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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, JANUARY 1897.

INTRODUCTION.

THE monthly review of the weather in India for the month of January 1897 is based on observations taken daily at 8 A.M. at 212 stations, and on additional observations recorded at 10 A.M. and 4 P.M. at 84 stations. In the case of the rainfall section of the review there are also utilized the weekly rainfall telegrams received from District Officers throughout India, and 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 1897.

The month of January is the first month of the north-east monsoon proper. North-east winds prevail over the whole of the Arabian Sea and the Bay of Bengal to the north of the equatorial belt of low pressure. The normal features of the weather in India are moderate temperature, and large daily range of temperature and hence also of humidity (more especially in Northern and Central India and the Deccan), and clear skies and fine bright weather, with light to moderate winds, which are generally opposite in direction to those that prevail in the south-west monsoon.

Weather is usually fine throughout the whole month in the Peninsula. In Northern and Central India it is disturbed at intervals by shallow depressions or feeble cyclonic storms which either form in North-Western India or advance from Baluchistan. These depressions are generally shallow and ill-defined, but extensive. They usually advance eastwards across Northern India and frequently give rise to deep secondary stationary depressions in the Punjab. When a primary depression is not accompanied by a secondary depression, it either gives no rain or only light to moderate scattered rain over Northern and Central India. When a primary depression gives rise to a secondary depression in the Punjab, the double disturbance usually gives heavy rain in North-Western India, heavy to excessive snowfall in the Himalayan mountain areas and very stormy weather in the Punjab and Afghan hills. These storms hence form one of the more important abnormal features of the month. They usually produce large and marked temperature changes. A warm wave in which temperature is from 5° to 15° above the normal precedes each storm, and a dry cool wave follows in its rear.

At the commencement of the month, the disturbance which had affected Northern India from the 27th of

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December was passing through Bengal and Burma. It gave light showers, chiefly in Chota Nagpur and North Bengal, during the 24 hours preceding 8 A.M. of the 1st.

A cool wave of moderate intensity advanced across Northern India behind this disturbance. The following variation data of the mean diurnal temperature from the 1st to the 6th indicate roughly the progress of that wave :—

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

Temperature was steadily in moderate to large excess during this period in the Peninsula, as is shown by the following data :—

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

Temperature increased in Northern India during the next three days (*i.e.*, from the 7th to the 9th) and was in considerable to large excess on the 9th over the whole of Northern and Central India. It was in very large excess in Baluchistan as represented by Quetta, where the mean temperature of the previous 24 hours was 13° above the normal.

A feeble disturbance passed through Baluchistan on the 9th into Upper Sind and the South-West Punjab on the 10th. It advanced into the South Punjab and East Rajputana on the 11th, and into the submontane districts of the South-East Punjab and the adjacent districts of the North-Western Provinces on the 12th and there filled up.

A warm wave advanced in front of this depression from Baluchistan to the North-Western Provinces and Central India. The following gives data showing the character and advance of the wave :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	10th January.	11th January.	12th January.
	°	°	°
Baluchistan (Quetta)	+9·7	—3·0	—2·1
Punjab	+5·2	+4·8	+4·5
Sind	+4·7	+3·6	+1·8
Rajputana	+7·9	+11·9	+6·4
N.-W. Provinces and Oudh	+3·9	+5·9	+6·3
Central India and Gujarat	+5·6	+7·4	+6·0

The excess was absolutely greatest on the 9th at Quetta (+12°·6), on the 11th at Ajmere (+14°·1) and on the 12th at Sutna (+12°·3).

A second depression and disturbance appeared in Baluchistan on the 12th. It advanced from Persia and had probably formed in that area. It passed into Sind on the 13th when a secondary depression began to form in the Punjab. This secondary depression was of considerable intensity and was the chief feature of the weather on the morning of the 14th. It filled up on the 14th even more rapidly than it formed, and high pressure conditions were re-established in Upper India on the 15th. The primary depression advanced through Rajputana and Central India on the 14th, Bihar and Chota Nagpur on the 15th, and Bengal on the 16th, and disappeared during the next 24 hours.

The two disturbances described above gave heavy snow in the hill districts of Upper India, and moderate rain over the greater part of Baluchistan, Kashmir, the Punjab and the western districts of the North-Western Provinces. The following gives data of this rainfall :—

Division.	Average actual rain-fall in 24 hours preceding 8 A.M. of			Total of period.
	13th January.	14th January.	15th January.	
	Inch.	Inches.	Inches.	Inches.
Punjab (South)	0·10	0·47	0·14	0·71
„ (Central)	0	0·38	0·13	0·51
„ (Submontane)	0·01	0·25	0·44	0·70
„ (Hills)	0	0·66	1·39	2·05
„ (North-West)	0·26	1·17	0·50	1·93
„ (West)	0·04	0·41	0·03	0·48
North-Western Provinces (Submontane).	0	0·11	0·40	0·51

An interesting feature of the period was the strongly marked temperature conditions which accompanied the two disturbances. As stated above, a warm wave of considerable intensity preceded the first storm. It was in Central India and Rajputana on the 12th and moved very slightly eastwards on the 13th, 14th, and 15th and passed through Bihar, Bengal and Assam on the 16th and 17th into Burma on the 18th. The following data illustrate its advance during this period :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	13th January.	14th January.	15th January.	16th January.	17th January.	18th January.
	°	°	°	°	°	°
North-Western Provinces and Oudh.	+6·5	+7·8	+6·2	−3·1	−6·4	−6·2
Central India and Gujarat	+2·7	+2·5	−3·7	−10·1	−10·6	−6·6
Bihar	+5·6	+5·3	+7·6	+6·7	−2·6	−5·0
Chota Nagpur . .	+7·4	+6·2	+8·3	+6·4	−2·2	−2·1
Bengal. . . .	+3·7	+4·5	+6·0	+7·2	+3·5	−3·3
Assam . . .	+0·5	+1·5	+2·5	+3·9	+4·4	+1·1
Upper and Central Burma.	+0·4	+1·3	−0·4	+0·7	+2·6	+2·9

The most interesting feature was the cool wave which followed the second disturbance. It apparently originated as a cool wave in Persia on the 11th and advanced slowly eastwards. The following data enable its passage across Northern India to be followed :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	14th January.	15th January.	16th January.	17th January.	18th January.	19th January.
	°	°	°	°	°	°
Baluchistan (Quetta) .	−14·1	−26·1	−21·7	−14·4	−4·6	−7·4
Punjab . . .	+3·4	−5·6	−8·5	−7·9	−6·0	−3·3
Sind and Rajputana .	+1·7	−8·2	−10·6	−11·6	−8·0	−3·9
North-Western Provinces and Oudh.	+7·8	+6·2	−3·1	−6·4	−6·2	−0·3
Central India and Gujarat	+2·5	−3·7	−10·1	−10·6	−6·6	−2·0
Bihar	+5·3	+7·6	+6·7	−2·6	−5·0	−2·0
Chota Nagpur . .	+6·2	+8·3	+6·4	−2·2	−2·1	+0·4
Bengal . . .	+4·5	+6·0	+7·2	+3·5	−3·3	−3·5

The lowest night temperatures of the month in Northern India were recorded during the passage of this cool wave. The cold was unusually severe in Baluchistan, Sind, Cutch and Kathiawar, where lower night temperatures were recorded than have been observed for many years in January.

