32	0	0·04	− 0·04	0	0·04	− 0·04	0	Dinajpur	North Bengal	12
29		2							N 45° E	0·5	0·5			92		·433		0·1‡		0	0·23	− 0·23	0	0·09	− 0·09	0	0·09	− 0·09	0	Rangpur.		
	13	7	1				2	8	N 5° W	0·4	0·5			98	−0·5	·416	−·016	1·1*	?	0	0·23	− 0·23	0	0·04	− 0·04	0	0·04	− 0·04	0	Jalpaiguri.		
22		3	6						N 76° E	0·8	0·8			94		·421		0·3*		0	0·27	− 0·27	0	0·08	− 0·08	0	0·08	− 0·08	0	Cooch Behar		
23		1					5	2	N 72° W	1·4	1·2	1·3	+ 8	90	−0·7?	·348	−·035	0·5	−0·4	0	0·23	− 0·23	0	0·10	− 0·10	0	0·10	− 0·10	0	Purnea	North Bihar	17
3	10						18		N 29° W	1·3	1·0			78	−3·5	·389	−·058	0·5	−1·6	0	0·52	− 0·52	0	0·18	− 0·18	0	0·18	− 0·18	0	Balasore	Orissa	14
1	7	1					1	21	N 34° W	5·2	5·4	6·3	−17	85	+1·3	·492	−·023	1·8(a)	−0·7	0	0·68	− 0·68	0	0·69	− 0·69	0	0·69	− 0·68	0	False Point.		
24		1	1			2	3		S 72° W	1·4		1·3	+ 8	80	+4·6	·430	−·017	1·6	−0·3	0	0·58	− 0·58	0·03	0·27	− 0·24	0·03	0·27	− 0·24	0·03	Cuttack.		
	24							7	N 36° W	9·3	8·8			79		·473		0·6		1	0·61	+0·39	0·22	0·65	− 0·43	0·22	0·65	− 0·43	0·22	Puri.		
														76	−0·7	·326	−·031	0·5	−0·6				0	0·18	−0·18					V.—Gangetic Plain and Chota Nagpur.		
10	3					3	8	7	N 68° W	5·6	5·0	4·6	+22	59	−5·5	·272	−·038	1·1	−0·3	0	0·52	− 0·52	0	0·20	− 0·20	0	0·20	− 0·20	0	Hazaribagh.	Chota Nagpur	15
7	4					1	5	14	N 51° W	3·3	3·9			59	−5·7	·276	−·033	0·9	−0·3	0	0·48	− 0·48	0	0·09	− 0·09	0	0·09	− 0·09	0	Ranchi.		
27			2					2	N 45° E	3·4	2·8			74		·280		0·3		0	0·55	− 0·55	0	0·29	− 0·29	0	0·29	− 0·29	0	Daltonganj.	South Bihar	16
							15	16	N 67° W	2·9	3·6			57		·318		0·8		0	0·29	− 0·29	0	0·18	− 0·18	0	0·18	− 0·18	0	Purulia	Chota Nagpur.	15
22						4	5		S 69° W	0·9	0·8			84	+6·8	·358	−·017	0·4	−1·0	0	0·65	− 0·65	0	0·10	− 0·10	0	0·10	− 0·10	0	Chaibassa.		
18				2	7	2	2		S 11° W	3·3	2·6	1·3	+154	68	−2·5	·302	−·040	1·0	−0·5	0	0·35	− 0·35	0	0·17	− 0·17	0	0·17	− 0·17	0	Gaya	South Bihar	16
3					12	15	1		S 28° W	4·3	3·8			73		·321		0·8‡		0	0·44	− 0·44	0	0·32	− 0·32	0	0·32	− 0·32	0	Dehri.		
4			1		4	13	8	1	S 53° W	2·7	3·0	1·7	+58	80	+4·9	·344	−·028	0·7*	−0·2	0	0·35	− 0·35	0	0·10	− 0·10	0	0·10	− 0·10	0	Patna.		
12				4	1	7	5	2	S 52° W	1·3	1·3			77		·312		0·3		0	0·35	− 0·35	0	0·13	− 0·13	0	0·13	− 0·13	0	Arrah.		
2	1		2	1	3	10	12		S 58° W	4·6	4·3			69		·307		1·2		0	0·45	− 0·45	0	0·20	− 0·20	0	0·20	− 0·20	0	Buxar.		
15	1			1	1	7	5	1	S 63° W	1·4	1·3			72		·354		0·1(a)		0	0·26	− 0·26	0	0·07	− 0·07	0	0·07	− 0·07	0	Bhagalpur	North Bihar	17
21							7	3	N 77° W	0·9		2·0	−55	86	+0·2	·384	−·025	0·2	−0·3	0	0·23	− 0·23	0	0·07	− 0·07	0	0·07	− 0·07	0	Darbhanga.		
23		1					3	4	N 51° W	2·5				85		·372		0·3*		0	0·19	− 0·19	0	0·07	− 0·07	0	0·07	− 0·07	0	Muzaffarpur		
14		1	2	1		6	5	2	S 67° W	1·9	1·8			81		·412		0·1		0	0·47	− 0·47	0	0·14	− 0·14	0	0·11	− 0·14	0	Motihari.		
14			1		7	7	2		S 27° W	1·6	1·4			84		·341		0·4		0	0·29	− 0·29	0	0·09	− 0·09	0	0·09	− 0·09	0	Chapra.		
19			2			6	3	1	S 48° W	1·5	1·7	2·4	−38	80	−3·7?	·331	−·024	0·8	−0·5	0	0·40	− 0·40	0	0·21	−0·21	0	0·21	− 0·21	0	Benares	United Provinces (East).	18
9	1	1		2	1	2	10	5	N 81° W	2·7	2·2	2·5	+ 8	77	−0·4	·317	−·036	0·7	−0·6	0	0·50	− 0·50	0	0·24	− 0·24	0	0·24	− 0·24	0	Allahabad.		
11	1		1		5	5	6	2	S 59° W	0·5		0·9	−44	81	+0·3	·373	−·001	0·8	−0·2	0	0·40	− 0·40	0	0·14	− 0·14	0	0·14	− 0·14	0	Gorakhpur	United Provinces (East Sub-Montane).	23
30				1					S 45° E	0·2	0·2	1·6	−88	76	−5·9	·289	−·045	0·2	−1·4	0	0·80	− 0·80	0	0·38	− 0·38	0	0·38	− 0·3	0	Lucknow	South Oudh	19
	1	1	2	2	1	3	8	13	N 67° W	1·0	0·9			87	+5·1	·372	?	0·1	−0·7	0	0·70	− 0·70	0	0·34	− 0·34	0	0·34	− 0·34	0	Bahraich	North Oudh	20
12				1	4	12	2		S 81° W	1·9				75	−1·5	·283	−·041	1·3	0	0	0·60	− 0·60	0	0·17	− 0·17	0	0·17	− 0·17	0	Cawnpore	United Provinces (Central).	21
12	2	1			4	8	4		N 77° W	2·9	2·9			69	−3·8	·250	−·041	0·3	−2·0	0	0·60	− 0·60	0	0·34	−0·34	0	0·34	− 0·34	0	Mainpuri.		

station, the data for that station are not utilized in calculating the provincial variations, are derived only from the data available.

(a) Mean of 29 days. * Mean of 30 days. ‡ Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 231 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.				**−·020**								71·0	−0·7	42·3	−1·3	56·6	−1·0	28·7					39·6
24	United Provinces (West Sub-montane).	Bareilly	568	29·479	−·022	30·059	29·602	3rd	29·346	11th	·256	49·0	71·7	−1·1	44·7	−1·3	58·2	−1·2	27·0	78·8	12th & 22nd.	39·1	28th	39·7
		Dehra Dun	2,233	27·761	−·032	30·080	27·895	3rd	27·654	12th	·241	48·4	69·2	+0·5	45·2	−0·4	57·2	+0·1	24·0	75·0	11th	39·0	28th	36·0
		Roorkee	899	29·134	−·017	30·078	29·280	3rd	29·013	12th	·267	45·9	70·9	−1·5	41·8	−1·7	56·4	−1·6	29·1	75·8	12th	36·3	23rd	39·5
22	United Provinces (West.)	Meerut	738	29·307	−·020	30·076	29·435	21st	29·188	11th & 12th.	·247	46·0	73·2	+0·3	42·5	−2·2	57·9	−1·0	30·7	78·1	11th	38·2	20th	39·9
26	South-East Punjab.	Delhi	718	29·333	−·024	30·074	29·447	21st	29·218	12th	·229	49·7	72·3	−1·4	45·8	−2·1	59·6	−1·8	25·5	77·7	11th	41·0	28th	36·7
28	Central Punjab.	Lahore	702	29·348	−·025	30·089	29·522	28th	29·238	12th	·284	42·7	72·5	−0·7	40·0	−0·3	56·3	−0·5	32·5	77·3	1st, 7th & 19th.	36·1	19th & 30th.	41·2
27	South Punjab	Sirsa	662	29·410	−·008	30·096	29·563	28th	29·287	26th	·276	46·6	73·0	−1·9	41·2	−1·5	57·1	−1·7	31·8	83·8	11th	35·0	28th & 30th.	48·8
		Patiala	818	29·226		30·081	29·362	3rd	29·099	12th	·263	47·7	70·6		42·5		56·6		28·1	75·6	11th	38·4	13th	37·2
29	Punjab (Sub-montane.)	Ludhiana	812	29·232	−·013	30·083	29·379	28th	29·118	12th	·261	46·0	69·6	−1·4	41·8	−2·2	55·7	−1·8	27·8	74·6	1st & 2nd.	39·1	5 days.	35·5
		Sialkot	830	29·215	−·012	30·091	29·373	28th	29·095	12th	·278	45·8	69·4	−0·7	42·5	0	56·0	−0·4	26·9	74·5	1st, 7th & 8th.	38·5	14th	36·0
		Umballa	892	29·143	−·017	30·079	29·279	3rd	29·024	11th	·255	47·0	73·2	+1·1						79·0	11th			
		Rawalpindi	1,674	28·955	−·031	30·150	28·506	26th	28·248	12th	·257	40·1	68·2	+0·6	35·9	−1·2	52·0	−0·3	32·3	76·4	6th	31·0	14th	45·4
	VII.—Indus Valley and North-West Rajputana.				**−·024**								75·4	−0·1	43·9	−2·6	59·6	−1·4	31·5					47·4
32	North-West Frontier Province.	Peshawar	1,110	28·959	−·038	30·152	29·113	28th	28·790	25th	·323	41·9	66·6	−0·9	37·8	−1·2	52·2	−1·1	28·8	74·7	6th	33·4	15th	41·3
		D. I. Khan	590	29·495	−·037	30·093	29·666	28th	29·357	25th	·309	43·3	72·0	−0·5	38·4	−1·7	55·2	−1·1	33·6	81·3	18th	34·0	27th	47·3
31	West Punjab	Khushab	612	29·464	−·023	30·104	29·635	28th	29·341	25th	·294	46·2	72·6	+0·9	39·6	−2·3	56·1	−0·7	33·0	81·3	20th	34·4	14th	46·9
		Montgomery	558	29·520	−·020	30·096	29·696	28th	29·388	26th	·308	46·5	72·7	−0·2	39·5	−3·5	56·1	−1·9	33·2	78·8	7th & 11th.	30·5	28th	48·3
		Mooltan	420	29·660	−·037	30·088	29·857	28th	29·541	12th	·316	47·7	73·9	0	43·5	−0·9	58·7	−0·5	30·4	80·3	6th	38·0	27th	42·3
47	Sind	Jacobabad	186	29·918	−·019	30·084	30·104	28th	29·808	24th	·296	47·1	77·5	+0·8	41·4	−2·6	59·5	−0·9	36·1	81·4	11th, 19th & 22nd.	34·0	27th	47·4
		Hyderabad	96	30·012	−·019	30·068	30·171	28th	29·886	10th	·285	55·7	78·3	−0·3	47·7	−4·6	63·3	−2·5	31·1	87·1	11th	38·0	27th	49·1
		Kurrachee	30	30·089	−·005	30·071	30·242	28 h	29·587	1st	·255	58·4	81·2	+0·9	53·6	−2·3	67·4	−0·7	27·6	87·9	11th	38·6	27th	49·3
51	West Rajputana	Bikaner	771	29·299	−·020	30·098	29·445	28th	29·174	26th	·271	51·1	74·2	−1·1	46·6	−4·7	60·4	−2·9	27·6	81·2	8th	37·1	28th	44·1
		Pachpadra	380	?	?	?	?		?		?	49·8	80·9	−0·6	44·0†	−2·3	62·3†	−1·5	36·9	88·6	6th	34·0	28th	54·6
		Jodhpur	782	29·287		30·104	29·438	28th	29·178	26th	·260	56·1	79·1		50·3		64·7		28·8	88·6	6th	37·6	27th	51·0
	VIII.—East Rajputana, Central India and Gujarat.				**−·012**								80·0	−0·2	50·1	−2·4	65·1	−1·3	29·9					46·4
50	East Rajputana	Jaipur	1,431	28·631	−·017	30·116	28·762	28th	28·493	26th	·269	52·6	77·3	−0·4	46·1	−3·0	61·7	−1·7	31·2	84·2	11th	35·0	27th	49·2
		Bharatpur	585	29·501		30·094	29·621	28th	29·381	11th	·240	50·9	75·3		45·1*		60·6*		30·2	80·6	11th	42·2	8 days	38·4
		Kotah	819	29·257		30·131	29·364	28th	29·123	26th	·241	55·6	78·1		49·8		64·0		28·3	85·0	11th	42·5	28th	42·5
		Sambhar	1,254	28·804	−·013	30·114	28·924	28th	28·659	26th	·265	48·8	75·8	−0·2	43·5	−2·8	59·7	−1·5	32·3	83·4	11th	35·0	28th	48·4
		Ajmer	1,611	28·438	?	30·130	28·552	28th	28·286	26th	·266	48·5	75·9	−0·4	45·7	+0·1?	60·8	−0·2?	30·2	82·4	5th & 11th.	37·9	28th	44·5
		Udaipur	1,925	28·132		30·122	28·233	28th	27·999	28th	·234	54·3	77·6		43·5		60·6		34·1	83·5	6th & 11th.	34·2	27th	49·3
		Deesa	466	29·597	−·015	30·048	29·736	28th	29·480	1st	·256	58·1	86·1	+0·7	49·7	−3·0	67·9	−1·2	36·4	93·6	4th	35·5	27th	58·1
46	Kathiawar and Cutch.	Bhuj	395	29·684	−·001	30·054	29·818	28th	29·569	1st	·249	61·9	80·9	−1·3	53·0	−3·1	67·0	−2·2	27·9	87·3	4th	41·0	27th	46·3
		Jamnagar	61	30·028		30·035	30·149	27th	29·907	1st	·242	60·5	81·3		53·3		67·3		28·0	88·0	4th & 9th.	39·7	28th	48·3
		Rajkot	429	29·623	−·015	30·028	29·737	27th	29·511	1st	·226	60·8	84·2	−1·2	50·7	−2·2	67·5	−1·7	33·5	90·9	2nd, 3rd & 4th.	37·1	27th	53·8
		Veraval	18	30·029	−·017	29·989	30·158	27th	29·921	1st	·237	66·3	84·4	+0·3	59·6	−2·4	72·0	−1·1	24·8	90·6	5th, & 6th.	46·2	27th	44·4
		Dwarka	37	30·037		30·022	30·168	28th	29·919	1st	·249	67·1	81·1		59·3		70·2		21·8	89·4	5th	47·1	27th	42·3
		Bhavnagar Para	55	30·024	?	30·023	30·143	27th	29·896	1st	·247	60·3	85·1	0	53·2	−5·0?	69·1	−2·5?	31·9	92·6	2nd	43·0	27th	49·6
49	Central India	Nowgong	757	29·314	?	30·091	29·423	28th	29·201	11th	·222	49·1	72·8	−2·4?	43·5	−2·9	58·2	−2·7?	29·3	79·5	27th	37·5	28th	42·0
		Indore	1,823	28·220	−·006	30·085	28·310	28th	28·122	26th	·188	56·7	79·1	−0·2	46·6	−2·7	62·9	−1·5	32·5	84·3	2nd & 25th.	37·6	28th	46·7
		Neemuch	1,630	28·438	0	30·122	28·540	28th	28·308	26th	·232	54·3	78·2	−0·2	46·1	−3·4	62·2	−1·8	32·1	84·0	4 days	36·8	27th	47·2
45	Gujarat	Surat	39	30·009	−·018	29·991	30·114	27th	29·919	1st	·195	65·2	87·3	−0·1	57·1	−0·6	72·2	−0·4	30·2	92·2	3rd	43·9	27th	49·3
		Ahmedabad	163	29·905	−·014	30·025	30·041	28th	29·785	1st	·256	64·1	86·3	+0·4	57·9	−2·2	72·1	−0·9	28·4	93·2	4th & 5th.	43·7	27th	48·5

* Mean of 28 days. † Mean of 30 days.