The passage of these two waves gave rise to a change of the mean daily temperature ranging from 15° to 45° in Persia, Baluchistan and Northern India. The following gives examples of the very large reduction of temperature effected by the cool wave :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF DATE.				Total range of variation during period.
	Greatest excess.	Date.	Greatest defect.	Date.	
	°		°		°
Ispahan . . .	+3·2	8th January .	−16·5	13th January	19·7
Kabul . . .	+11·2	9th ,,	−13·5	18th ,,	24·7
Kalat . . .	+13·1	10th ,,	−31·9	15th ,,	45·0
Quetta . . .	+12·6	9th ,,	−26·1	15th ,,	38·7
Jeypore . . .	+9·2	10th ,,	−11·5	17th ,,	20·7
Deesa . . .	+7·2	10th ,,	−15·8	15th ,,	23·0
Rajkot . . .	+6·3	10th ,,	−16·2	16th ,,	22·5
Agra . . .	+9·5	12th ,,	−8·7	17th ,,	18·2
Allahabad . .	+11·6	15th ,,	−8·1	18th ,,	19·7
Benares . . .	+9·7	15th ,,	−8·6	18th ,,	18·3
Jubbulpore . .	+9·4	14th ,,	−4·9	17th ,,	14·3
Patna . . .	+9·3	15th ,,	−5·9	18th ,,	15·2
Hazaribagh . .	+8·8	15th ,,	−5·1	17th ,,	13·9
Burdwan . . .	+13·4	16th ,,	−3·6	19th ,,	17·0
Calcutta . . .	+9·4	16th ,,	−4·5	19th ,,	13·9
Dacca . . .	+7·0	16th ,,	−4·4	18th ,,	11·4

Another feature of importance was the great dryness of the air produced by the cool wave, due to the great reduction in the amount of vapour present in the air. The following gives several examples of the great decrease on the aqueous vapour pressure produced in 24 hours by the passage of the cool dry wave :—

STATION.	Date.	AQUEOUS VAPOUR PRESSURE.		
		4 P.M. of date.	4 P.M. of succeeding date.	Change in 24 hours.
		"	"	"
Quetta	12th January	·346	·126	−·220
Jacobabad	13th ,,	·259	·122	−·137
Mount Abu	13th ,,	·300	·087	−·213
Deesa	13th ,,	·379	·118	−·261
Jeypore	14th ,,	·408	·141	−·267
Jubbulpore	15th ,,	·417	·271	−·146
Allahabad	15th ,,	·418	·190	−·228
Patna	15th ,,	·465	·269	−·196
Burdwan	16th ,,	·479	·283	−·196
Calcutta	16th ,,	·466	·315	−·151

During the period from the 20th to the 23rd temperature was in large excess in the North-Western Provinces, the Central Provinces and the Deccan and in moderately large

defect in Upper India. The contrast between the temperature conditions in these areas during this period is shown by the following data :—

POLITICAL PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	20th January.	21st January.	22nd January.	23rd January.
	°	°	°	°
Central Provinces and Berar.	+5·4	+6·6	+6·1	+4·7
Deccan . . .	+3·1	+4·3	+4·8	+5·0
North-Western Provinces and Oudh.	+3·3	+4·8	+1·5	+1·1
Sind and Rajputana .	—3·4	—1·9	—3·2	—2·3
Punjab . . .	—2·9	—3·5	—2·1	—0·5
Baluchistan (Quetta) .	—9·6	—6·2	—4·0	+4·1

Series of thunderstorms occurred during this period in the Central Provinces, Central India and the eastern and central districts of the North-Western Provinces.

Pressure increased rapidly on the 21st, and was in large excess in Northern and Upper India on the 23rd, on which day the highest readings of the month were registered in Upper India.

Temperature increased considerably in North-Western India on the 24th and the 25th, and was generally above the normal during the remainder of the month. The area of greatest excess of temperature was in the North Deccan and Central Provinces on the 26th and 27th, and was transferred eastwards to Bengal on the 28th and 29th. During a period of feebly unsettled weather lasting from the 24th to the 27th, the Central Provinces, Central India and the North-Western Provinces received light to moderate rain from thunderstorms.

A cold weather disturbance began to affect Baluchistan on the 30th, and that area hence received moderate rain on the 31st. The warm wave which preceded the storm advanced from Baluchistan on the 31st to Upper Sind and the South-West Punjab where the mean temperature on that day was nearly 8° above the normal.

The most persistent feature during the period from the 20th to the 31st was the high temperature in the Deccan area. The following gives mean temperature variation data for every second day from the 21st to the end of the month :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	21st January.	23rd January.	25th January.	27th January.	29th January.	31st January.
	°	°	°	°	°	°
Madras Deccan . .	+4·1	+4·6	+2·8	+1·8	+3·8	+5·7
Bombay do. . .	+0·9	+4·1	+3·5	+3·6	+2·5	+1·8
Hyderabad (Deccan)	+3·8	+3·4	+4·4	+2·8	+4·8	+6·8

Pressure.—The mean pressure of the Indian land area was ·003″ below the normal (the same as in January 1896). Relatively to this general condition pressure was in local excess in South India, the West Coast districts, Central India, Rajputana and the Indus valley, and in local defect over the remainder of India and in Burma. The local variations or pressure anomalies were small and probably unimportant except in Assam, where they averaged ·02″ in amount. Pressure was in local defect at the hill stations in Upper India relatively to the adjacent plains. These negative vertical pressure anomalies were greatest for Leh (—·026″), Murree (—·018″), Quetta (—·018″) and Mount Abu (—·020″).

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

METEOROLOGICAL PROVINCE.	Variation of mean 8 A.M. pressure of January 1897 from normal.	Pressure anomaly, January 1897.
	″	″
Burma Coast and Bay Islands . . .	—·012	—·009
Burma Inland	?	?
Assam	—·022	—·019
Bengal and Orissa	—·011	—·008
Gangetic Plain and Chota Nagpur . . .	—·005	—·002
Upper Sub-Himalayas	—·004	—·001
Indus Valley and North-West Rajputana .	+·005	+·008
East Rajputana, Central India and Gujarat .	+·004	+·007
Deccan	—·005	—·002
West Coast	+·004	+·007
South India	+·001	+·004

Temperature.—The variations of the temperature conditions of the month were more strongly marked than usual.

The mean maximum or day temperature was more or less in excess over the whole of India with the exception of the Punjab, Rajputana, Central India Kathiawar, Cutch, Sind and Baluchistan. A noteworthy feature of the meteorology of the month was the very low day temperature locally in Kathiawar and Cutch. The mean day temperature of the month at Rajkot was 3°·9 and at Bhuj 3°·7 below the normal of the month. The mean day temperature was more than 2° above the normal in Burma Inland, Bengal, Orissa, Bihar, Chota Nagpur, the Deccan area and South India, and was more than 4° in excess

in the areas defined by the stations for which data are given below :—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, January 1897.	Normal, January.	Variation of actual from normal.
	°	°	°
Thayetmyo	90·1	85·4	+4·7
Kindat	80·1	75·8	+4·3
Chittagong	82·1	77·8	+4·3
Burdwan	83·0	78·5	+4·5
Balasore	84·5	80·1	+4·4
Poona	89·5	85·1	+4·4

The mean night temperature was higher than usual over the whole of Burma and India with the exception of Sind, Cutch, Kathiawar and South West Rajputna. The excess was considerable in amount over nearlythe whole of the Peninsula, Central Provinces, Central India and the adjacent districts of Bengal and the North-Western Provinces. It was large in amount in the Deccan and Central Provinces in which it ranged between 4° and 8° and was 5° or more in the area defined by the stations for which data are given below :—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, January 1897.	Normal, January.	Variation of actual from normal.
	°	°	°
Akola	61·0	53·3	+7·7
Sholapur	63·3	57·7	+5·6
Nagpur	60·9	55·4	+5·5
Sutna	53·0	47 3	+5 7
Khandwa	57·3	51·9	+5·4
Amraoti	62·5	57·3	+5·2
Hyderabad (Deccan)	62·9	57·9	+5·0
Kurnool	63·8	58·8	+5·0

The night temperature was in moderate to considerable defect locally in Kathiawar, Cutch and Lower Sind, in which the deficiency ranged between 3° at Rajkot and 2°·1 at Hyderabad (Sind).

The mean temperature of the month was above the normal over the whole Indian area with the exception of the North Punjab, Baluchistan, Sind, South West Rajputana, Cutch and Gujarat. The deficiency exceeded 2° at Rajkot, representative of Kathiawar (—3°·5), Bhuj, representative of Cutch (—3°·3), and Peshawar (—2°·1). The mean temperature of the month was more than 2° above the normal in five out of the eleven meteorological provinces, *viz.*, the Deccan (+3°·6), Burma Inland (+3°·0), South India (+2·6) Gangetic Plain and Chota Nagpur (+2°·3) and Bengal and Orissa (+2°·1).