Note 1.—When a query is inserted against any reading or in the returns of any

Note 2.—The divisional means of the figure columns Nos. 41, 43 and 45

I—*continued.*

in India, Burma, etc., in December, 1903—continued.

WIND DIRECTION. Number of winds from									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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. (Uncorrected.)	Percentage variation.	Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st to 31st December.	Variation from normal of period, 1st to 31st December, 1903.			
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	57	58
														71	—5·5	·225	—·035	2·0	—0·9				0·35	0·57	—0·23					VI.—Upper Sub-Himalayas		
23	1		2	1		1	2	1	N 67° W	0·9	0·9	2·2	—59	78	— 3·2	·284	—·022	0·9	—0·5	0	0·64	—0·64	0	0·33	—0·33	0	—0·33	0	Bareilly	United Provinces (West Sub-montane).	24
21		1	1	4	3		1		S 35° E	1·2		1·7	—29	74	— 1·0	·256	—·012	2·7	—1·0	2	1·40	+0·60	0·98	0·80	+0·18	0·98	0·80	+0·18	0·75	Dehra Dun.		
22	1			3		2	1	2	S 56° W	2·3		1·3	+77	83	— 1·3	·258	—·021	2·1	0	1	1·30	—0·30	0·17	0·61	—0·44	0·17	0·61	—0·44	0·12	Roorkee.		
13				1		4	13		S 77° W	1·3	1·3	1·6	—19	66	— 8·6	·209	—·052	0·8	—1·2	0	0·90	—0·90	0	0·48	—0·48	0	0·48	—0·48	0	Meerut .	United Provinces West.	22
5	1			1		1	18	5	N 82° W	3·5	3·1	2·7	+30	54	— 7·2	·194	—·056	1·5	—0·9	0	1·10	—1·10	0	0·53	—0·53	0	0·53	—0·52	0	Delhi .	South-East Punjab.	26
26			1	1			3		S 60° W	1·3		1·5	—13	79	P	·220	—·032	2·2	—0·7	1	0·90	+0·10	0·31	0·38	—0·07	0·31	0·38	—0·07	0·31	Lahore .	Central Punjab	28
14	1		1	4		3	3	5	S 85° W	2·0	1·8	2·2	— 9	64	— 4·7	·204	—·033	1·1	—1·9	0	0·80	—0·80	0	0·31	—0·31	0	0·31	—0·31	0	Sirsa .	South Punjab.	27
	8	1	4	4	1	2	2	9	N 11° W	4·4	4·4			72		·239		2·5		1			0·40			0·40			0·40	Patiala.		
19	1	1	1	1		1	7		N 87° W	1·5	1·3	0·8	+88	68	— 7·6	·217	—·043	1·5	—2·3	3	0·90	+2·10	0·66	0·78	—0·12	0·66	0·78	—0·12	0·40	Ludhiana .	Punjab (Sub-montane).	29
27			3	1					S 79° E	0·6		1·1	—45	71	— 2·6	·219	—·028	1·8	—0·8	1	1·10	—0·10	0·28	0·52	—0·24	0·28	0·52	—0·24	0·19	Sialkot.		
22		2		2				5	N 11° W	1·6				74	— 7·7	·238	—·039	3·0	P	1	1·20	—0·20	0·35	0·82	—0·47	0·35	0·82	—0·47	0·35	Umballa.		
29	1					1			N 67° W	2·1	1·9	1·1	+91	63	—11·4	·160	—·050	3·6	0	2	1·60	+0·40	1·05	0·74	+0·31	1·05	0·74	+0·31	0·74	Rawalpindi.		
														53	—7·8	·187	—·055	2·0	—0·7				0·16	0·22	—0·06					VII.—Indus Valley and North-West Rajputana.		
26				2	1	1	1		S 6° W	0·2	0·2	2·4	—92	65	— 4·5	·175	—·030	3·7	—0·1	2	1·10	+0·90	1·03	0·33	+0·70	1·03	0·33	+0·70	0·85	Peshawar .	North-West Frontier Province.	32
27	1	2						1	N 13° E	0·5	0·5	0·8	—38	69	— 1·7	·195	—·022	2·7	+0·1	1	0·80	+0·20	0·14	0·21	—0·07	0·14	0·21	—0·07	0·10	D. I. Khan.		
17	2	7			1	4			N 34° E	3·9	3·3			51	— 9·0	·163	—·036	2·4	—0·3	1	0·40	+0·60	0·33	0·54	—0·21	0·33	0·54	—0·21	0·24	Khushab .	West Punjab.	31
13		5	4	3		1	3	4	N 39° E	3·7	3·4			54	—10·5	·170	—·060	2·2	—0·5	0	0·60	—0·60	0	0·42	—0·42	0	0·42	—0·42	0	Montgomery		
21	1			7				2	S 54° E	1·1	1·4	1·3	—15	66	— 4·1	·216	—·045	2·2	—0·3	1	0·70	+0·30	0·11	0·19	—0·08	0·11	0·19	—0·08	0·11	Mooltan.		
27	3	1							N 11° E	0·2*	0·2	1·6	—88	62	— 1·1	·205	—·036	1·6	—1·2	0	0·40	—0·40	0	0·09	—0·09	0	0·09	—0·09	0	Jacobabad.	Sind.	47
5	3	3				4		16	N 42° W	6·0	6·2	6·5	— 8	46	— 8·3	·189	—·077	1·3	—1·0	0	0·20	—0·20	0	0·05	—0·05	0	0·05	—0·05	0	Hyderabad.		
3	1	16	7	2				2	N 56° E	4·7	5·9	9·2	—49	45	—14·4	·229	—·100	1·1	—1·1	0	0·40	—0·40	0	0·13	—0·13	0	0·13	—0·13	0	Kurrachee.		
16		2	3	4	2	2	2		S 39° E	2·5		2·4	+ 4	46	— 9·8	·180	—·061	1·7	—0·9	0	0·40	—0·40	0·09	0·17	—0·08	0·09	0·17	—0·08	0·09	Bikaner .	West Rajputana	51
3	3	10	9	2			2	2	N 54° E	4·2†	3·7†	2·1	+50	45	—14·6	·166	—·086	1·1	—1·4	0	0·40	—0·40	0	0·12	—0·12	0	0·12	—0·12	0	Pachpadra.		
9	14	4	2				1	1	N 10° E	3·5	3·2			36		·167		1·9		0	0·50	—0·50	0	0·15	—0·15	0	0·15	—0·15	0	Jodhpur.		
														55	—5·9	·261	—·071	1·0	—0·6				0	0·19	—0·19					VIII.—East Rajputana, Central India and Gujarat.		
10	3	3	5			2	4	4	N 9° W	2·5		3·4	—26	50	—12·1	·196	—·073	1·2	—1·0	0	0·70	—0·70	0	0·19	—0·19	0	0·19	—0·19	0	Jaipur .	East Rajputana	50
17						3	11		S 81° W	1·8	1·6			70		·264		0·8		0			0			0			0	Bharatpur.		
19			2	4	1	2	2	1	S 9° E	2·3	1·8			54		·241		0·7		0	0·80	—0·80	0	0·29	—0·29	0	0·29	—0·29	0	Kotah.		
20	4	5					1	1	N 12° E	2·8		3·7	—24	54	— 9·7	·190	—·058	1·2	—1·0	0	0·80	—0·80	0	0·35	—0·35	0	0·35	—0·35	0	Sambhar.		
24	1							6	N 39° W	2·0	1·8	1·4	+43	70	— 3·6	·240	P	1·5	—0·6	0	0·60	—0·60	0	0·27	—0·27	0	·27	—0·27	0	Ajmer.		
30							1		W	1·7	1·5			48		·208		0·9		0	0·50	—0·50	0			0			0	Udaipur.		
		2	17	12					N 60° E	7·8		8·1	— 4	38	— 9·3	·189	—·069	1·1	—0·7	0	0·09	—0·09	0	0·0	—0·06	0	0·06	—0·06	0	Deesa.		
		3	2	1	8	1	6	4	6	S 63° W	6·3	5·3	5·1	+24	54	P	·306	P	1·3	—0·3	0	0·20	—0·20	0	0·07	—0·07	0	0·07	—0·07	0	Bhuj .	Kathiawar and Cutch.	46
		3	12	9	4	3				N 72° E	7·8	9·4			45		·248		1·2		0			0			0			0	Jamnagar.		
7			1	17	4	1			1	S 83° E	4·2	4·2	4·8	—13	39	—14·1	·213	—·111	1·1	P	0	0·20	—0·20	0	0·04	—0·04	0	0·04	—0·04	0	Rajkot.		
	10	20						1	N 28° E	7·0	7·0	5·0	+40	45	— 6·4	·292	—·070	1·5	—0·5	0	0·40	—0·40	0	0·09	—0·09	0	0·09	—0·09	0	Veraval.		
	9	15	6					1	N 37° E	10·8				63		·430		1·4		0			0			0			0	Dwarka.		
	1	1					7	22	N 52° W	2·7†	3·2†			47	—15·1	·251	—·120	1·0	—0·4	0	0·10	—0·10	0	0·07	—0·07	0	0·07	—0·07	0	Bhavnagar Para.		
5	3		2		3	3	6	9	N 71° W	1·3	1·3	1·2	+ 8	77	+ 3·5?	·274	—·044	0·6	—0·6	0	0·70	—0·70	0	0·55	—0·55	0	0·55	—0·55	0	Nowgong .	Central India .	49
15	3	6	2	2				3	N 35° E	2·3	1·9	2·1	+10	67	+ 7·7	·318	P	0·9	—0·5	0	0·50	—0·50	0	0·20	—0·20	0	0·20	—0·20	0	Indore.		
3	10	12	5					1	N 33° E	4·5	4·1	8·1	—44	54	+ 0·9	·234	P	1·2	—0·2	0	0·60	—0·60	0	0·28	—0·28	0	0·28	—0·28	0	Neemuch.		
1	4	10	11	2		1		2	N 59° E	4·4	4·1	5·0	—12	53	— 8·8	·342	—·057	0·6	—0·7	0	0·10	—0·10	0	0·01	—0·01	0	0·01	—0·01	0	Surat. .	Gujarat.	45
	1	15	13	1				1	N 63° E	2·7	4·4			41	— 7·9	·259	—·053	1·1	—0·4	0	0·10	—0·10	0	0·07	—0·07	0	0·07	—0·07	0	Ahmedabad		

station, the data for that station are not utilized in calculating the provincial variations.
are derived only from the data available.

* Mean of 30 days. † Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 231 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		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	29·519	?	30·080	29·634	28th	29·403	11th	·231	50·3	73·8	−2·3?	47·2	−1·6	60·5	−2·0	26·6	78·5	10th & 12th.	41·4	28th	37·1
21	United Provinces (Central).	Jhansi	858	29·224	−·013	30·094	29·340	28th	29·116	11th	·224	57·2	77·7	−0·7	51·0	−0·9	64·3	−0·8	26·7	84·7	11th	44·2	28th & 29th	40·5
	IX.—Deccan				−·015								81·6	+0·4	52·4	−1·6	67·0	−0·6	29·2					39·7
38	Bombay (Deccan)	Belgaum	2,539	27·461	−·014	29·976	27·540	21st	27·408	1st	·132	66·6	81·1	−0·5	57·2	−0·9	69·2	−0·7	23·9	85·3	12th	50·4	18th	34·9
		Sholapur	1,590	28·439	−·017	30·028	28·516	21st	28·376	12th	·140	65·9	85·7	+0·2	56·1	−1·4	70·9	−0·6	29·6	89·3	13th	50·1	9th & 17th	39·2
		Poona	1,840	28·192	−·018	30·057	28·267	21st	28·130	1st	·137	58·8	86·2	+1·9	51·5	−2·3	68·9	−0·2	34·7	88·5	12th	45·5	18th	43·0
		Bijapur	1,948	28·069	−·027	30·013	28·144	21st	28·015	2nd	·129	65·2	83·1	−0·9	53·4	−2·6	68·3	−1·8	29·7	86·9	13th	45·1	17th	41·8
40	Khandesh	Malegaon	1,430	28·603	−·027?	30·054	28·684	28th	28·539	12th	·145	59·1	85·5	+1·3	50·2	−1·1	67·9	+0·1	35·3	90·4	11th	42·3	27th	48·1
		Ahmednagar	2,152	27·893	−·013	30·061	27·975	21st	27·814	1st	·161	62·0	83·1	+0·1	49·7	−1·8	66·4	+0·9	33·4	85·9	21st	44·4	8th	41·5
41	Berar	Akola	930	29·135	−·007	30·064	29·218	21st	29·045	12th	·173	60·3	84·8	+1·2	49·9	−1·5	67·4	−0·2	34·9	89·0	11th	43·9	9th & 18th.	45·1
		Amraoti	1,215	28·838?	−·010?	30·054?	28·938	21st	28·762	1st	·176	64·5	84·0	+1·3	56·9	+0·1?	70·5	+0·7?	27·1	87·6	2nd	53·5	9th, 23rd & 24th.	34·1
42	Central Provinces, (West).	Khandwa	1,044	29·013	−·008	30·070	29·114	28th	28·914	1st	·200	58·4	85·3	+2·3	48·3	−1·9	66·8	+0·2	37·0	90·7	3rd	41·6	17th	49·1
		Hoshangabad(a)	1,006	29·080	+·061	30·108	29·184	29th	28·983	12th	·201	55·5	79·3	0	48·7	−3·0	64·0	−1·5	30·6	84·2	3rd	42·7	29th	41·5
		Nagpur	1,025	29·037	−·005	30·071	29·127	21st	28·952	12th	·175	59·1	83·2	+1·9	52·7	−1·6	68·0	+0·2	30·5	88·1	11th, & 12th.	49·2	16th & 30th.	38·9
43	Central Provinces, Central.	Chanda	634	29·437	−·005	30·056	29·523	21st	29·339	12th	·184	56·6	82·5	0	50·0	−1·8	66·3	−0·9	32·5	86·1	12th & 13th,	43·6	17th	42·5
		Seoni	2,033	28·014	−·011	30·075	28·082	21st	27·931	12th	·151	58·5	79·1	+1·4	48·3	−1·5	63·7	−0·1	30·8	84·8	11th & 12th.	44·0	16th	40·8
		Jubbulpore	1,327	28·725	−·017	30·101	28·813	28th	28·625	11th	·188	49·8	76·2	−0·7	42·9	−3·1?	59·6	−1·3?	33·3	81·9	11th & 12th.	37·4	16th	44·5
		Saugor	1,807	28·251	−·002	30·099	28·335	28th	28·150	12th	·185	57·3	76·7	0	51·2	−0·7	64·0	−0·4	25·5	82·9	11th	42·6	28th	40·3
49	Central India	Sutna	1,040	29·019	−·013	30·093	29·125	28th	28·914	11th	·211	51·2	74·6	−0·5	45·7	−1·4	60·2	−1·0	28·9	80·3	11th	39·6	29th	40·7
44	Central Provinces, (East)	Raipur	970	29·082	−·019	30·057	29·167	21st	28·987	11th	·180	58·9	78·9	−0·3	51·7	−2·4	65·3	−1·4	27·2	84·1	12th	46·9	18th	37·2
		Pendra	2,123?	27·994?		30·085?	28·076	20th	27·904	12th	·172	54·0	75·0		47·7		61·3		27·3	80·3	11th	40·0	29th	40·3
		Sambalpur	486	29·592	−·018	30·056	29·675	20th	29·495	11th	·180	59·1	79·7	−0·1	51·9	−2·1	65·8	−1·1	27·8	83·1	1st & 12th,	45·7	16th & 17th.	37·4
39	Hyderabad (North).	Aurangabad	1,905	28·140?		30·040?	28·234	28th	28·079	12th	·155	65·7	84·0		51·7		67·8		32·3	88·3	5th	45·2	6th	43·1
		Indur	1,260	28·547			28·620	15th	28·518	11th	·102	64·5	81·9		49·6		65·8		32·3	84·9	2nd & 15th,	42·1	9th	42·8
		Bidar	2,165	27·875		30·030	27·957	20th	27·725	13th	·232	66·9	80·1		59·4		69·8		20·7	84·5	12th	55·9	29th	28·6
53	Hyderabad (South).	Gulbarga	1,503	28·531	−·030	30·030	28·600	21st	28·455	12th	·145	65·6	84·8	−0·2	57·3	−0·5	71·1	−0·4	27·5	88·2	13th	50·6	8th	37·6
		Raichur	1,326	28·694	?	30·008	28·770	21st	28·638	2nd	·132	68·2	82·1	−2·8?	62·5	−0·8	72·3	−1·8?	19·6	86·1	13th	57·2	18th	28·9
		Hyderabad (Deccan).	1,690	28·335	−·032	30·034	28·423	21st	28·272	12th	·151	62·3	81·9	−0·5	56·4	−0·9	69·2	−0·7	25·5	85·4	12th & 13th.	49·3	17th	36·1
		Secunderabad.	1,787	28·245	−·018	30·040	28·316	21st	28·183	12th	·133	63·4	83·1	+1·5	56·2	−0·4	69·6	+0·6	26·9	88·6	12th	48·7	17th	39·9
		Hanumkonda.	871	29·163		30·014	29·242	21st	29·088	12th	·154	65·5	81·7		58·7		70·2		23·0	86·0	12th, & 13th.	53·7	17th	32·3
	X.—West Coast				−·018								85·7	−1·0	69·8	−0·5	77·8	−0·8	15·9					26·3
37	Konkan	Bombay	37	29·987	−·024	29·965	30·056	21st	29·917	1st	·139	71·3	84·8	+0·3	68·7	−1·1	76·7	−0·4	16·1	91·0	4th	56·0	27th	35·0
		Ratnagiri	110	29·901	−·005	29·953	29·978	21st	29·835	1st	·143	73·4	88·4	−1·1	66·3	−0·8	77·4	−1·0	22·1	94·3	4th	62·4	10th	31·9
		Mormugao	60	29·949	−·019	29·945	30·017	21st	29·877	1st	·140	71·9	84·4	−1·9	69·7	−0·6	77·1	−1·3	14·7	89·0	21st	61·3	17th	27·7
		Goa	199	29·825*	−·011*	29·965*	29·879	21st	29·777	30th	·102	74·8	85·5	?	71·9	+2·6?	77·7	?	11·6	88·0	7th & 21st	66·0	15th, & 25th.	22·0
		Karwar	44	29·947	−·024	29·924	30·030	21st	29·866	6th	·164	69·1	87·3	−0·4	65·7	−0·5	76·5	−0·5	21·6	91·3	21st	57·5	17th	33·8
33	Malabar	Cochin	10	29·954	−·020	29·893	30·009	21st	29·848	5th	·161	76·0	87·0	−1·5	72·7	−0·2	79·9	−0·9	14·3	89·3	1st 12th & 20th,	68·7	26th	20·6
		Calicut	27	29·946	−·023	29·903	30·012	21st	29·817	5th	·195	75·2	86·1	−1·5	71·2†	+0·5†	78·7†	−0·5	14·9	89·3	7th	66·2	4 days.	23·1
		Mangalore	65	29.919	−·022	29·917	29·994	21st	29·835	5th	·159	75·9	87·2	−2·3?	69·6	−0·4	78·4	−1·4?	17·6	91·2	21st	65·0	25th	26·2
		Trivandrum	198	29·759	−·016	29·891	29·815	19th	29·670	5th	·145	75·6	82·3	−0·7	72·5	−0·9	77·4	−0·8	9·8	85·0	1st	69·0	11th	16·0
	XI.—South India				−·024								82·0	−1·6	65 2	−0·4	73·6	−1·0	16·8					26·4
57	Madras (South)	Pamban	37	29·949		29·913	30·025	21st	29·789	4th	·236	76·9	82·5		71·0		78·3		8·5	88·8	1st	70·7	18th & 29th.	18·1
		Tinnevelly	168	29·832	−·023	29·933	29·914	21st	29·734	4th	·180	76·0	85·5	−0·7	72·0	−0·4	78·8	−0·6	13·5	92·2	1st	67·9	23rd	24·3
		Madura	447	29·542	−·017	29·934	29·617	21st	29·474	4th	·143	74·8	84·2	−1·8	69·5	−1·0	76·9	−1·4	14·7	87·4	29th	65·6	9th & 10th,	21·8
		Periyakulam	945	29·040			29·104	21st	28·971	4th	·133	71·3	83·2		66·0		73·9		17·2	87·4	4th	58·3	25th.	29·1

* Mean of 24 days.

(a) Observations of 29 days.

Note 1.—When a query is inserted against any reading or in the returns of any

Note 2.—The divisional means of the figure columns Nos. 41, 43 and 45

I—*continued.*

in India, Burma, etc., in December, 1903—continued.

WIND DIRECTION. NUMBER OF WINDS FROM									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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, (uncorrected.)	Percentage variation.	Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st to 31st December, 1903.	Variation from normal of period, 1st to 31st December, 1903.			
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	57	58
11				2		11		7	S 70° W	2·2	2·6	2·6	−1·5	63	−5·0	·233	−·052	0·8	−0·7	0	0·60	−0·60	0	0·29	− 0·29	0	0·29	− 0·29	0	Agra	UNITED PROVINCES (WEST).	22
4		3			1	12	5	6	S 79° W			2·3		63	+6·5	·298	P	0·4	−0·7	0	0·80	−0·80	0	0·24	− 0·24	0	·2	− 0·24	0	Jhansi	UNITED PROVINCES (CENTRAL).	21
														60	−2·8	·330	−·044	1·0	−0·8				0·22	0·36	−0·12					IX.—Deccan.		
9	1	5	12	4					N 85° E	10·3		12·3	−16	59	+2·1	·390	+·007	2·1	+0·5	1	0·40	+0·60	0·17	0·12	+ 0·05	0·17	0·12	+ 0·05	0·17	Belgaum	BOMBAY DECCAN	38
4		12	8	7					N 80° E	7·1	8·6	6·8	+ 4	45	−4·4	·289	−·057	1·1	−0·9	1	0·50	+0·50	0·59	0·43	+ 0·16	0·59	0·43	+0·16	0·59	Sholapur.		
	3	5	12	2			4	5	N 47° E	6·3		5·7	+11	56	−0·2	·281	−·050	0·6	−1·3	0	0·50	−0·50	0	0·19	− 0·19	0	0·19	− 0·19	0	Poona.		
4		11	6	5	3		1	1	N 83° E	3·3	3·2			65	−6·6†	·405	−·072†	1·1	−0·5	1	0·50	+0·50	0·43	0·03	+ 0·40	0·43	0·03	+ 0·40	0·43	Bijapur.		
	2	1					17	11	N 66° W	3·6	4·1	3·5	+ 3	48	−9·7	·251	−·080	2·8	P	0	0·50	−0·50	0	0·26	− 0·26	0	0·26	− 0·26	0	Malegaon	KHANDESH	40
12	1	1	1	3	5		4	4	S 49° W	3·5	4·3			58	−5·3†	·327	−·051	1·0	−0·5	1	0·90	+0·10	0·27	0·50	− 0·23	0·27	0·50	−0·23	0·27	Ahmednagar.		
23		1	4	2				1	E	2·3	2·3	3·1	−26	52	−4·1	·275	−·040	0·5	−1·3	0	0·70	−0·70	0	0·75	− 0·75	0	0·75	− 0·75	0	Akola	BERAR	4
	1	14	12		2	1		1	N 67° E	4·6	4·1	3·1	+48	43	−7·6	·267	−·060	0·4	−1·3	0	0·60	−0·60	0	0·57	− 0·57	0	0·57	− 0·57	0	Amraoti.		
	4	12	5	5	1			4	N 53° E	2·6		2·4	+ 8	52	−5·2	·262	−·038	0·5	−0·8	0	0·50	−0·50	0	0·43	− 0·43	0	0·43	− 0·43	0	Khandwa	CENTRAL PROVINCES, (WEST)	42
		27				1		1	N 43° E	1·2	1·2	2·4	−50	60	−8·8†	·269	−·060	0·2	−1·4	0	0·60	−0·60	0	0·53	− 0·53	0	0·53	− 0·53	0	Hoshangabad.(a)		
11	12	3				2		3	N 6° W	2·6	2·1	3·5	−26	57	−3·2	·292	−·061	1·0	−1·0	0	0·70	−0·70	0	0·48	− 0·48	0	0·48	− 0·48	0	Nagpur.		
31									Calm	0·5	0·4	1·6	−69	75	+2·7	·356	−·042	0·8	−0·6	0	0·80	−0·80	0·02	0·34	− 0·32	0·02	0·34	− 0·32	0·02	Chanda	CENTRAL PROVINCES (CENTRAL).	43
	11	11	1	1	1	1	1	9	N 15° E	3·8	3·2	2·5	+52	52	−14·6	·259	−·085	0·3	−1·6	0	0·90	−0·90	0	0·52	− 0·52	0	0·52	− 0·52	0	Seoni.		
4		1	1	12	12		1		S 25° E	1·4	1·2	1·8	−22	79	+4·7†	·287	−·066	0·2	−1·4	0	0·60	−0·60	0	0·33	− 0·33	0	0·33	− 0·33	0	Jubbulpore.		
		1	9	8	8	2	2	1	S 39° E	3·8	3·4	2·5	+52	46	−11·8	·222	−·072	0·7	−0·4	0	0·80	−0·80	0	0·70	− 0·70	0	0·70	− 0·70	0	Saugor.		
5				1	1	6	13	5	S 83° W	2·5	2·3	3·6	−31	67	−0·3	·255	−·038	1·4	P	0	0·90	−0·90	0	0·43	− 0·43	0	0·43	− 0·43	0	Sutna	CENTRAL INDIA	49
10	2	7	8		1	2		1	N 65° E	1·6	1·9	2·6	−38	66	+4·5	·333	−·011	1·0	−1·0	0	0·50	−0·50	0	0·25	− 0·25	0	0·25	− 0·25	0	Raipur	CENTRAL PROVINCES, (EAST)	44
16	6	2		1	2			4	N 5° W	3·1	2·6			62		·266		0·3		0			0			0			0	Pendra.		
	4	7	7	6	4			3	N 78° E	4·3	4·2	1·4	+207	77	+2·7	·389	−·017	1·1	−0·6	0	0·30	−0·30	0	0·24	− 0·24	0	0·24	−0·24	0	Sambalpur.		
14		8	8	1					N 71° E	5·9	5·8			45		·292		0·4		0	1·10	−1·10	0	0·61	− 0·61	0	0·61	− 0·61	0	Aurangabad	HYDERABAD (NORTH).	30
26		2						3	N 14° W	4·5	3·8			67		·410		0·6		2	0·60	+1·40	0·41	0·33	+ 0·08	0·41	0·33	+ 0·08	0·25	Indur		
	3	11	6	4	3	2	2		N 73° E	5·1	4·3			58		·384		2·9		1	0·70	+0·30	1·10	0·52	+ 0·58	1·10	0·52	+ 0·58	1·10	Bidar.		
11		4	8	8					S 80° E	6·8	6·5			60	+0·7	·379	−·014	0·9	−0·9	1	0·30	+0·70	0·68	0	+ 0·68	0·68	0	+ 0·68	0·68	Gulbarga	HYDERABAD (SOUTH).	52
1	2	7	13	8					N 87° E	6·3	6·0			67	+1·1	·466	−·020	0·7	−0·8	1	0·30	+0·70	2·05	0	+ 2·05	2·05	0	+ 2·05	2·05	Raichur.		
29			2						E	2·8	2·7			75	+1·9	·435	−·017	1·0	−0·7	1			0·14	0·17	− 0·03	0·14	0·17	− 0·03	0·12	Hyderabad (Deccan).		
26		1	1	1	2				S 50° E	6·4		3·3	+94	69	−4·1	·410	−·042	1·6	−0·1	1	0·40	+0·60	0·11	0·17	− 0·06	0·11	0·17	− 0·06	0·10	Secunderabad.		
9	10				2	3	1	6	N 36° W	4·0	3·4			70		·447		1·3		0	0·10	−0·10	0			0			0	Hanumkonda		
														72	−1·0	·603	−·004	2·0	0				0·70	0·62	+0·09					X.—West Coast.		
	4	12	15						N 62° E	9·0		10·0	−10	70	−1·5	·549	−·039	1·2	−0·5	0	0·10	−0·10	0	0·06	−0·06	0	0·06	− 0·06	0	Bombay	KONKAN	27
2		6	18	5					N 88° E	9·3	9·2	9·9	− 6	56	+3·4†	·459	−·009†	0·5	−0·9	0	0·10	−0·10	0	0·05	− 0·05	0	0·05	− 0·05	0	Ratnagiri.		
	2		16	11					S 76° E	7·7				77	+1·5	·602	−·018†	1·3	+0·4	1			0·20	0	+ 0·20	0·20	0	+ 0·20	0·20	Mormugao.		
	2	7	22						N 75° E					66	+2·5†	·573	+·014	1·7	+0·3	0			0	0·06	− 0·06	0	0·06	− 0·06	0	Goa.		
10	2	11	8						N 58° E	3·0				76	+1·0	·536	−·004	1·5	+0·4	0	0·10	−0·10	0	0·07	− 0·07	0	0·07	− 0·07	0	Karwar.		
		25	6						N 53° E	4·5				78	+3·4	·705	+·009	3·5	+1·1	4	2·50	+1·50	3·25	1·66	+ 1·59	3·25	1·66	+ 1·59	1·91	Cochin	MALABAR	33
	1	10	18	1					N 74° E	6·9§	6·8§			78	+1·2	·668	−·015	1·9	−0·2	1	1·60	−0·60	1·49	·97	+ 0·52	1·49	0·97	+ 0·52	1·31	Calicut.		
7		5	17	2					N 85° E	2·5		3·5	−29	67	−1·3†	·610	+·009	2·2	−0·1	0	0·50	−0·50	0·08	0·45	−0·37	0·08	0·45	−0·37	0·05	Mangalore.		
5	5	15	5					1	N 42° E	4·1				80	+0·3	·720	−·004	4·2	−0·1	3	2·60	−0·60	1·31	2·24	− 0·93	1·31	2·24	− 0·93	0·73	Trivandrum.		
														81	+6·1	·623	+·009	3·8	−0·2				4·69	2·63	+2·06					XI.—South India.		
	7	12	2	1	1			8	N 18° E	13·7	14·5			88		·813		4·6		14	9·20	+4·80	8·25	10·31	− 2·06	8·25	10·31	− 2·06	1·42	Pamban	MADRAS (SOUTH)	57
	15	1				3	12		N 24° W	4·2	4·0			74	P	·673	−·017	4·8	+0·3	6	5·70	+0 30	5·10	3·75	+ 1·35	5·10	3·75	+ 1·35	1·94	Tinnevelly.		
5	2	17					7		N 20° E	6·1	7·0	4·9	+24	77	+3·3	·677	+·018	3·6	−0·9	9	3·80	+5·20	7·28	1·67	+ 5·41	7·28	1·87	+ 5·41	2·28	Madura.		
20			1	1	2	4	1	1	S 27° W	1·5	1·6			84		·646		4·6		7	3·20	+3·80	4·53	1·56	+2·97	4·53	1·56	+2·97	2·45	Periyakulam.		

station, the data for that station are not utilized in calculating the Provincial variation.