The excess was hence most marked in the Deccan area and was absolutely greatest at the stations for which comparative data are given below :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, January 1897.	Normal, January.	Variation of actual from normal.
	°	°	°
Akola	74·6	68·9	+5·7
Sholapur	77·2	72·5	+4·7
Hyderabad (Deccan)	75·2	71·0	+4·2
Kurnool	77·8	73·6	+4·2
Nagpur	73·2	69·2	+4·0

The chief abnormal feature of the temperature conditions of the month was the advance of a well-defined warm wave across Northern India, followed by a cool wave of considerable intensity during the second and third weeks of the month. Data of these warm and cold waves have been given in the preceding remarks.

The following table gives temperature variation data of the month for the eleven meteorological provinces of India :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, January 1897.	Mean minimum temperature, January 1897.	Mean daily temperature, January 1897.
	°	°	°
Burma Coast and Bay Islands	+1·5	+2·5	+2·0
Burma Inland	+4·5	+1·4	+3·0
Assam	+2·0	+0·5	+1·3
Bengal and Orissa	+2·8	+1·3	+2·1
Gangetic Plain and Chota Nagpur.	+1·8	+2·8	+2·3
Upper Sub-Himalayas	—0·8	+2·0	+0·6
Indus Valley and North-West Rajputana.	—1·5	—0·2	—0·8
East Rajputana, Central India and Gujarat.	—1·1	+0·3	—0·4
Deccan	+2·3	+4·7	+3·6
West Coast	+0·5	+2·1	+1·3
South India	+2·2	+2·8	+2·6

Winds were normal in strength at Port Blair and in Burma. They were steadier and more westerly than usual in Bengal. The mean air movement in the Gangetic Plain was slightly stronger than usual. Winds were stronger on the mean of the month in the Central Provinces and Berar, but were remarkably unsteady. Winds were much more westerly han usual on the Konkan Coast and were of normal strength in Southern India, except at Madras. The following table gives a comparison of the actual and normal air movements of the month in the ten meteorological provinces of the empire :—

METEOROOGICAL PROVINCE.	WIND VELOCITY IN MILES PER DIEM.		
	Mean actual, January 1897.	Mean normal, January.	Variation from normal.
Burma Coast and Bay Islands	141	125	+16
Assam	62	59	+ 3
Bengal and Orissa	79	78	+ 1
Gangetic Plain and Chota Nagpur.	91	74	+17
Upper Sub-Himalayas	39	44	— 5
Indus Valley and North-West Rajputana.	87	97	—10
East Rajputana, Central India and Gujarat.	124	107	+17
Deccan	126	106	+20
West Coast	163	159	+ 4
South India	126	125	+ 1

Humidity and Cloud.—The mean humidity of the month was normal at Port Blair and in Burma but considerably in defect in Assam, Bengal, Orissa, Bihar and the eastern districts of the North-Western Provinces, chiefly in consequence of increased temperature. The deficiency was most marked at Berhampore (—10) and Calcutta (—8). The air was slightly damper on the whole in the Punjab, Rajputana and Central India, but was unusually dry in the South West Punjab and Sind. It was damper in the Central Provinces, Berar, the west coast districts and the Deccan, and generally drier in Southern India. The mean humidity of the month was in large excess at the hill stations in Upper India, more especially Murree (+18), but was in large defect at Leh (—10).

There was more cloud than usual over by far the greater part of India, in fact in eight out of ten meteorological provinces. The excess was greatest in the Deccan and more especially in the Central Provinces and Berar. There was probably less cloud than usual (if the doubtful Sibsagar return be accepted as correct) in Assam and also in the Indus Valley and North-West Rajputana.

The following table gives variation data of the mean aqueous vapour pressure, mean humidity and mean cloud amount of the ten meteorological provinces for the month of January 1897 :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean aqueous vapour pressure.	Mean humidity.	Mean cloud amount.
	"		
Burma Coast and Bay Islands	+·047	+1	+0·5
Assam	+·005	—3	—0·6
Bengal and Orissa	+·007	—6	+0·2
Gangetic Plain and Chota Nagpur.	+·016	—1	+0·5
Upper Sub-Himalayas	+·011	+1	+0·3
Indus Valley and North-West Rajputana.	—·023	—3	—0·2
East Rajputana, Central India and Gujarat.	+·014	+2	+0·2
Deccan	+·059	+4	+0·6
West Coast	+·029	0	+0·4
South India	+·034	+1	+0·1

Rainfall.—The rainfall of the month occurred chiefly during three periods of disturbance. The first important burst of rainfall occurred between the 10th and 15th during the passage of two depressions across Northern India. These storms gave general and moderate rain to Baluchistan, the Punjab and the western districts of the North-Western Provinces and heavy snow in the hill districts of Upper India and the Afghan mountains. The rainfall of the second and third periods (*viz.*, from the 20th to the 22nd and the 24th to the 27th) accompanied series of thunderstorms in the North-Western Provinces (chiefly the eastern and central districts), Central India and the Central Provinces, and was moderate in amount, but very irregularly distributed. A cold weather disturbance began to affect Baluchistan and Upper India on the 31st, on which day the former area received moderate rain.

A large part of India, including Burma, South and Central Bengal, Orissa, Bombay, West and Central Rajputana, Bombay, Madras Deccan, Hyderabad, Mysore and Central Madras received no rain during the month. Baluchistan and the North and East Punjab obtained total amounts considerably exceeding one inch, and the rainfall in these areas was in moderate excess. The rainfall of the month in an area including the greater part of the Central Provinces, Baghelkhand, Bundelkhand and the adjacent districts of the North-Western Provinces ranged between one and three inches and was unusually large in amount for the season.

The rainfall was normal or in slight excess in three meteorological provinces, *viz.*, the Deccan, Indus Valley and North-West Rajputana, and East Rajputana, Central India and Gujarat, and more or less in defect in the remaining eight provinces. The following table gives comparative rainfall data for the eleven meteorological provinces of India based on the rainfall data of 170 meteorological stations :—

METEOROLOGICAL PROVINCE.	RAINFALL.		
	Average actual for January 1897.	Average normal for January.	Variation from normal.*
	Inch.	Inch.	Inch.
Burma Coast and Bay Islands	0	0·33	—0·33
Burma Inland	0	0·31	—0·31
Assam	0·32	0·86	—0·44
Bengal and Orissa	0·05	0·45	—0·40
Gangetic Plain and Chota Nagpur	0·38	0·70	—0·32
Upper Sub-Himalayas	0·97	1·67	—0·65
Indus Valley and North-West Rajputana.	0·80	0·55	+0·02
East Rajputana, Central India, and Gujarat.	0·31	0·36	+0·02
Deccan	0·50	0·32	+0·30
West Coast	0·05	0·27	—0·21
South India	0·19	0·38	—0·32

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

Atmospheric Pressure.

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

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

Aden.	Dinajpur.	Negapatam.
Akyab.	Faridpur.	Noakhali.
Arrah.	Gorakhpur.	Nowgong.
Barisal.	Hyderabad (Sind).	Perim.
Bogra.	Jacobabad.	Rampur Boalia.
Bushire.	Jalpaiguri.	Rangpur.
Chapra.	Mandalay.	Sambhar.
Cochin.	Mangalore.	Silchar.
Cocos Island.	Midnapore.	Toungoo.
Comilla.	Mooltan.	
Cuddapah.	Mymensingh.	

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.	Patiala.
Dehra.	Leh.	Salona.
Kailang.	Malegaon.	Sirsa.
Katmandu.	Mercara.	Wellington.