Nos. 41, 43 and 45 are derived only from the data available.

† Mean of 28 days.

§ Mean of 16 days.

Table

Abstract of Observations taken at 8 A.M. at 231 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		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
34	Madras (South Central).	Salem	940	29·070	−·034	29·972	29·149	21st	28·961	30th	·188	71·4	83·5	−2·9	65·1	−0·2	74·3	−1·6	18·4	87·2	3rd	58·8	27th	28·4
		Coimbatore	1,348	28·646	−·018	29·966	28·734	21st	28·567	5th	·167	70·6	83·8	−1·3	65·1	−1·0	74·5	−1·2	18·7	86·9	31st	59·3	23rd, 26th & 27th.	27·6
35	Coorg	Mercara	3,781	26·273	−·012		26·342	21st	26·199	5th	·143	60·9	74·4	−0·8	57·8	0	66·2	−0·4	16·6	84·0	23rd	51·1	10th	32·9
36	Mysore	Chitaldroog	2,405	27·601	−·026	29·971	27·674	21st	27·548	2nd	·126	67·5	79·3	−2·0	59·7	−1·1†	69·5	−1·6†	19·6	84·1	13th	52·4	17th	31·7
		Bangalore	3,021	27·002	−·028	29·980	27·073	21st	26·946	30th	·127	63·9	76·8	−1·2	57·9	−0·8	67·4	−1·0	18·9	79·7	13th & 20th.	51·4	17th	28·3
		Hassan	3,091	26·935	−·028	29·992	27·013	21st	26·888	1st	·125	65·2	77·6	−1·9	55·7	+0·2	66·6	−0·9	21·9	80·6	7th	48·7	24th	31·9
		Mysore	2,518	27·493	−·027	29·973	27·572	21st	27·426	5th	·146	67·0	79·6	−2·0	59·7	−0·1	69·7	−1·1	19·9	83·1	20th	53·4	17th	29·7
56	Madras, (East Coast, South).	Negapatam	31	29·947	−·030	29·907	30·018	21st	29·848	29th	·170	75·9	82·6	+1·1†	72·4	+0·3	77·5	+0·7†	1·2	86·8	1st	68·0	10th	18·8
		Cuddalore*	12	29·995	−·027	29·936	30·073	21st	29·905	30th	·168	74·6	82·8	−0·4	69·9	+0·8	76·4	+0·2	12·9	85·6	2nd	66·2	9th & 16th.	19·4
		Trichinopoly	255	29·746	−·020	29·939	29·819	21st	29·665	30th	·154	74·0	83·4	−1·8	68·9	−0·5	76·2	−1·2	14·5	86·0	4 days	63·4	17th	22·6
		Madras	22	29·992	−·026	29·945	30·073	21st	29·932	4th	·141	74·1	82·0	−1·3	69·8	+0·1	75·9	−0·6	12·2	86·0	2nd & 3rd.	65·5	8th	20·5
		Vellore	707	29·299		29·966	29·387	21st	29·200	30th	·187	70·2	81·5		64·8		73·3		16·7	86·4	2nd	58·9	17th	27·5
55	Madras, (East Coast, Central).	Nellore	71	29·963	−·023	29·968	30·043	21st	29·906	2nd	·137	71·6	82·2	−2·6	68·2	0	75·2	−1·3	14·0	85·3	1st	64·1	17th	21·2
		Masulipatam	15	30·042	?	29·992	30·129	21st	29·934	1st	·145	70·6	81·7	−1·3	66·0	−0·6	73·9	−1·0	15·7	84·5	2nd & 12th,	60·7	17th	23·8
54	Madras, (Central).	Cuddapah	433	29·596	−·030	29·981	29·677	21st	29·539	1st	·138	71·3	84·7	−2·1	61·7	−0·7	74·7	−1·4	20·0	88·2	1st & 2nd.	57·8	17th	30·4
		Kurnool	915	29·078	−·030	29·999	29·161	21st	9·017	12th	·144	66·5	85·1	−1·8	58·2	−0·7	71·7	−1·3	26·9	87·7	3rd & 13th,	48·2	17th	39·5
		Bellary	1,475	28·536	−·024	29·998	28·616	21st	28·478	12th	·138	67·1	85·0	−0·6	60·6	−0·3	72·8	−0·5	24·4	89·0	13th	53·1	17th	35·9
52	Madras, (East Coast, North).	Cocanada	26	30·030	−·020	29·991	30·114	21st	29·961	12th	·153	70·2	80·0	−0·7	61·7	−1·0	72·4	−0·9	15·3	85·1	2nd	58·5	17th	26·6
		Waltair (Vizag.)	226	29·832	−·014	30·005	29·910	21st	29·753	12th	·157	72·6	80·2	?	66·7	?	73·5	?	13·5	82·8	4 days	62·4	17th	20·4
		Gopalpur	21	30·063	−·009	30·025	30·142	20th	29·969	11th & 12th.	·173	65·6	77·7	−2·6	59·5	−1·3	68·6	−2·0	18·2	83·1	12th	54·5	16th	28·6
	XII.—Hill Stations.																							
48	Baluchistan	Pishin											55·9		14·7		37·4		37·2	66·3	4th	8·0	27th	58·3
		Quetta	5,502	24·770	+·024		24·878	21st	24·655	21st	·223	28·6	54·8	−1·8	25·1	−4·6	40·0	−3·2	29·7	65·7	4th	13·8	27th	51·9
		Kalat																						
		Chaman	4,311	25·842	+·016		25·949	21st	25·695	31st	·254	37·9	57·0	−2·0	33·5	−4·9	45·3	−3·5	23·5	70·3	4th	17·6	27th	52·7
30	Punjab	Leh	11,503	19·723	−·014		19·914	19th	19·413	25th	·501	16·1	35·6	+0·9	12·6	−0·6	24·1	+0·2	23·0	42·0	10th	6·9	28th & 29th.	35·1
		Srinagar	5,204	25·026	−·018		25·168	19th	24·741	25th	·427	28·9	47·8	0	26·0	−2·5	36·9	−1·3	21·8	54·5	3rd	20·1	28th	34·4
		Sonemarg		21·869			21·995	20th	21·595	25th	·400	24·5	41·6		18·1†		30·0†		23·5	47·7	9th	7·1	30th	40·6
		Astor (Kashmir).		22·621			22·834	19th	22·267	25th	·567	26·1	44·0		22·9		33·5		21·1	53·0	11th	15·5	28th	37·5
		Minimarg		21·396			21·579	19th	21·082	25th	·497	19·8	36·5		13·7		25·1		22·8	44·3	11th, 18th & 22nd.	5·5	14th	38·8
		Skardu		22·994			23·192	19th	22·614	25th	·578	26·1	42·8		22·8		32·8		20·0	48·5	9th & 12th.	17·1	4th, 5th & 28th	31·4
		Dras		20·851			21·067	19th	20·513	25th	·554	10·6	28·9		5·1		17·0		23·8	39·3	9th	−17·1	30th	56·4
		Gilgit	4,890	25·320			25·559	4th	24·905	25th	·654	36·0	49·4	+0·2	32·2	−2·3	40·8	−1·1	17·2	54·1	13th	26·1	23th	28·0
		Chitral		24·528			24·675	4th & 19th.	24·100	25th	·575	34·1	54·5		28·9		41·8		25·6	66·1	15th	25·0	17th	41·1
		Killa Drosh										37·9	53·0		35·5		44·2		17·5	59·9	11th	27·1	26th	32·8
		Murree	6,333	23·901	−·016		24·017	21st	23·646	25th	·371	43·8	53·3	+0·5	37·5	−1·5	45·4	−0·5	15·8	64·2	6th	23·0	28th	41·2
		Kailang	10,087	20·991			21·158	19th	20·727	27th	·431	23·9	41·1	+1·1	20·0	+1·2	30·6	+1·2	21·1	55·5	9th	10·3	28th	45·2
		Poo											43·4		29·6		39·9*		19·8	60·7	9th	22·5	3.th	38·2
		Simla	7,224	23·160	−·005		23·259	21st	22·981	27th	·288	44·3	51·7	+2·3	41·5	+2·4	46·6	+2·4	10·2	57·5	9th	23·3	28th	44·2
	North-West Frontier Province.	Para Chinar	6,000	24·531			24·646	3rd	24·266	25th	·380	42·5‡	58·7‡		33·3		46·0‡		25·4	65·5	4th	27·8	14th	37·7
		Cherat		25·809	−·015		25·979	21st	25·594	25th	·385	47·3	56·1	+0·3	42·8	+0·2	49·5	+0·4	13·3	62·3	5th	29·0	26th	33·3

* Mean of 29 days.
† „ „ 22 „
‡ „ „ 16 „

Note 1.—When a query is inserted against any reading, or in the returns of any station,
Note 2.—The divisional means of the figure columns Nos. 41, 43 and 45 are derived only from

I—*continued.*

in India, Burma, etc., in December, 1903—continued.

WIND DIRECTION. NUMBER OF WINDS FROM										WIND VELOCITY.				HYGROMETRY, 8 A.M.				CLOUD.		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. (Uncorrected).	Percentage variation.	Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st to 31st December.	Variation from normal of period, 1st to 31st December, 1903.													
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	57	58
14	2	4	5				1	2	3	N 26° E	2·7	2·4	4·0	−33	83	+6·8	·647	+·021	4·0	+0·4	4	2·10	+1·90	1·16	1·26	− 0·10	1·16	1·26	+0·10													0·80	Salem .	MADRAS (SOUTH CENTRAL).	34
7	1	6	17							N 76° E	3·7	3·3	3·0	+23	85	+0·7	·644	−·013	4·7	−0·2	3	2·40	+0·60	0·79	1·13	− 0·34	0·79	1·13	− 0·34													0·31	Coimbatore.		
3		19	9							N 60° E	7·5	7·0	4·7	+60	88	+7·8	·481	+·031	7·2	+2·4	3	1·00	+2·00	3·76	0·51	+ 3·25	3·76	0·51	+ 3·25													2·45	Mercara .	COORG . .	35
3	1	6	15	6						N 88° E	6·0	5·2			73	+7·7	·498	+·038	2·8	−0·2	1	0·70	+0·30	0·58	0·09	+ 0·49	0·58	0·09	+ 0·49													0·45	Chitaldroog.	MYSORE . .	36
1	3	15	10	2						N 61° E	7·9	6·9	3·9	+103	86	+8·5	·516	+·033	3·6	−0·2	4	1·00	+3·00	1·16	0·48	+ 0·68	1·16	0·48	+ 0·68													0·43	Bangalore.		
1		14	15	1						N 71° E	3·1	2·7			81	+8·4	·505	+·028	3·7	+0·1	3	1·00	+2·00	1·68	0·18	+ 1·50	1·68	0·18	+ 1·50													1·30	Hassan.		
	2	16	11	2						N 63° E	5·3	9·5			83	+9·0	·553	+·050	4·8	+1·0	2	1·00	+1·00	0·74	0·17	+ 0·57	0·74	0·17	+ 0·57													0·47	Mysore.		
11	2	5		1		2	3	7		N 32° W	11·1	9·8	6·8	+63	82	P	·742	−·012	6·4	−0·3	12	9·40	+2·60	18·33	12·79	+ 5·54	18·33	12·79	+ 5·54													4·54	Negapatam.	MADRAS (EAST COAST, SOUTH)	56
22	2	1			1			3		N 21° W	2·5	3·1			86	−3·5?	·741	−·025	6·0	0	8	6·80	+1·20	7·61	8·19	− 0·58	7·61	8·19	− 0·58													2·56	Cuddalore.*		
26		5								N 45° E	2·3		5·0	−54	83	+5·8	·701	+·034	4·7	−0·2	7	4·60	+2·40	6·43	2·76	+ 3·67	6·43	2·76	+ 3·67													2·56	Trichinopoly.		
1	17	3		2		1		7		N 5° W	7·0		7·6	− 8	86	+3·4	·736	+·006	4·9	−0·2	9	7·20	+1·80	18·55	6·02	+12·53	18·55	6·02	+12·53													6·18	Madras.		
22		2	1	1			4	1		N 63° W	3·0	3·0			87		·643		4·2		9	3·60	+5·40	13·41	2·88	+10·53	13·41	2·88	+10·53													3·92	Vellore.		
23	5	1						2		N 6° W	4·5				88	+2·7	·689	−·027	4·9	P	8	3·30	+4·70	5·26	1·64	+ 3·62	5·26	1·64	+ 3·62													2·09	Nellore .	MADRAS (EAST COAST, CENTRAL)	52
8	15	7	1							N 17° E	4·6	4·4	5·7	−19	85	+4·2	·627	0	2·3	−0·3	1	0·60	+0·40	1·59	0·78	+ 0·81	1·59	0·78	+ 0·81													1·50	Masulipatam.		
		9	4	7	1	3	2	5		N 76° E					80	+2·5	·618	−·002	3·1	−0·3	3	1·30	+1·70	1·17	1·14	+ 0·03	1·17	1·14	+ 0·03													0·55	Cuddapah.	MADRAS (CENTRAL)	54
	16	6		2		7				S 18° E	3·6				83	+13·5	·549	+·056	1·2	−0·5	0	0·30	−0·30	0·17	0·12	+ 0·05	0·17	0·12	+ 0·05													0·09	Kurnool.		
11	3	3	3	6	3			2		S 85° E	2·8	3·0	3·1	−10	74	+6·9	·499	+·017	2·7	−0·6	0	0·30	−0·30	0·18	0·11	+ 0·07	0·18	0·11	+ 0·07													0·08	Bellary.		
9	10	8						4		N 8° E	9·3	7·8			80	+10·2	·589	P	1·8	−0·7	0	0·70	−0·70	0·05	0·80	− 0·75	0·05	0·80	− 0·75													0·03	Cocanada .	MADRAS (EAST COAST, NORTH).	52
1		22	4	2	1	1				N 58° E	11·8				60	+1·0?	·478	−·042	2·6	P	0	1·10	−1·10	0·07	1·80	− 1·73	0·07	1·80	− 1·73													0·04	Waltair (Vizag.).		
	14	1						16		N 22° W	10·1	9·9	6·9	+46	84	+7·4	·530	P	0·9	−1·2	2	0·80	+1·20	3·23	0·75	+ 2·48	3·23	0·75	+ 2·48													2·62	Gopalpur.		
																																											XII.—Hill Stations.		
																				1	2·70	−1·70	0·30	1·20	− 0·90	0·30	1·20	− 0·90	0·30	Pishin.	BALUCHISTAN .	48
29	2								N	1·6	1·7	2·7	−41	82	+7·7	·129	−·026	2·5	−0·7	1	4·00	−3·00	0·25	0·81	− 0·56	0·25	0·81	− 0·56	0·23	Quetta.		
																																											Kalat.		
		2	16	10	2	1			S 71° E	5·5	6·1			55	−4·0	·127	−·048	1·4	−2·1	1	3·10	−2·10	0·15	0·92	−0·77	0·15	0·92	− 0·77	0·15	Chaman.		
					15	15	1		S 25° W	1·7				41	−17·2	·041	−·010	4·6	−1·3	0	0·60	−0·60	0	0·19	− 0·19	0	0·19	− 0·19	0	Leh .	PUNJAB . .	
19	1		1	2	3	1	2	2		S 33° W	1·9	1·8			92	+ 3·0	·148	−·012	4·5	−1·5	3	3·50	−0·50	2·33	0·91	+ 1·42	2·33	0·91	+ 1·42	1·38	Srinagar.		30
16		3	1	9	1	1				S 56° E	1·8	1·6			96		·128		4·1		4			2·21			2·21			1·60	Sonemarg.		
26					3	2				S 19° W	2·3	2·1			60		·088		5·6		1			0·22			0·22			0·22	Astor (Kashmir).		
10		8	12	1						N 75° E	3·3	3·9			60		·065		4·8		2			1·17			1·17			0·53	Minimarg.		
22				1	1	3	3	1		S 59° W	2·8	2·8			85		·123		3·5		0	1·10	−1·10	0·01	0·71	− 0·70	0·01	0·71	− 0·70	0·01	Skardu.		
31										Calm	0·5	0·4			91		·070		4·9		2	6·60	−4·60	0·68	2·19	− 1·51	0·68	2·19	− 1·51	0·31	Dras.		
26						4	1			S 53° W	2·1	1·8			52	−9·0	·111	−·023	5·5	−0·9	0	0·80	−0·80	0	0·09	− 0·09	0	0·09	− 0·09	0	Gilgit.		
28					2		1			S 27° W	0·3*	0·3*			73		·139		3·0		2			0·64			0·64			0·50	Chitral.		
22	1	1	2		5					S 45° E					53		·115		3·8		2			0·34			0·34			0·20	Kilta Drosh.		
21	1			3	4	2				S 6° E	6·6	7·1	6·1	+8	47	+1·5	·130	+·009	2·1	−2·0	1	1·50	−0·50	0·17	1·14	− 0·97	0·17	1·14	− 0·97	0·17	Murree.		
	3		2	11	4	2	6	3		S 2° E	0·5				68		·088		4·7		1			0·29	1·08	−0·79	0·29	1·08	−0·79	0·19	Kailang		
27			1	2		1				S 45° E									4·4		1			0·46	1·05	−0·59	0·46	1·05	−0·59	0·25	Poo.		
7	12			3	9					N 67° E	5·1	4·9	1·8	+182	35	−4·8	·094	−·012	3·8	−0·1	2	1·60	+0·40	1·99	1·23	+ 0·76	1·99	1·23	+ 0·76	1·18	Simla.		
21		3	2		3		1	1		S 82° E	4·5	4·1			39‡		·105‡		3·3		2	2·50	−0·50	0·41	0·79	− 0·38	0·41	0·79	− 0·38	0·20	Para Chinar	NORTH-WEST FRONTIER PROVINCE.	
9	18	1						3		N 4° W	10·7	10·0			33	−12·0	·096	−·046	3·8	+0·1	3			1·04	1·00	+ 0·04	1·04	1·00	+ 0·04	0·50	Cherat .		