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, Kindat, Lashio, Bhamo, Salona, Shortt's Island, Daltonganj, Chaibassa, Patiala, Mardan, Bickaneer, Pachpadra, Jodhpur, Veraval, Aurangabad, Bidar, Sharigh, Astor, Minimarg, Skardu, Dras, Gilgit, Samana, Cherat, Gantok, Teheran, Ispahan, Jask, Baghdad, Perim 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 cases of all stations, the elevations of which are accurately known and are below 3,500 feet, to sea-level. Each reading is separately corrected and the means of the month are the means of the daily corrected readings.

In Table I, columns 2 to 8, under the general heading "Pressure 8 A.M.," 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 gravit and to sea-level, the highest and the lowest pressures and

their respective dates of occurrence and the total range of 8 A.M. pressure during the month.

In Table II, under the heading "Pressure" are given the monthly means of the two hours of observation, 10 A.M. and 4 P.M., reduced to 32° F., the mean daily range, the mean daily pressure reduced to 32° F. and its variation from the normal, and the mean daily pressure reduced to 32° F. and corrected to constant gravity and sea-level for all second class observing stations. The mean daily pressures have been obtained for all stations except Zanzibar, Seychelles and Muscat (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 a neighbouring station, to give true daily means.

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

The normal 8 A.M. daily and monthly means of pressure utilized in the pressure section of the review have been deduced from the barometric observations of the sixteen years' period 1878—93, 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 three 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 a comparison of these observations and the normal daily or monthly 8 A.M. values.

The mean pressure conditions of the month of January 1897 at the level of the plains in India were practically normal. The mean pressure of the whole of India was, as in January 1896, ·003″ below the normal.

Pressure variation and anomaly data of the month for the eleven meteorological provinces of India are given on page 4.

Pressure was, relatively to the normal, in slight excess in the Punjab, Rajputana, Central India, Sind, Kathiawar, Gujarat and the west and south of the Peninsula and was in defect over the remainder of India.

The anomalies were (as in January 1896) generally small in amount and were less than ·02″ in amount at all stations except those for which comparative data are given below :—

STATION.	Variation of mean 8 A.M. pressure of January 1897 from normal.	Pressure anomaly, January 1897.
	″	″
Sibsagar	—·026	—·023
Mymensingh	—·023	—·020
Kurrachee	+·017	+·020
Neemuch	+·031	+·034

The chief feature in the pressure distribution was a moderate deficiency at the level of the hill stations in Upper India and a slight to moderate excess at the level of the hill stations in the Central and Eastern Himalayas. This is indicated by the data given below :—

HILL STATION.	Variation of pressure from normal. (a)	NEIGHBOURING PLAIN STATION.	Variation of pressure from normal. (b)	Vertical pressure anomaly or (a)—(b)
	″		″	″
Murree	—·007	Peshawar	+·011	—·018
Leh	—·028	Lahore	—·002	—·026
Simla	—·006	Ludhiana	—·002	—·004
Quetta	—·011	Jacobabad	+·007	—·018
Mount Abu	—·021	Deesa	—·001	—·020
Chakrata	+·016	Roorkee	—·014	+·030
Ranikhet	+·025	Bareilly	—·003	+·028
Darjeeling	+·006	Dhubri	—·018	+·024
Pachmarhi	+·011	Hoshangabad	—·001	+·012
Wellington	+·001	Coimbatore	+·012	—·011

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

(1) Normal mean pressure conditions in the Indian area.

(2) Very slight relative defect in Burma, North-Eastern India and the Deccan, most marked in Assam where it averaged ·02″.

(3) Very slight relative excess in Upper India and the west and south of the Peninsula.

(4) Moderate relative deficiency of pressure at the level of the hill stations in Upper India and Baluchistan. The deficiency increased with elevation up to the height of Leh where it was large in amount.

(5) Slight to moderate excess of pressure (or, positive vertical anomalies) at the level of the hill stations in the Central and Eastern Himalayas and in Central India.

Barometric depressions or cold-weather storms of the month.

The disturbance which had passed across Northern India during the last week of the previous month advanced eastward through East Bengal and Burma on the 1st, on which day it ceased to affect the weather in India.

Pressure on the 2nd was in slight to moderate excess over the whole of Northern and Central India and normal in the Peninsula.

The changes of pressure during the next week were of little importance, and fine weather held steadily over the Indian area. Pressure was high and anti-cyclonic conditions prevailed in South and East Europe and in Persia from the 1st to the 7th. The Russian anti-cyclone intensified on the 8th and 9th, and a depression appeared in West Europe, which gradually extended south-eastwards across Central Europe into the West Mediterranean, and gave disturbed weather in that area from the 13th to the 18th.

Pressure gave way slowly in the Persian area on the 6th, 7th and 8th, and a shallow depression lay over West Persia on the 8th and 9th. Weather became showery and squally in the Persian Gulf on the 9th and strong north-westerly winds with squally weather and a high sea were experienced near Bahrein and Bushire on the evening of that day.

During this period from the 7th to the 9th pressure had fallen steadily in India, and was in slight to considerable defect on the 9th.

A rapid fall of the barometer occurred in Baluchistan, Upper Sind and the South-West Punjab during the next 24 hours, and a shallow but fairly well-marked depression lay over Baluchistan, the South-West Punjab and Upper Sind on the morning of the 10th. Light showers had fallen during the previous 24 hours in Baluchistan and the North Punjab and skies were overcast in the Punjab and Baluchistan at 8 A.M.

The depression was transferred eastwards during the next 24 hours into the South-East Punjab where pressure had fallen slightly. Pressure had, on the other hand, increased rapidly in Baluchistan and Sind.

Skies were more or less clouded over nearly the whole of Upper India, and were overcast in Baluchistan and the Upper India hill districts. Light to moderate showers had fallen during the previous 24 hours in Baluchistan, the North Punjab and in the hill districts of the North-Western Provinces. The depression disappeared during the next 24 hours, whilst a second and more important disturbance was forming in Baluchistan. The following gives an account of this disturbance, the only important storm of the month.

Cold weather storm of the 12th to the 16th January.—The observations in the Persian area are not sufficiently numerous to enable the origin of the storm to be traced with certainty. It apparently formed in North and Central Persia on the 9th and 10th, as pressure had decreased at Teheran and Ispahan during the previous 72 hours.

Pressure gave way rapidly on the 11th in Baluchistan. A moderate depression lay over that area on the morning of the 12th, but skies were as yet clear, weather fine and temperature normal. Pressure continued to give way in Baluchistan and Upper Sind, and a well defined depression lay over that area on the 13th. Pressure at 8 A.M. was ·26″ below the normal at Quetta and ·25″ at Jacobabad. Skies had clouded over in Baluchistan and some light showers had fallen in that area. Skies were lightly clouded in the Punjab, Sind and Rajputana. Winds were cyclonic in direction, but of feeble intensity in the area of depression.

14th January.—The barometric changes were large and somewhat irregular in North Western India, and were due to the advance of the primary depression into South-East Rajputana, and the appearance of a deep secondary depression in the Punjab. The primary depression was almost completely obscured by the secondary depression, its existence being shown in the chart of the day by a peculiar bend of the isobars in South-East Rajputana, and the adjacent districts of Central India and the North-Western Provinces.

The following table gives 8 A.M. data, shewing the position and intensity of the secondary depression at that hour :—

Station.	Pressure.			Wind		Cloud	Rainfall.	Weather.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	″	″	″				inches.	
Lahore .	29·671	—·273	—·401	SSE	5	10	0·90	Raining
Peshawar	·658	—·312	—·457	NNW	5	10	1·06	Raining
Rawalpindi	·611	—·363	—·442	E	7	10	0·95	Continuous rain
Khushab .	·582	—·349	—·490	W	7	10	0·40	Raining
Dera Ismail Khan.	·613	—·311	—·494	NW	5	10	0·31	Showery
Mooltan .	·624	—·261	—·488	SW	3	6	0·05	
Montgomery.	·632	—·286	—·460	SSE	14	9	0·68	Severe gale
Cherat .	?	—·341	?	S E	8	10	1·37	Snowing
Murree .	?	—·296	—·403	E	33	10	1·20	Snowing

Pressure was hence nearly half an inch below the normal of the period in the storm area in the North, West and Central Punjab. The secondary depression was hence of considerable intensity. Strong stormy winds prevailed over the whole of Upper India. Skies were overcast at 8 A.M. in Baluchistan, the Punjab and Rajputana, and were clouding over with light cirrus in the Gangetic Plain.

Moderate rain had been received in the Punjab and light showers in Cutch, Kathiawar and Rajputana. Moderate to heavy snow had fallen in the hill, districts of Upper India and Baluchistan.

15th January.—Pressure had decreased in Bengal, Bihar and Chota Nagpur to which the primary depression had advanced at 8 A.M. of this day. The secondary depression had filled up as rapidly during the preceding 24 hours as it had formed on the 13th.

The following gives data showing the barometric changes in the Punjab during the preceding 24 hours:—

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	
Lahore	30·077	+·406	— 022	Calm	7	0	0·41	Gale
Peshawar	·169	+·511	+·030	Calm	7	0	1·07	Continuous rain
Rawalpindi	·127	+·516	+·018	Calm	7	0	0·63	Showery
Khushab	·106	+·524	?	NNE	4	0	0·38	Showery
Dera Ismail Khan.	·155	+·542	+·030	NW	5	0		Wind variable.
Mooltan	·105	+·481	—·017	N E	1	10		Overcast
Montgomery.	·082	+·450	—·010	Calm	15	0		Severe gale
Cherat	?	+·425	?	Calm	2	6		Snowstorm
Murree	?	+·290	—·113	E	16	0	0·78	Snowstorm

As a result of the meteorological actions of the preceding 24 hours, pressure was again normal in Baluchistan and Upper India and was in considerable defect in the primary depression in Bihar and West Bengal.

Winds were strong during the previous 24 hours in North-Western India, and had blown with the force of a gale at many stations, more especially in the hill districts. Thus at Simla they averaged 31 miles per hour between 1 P.M. and 8 P.M.

Snow and rain had fallen in Baluchistan and in the Upper India hills and rain in the Punjab and western districts of the North-Western Provinces.

Skies were clearing rapidly in Upper India and were very lightly clouded in the depression area in Bihar and Bengal.

Temperature had fallen very rapidly in Baluchistan and North-Western India, and a well-marked cool and dry wave advanced across Northern India during the next 72 hours.

The primary depression passed eastwards into East Bengal and Upper Burma on the 16th, and ceased to affect the Indian area during the next 24 hours.

The storm under discussion was a double disturbance, consisting of a primary depression which crossed Northern India rapidly from Baluchistan to Bengal (in about 72 hours) and of a deep stationary secondary depression in the Punjab. The secondary depression formed very rapidly on the 13th and filled up even more rapidly on the 14th. The storm was followed by the advance of an unusually well-marked cool, dry, high-pressure wave across Northern India. The storm gave heavy snowfall in the Punjab and Kashmir Himalayas and moderate snow in the Afghan and Baluchistan mountains and a fairly general and moderate burst of rain in the Punjab, Rajputana and the western districts of the North-Western Provinces.

The following gives data of the rainfall in the Punjab:—

Division.	Average actual rainfall in 24 hours preceding 8 A.M. of			Total of period.
	13th Jan.	14th Jan.	15th Jan.	
	Inch.	Inches.	Inches.	Inches.
Punjab (South)	0·10	0·47	0·14	0·71
" (Central)	0	0·38	0·13	0·51
" (Submontane)	0·01	0·25	0·44	0·70
" (Hills)	0	0·66	1·39	2·05
" (North-West)	0·26	1·17	0·50	1·93
" (West)	0·04	0·41	0·03	0·48

As stated above, a high pressure wave advanced eastwards across Persia, Baluchistan and Northern India between the 14th and 17th. Pressure was most largely in excess in Persia and Sind on the 14th.

The following gives data showing the largest amount of the excess in that area on each day from the 14th to the 16th:—

Date.	Station.	Variation from normal of pressure at 8 A.M. of date.
		"
14th	Bushire	+·221
"	Jask	+·206
15th	Bushire	+·169
"	Teheran	+·225
"	Ispahan	+·117
16th	Bushire	+·113
"	Jacobabad	+·113
"	Hyderabad	+·125

A feeble depression appeared in North Bombay on the 18th. It advanced eastwards across Central India on the 19th and filled up during the next 24 hours. It was of very little importance, but gave some cloud and local showers in the North-Western Provinces.

Pressure increased rapidly in North-Western India on the 20th and 21st, re-establishing high pressure conditions and steep gradients in that area. The following table gives the mean pressure variations in the larger provinces from the 20th to the 23rd :—

PROVINCE.	VARIATION FROM NORMAL PRESSURE OF 24 HOURS PRECEDING 8 A.M. OF			
	20th Jan.	21st Jan.	22nd Jan.	23rd Jan.
	"	"	"	"
Punjab	+·088	+·152	+.233	+·150
Rajputana . . .	+·056	+·123	+·191	+·151
N.-W. Provinces and Oudh.	+·012	+·084	+·163	+·113
Bengal	+·005	+·085	+·160	+·060
Central India . .	+·014	+·057	+·142	+·122
Central Provinces . .	—·020	+·036	+·093	+·105
Bombay . . .	—·002	+·031	+·037	+·026
Madras . . .	—·014	+·040	+·058	+·049

The highest pressures of the month were recorded on the 22nd. The following gives data for Peshawar and Rawalpindi which registered the absolute maximum pressures of the month :—

STATION.	22ND JANUARY 1897.		Highest pressure recorded in January previous to 1897.	Year in which recorded.
	Pressure reduced to sea level and to constant gravity, Lat 45°.	Variation from normal.		
	"	"	"	
Peshawar . .	30·381	+·270	30·380	1889
Rawalpindi . .	·371	+·304	·393	1889

The humidity and temperature conditions were in great contrast at this time in North-Western and Central India. The air was much damper and warmer than usual in the North-Western Provinces and Central Provinces, and was on the contrary much cooler and drier in Rajputana and the Punjab. The following mean variation data illustrate these conditions :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	20th Jan.	21st Jan.	22nd Jan.
	°	°	°
Punjab	—2·9	—3·5	—2·1
Sind and Rajputana	—3·4	—1·9	—3·2
North-Western Provinces and Oudh .	+3·3	+4·8	+1·5
Central Provinces and Berar . .	+5·4	+6·6	+6·1

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN AQUEOUS VAPOUR OF 24 HOURS PRECEDING 8 A.M. OF		
	20th Jan.	21st Jan.	22nd Jan.
	"	"	"
Punjab	—·026	—·040	—·027
Sind and Rajputana	—·052	—·093	—·061
North-Western Provinces and Oudh .	+·044	+·080	+·113
Central Provinces and Berar . .	+·057	+·113	+·084

Weather was feebly disturbed on the 21st and two following days, and series of thunderstorms visited the North-Western Provinces, the eastern districts of Rajputana and Central India and the northern and central districts of the Central Provinces. The following gives the heaviest rainfalls in twenty-four hours due to these storms :—

DATE.	Province or State.	District.	Station.	Rainfall during 24 hours preceding 8 A.M. of date.
				Inches.
21st .	N.-W. Provinces .	Hamirpur .	Bija Nagar .	2·00
22nd .	" . .	Jhansi . .	Mohroni . .	2·21
" .	" . .	" . .	Talbahat . .	2·20
" .	" . .	Hamirpur .	Mahoba . .	2·20
21st .	Central India .	Bundelkhand .	Samthar . .	1·29
" .	and Rajputana . .	Gwalior . .	Isagarh . .	1·19
22nd .	" . .	Bundelkhand .	Nowgong .	1·65
" .	" . .	" .	Goona . .	1·47
"	" . .	" .	Chhatapur .	1·30
" .	" . .	" .	Datia . .	1·26
21st .	Central Provinces .	Narsinghpur .	Narsinghpur .	1·16
22nd .	" .	Hoshangabad .	Pachmarhi .	2·25
" .	" .	Narsinghpur .	Mohpani .	1·88
" .	" .	Hoshangabad .	Sohagpur .	1·50
" .	" .	Jubbulpore .	Jubbulpore .	1·10
" .	" .	Narsinghpur .	Gadarwara .	1·08

The rainfall was on the whole most general in Bundelkhand and the neighbouring districts of the North-Western Provinces (Jhansi, Lalitpur and Hamirpur).