the data for that station are not utilized in calculating the provincial variations.
the data available.

Table

Abstract of Observations taken at 8 A.M. at 231 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
25	United Provinces	Chakrata	7,022	23·322	—·016		23·440	21st	23·189	27th	·251	45·0	57·8	+2·9	40·9	+1·6	49·4	+2·3	16·9	65·5	9th	24·9	28th	40·6
		Mussooree	6,705	23·600	—·020		23·709	21st	23·462	27th	·247	45·5	52·6	+1·2	41·2	+1·0	46·9	+1·1	11·4	59·2	10th.	27·0	28th	32·2
		Ranikhet	6,069	24·158	—·010		24·273	21st	24·052	27th	·221	47·4	58·7	+1·2	44·4	+1·8	51·6	+1·5	14·3	65·1	17th	35·0	27th	30·1
		Muktesar	7,60C	22·892*			23·010	21st	22·767	12th	·243	45·6	55·8		39·8		47·8		16·0	62·3	22nd	29·9	27th	32·4
13	Bengal	Yatung	10,480										47·7		25·0		36·3		22·7	58·1	18th	20·9	23rd	37·2
		Darjeeling	7,376	23·055	—·020		23·171	22nd	22·933	11th	·238	41·1	49·3	+0·6	36·9	+0·3	43·1	+0·5	12·4	62·3	22nd	33·9	29th	28·4
8	Assam Hill Tracts.	Shillong	4,920	25·205			25·283	3rd	25·102	11th	·181	47·4	62·4		38·5		50·5		23·9	70·6	22nd	34·0	30th & 31st.	36·6
		Cherra Poonjee	4,309	25·721			25·840	21st	25·567	11th	·273	54·0	61·8		48·4		55·2		13·4	69·3	21st	44·5	13th & 31st.	24·8
	Central India	Mount Abu	3,945	26·148	—·020		26·242	21st	26·006	26th	·236	59·6	67·5	—1·1	52·5	—0·4	60·0	—0·8	15·0	73·6	9th	36·0	27th	37·6
		Pachmarhi	3,528	26·564	—·015		26·638	20th	26·493	12th	·145	55·9	72·2	+1·9	42·2	—2·5	57·7	—0·3	29·0	76·6	11th	36·7	15th & 31st.	39·9
	South India	Wellington	6,200	24·273	—·029		24·340	21st	24·238	25th	·102	55·7	66·7	+0·5	47·2	—0·9	57·0	—0·2	19·5	70·2	8th, 11th & 25th.	36·7	17th	33·5
		Kodaikanal	7,688	22·834			22·894	21st	22·788	5th	·106	53·0	60·5		47·2		52·6		13·3	65·3	25th	42·7	14th	22·6
		Ootacamund	...	23·070			23·119	21st	23·011	5th	·108	54·2	62·3		45·3		53·8		17·0	68·5	29th	34·1	9th	34·4
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·953	—·012	29·891	30·002	20th	29·842	4th	·160	76·6	82·8	+0·3	73·4	—1·1	78·1	—0·4	9·4	85·0	1st, 20th & 29th.	71·5	6 days	13·5
		Colombo	40	29·921	—·012	29·887	29·970	21st	29·819	4th	·151	78·4	87·5	+0·6	72·4	—0·6	80·0	0	15·1	90·0	5th & 21st.	70·0	15th	20·0
	Persia	Meshed	3,104									38·6			29·8	—0·9						13·0	26th	
		Teheran	...	26·119‖			26·350	25th	25·860	31st	·490	36·2‡	4·90‡	—2·3	32 8‡	—1·1	40·9‡	—1·7	16·2	56·6	2nd	26·5	25th	30·1
		Ispahan	...	24·362‖			24 560	25th	24·190	31st	·370	32·3	49·7	—2·6	28·4	—0·8	39·1	—1·7	21·3	61·1	1st	23·2	7th, 10th & 24th.	38·1
		Bushire	14	30·146	+·012	30·119	30·282	21st	30·004	1st	·278	56·7	67·3	—1·9	53·2	—2·2	60·3	—2·1	14·1	72·1	1st & 14th.	46·3	9th	25·8
		Bahrein †	20	30·133			30·303	21st	29·951	3rd	·352	62·8	69·2		58·0		63·6		11·2	73·5	30th	50·1	11th	23·4
		Jask ‡	...	30·124	0	30·094	30·281	26th	29·910	9th	·371	67·1	76·9	—1·1	63·2	—0·6	70·1	—0·9	13·7	79·8	7th & 8th.	56·3	26th	23·5
	Arabia	Muscat	20	30·089	—·028	30·057	30·243	26th	29·930	1st	·313	72·2	74·1	—1·3	70·6	—0·1	72·4	—0·7	3·5	76·9	5th	65·6	27th	11·3
		Baghdad	220	30·036	+·025	30·250	30·202	21st	29·827	12th	·375	46·6	64·0	+0·6	42·4‡	—0·6	53·3‡	0	21·6	69·7	11th	37·5	23rd	32·2
		Bussrah	...	30·142			30·289	21st	30·000	18th	·289		64·9		46·4		55·7		18·5	70·7	11th, 12th & 13th	40·5	25th	30·2
		Aden	94	29·980	—·015	30·007	30·081	21st	29·887	16th	·194	75·0	80·2	—1·6	72·5	—0·5	76·4	—1·1	7·7	88·3	4th	67·9	24th	20·4
		Dthalla	...									59·5	74·5		52·4		69·5		22·1	77·6	1st	45·6	24th	32·0
		Perim	201	29·830	—·012	29·968	29·910	29th	29·752	14th	·158	76·8	83·0	—1·3	73·5§	—1·1	78·3§	—1·2	9·5	84·3	3rd, 16th & 20th.	72·2	24th & 30th.	12·1
	Afghanistan	Kabul	...									29·6	53·4	—1·5	21·5	—6·3	37·5	—3·9	31·9	65·2	1st	8·4	26th & 27th.	56·8
	Central Asia	Kashgar.	4,255						Observations incomplete.															
	Arabian Sea Islands.	Amini Divi	12	29·966	—·030	29·907	30·018	21st	29·831	5th	·187	81·5	85·7	+ 0·8	73·7	—0·1	79·7	+0·4	12·0	88·1	1st	6·71	18th	21·0
		Minicoy	7																					
	Africa	Zanzibar	73	29·913	—·016	29·913	29·996	21st	29·850	9th	·146	81·1	85·4	—0·4	78·4	—1·1	81·9	—0·8	7·0	88·0	3rd	69·6	10th	18·4
		Do. Dunga	...	29·866			30·010	26th	29·788	27th	·222	79·2	89·2		73·0		81·1		16·2	94·0	5th	68·9	26th	25·1
	Straits Settlements.	Penang (a)	20	29·895		29·840	29·960	28th	29·837	5th	·123	80·0	87·6		73·9		80·8		13·7	89·0	8 days	73·0	days	16·0
		Singapore (a).	10	29·921		29·852	29·951	29th	29·850	6th	·111	79·9	84·2		72·5		78·4		11·7	89·2	19th	70·0	3rd	19·2

Note 1.—When a query is inserted against any reading or in the returns of any station,

* Mean of 23 days.
† " " 21 "
‡ Mean of 30 days.
§ " " 22 "
‖ Aneroid uncorrected.
(a) 9 hour observations.

I—*concluded.*

in India, Burma, etc., in December 1903—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 (Uncorrected).	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Variation from normal.	Mean vapour tension.	Variation from normal.	Cloud. Mean cloud amount.	Variation from normal.	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, 1903.	Normal rainfall for period, 1st to 31st December.	Variation from Normal of period 1st to 31st December 1903.	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	56	57	58
10	15	1	1		2	1		1	N 1° E	7·1	8·5	4·2	+69	38	−11·0	·102	−·033	2·9	−0·1	3	2·40	+0·60	2·44	1·16	+ 1·28	2·44	1·16	+ 1·28	1·62	Chakrata .	United Provinces	25
1	1	2	6	3			9	7	N 33° W					37	−18·2	·108	−·047	2·5	−0·2	2	1·90	+0·10	1·13	1·41	− 0·28	1·13	1·41	− ·28	0·80	Mussooree.		
21		3	1		1	5			S 10° W	1·7	1·9	1·3	+31	47	−11·9	·151	−·034	1·5	−1·2	2	1·50	+0·50	0·45	0·71	− 0·26	0·45	0·71	− 0·26	0·30	Ranikhet.		
3	2	1	5	5		1	5	8	N 27° W	8·0	7·4			35		·100		2·0		1			0·15			0·15			0·15	Muktesar.		
																				0	0·57	−0·57	0	0·18	− 0·18	0	0·18	− ·18	0	Yatung .	Bengal . .	13
17		5	4	3			1	1	N 76° E	2·5	2·3	1·9	+32	75	−3·0	·192	−·005	2·9‡	−0·2	0	0·65	−0·65	0	0·23	− 0·23	0	0·23	− 0·23		Darjeeling.		
28	1			1		1			S	0·6	0·7			70		·231		0·7		0	0·70	−0·70	0	0·28	− 0·28	0	0·28	− 0·28	0	Shillong .	Assam Hill Tracts.	8
15	1	9	2	2				2	E 9° E	0·4	0·5			61		·254		0·7		0	3·90	−3·90	0	0·21	− 0·21	0	0·21	− 0·21	0	Cherra Poonjee.		
12	4	2	1	2	2	6		2	S 65° W	4·3	4·3	3·6	+19	33	−10·7	·174	−·051	1·0	−0·7	0	0·50	−0·50	0	0·21	− 0·21	0	0·21	− 0·21	0	Mount Abu	Central India.	
19		2	1	1		4	1	3	W	3·3	3·4	2·6	+27	63	+2·8	·285	−·020	2·1	+0·2	0	1·00	−1·00	0	0·47	− 0·47	0	0·47	− 0·47	0	Pachmarhi.		
18	4	8	1						N 25° E	2·6		2·5	+4	71	+0·1	·320	−·009	4·2	+0·5	10	5·60	+4·40	3·03	3·91	− 0·88	3·03	3·91	− 0·88	0·61	Wellington	South India.	
	4	6	8	5	1	1		6	N 58° E	15·0				68		·273		2·9		9	8·10	+0·90	12·06	5·57	+ 6·49	12·06	5·57	+ 6·49	5·24	Kodaikanal.		
14		3	10	3	1				S 86° E	5·0	5·0			61		·255		3·6		8	3·30	+4·70	3·10	1·65	+ 1·45	3·10	1·65	+ 1·45	0·81	Ootacamund.		
																														XIII.—Extra India.		
5		2				3		21	N 48° W					90	+4·2	·825	−·006	4·0	−0·9	13			11·13	15·90	−4·77	11·13	5·90	−4·77	2·55	Trincomalee	Ceylon.	
	15	8	5	1	1	1			N 30° E	9·2		7·9	+16	81	+3·6	·786	−·015	3·8	−0·6	4			2·22	6·79	−4·57	2·22	6·79	−4·57	0·92	Colombo.		
														73		·170		4·6	−0·9	2			0·75	0·70	+0·05	0·75	0·70	+0·05	0·43	Meshed .	Persia.	
4	9	18		2			2		N 39° E	0·7	0·95			78	+13·7	·169	+·012	4·1‡	+0·3	3			0·66	1·37	−0·71	0·66	·37	−0·71	0·27	Teheran.		
30				1					S 45° E	0·7	0·9			85	+3·9	·158	−·007	3·4	−0·4	0			0·04	0·54	−0·50	0·04	0·54	−0·50	0·04	Ispahan.		
3	6	10	4	9				4	N 40°E	6·0	7·1	6·6	−9	80	+5·9	·367	−·013	3·1	+0·8	3			2·62	3·24	−0·62	2·62	3·24	−0·62	1·34	Bushire.		
	9	1			2		2	13						88		·497				1			0·15			0·15			0·15	Bahrein.†		
									N 33° W	8·7	7·2			61	−9·0	·418	−·070	1·6	−0·8	1			0·77	0·78	−0·01	0·77	0·78	−0·01	0·77	Jask.‡		
1	13	11	3				2		N 23° E	3·0	3·1			70	+2·0	·572	+·023	2·0	0	0			0·13	0·26	−0·13	0·13	0·26	−0·13	0·07	Muscat .	Arabia.	
7				1			23		N 45° W	1·2	1·6	2·5	−5·2	73	−5·3	·235	−·033	3·8	+1·8	1			0·21	1·64	−1·43	0·21	1·64	−1·43	0·12	Baghdad .		
23	3			2	1		2		N											1			0·81			0·81			0·68	Bussrah.		
										17·1§	13·9	12·4	+3·3	74	−0·2	·642	−·013	3·5	−1·7	1			0·52	0·37	+0·15	0·52	0·37	+0·15	0·50	Aden.		
		13	17	1					N 72° E	6·3¶	6·4¶									0			0			0			0	Dthalia.		
	8	6	2	1	6				N 72° E	19·7	19·9			73	−1·0	·670	−·030	1·2	−2·9	0			0·09	0·08	+0·01	0·09	0·08	+0·01	0·08	Perim.		
		16	1	13			1		N 82° E					81		·136		3·3†	+0·1	0			0	0·29	−0·29	0	0·29	−0·29	0	Kabul .	Afghanistan.	
	2	1	1	4	5	12	4	2	S 37° W															0·19			0·19			Kashgar .	Central Asia.	
11	2	14	3		1				N 50° E					70		·757		5·0		4			2·35	0·32	+2·0	2·35	0·32	+2·03	1·23	Amini Divi.	Arabian Sea Islands.	
																								4·66			4·66			Minicoy.		
3	11	11	5		1				N 36° E	6·2	5·8			84	+3·3	·895	+·023	7·1	+1·7	10				2·77	+4·73	7·50	2·77	+4·73	3·55	Zanzibar .	Africa.	
		26			1		9		E 36° E	8·0	7·8			86		·852		5·0		2			2·46			2·46			2·21	Do. Dunga		
																		1·3		9			4·31			4·31			·12	Penang(a) .	Straits Settlements.	
3	20	7			1				N 11° E	7·4								5·6		8			6·22			6·22			1·86	Singapore(a)		
1	10	8	1				11		N 3° W																						

the data for that station are not utilized in calculating the provincial variations.