Pressure decreased on the 23rd, 24th and 25th, and was on the 25th normal over the whole of India, except North-Eastern India and Burma, where it was in moderate to considerable excess. Conditions were slightly disturbed in the Central Provinces and Central India on the 24th, 25th and 26th, and series of thunderstorms gave moderate and fairly general rain to the northern districts of the Central Provinces, Baghelkhand and Bundelkhand.

The pressure changes were large in amount on the 28th and 29th in Northern India, and pressure was reduced considerably below the normal. The deficiency was greatest in Assam and Bengal and a shallow low pressure area lay over that area from the 28th to the 30th. It was however of no importance, as fine weather held steadily in the area. A shallow low pressure area also lay over Central and Lower Burma on the 30th and 31st, apparently due to the continued high temperature prevailing in that area at this time.

Summary of the Reports of the weather and snowfall in the mountain districts to the north and north-west of India.

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Hills bordering the Dera Ismail Khan District.*—The Deputy Commissioner reports as follows :—

"On the 5th January slight snow fell on the Marwattai Hills (10,000 feet). On the 10th there was a fall of snow of about 6 to 12 inches in depth on the surrounding hills and on the Wanu plain down to about 5,000 feet. On the 13th about 2 inches of snow fell on the Wanu plain above 4,500 feet and about 18 inches on the neighbouring high hills. On the 31st moderate snow fell down to about 6,500 feet and was 3 inches in depth on the Wanu plain and 6 to 9 inches on the neighbouring hills. On the 31st about 18 inches of snow lay on the northern slopes of hills from 8,000 feet upwards.

The snowfall during the month is said by the inhabitants to be heavier than last year and to be slightly more than normal."

The following gives a statement of the reported snowfall on the hills of the Kulachi border of this district :—

Mountain.	Date.	Snowfall.	
		Feet.	Inches.
Kot Ubshata and Nawa Taza . . .	2nd Jan. 1897.	3	0
Ubshata, Nawa Taza, Marmaz and Mararagar.	11th ,,	3	6
Do. Do. . .	13th ,,	2	0
Do. Do. . .	16th ,,	2	0
Do. Do. . .	17th ,,	1	0

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

"Abnormally heavy snow has fallen this month. The snowfalls were as follows :—

5th January :—	4 inches	on Para Chinar ,	—
9th do. :—	4½ inches	do.	do.
12th to 14th do. :—	2 ft. 6 inches	do.	do.
25th do. :—	3 inches	do.	do.
31st do. :—	slight fall	do.	do.

The snow line was as low as Chapri on the 14th instant which is only 2,000 feet above sea level and 6 inches were reported there. The whole of the valley was therefore under snow which is said to be a very rare occurrence.

The storms on the 12th, 13th and 14th were most general, reports from Khost, Hariob and Kabul, showing that the fall was general and heavy. The weather during the snowstorms was dull and unsually cold, and in the intervals heavy frosts and bright clear weather without much wind obtained.

The passes were closed during the month. From 7 to 10 feet of snow were reported to be lying on the higher passes at the end of the month.

The month was unusually cold. The fall of snow this month is said to have been heavier than any fall known during the past 30 years.

(3) *Khyber Pass Districts.*—The following account of the snowfall in this district during the month has been received from Colonel Warburton, Political Officer.

"Snow fell in Tirah and on the Lakka and Tor Lopper hills on the 13th. The average fall is reported to have been about 3 feet.

Snow lay during the month on the Tirah, Lakka and Tartarra hills. It also lay throughout the month in sheltered places on the ranges of hills north and south of Landi Kotal.

The weather was unusually cold at Landi Kotal during the greater part of January.

The snowfall is considered by the elders of Landi Kotal to be greater than has been recorded during the same month in the past few years."

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Hills adjacent to Murree.*—Snow fell on four days during the month, *viz.*, the 4th, 13th, 14th and 31st. The falls were heavy on the 13th (when 2 feet were received), and the 14th (when 3 feet fell). The total amount during the month was 6 feet 6 inches. The snowfall at Kahuta amounted to 4 feet.

(2) *Srinagar.*—The Superintendent of the observatory at Srinagar telegraphed as follows on the 15th. "A strong gale with rain prevailed at this place on the night of the 13th for about five hours. This was followed by the occurrence of a heavy snowstorm from 8 A.M. to 9 P.M. on the 14th which gave about 2½ feet of snow."

(3) *Chitral.*—Heavy snow fell on the 10th, 11th, 13th and 14th. The total fall was about 33 inches in depth in the town of Chitral.

(4) *Chamba.*—The Deputy Conservator of Forests of the Chamba State writes as follows :—Five snowstorms occurred during the period under report, *viz.*, on the 2nd January, from the 12th to the 14th January, the 19th and, 20th, the 26th and 27th and the 30th and 31st, and were

remarkable for the low altitudes to which the snow descended. In the first storm snow fell down to a little below 5,000 feet on the outer ranges, and to 4,000 feet in the interior, and in the second it fell down to 3,000 feet in some places :—

NAME OF PEAK.	Height above sea level.	REPORTED DEPTH OF SNOW ON					
		2nd January 1897.	12th to 14th January 1897.	19th to 20th January 1897.	26th to 27th January 1897.	30th to 31st January 1897.	Total.
	Feet.	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
Kalatop .	8,000	0 6	2 3	0 3	0 6	0 2	3 8
Surkhigulli .	5,000	0 2	0 7	Nil.	0 2	Nil.	0 11
Bhandal .	6,000	0 6	0 8	0 2	0 7	0 1	2 0
Thanela .	7,000	8	3 5	1 0	0 8	0 6	6 3
Chanan .	6,500	0 7	2 8	0 6	1 0	0 5	5 2
Tisa . .	5,000	Nil.	1 0	Nil.	Nil.	Nil.	1 0

The storm of the 14th January was accompanied by very high winds. The weather between the storms was variable, and cloudy to fine.

The storms appear to have been general over the state.

(5) *Kulu.*—The following report has been received from the Assistant Commissioner: "There were falls of snow on the 2nd, 5th, 6th, 10th, 11th, 14th, 15th, 18th, 19th, 26th and 27th January in the Kulu Tahsil, and on the 3rd, 6th, 10th, 11th, 12th, 16th, 19th, 20th and 22nd January in the Plach Tahsil. The falls in the earlier part of the month descended to an elevation of 3,500 feet. The weather was very cold and cloudy during the month under report. The falls of snow were general in the division. Nearly all the higher passes were closed during the month."