§ Mean of 29 days.

¶ „ „ 27 „

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63 Stations in India, Burma, etc., in December, 1903.

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 of daily mean pressures.	Departure from normal.	Mean reduced to sea-level and 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 of daily means.	Departure from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.
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	29·907	29·802	·105	29·851	—·023	29·842	85·0	76·3	8·7	87·2	72·5	14·7	82·4	83·1	79·8	0	73·0	77·2	76·6	75·6
	Rangoon	57	·965	·859	·106	·910	—·016	·905	84·0	65·3	18·7	90·0	58·7	31·3	77·0	81·5	73·0	−2·4	2·8	69·5	71·6	68·0
	Diamond Island	41	·973	·858	·115	·911	—·024	·887	81·0	72·5	8·5	84·0	68·2	15·8	77·4	79·6	76·0	−0·8	66·6	·70·0	70·6	69·1
	Cocos Island	119	·870	·765	·105	·813	†	·865	81·7	75·9	5·8	84·0	72·9	11·1	80·3	78·9	77·7	+0·9	68·3			
	Akyab	20	30·019	·903	·116	·959	—·034	·923	79·2	62·4	16·8	81·9	58·1	23·8	72·0	76·5	70·6	−1·6		67·7	68·9	
Bengal and Orissa.	Chittagong	87	29·964	·842	·122	·899	−·040	·937	77·3	55·6	21·7	79·4	52·0	27·4	69·5	74·3	66·1	−1·3	55·0	64·5	65·8	61·8
	Calcutta (Alipore)	21	30·080	·952	·128	30·006	−·018	·973	76·3	54·0	22·3	80·4	49·8	30·6	69·5	74·8	64·4	−0·9	52·7	61·1	62·1	58·6
	Saugor Island	25	·057	·932	·125	29·987	—·032	·957	76·2	57·2	19·0	80·0	52·7	27·3	70·4	73·7	65·7	−0·8	55·2	63·3	63·2	60·6
	False Point	21	·070	·955	·115	30·011	—·027	·973	77·1	55·4	21·7	82·4	48·6	33·8	72·4	74·2	65·1	−1·5	54·7	64·5	64·3	61·2
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	28·031	27·928	·103	27·969	−·030	·980	72·3	48·9	23·4	77·1	44·9	32·2	64·6	69·9	59·7	−0·8	44·6	53·0	55·1	50·9
	Darbhanga	166	29·946	29·818	·128	29·876	—·016	30·004	74·1	51·6	22·5	78·7	45·1	33·6	66·9	72·1	62·2	−1·4	50·0	60·1	61·3	57·1
	Allahabad	309	·809	·688	·121	·736	−·017	·012	74·6	46·4	28·2	79·9	42·3	37·6	65·1	72·8	58·9	−1·8	44·3	55·6	58·9	52·9
Upper Sub-Himalayas.	Dehra Dun	2,233	27·793	27·711	·082	27·741	−·035	·012	68·8	44·9	23·9	74·9	39·2	35·7	59·4	65·0	55·0	−1·1	41·8	51·1	53·1	48·7
	Roorkee	899	29·161	29·060	·101	29·098	−·041	·008	70·7	41·8	28·9	76·1	36·2	39·9	57·4	67·5	54·5	−2·0	41·0	50·7	54·4	48·7
	Meerut	738	·333	·226	·107	·271	−·034	·010	72·9	42·5	30·4	78·0	38·2	39·8	58·4	69·5	56·3	−0·9	39·8	49·4	54·6	47·9
	Lahore	702	·374	·285	·089	·318	−·037	·024	72·0	39·9	32·1	77·6	35·9	41·7	57·8	69·6	54·1	+0·9	38·0	50·0	56·2	48·1
	Ludhiana	812	·255	·167	·088	·199	−·028	·022	68·9	41·8	27·1	73·7	37·0	36·7	57·3	66·8	53·6	−1·0	40·7	47·3	51·4	46·5
Indus Valley and N.-W. Rajputana.	Peshawar	1,110	28·993	28·901	·092	28·935	−·033	·089	66·0	37·8	28·2	74·6	33·4	41·2	54·3	62·2	49·7	−1·2	34·5	46·8	51·2	44·2
	Jacobabad	186	29·940	29·838	·102	29·877	−·018	·030	77·8	41·5	36·3	87·3	34·2	53·1	65·3	72·7	57·1	−0·8	38·3	52·8	57·4	49·5
	Kurrachee	30	30·109	30·002	·107	30·050	−·002	·032	81·0	53·8	27·2	88·0	38·5	49·5	71·5	76·6	65·9	−1·1	46·7	56·4	61·8	54·9
E. Rajputana, C. India and Gujarat.	Jaipur	1,421	28·653	28·554	·099	28·592	−·019	·021	77·1	46·2	30·9	84·1	35·0	49·1	68·0	74·6	59·7	−0·3	40·4	52·2	55·1	49·2
	Udaipur	1,925	·140	·033	·107	·087		·007	77·6	43·6	34·0	83·5	34·0	49·5	68·7	74·9	59·9		40·4	53·1	54·4	49·3
	Deesa	466	29·614	29·501	·113	29·549	−·007	29·977	85·8	49·7	36·1	93·4	35·5	57·9	75·8	83·3	66·9	−1·3	42·3	56·2	58·6	52·4
	Jamnagar	61	30·040	·921	·119	·981		·987	81·1	52·2	27·9	88·2	39·8	48·4	72·0	79·1	66·6		44·9	56·1	59·4	53·5
Deccan.	Belgaum	2,539	27·468	27·357	·111	27·409	−·013	·866	81·3	57·2	24·1	85·3	50·6	34·7	74·2	79·8	68·9	−0·5	53·6	60·7	61·2	58·5
	Sholapur	1,590	28·445	28·311	·134	28·377	−·018	·918	85·5	56·1	29·4	89·0	50·1	38·9	75·6	82·9	69·9	−0·8	50·0	59·6	61·4	57·0
	Akola	930	29·146	29·006	·140	29·069	−·009	·965	84·7	49·9	34·8	88·8	43·9	44·9	73·5	83·6	66·4	+0·1	45·4	59·1	63·2	55·9
	Buldana	2,132	27·916	27·803	·113	27·852	−·012	·941	80·3	57·0	23·3	84·7	48·2	36·5	73·9	78·3	67·5	+0·1	48·2	56·7	57·8	54·2
	Khandwa	1,044	29·019	28·887	·132	28·946	−·014	·960	85·5†	48·4	37·1	90·8	41·6	49·2	72·6	83·0	65·9†	+0·5	44·3	58·2	62·1	54·9
	Nagpur	1,025	·052	·927	·125	·983	−·001	·981	83·1	52·8	30·3	88·2	49·2	39·0	70·8	81·7	67·0	+0·2	47·8	57·4	61·4	55·5
	Do. (Sanitary Commr.'s Office)	1,013	·060	·927	·133	·987		·976	83·4	51·4	32·0	88·4	47·3	41·1	72·1	81·3	66·9		47·1	58·5	62·3	56·0
	Hyderabad (Deccan).	1,690	28·345	·232	·113	·285	−·038	·936	81·9	56·4	25·5	85·6	49·3	36·3	73·7	78·7	68·4	−0·5	54·7	63·0	3*	0·5
West Coast.	Bombay	37	29·999	29·884	·115	29·935	−·015	·912	84·7	68·5	16·2	91·2	56·0	35·2	75·4	80·4	75·0	−1·0	62·2	66·8	71·1	66·7
	Karwar	44	·960	·837	·123	·891	−·014	·867	87·5	65·8	21·7	91·	57·5	34·3	78·1	85·6	75·6	−0·2	62·7	68·5	72·0	67·7

† Mean of 30 days.

II.

at 63 Stations in India, Burma, etc., for December, 1903.

Vapour Tension.					Humidity.					Cloud.				Wind direction. Total number of 10 hours and 16 hours winds from										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.	Departure from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.	Departure from normal.	Mean 10 hours.	Mean 16 hours.	Mean of two previous columns.	Departure 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
																									%	%						
·770	·866	·836	·824	—·003	85	78	73	79	0	5·7	4·8	5·2	+0·6		8	33	6	12	1			2	N 57° E	N 58° E	69	66	183*	181	8·86	1·73	Port Blair .	Burma Coast and Bay Islands.
·543	·623	·653	·606	—·045	86	67	60	71	− 1	2·0	1·6	1·8	−1·1	2	11	30	16	2				1	N 50° E	N 41° E	79	63	36*	117	0	0	Rangoon .	
·579	·641	·630	·617	—·066	72	68	62	67	− 6	1·9	2·4	2·2	−1·2		7	22	21	7				5	N 61° E	N 58° E	71	43	305*	212	0	0	Diamond Island	
·596					66					2·1	2·7	2·4	−1·1	.	15	42	4	1					N 38° E	N 34° E	90	85		P	0	0	Cocos Island .	
	·622	·607				79	66			0·7	0·4	0·6	−1·7		1	17	11	2			9	22	N 1° W	N 8° W	43	41	54*	57	0	0	Akyab .	
·429	·543	·526	·499	—·023	96	75	62	78	+ 2	0·8	0·7	0·8	−1·4		11	25	2		1	1	3	19	N 3° E	N 24° W	66	53	66	66	0	0	Chittagong .	Bengal and Orissa.
·383	·429	·389	·400	—·032	91	59	45	65	− 5	0·7	1·1	0·9	−0·8	3	19	5				2	1	32	N 26° W	N 23° W	79	62	54	61	0	0	Calcutta (Alipore).	
·411	·489	·444	·448	—·048	87	65	53	68	− 5	0·7	1·2	1·0	−1·3		40	12	2			1	2	5	N 5° E	N 3° E	84	59	188	169	0	0	Saugor Island.	
·426	·505	·475	·469	—·027	96	63	55	71	− 3	1·6	1·8	1·7	−0·8		14	24	8		1	1	1	13	N 20° E	N 32° E	66	58	128*	151	0	0	False Point .	
·244	·262	·253	·253	—·021	70	42	34	49	− 3	0·8	0·8	0·8	1·3	2	23	7	1		2	3	5	19	N 21° W	N 44° W	64	56	118*	119	0	0	Hazaribagh .	Gangetic Plain and Chota Nagpur.
·344	·435	·401	·393	—·029	89	65	50	68	− 5	0·1	0	0·1	−0·8	39	1		1			2	14	5	N 80° W	S 81° W	29	53	22	49	0	0	Darbhanga .	
·266	·320	·316	·300	—·040	84	51	39	58	− 8	0·6	0·8	0·7	−0·8	5	6	1	3	2	2	3	20	20	N 64° W	N 47° W	56	25	53*	60	0	0	Allahabad .	
·229	·276	·262	·256	—·020	77	55	43	58	− 5	3·5	1·8	2·7	+0·1	12		5	1	9	16	5	13	1	S 16° W	S 75° W	37	17	28	31	0·98	0·75	Dehra Dun .	Upper Sub-Himalayas.
·252	·283	·255	·263	—·026	94	60	38	64	0	1·6	1·1	1·4	−0·8	14	1	1	7	10	1	4	2	22	N 44° W	N 67° W	13	15	50	32	0·17	0·12	Roorkee .	
·215	·238	·235	·229	—·055	79	48	33	53	− 9	1·1	0·9	1·0	−0·8	10	1		4	4		5	27	11	N 86° W	N 61° W	52	44	33*	37	0	0	Meerut .	
·206	·258	·277	·247	—·027	82	54	40	59	+ 1	1·7	2·9	2·3	−0·1	29	5	3	1	4	1		11	7	N 47° W	N 35° W	23	20	28	33	0·31	0·31	Lahore .	
·247	·198	·181	·209	—·068	91	44	30	55	− 7	1·4	1·6	1·5	−1·7	14		1		4		1	36	6	N 88° W	N 43° W	60	27	33*	27	0·66	0·40	Ludhiana .	
·162	·231	·243	·212	—·015	71	55	45	57	− 3	3·6	3·6	3·6	+0·1	51	2		2		3	1	2	1	S 59° W	S 4° E	3	8	9*	61	1·03	0·85	Peshawar .	Indus Valley and N.-W. Rajputana.
·194	·236	·271	·234	—·003	73	38	34	49	+ 2	1·5	1·7	1·6	−0·6	55	5	1						1	N	N 15° W	10	18		39	0	0	Jacobabad	
·233	·260	·361	·285	—·083	55	33	39	42	−11	1·1	1·4	1·3	−0·5	2		15	11	4	2	19	3	6	S 48° E	N 41° E	8	23	139*	217	0	0	Kurrachee .	
·184	·199	·198	·194	—·077	59	29	22	37	−12	1·6	1·5	1·6	−0·5	4	4	8	8	3	2	6	11	16	N 40° W	N 19° W	26	24	61	71	0	0	Jaipur .	E. Rajputana, C. India and Gujarat.
·216	·218	·177	·204		74	30	19	41		0·8	0·9	0·9		38			11	4		3	4	2	S 60° E		11		37*		0	0	Udaipur .	
·180	·199	·172	·184	—·070	93	21	14	28	− 8	0·8	1·0	0·9	−0·8		9	19	12	3	4	1	5	9	N 35° E	N 44° E	43	50	190	194	0	0	Deesa .	
·197	·245	·251	·231		46	31	25	34		1·0	1·2	1·1			27	22			1	1	1	6	N 12° E		74		234*		0	0	Jamnagar ‡ .	
·372	·368	·314	·352	—·020	79	44	31	51	+ 1	1·4	1·5	1·5	−1·1		2	12	35	12				1	N 63° W	N 88° E	9	67	247	299	0·17	0·17	Belgaum .	Deccan.
·291	·316	·269	·292	—·080	64	36	24	41	− 7	0·9	1·6	1·3	−1·6	1	1	25	13	20		1	1		N 85° E	S 83° E	69	66	209*	182	0·59	0·59	Sholapur .	
·249	·315	·311	·291	—·040	68	38	27	44	− 7	0·4	0·7	0·6	−1·1	30	1	13	11	2			1	4	N 57° E	N 61° E	34	57	53*	80	0	0	Akola .	
·238	·253	·229	·238	—·086	49	30	23	34	−13	0·5	1·0	0·8	−1·6		14	13	12	11	4			8	N 42° E	N 32° E	46	43	110*	132	0	0	Buldana .	
·245	·312	·303	·287	—·032	70	38	27	45	− 5	0·4	0·7	0·6	−1·2		2	26	12	11		2		9	N 60° E	N 62° E	56	42	65†	62	0	0	Khandwa .	
·277	·310	·297	·295	—·054	68	40	27	45	− 7	1·0	1·1	1·1	−1·2	6	11	15	13	6		5	1	5	N 48° E	N 57° E	42	54	51*	83	0	0	Nagpur .	
·274	·326	·329	·310		71	41	30	47		1·2	1·2	1·2		14		33		1				14	N 24° E		56		20*		0	0	Do. (Sanitary Commr.'s Office)	
·412	·447	·412	·424	—·014	90	54	42	62	0	1·5	1·9	1·7	−0·7	38		6	12	5	1				S 89° E	S 72° E	32	65	66*	81	0·14	0·12	Hyderabad (Deccan).	
·484	·552	·642	·559	—·056	68	62	61	64	− 5	1·2	1·0	1·1	−0·7		4	15	14				7	22	N 4° E	N 16° E	48	58	216	236	0	0	Bombay .	West Coast.
·537	·571	·607	·571	—·032	84	59	50	64	− 3	1·2	1·3	1·3	−0·1	8	6	9	2				9	28	N 32° W	N 6° W	6	54	71	66	0	0	Karwar .	