The following table shows the reported depth of snow on the higher passes and peaks of the sub-division at the end of the month under report and gives a comparison with the corresponding data of the past three years :—

DISTRICT.	NAME OF PASS.	Height above sea-level.	Reported depth of snow at the end of January 1897.	Reported depth of snow at the end of January 1896.	Reported depth of snow at the end of January 1895.	Reported depth of snow at the end of January 1894.
		Feet.	Feet.	Feet.	Feet.	Feet.
KULU . .	Rotang . .	13,000	14	12	19	16
	Hamta . .	14,500	14	8	38?	14
	Chandekhani .	14,500	5	5	7	13
	Barsai . .	?	6	4	12	14
	Bujadhar .	?	7	5	11	11
	Lohri Achri .	?	9	7	13	11
	Bhubhu . .	10,000	6	3½	9	7
KALU—*contd.*	Pashtari . .	?	4	2½	11	6
	Majhang .	?	2	1	2	2
PLACH .	Sirikhand .	15,000	12	9	20	14
	Chul . .	?	10	1	9	7
	Maghian .	?	8	1	9	7
	Dundku . .	?	10	1	10	7
	Tikar . .	?	8	1	8	7
	Jalori . .	10,500	9	1	10	7
	Raghopur .	?	8	1	10	8
	Lambri . .	?	9	1	12	7
	Sakiran . .	?	9	1	12	8
	Supakun	?	9	1	10	9
	Gargarasan .	17,000	10	2	18	11
	Basleo . .	11,000	9	1	11½	7
	Plach . .	?	3	1	14	10
	Tirath .	?	9	1	17	12

(6) *Simla Hill Districts.*—The following information relating to the snowfall in these districts has been supplied by the Deputy Conservator of Forests, Bashahr Division :—

"On the 3rd January 1897, in the afternoon, a storm which was apparent the previous day to the south-west broke and descended to 5,700 feet, giving three inches of snow at Kilba. On the 6th, a fall of fine snow occurred at lower elevations, while at higher the flakes were heavy and large. The snow line remained at 5,700 feet, and at Kilba two inches fell. On the 11th, heavy clouds were brought up by a north-east wind, snow falling from 4 to 6 P.M. The snow line remained at 5,700 feet. In the evening the temperature increased at Kilba and some rain fell. The depth of snow at Kilba was six inches on this date.

On the 12th, snow continued to fall on the higher peaks with a westerly wind.

On the 15th, snow came down to 5,700 feet and continued for three hours, a westerly wind blowing during the storm. Rain fell at lower elevations. At Kilba two inches of snow in depth and 0·80 inch of rain were reported to have fallen.

Snow also fell on the 16th, 19th, 25th, 26th and 27th at Kilba.

In the long intervals the weather was fine with a clear sky, while in the short intervals the sky was overcast or broken and clouds continued to drift up from the south and west.

The storms in January in this district were general

throughout Bashahr as far as could be seen, while the earlier ones appeared to be more local.

"The depth of snow in the middle of the month between Kotgarh and Narkanda was nearly 2 feet, and on Hatu (10,260 feet), 3½ feet. On the Rupin pass between the Pahar and Rupin valleys and the Baspa valley it was reported to be eight to nine feet deep and on the Buldar pass into Spiti ten to twelve feet deep.

On the higher peaks and ranges above 15,000 feet the depth of snow is probably 15 feet deep."

Summary of special storm Reports.

An occasional feature of cold-weather disturbances of the month in the plains of Northern India is the occurrence of thunderstorms and hailstorms. The following gives a statement of the storms in January 1897 of which special reports were received from observers:—

14th.—Severe thunderstorm and hailstorm from 8-45 P.M. to 9 P.M. at Mussooree.

21st.—Very severe hailstorm at Saugor at 5-30 P.M. The heaviest stones (which fell at the commencement of the storm) are stated by the observer to have weighed a pound.

" Hailstorm followed by heavy rain at Chikalda. The hailstorm lasted from 7-20 P.M. to 7-40 P.M.

" Violent hailstorm at Pachmarhi. The storm came from west and lasted from 8-25 to 8-44 P.M.

" Thunderstorm at Khandwa at 1 A.M.

" Thunderstorm and hailstorm at Simla from 6-45 to 6-55 P.M.

26th.—Severe thunderstorm at Allahabad, lasting from 6 P.M. to 7-50 P.M. The strongest winds were of velocity 42 miles per hour. The barometer rose from 29·722″ at 6 P.M. to 29·826″ at 7-36 P.M.

" Duststorm at Jubbulpore from north-west, during the evening.

" Thunderstorm at Khandwa at 3-20 P.M.

The following reports of hailstorms have been received from Political Agents and District Officers:—

3rd.—Hailstorm in five villages of the Mouzah Ghorboundi in the Sadar Sub-Division of the Lakhimpur District. The storm was somewhat severe and caused some damage to the standing paddy and tea crops.

20th.—Hailstorm in the Indore State at Pedvi at 2 A.M. lasting about half an hour and at Sundarsi and Tingaspur at 3 A.M.

" Hailstorm at Sundarsi in the Indore State.

" Hailstorm at Sutalia and Mohomedgarh in the Bhopal State. The stones caused much damage to the opium and other standing crops.

20th.—Hailstorm in the Khandwa and Harsud tahsils of the district of Nimar in the Central Provinces. The storm in the Khandwa tahsil travelled from west to east. It is reported to have caused damage to wheat and tur crops to the extent of 8 annas over an area of 535 acres. The hailstones were of various sizes and were as big as lemons in the Khanapur-Beria Pargana.

The storm in the Harsud tahsil travelled from north to south and caused slight damage to the extent of from 1 to 3 annas over an area of 1,285 acres.

21st.—Hailstorm in the Narsinghpur district of the Central Provinces. The storm travelled from west to east. It passed over an area of 113 square miles. It caused serious damage to the crops in 31 villages over an area of 7,059 acres and slight damage over an area of 1,490 acres The hailstones were of various sizes, ranging from the size of peas and marbles to that of small oranges.

" Hailstorms in the Gwalior State in the Sabalgad, Narwar, Bhilsa and neighbouring districts.

" Hailstorms at Bolia, Kohla Babhulda, Ratanpura and Barkhera, villages of the Indore State.

22nd.—Hailstorm in the Aino Pargana of the Narwar District in Gwalior. No injury to the crops was reported.

23rd.—Slight hailstorm at Sibsagar from south-west

24th.—Hailstorm at Sutalia in Bhopal.

" Hailstorms at Bolia, Kohla, Babhulda, Ratanpura, Khai-Kheri, Dhaturia and Ahmadi in the Indore State. The standing crops were reported to be much damaged by the hail.

26th.—Hailstorm at Chomu in the Jeypore State at 3 P.M.

28th.—Hailstorm at Sibsagar.

" Hailstorm in the Cachar District. The storm was of slight intensity, and little or no damage was caused to the crops.

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

Arabian Sea.—Ordinary north-east winds obtained steadily throughout the month over this area. They were stronger than usual during the first five days but fell off on the 6th and were below their average strength until the 11th, at 8 A.M. of which day the mean air movement, as deduced from the data of 22 vessels, was 2·8 or 0·5 below the normal of the month. Winds intensified rapidly during the next 24 hours and were blowing with a mean intensity of 4·4 at 8 A.M. of the 12th. The air movement remained practically unchanged during the next forty-eight hours, but increased slightly on the 14th and averaged 4·9 or 1·6 above the mean of the month on the morning of the 15th. Winds were on this day lightest in the east where they were of force 2 to 4. From this region they increased in all directions and were strongest at the head of the Arabian Sea where the S.S. *Kola* experienced gales of force 8. The air movement decreased to an average of 3·8 on the 17th and was practically unchanged from that date to the 28th. The baric gradients decreased over the Arabian Sea during the remainder of the month and the air movement hence fell to an average of 2·7, or 0·6 below the normal at the end of the month. Weather was throughout the month fine with occasional cloud and showers.

Winds were much less steady than usual in the Persian Gulf, though moderate to strong in force.

Bay of Bengal.—The north-east monsoon prevailed over this area during the whole of the month, but it was not so vigorous as in the Arabian Sea. Gradients were somewhat steeper than usual during the first ten days of the month, and the air movement was about fifteen per cent. stronger than usual.

Decreasing gradients and feebler winds than usual obtained during the period from the 11th to the 22nd. Gradients increased on the 23rd and were above their normal intensity until the 25th, during which period winds were slightly stronger than usual. The air movement was of normal intensity during the next three days. Winds fell off on the 28th and were at least 20 per cent. weaker than usual during the remainder of the month. Weather was generally fine, except in the neighbourhood of Ceylon, where showers were of occasional occurrence.

Temperature of the Air.