‡ Wind variable §.

* 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 of daily mean pressures.	Departure from normal.	Mean reduced to Sea-level and 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 of daily means.	Departure from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.
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	29·045	28·922	·123	28·990			83·2	66·0	17·2	87·4	58·3	29·1	76·8	80·7	73·8		64·6	70·2	71·4	68·6
	Salem	940	·073	·965	·108	29·018	—·022	29·905	83·4	65·1	18·3	87·3	58·9	28·4	76·0	80·8	73·4	—0·8	63·8	69·8	72·1	68·6
	Chitaldroog	2,405	27·614	27·504	·110	27·558	—·024	·907	79·2	59·7	19·5	84·1	52·3	31·8	72·5	76·5	68·8	—1·5	57·2	63·4	62·8	61·1
	Bangalore	3,021	·013	26·912	·101	26·962	—·020	·906	76·7	58·0	18·7	79·8	51·6	28·2	70·1	73·9	66·7	—0·7	57·3	62·8	63·1	61·1
	Hassan	3,091	26·946	·840	·106	·892	—·027	·898	77·4	55·7	21·7	80·6	48·7	31·9	70·6	74·7	65·9	—1·3	54·8	62·1	62·1	59·7
	Mysore	2,518	27·499	27·385	·114	27·442	—·022	·896	79·6	59·6	20·0	82·9	53·2	29·7	72·7	77·1	69·0	—1·4	59·3	65·1	66·6	63·7
	Madras	22	30·004	29·908	·102	29·954	—·020	·906	81·8	69·7	12·1	86·2	65·3	20·9	78·3	78·4	75·1	—0·9		72·5	72·0	71·3
	Bellary	1,475	28·551	28·421	·130	28·485	—·022	·913	84·8	60·6	24·2	89·0	53·1	35·9	75·7	82·0	71·6	—0·7	57·8	66·9	68·6	64·4
	Waltair	226	29·842	29·735	·107	29·789		·960	79·8	66·7	13·1	82·8	62·4	20·4	77·1	77·3	72·6		61·1	64·8	65·4	63·8
Hill Station, Baluchistan.	Quetta	5,502	24·788	24·709	·084	24·734	+·020		54·8	25·2	29·6	66·2	13·6	52·6	45·8	49·5	38·7	—3·5	23·5	36·5	38·6	32·9
Hill Stations, Northern India.	Leh	11,503	19·742	19·650	·092	19·692	—·013		35·2	12·6	22·6	42·1	6·9	35·2	25·3	32·7	23·4	—0·2	9·1	14·1	17·0	13·4
	Srinagar	5,204	25·046	24·958	·088	24·990	—·041		47·0	26·1	20·9	54·6	20·1	34·5	35·0	45·0	36·1	—1·1	24·8	33·1	41·3	33·2
	Simla (Ridge)	7,221	23·189	23·129	·060	23·147	—·007		51·2	41·3	9·9	57·5	23·3	34·2	48·1	46·6	44·8	—0·3	32·4	37·2	37·1	35·6
	Chakrata	7,022	·353	·294	·059	·312	—·023		57·3	40·9	16·4	65·5	24·9	40·6	50·0	49·9	47·0	+1·5	32·5	38·3	39·5	36·8
	Ranikhet	6,069	24·191	24·117	·074	24·139	—·010		58·4	44·4	14·0	65·3	35·0	30·3	52·9	53·5	49·9	+0·6	37·7	42·9	43·4	41·3
	Muktesar	7,600	22·920†	22·855‡	·065	22·888‡			55·4	39·8	15·6	62·5	29·9	32·6	50·3	49·2	46·1		31·2	38·5	38·1	35·9
	Katmandu	4,388	25·791	25·682	·109	25·735	?		65·2	37·0	28·2	69·7	29·8	39·9	49·8	61·3	50·2	—3·3	35·7	46·0	51·4	44·4
	Darjeeling	7,376	23·058	23·015	·043	23·034	—·008		49·6	36·9	12·7	62·3	33·9	28·4	44·8	47·1	42·6	+0·7	34·3	41·1	43·4	39·6
Hill Stations, Central India.	Mount Abu	3,945	26·168	26·101	·067	26·126	—·024		67·2	52·4	14·8	73·6	36·0	37·6	63·5	63·5	58·9	—0·7	42·4	47·9	48·4	46·2
	Pachmarhi	3,528	·589	·506	·083	·540	—·010		72·2	43·4	28·8	76·7	36·9	39·8	66·6	68·6	57·0	—0·3	40·3	52·3	54·2	48·9
	Chikalda	3,612	·459	·367	·092	·406	—·024		73·7	54·0	19·7	78·2	46·9	31·3	67·8	65·0	63·0	—0·2	46·3	53·7	56·0	52·0
Hill Stations, South India.	Kodaikanal	7,688	22·846	22·776	·070	22·810			60·4	47·2	13·2	65·3	42·7	22·6	57·1	55·4	52·6		41·3	50·0	50·9	47·4
	Ootacamund		23·084	23·014	·070	23·049			62·3	45·3	17·0	68·5	34·2	34·3	59·5	56·8	52·4		40·6	49·8	50·7	47·0
	Dodabetta		22·032	21·966	·066	21·999			55·2	44·5	10·7	65·3	40·4	24·9	53·2	51·0	48·8		(a) 39·0	46·1	46·0	(a) 43·4
Extra India.	Aden	94	29·991	29·859	·132	29·928	—·023	·954	80·4	72·5	7·9	88·1	68·1	20·0	77·2	79·0	76·3	—0·5		70·5	69·3	
	Perim	201	·836	·727	·109	·785	—·014	·921	82·9	73·5**	9·4	84·3	72·2	12·1	79·9	80·1	77·5**	—1·0	68·4	71·7	71·5	70·5
	Minicoy	7									Not recorded.											
	Zanzibar	73	·913††	·802	·111	·858	—·019	·857††	85·4	78·4	7·0	88·0	69·6	18·4	82·0††	84·6	81·7	—0·6		77·7††	78·0	
	Port Victoria (Seychelles)	15	·970	·879	·091	·925	—·011	·864	84·5	72·4	12·1	87·0	69·0	18·0	81·5	81·8	77·8	—1·2	71·8	75·6	75·2	74·2
	Mauritius (Pamplemouses)	181				·835	+·012	·962				88·2	65·4	22·8			75·8	—2·0				70·2

† Mean of 23 days. ‡ Mean of 22 days. ** Mean of 28 days. †† Mean of 30 days.

(a) Mean of 26 days.

II—*concluded.*

in India, Burma, etc., for December, 1903—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Total number of 10 hours and 16 hours winds from										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.	Departure from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean of three previous columns.	Departure from normal.	Mean 10 hours.	Mean 16 hours.	Mean of two previous columns.	Departure 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
																									%	%						
·595	·654	·646	·634		92	71	62	76		4·5	5·8	5·2		8	3	4	12	9	10	7	5	4	S 34° E		24		38*		4·53	2·45	Periyakulam	South India.
·581	·648	·675	·635	+·046	92	72	64	76	+ 5	4·1	4·7	4·4	+0·1	21	4	10	22	1		1	2	1	N 68° E	N 77° E	45	50	62*	92	1·16	0·80	Salem	
·447	·473	·495	·442	+·023	85	60	45	63	+ 7	3·4	3·7	3·6	+0·5		1	22	32	7					N 77° E	N 88° E	87	82	126*	199	0·58	0·45	Chitaldroog	
·468	·494	·458	·473	+·018	96	67	56	73	+ 5	3·6	3·7	3·7	—0·2		3	32	25	1				1	N 62° E	N 70° E	87	84	166*	116	1·16	0·43	Bangalore	
·429	·455	·421	·438	—·014	94	62	49	68	+ 3	4·2	4·0	4·1	+0·1			34	24	4					N 67° E	N 76° E	89	82	65*	95	1·68	1·30	Hassan	
·509	·530	·527	·522	+·068	98	65	57	73	+11	4·4	4·5	4·5	+0·7	1	1	24	29	7					N 76° E	N 80° E	84	84	226*	261	0·74	0·47	Mysore	
	·724	·701	·720	+·016		75	73	82	+ 3	5·5	5·5	5·5	+0·1		27	26	3	1	2			3	N 24° E	N 25° E	79	79	167	178	18·55	6·18	Madras	
·449	·554	·538	·514	+·047	84	62	49	65	+ 7	2·9	3·5	3·2	—0·5	3	5	17	23	11	2			1	N 79° E	S 86° E	69	69	72*	76	0·18	0·08	Bellary	
·470	·457	·474	·467		71	49	50	57		2·6	2·6	2·6				46	10	2	2	2			N 57° E		82		138		0·07	0·04	Waltair	
·112	·124	·124	·120	—·031	84	44	38	55	— 2	1·7	3·0	2·4	—0·5	7	13	1		5	3	3	8	22	N 46° W	N 61° W	48	29	41*	59	0·25	0·23	Quetta	Hill Station, Baluchistan.
·040	·016	·015	·024	—·056	50	12	9	24	—39	4·5	5·5	5·0	—0·6						29	31	2		S 25° W	S 14° W	90	38	41	28	0	0	Leh	Hill Stations, Northern India.
·121	·168	·237	·175	0	85	82	76	81	+ 1	5·1	5·3	5·2	—0·1	24	6	4	3	5	5		4	11	N 17° W	S 84° E	13	6	39*	66	2·33	1·38	Srinagar	
·096	·112	·126	·111	—·026	41	35	41	39	— 6	3·6	3·8	3·7	—0·2	11	18	5		4	22		1		S 57° E	S 11° W	10	14	120*	98	1·99	1·18	Simla (Ridge)¶	
·102	·114	·138	·118	—·033	43	35	40	39	—12	3·1	2·9	3·0	—0·1	9	6	2		17	23	2	1	2	S 19° E	S 64° W	47	15	204*	106	2·44	1·62	Chakrata	
·160	·174	·180	·171	—·030	56	45	45	49	— 9	1·7	1·3	1·5	—1·1	40		4	1			9	8		S 72° W	S 51° W	18	23	47*	37	0·45	0·30	Ranikhet	
·092	·114	·119	·108		38	33	35	36		2·5	2·3	2·4		8	2	2	6	6	5	9	10	11	S 70° W		22		179*		0·15	0·15	Muktesar	
·197	·271	·270	·246	—·021	87	75	50	71	— 2	1·2	1·2	1·2	—1·6	1	3	2	12	2	1		29	12	N 65° W	N 67° W	40	47	20	22	0	0	Katmandu	
·173	·220	·245	·213	+·012	79	75	76	77	+ 1	3·8	5·1	4·5	+0·2	12	1	7	9	14	1	1	5	12	N 74° E	N 55° W	16	3	56*	72	0	0	Darjeeling	
·164	·161	·173	·166	—·049	40	27	29	32	—10	1·0	1·1	1·1	—0·6	1	13	5		4	2	9	7	17	N 41° W	N 13° E	37	13	104*	93	0	0	Mount Abu	Hill Stations, Central India.
·220	·231	·257	·236	—·039	76	35	37	49	— 6	1·5	1·6	1·6	—0·5	4	8	16	2	8	1	7	3	13	N 6° E	N 31° E	27	21	84*	64	0	0	Pachmarhi	
·231	·256	·291	·259	—·044	55	38	40	44	— 7	0·3	0·7	0·5	—1·9	52	5				1	2		2	N 35° W	S 74° W	8	8	150*	117	0	0	Chikalda	
·209	·26	·332	·283		63	65	77	71		4·0§	4·7§	4·4			11	14	12	7	5		1	11	N 44° E		42		361		12·06	5·24	Kodaikanal¶	Hill Stations, South India.
·213 (a)	·265	·312	·263 (a)		(a)	53	68	63		3·7	5·1	4·4		16	2	10	23	5	3		2	1	N 84° E		50		115*		3·10	0·81	Ootacamund	
·186	·247	·265	·225			61	70	62		3·9	5·5	4·7		8	2	11	24	13	2	1		1	S 88° E		64		299		3·04	0·63	Dodabetta	
**	·655	·586			**	70	59			3·1	1·3	2·2	—1·2		5	15	9	17	4	12			S 69° E	S 87° E	40	71	§§ 318*	313	0·52	0·50	Aden	Extra India.
·617	·669	·661	·619	+·018	74	66	64	68	+ 4	0·8	0·2	0·5	—1·1			15	3	43	1				S 65° E	S 60° E	79	83	177*	158	0·09	0·08	Perim	
																															Minicoy	
	†† ·893	·873				†† 82	74			†† 7·4	5·1	6·3	+2·4	1	21	16	10	2	5	2	1	3	N 34° E	N 35° E	52	62	†† 142*	152	7·50	3·55	Zanzibar	
·777	·813	·792	·794	—·017	97	75	73	82	+ 1	5·4	5·6	5·5	—1·3	15	4	3	3	4	1	1	1	30	N 34° W	N 44° W	43	61	107	156	8·52	2·05	Port Victoria (Seychelles).	
			·644	—·043				72	0			6·1	0										S 82° E	S 89° E			266	262	2·82	0·63	Mauritius (Pamplemonses).	

* Corrected.

§ Mean of 24 days.

§§ Mean of 26½ days.

‖ Mean of 19 days

¶ Wind variable ‖.

G. I. C. P. C.—No. 76 Meteor.—13-5-04—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.

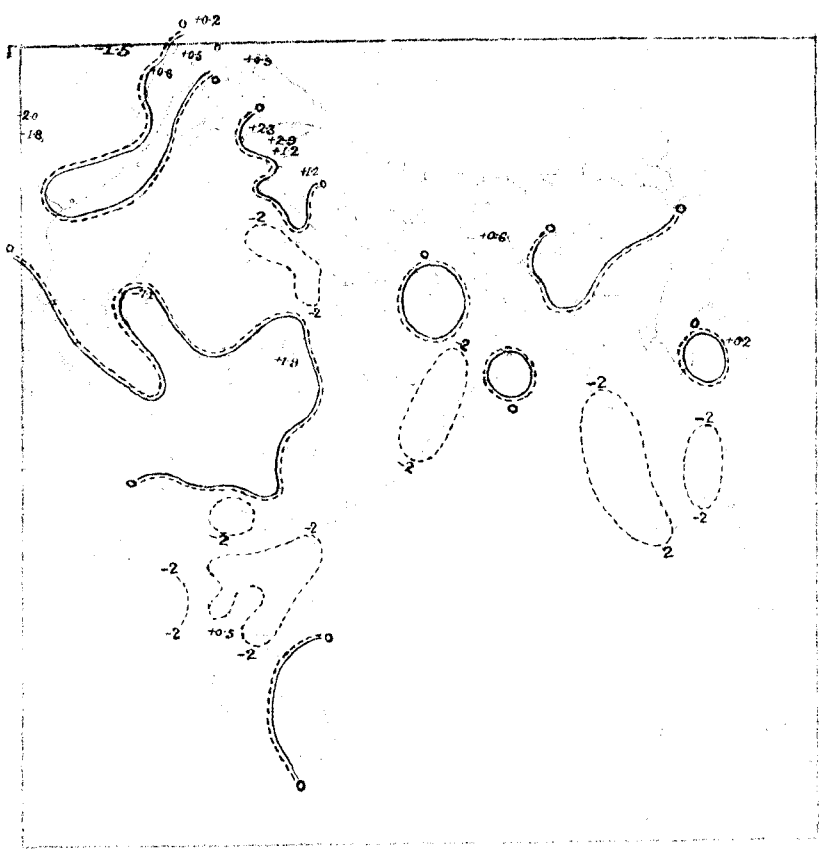
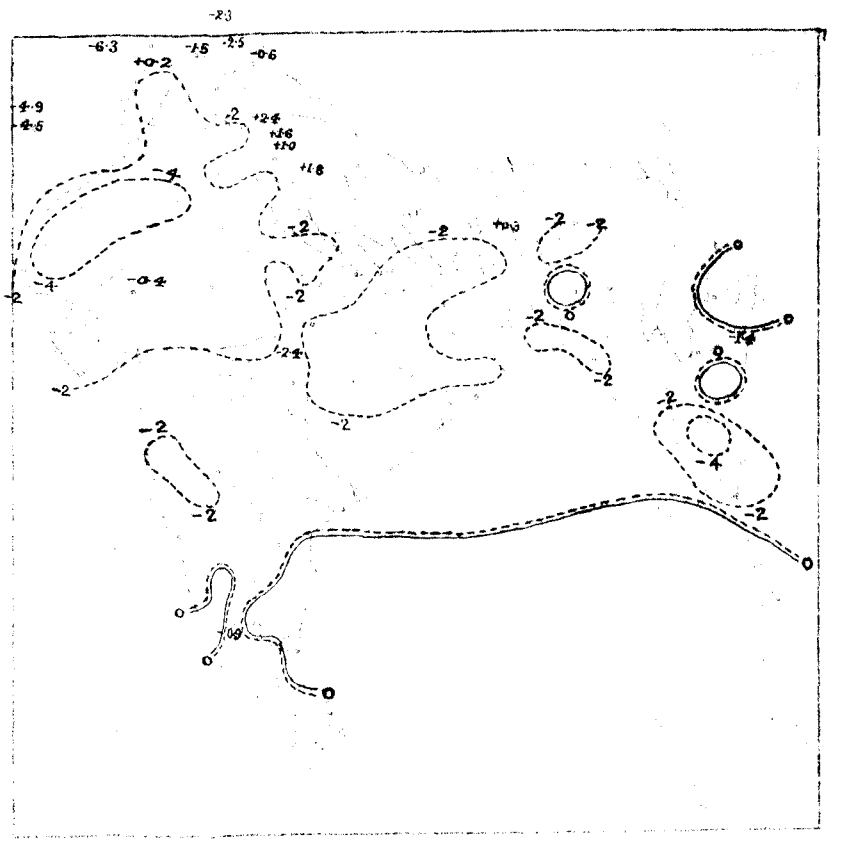


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers; broken or dotted lines that it was in defect by 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 EACH DAY FROM THE NORMAL

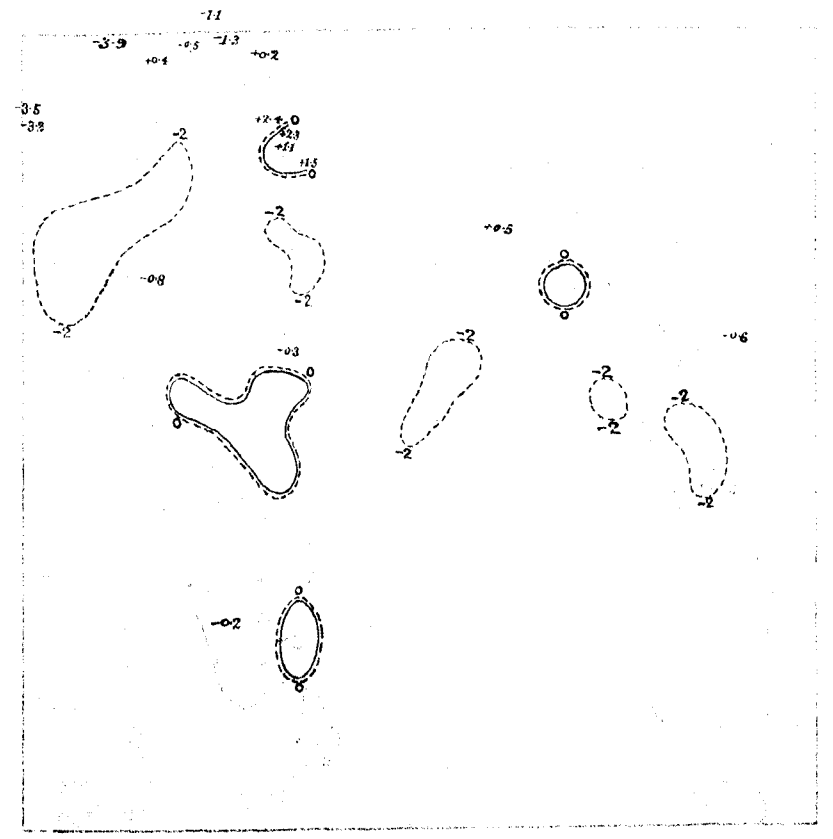
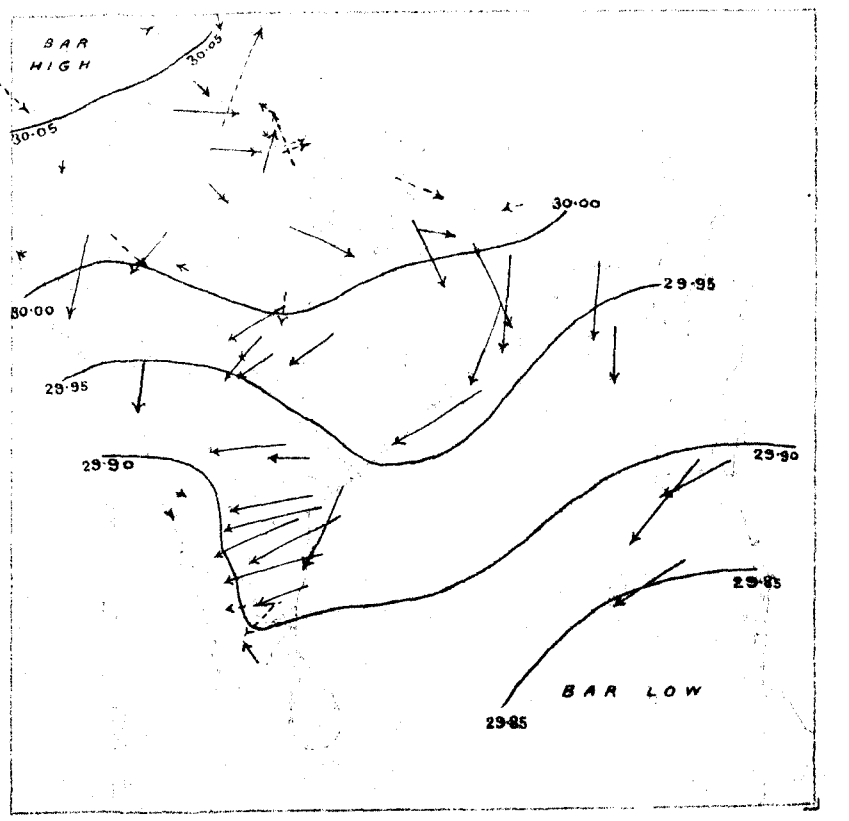


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF DECEMBER 1903.



LITHO. BY J.N. MUNDLE, [illegible]

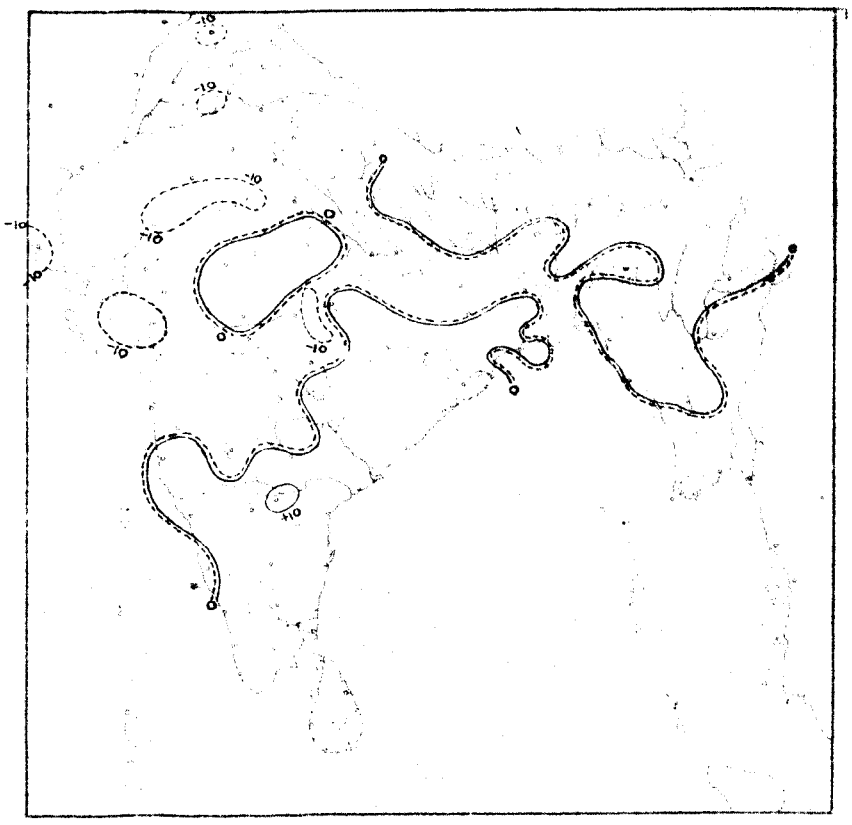
Explanation.

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 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 1899 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 $\frac{1}{10}$th of an inch being equal to 100 per cent.

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN ABSOLUTE HUMIDITY OF THE MONTH FROM THE NORMAL.

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN RELATIVE HUMIDITY OF THE MONTH FROM THE NORMAL.



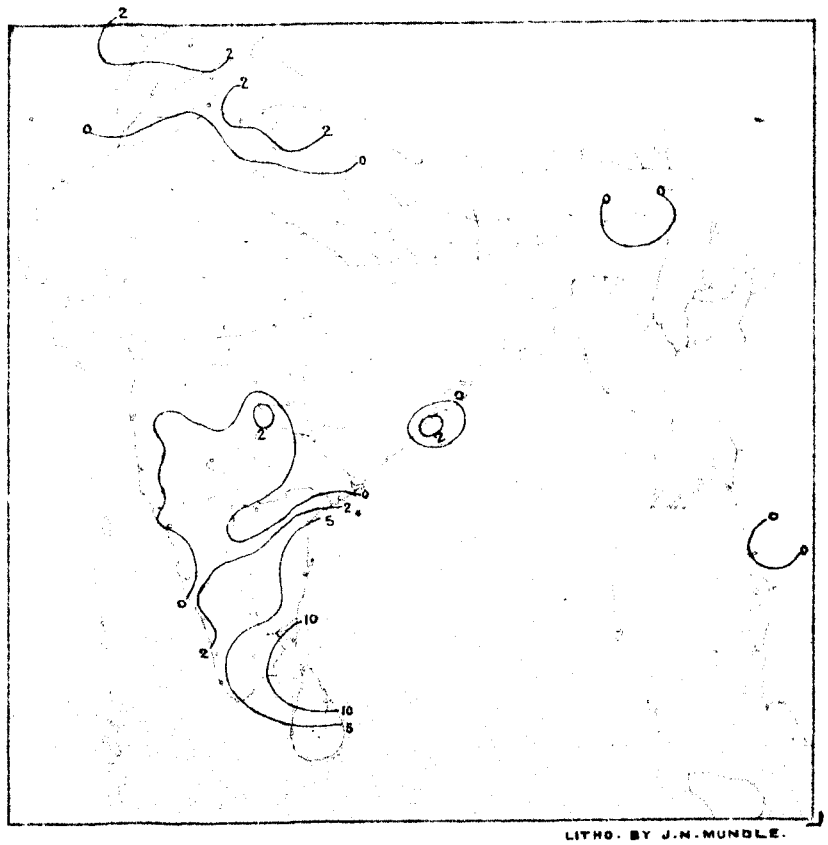
Explanation.

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

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

CHART SHEWING THE VARIATION AT 8 A. M. OF THE MEAN CLOUD AMOUNT OF THE MONTH FROM THE NORMAL.

CHART SHEWING THE TOTAL NUMBER OF RAINY DAYS IN THE MONTH OF DECEMBER 1903.



LITHO. BY J.N. MUNDLE.

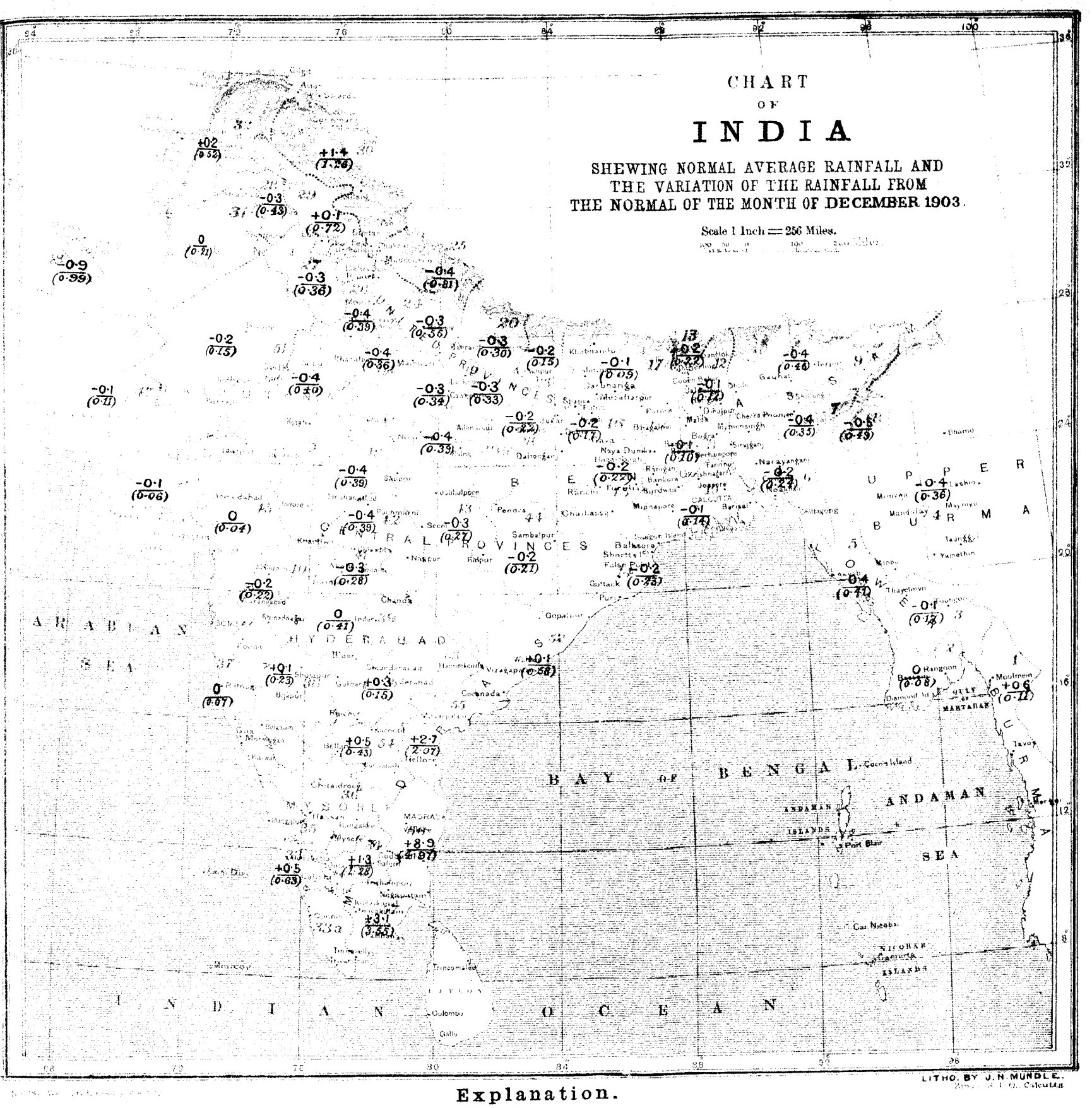
Explanation.

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

A rainy day is one on which 0·10 inch or more of rain is received within 24 hours.

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.



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. 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 hear 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. West Punjab
32. North West Frontier Province
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 and Cutch
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
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South