The mean temperature data are given in Table I and Table II under the heading "Temperature of the air." In Table I they are based upon observations of the dry bulb thermometer 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 sixteen years' trustworthy temperature observations are available. With a 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 1893, 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 temperatures 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), Hyderabad (Deccan), Mysore, Mercara, Hassan, Chitaldroog, Cocanada, Quetta, Srinagar, Katmandu, Darjeeling, Wellington, Muscat, Aden, Perim, Zanzibar and Port Victoria (Seychelles) (for all of which crude means are given), and Vizagapatam and Madras. For Vizagapatam the means of observations at 4, 10, 16 and 22 hours are given, and for Madras the means as given in the registers sent by the Government Astronomer.

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 temperatures 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. They 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 3 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 temperatrue, 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 summary of 1894, based on the data of sixteen years, 1878 to 1893.

Weather was, on the whole, less disturbed than usual in January 1897, and temperature was hence, on the mean of the month, more or less above the normal over nearly the whole area.

The mean maximum or day temperature was above the normal over the whole of Burma and India, excepting Baluchistan, Sind, the Punjab, Rajputana, Central India, Kathiawar and Cutch and North Bombay. The deficiency in these areas was generally small in amount, but exceeded 2° in the areas represented by the stations for which data are given below :—

Province.	Station.	Mean maximum temperature.		
		Actual, January 1897.	Normal, January.	Variation of actual from normal.
		°	°	°
Punjab	Peshawar	59·0	63·9	—4·9
	Rawalpindi	59·6	63·3	—3·7
	Lahore	65·1	67·4	—2·3
	Ludhiana	65·3	67·6	—2·3
	Sirsa	68·7	70·9	—2·2
Cutch and Kathiawar	Bhuj	76·4	80·1	—3·7
	Rajkot	80·3	84·2	—3·9

The day temperature of the month was more than 2 above the normal over nearly the whole of the Deccan, the eastern and southern districts of the Central Provinces, Chota Nagpur and the greater part of Bihar and Bengal and in Upper Burma. The excess was most marked in Upper Burma, West Bengal and the Deccan in which it ranged between 3° and 5° in amount. It was more than 4° at the stations for which data are given below :—

Station.	Mean maximum temperature.		
	Actual, January 1897.	Normal, January.	Variation of actual from normal.
	°	°	°
Thayetmyo	90·1	85·4	+4·7
Chittagong	82·1	77·8	+4·3
Kindat	80·1	75·8	+4·3
Burdwan	83·0	78·5	+4·5
Balasore	84·5	80·1	+4·4
Poona	89·5	85·1	+4·4

The mean minimum or night temperature of the month was above the normal over the whole Indian area, with the exception of Sind, Cutch, Kathiawar and South West Rajputana. The deficiency in that area was more than 2° at Rajkot (—3°·0), Bhuj (—2°·8) and Hyderabad (—2°·1).

The increased night temperature was very marked in the Deccan and the Central Provinces. The excess was upwards of 4° in amount over greater part of that

area and was 5° or upwards at stations for which data are given below :—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, January 1897.	Normal, January.	Variation of actual from normal.
	°	°	°
Akola	61·0	53·3	+7·7
Sutna	53·0	47·3	+5·7
Sholapur	63·3	57·7	+5·6
Nagpur	60·9	55·4	+5·5
Khandwa	57·3	51·9	+5·4
Amraoti	62·5	57·3	+5·2
Hyderabad (Deccan)	62·9	57·9	+5·0
Kurnool	63·8	58·8	+5·0

The mean temperature of the month was below the normal in the North Punjab, Sind, South-West Rajputana, Cutch and Kathiawar and above it over the remainder of India and Burma.

The chief abnormal features of the mean temperature conditions of the month were as follows :—

1st.—The mean temperature of India during the month was considerably above the normal as is shown by the following data :—

AREA.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Whole India	+1·4	+2·2	+1·8
Extra Tropical India	+0·3	+1·5	+0·9
Tropical India	+2·1	+2·8	+2·5

2nd.—Considerably lower temperature than usual in Lower Sind, Cutch and Kathiawar. The following gives data for representative stations :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, January 1897.	Normal, January.	Variation of actual from normal.
	°	°	°
Rajkot	64·2	67·7	—3·5
Bhuj	64·2	67·5	—3·3
Hyderabad	62·4	63·9	—1·5

The deficiency was almost as marked at the neighbouring hill station of Mount Abu (—2°·6), and was due to a general reduction of temperature both by day and night.

3rd.—Temperature was more or less above the normal over the remainder of India. The excess was more than 2° in amount over the greater part of Burma, West Bengal, Chota Nagpur, South Bihar, Baghelkhand, the Central Provinces, the Deccan and the greater part of Madras. It was greatest in a part of the North and Central Deccan defined by the stations for which data are given below :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, January 1897.	Normal, January.	Variation actual from normal.
	°	°	°
Akola	74·6	68·9	+5·7
Sholapur	77·2	72·5	+4·7
Kurnool	77·8	73·6	+4·2
Hyderabad (Deccan)	75·2	71·0	+4·2
Nagpur	73·2	69·2	+4·0

The increased temperature in the area of greatest excess in the Deccan and the Central Provinces was chiefly due to the prevalence of unusually high night temperatures during the month.

4th.—The mean temperature of the month at the hill stations in Upper India and Baluchistan was below the normal. This feature was more marked at the more elevated stations of Leh and Kailang than at the lower level stations. The following gives data in illustration :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, January 1897.	Normal, January.	Variation from normal.
	°	°	°
Leh	11·8	18·5	—6·7
Murree	37·6	41·7	—4·1
Simla	41·3	41·5	—0·2
Mount Abu	56·5	59·1	—2·6
Quetta	40·0	40·4	—0·4

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

PROVINCE.	DIVISION.	ACTUAL TEMPERATURE.					VARIATION FROM NORMAL OF MONTH OF		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
BURMA	Tenasserim	90·2	66·6	78·4	23·6	33·4	—1·3	+0·6	+0·7
	Lower Burma (Deltaic)	87·5	68·1	77·8	19·4	27·3	+1·5	+3·1	—1·6
	Central do.	88·5	57·8	73·2	30·8	42·0	+3·2	+1·3	+1·9
	Upper do.	85·2	55·8	70·5	29·4	39·7	+4·3	+1·4	+2·9
	Arakan	83·3	60·2	71·8	23·1	30·5	?	+0·7	?

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.
		°	°	°	°	°	°	°	°
Bengal and Assam	Eastern Bengal	78·3	54·4	66·4	23·9	36·4	+3·6	+0·6	+3·0
	Assam (Surma)	78·0	51·4	64·7	26·7	37·5	+2·6	+0·9	+1·7
	Do. (Brahmaputra)	73·4	52·0	62·8	21·4	32·2	+1·7	+0·3	+1·4
	Deltaic Bengal	81·0	55·8	68·5	25·2	40·8	+2·7	+1·2	+1·5
	Central do.	79·7	54·2	67·0	25·5	42·1	+3·1	+1·1	+2·0
	North do.	75·5	50·6	63·1	24·8	36·6	+1·3	+0·7	+0·6
	Bengal Hills	48·7	31·1	40·0	17·6	32·5	+1·2	+1·0	+0·2
	Orissa	83·2	63·3	73·3	19·9	31·5	+3·3	+2·7	+0·6
	Chota Nagpur	77·1	53·9	65·5	23·2	38·1	+2·5	+3·6	—1·1
	Bihar (South)	76·2	53·9	65·0	22·3	41·8	+1·7	+3·0	—1·3
	Do. (North)	75·7	50·6	63·2	25·1	40·4	+2·1	+1·1	+1·0
North-Western Provinces and Oudh.	North-Western Provinces (East)	76·4	50·4	63·4	26·0	48·7	+2·2	+2·6	—0·4
	Oudh (South)	73·4	50·1	61·8	23·3	41·6	—0·4	+3·7	—4·1
	Do. (North)	73·7	49·1	61·4	24·6	41·8	?	?	?
	North-Western Provinces (Central)	73·8	50·1	62·0	23·7	44·9	—1·0	+2·1	—3·1
	Do. do. (West)	72·5	48·7	60·6	23·8	42·6	+0·7	+2·2	—1·5
	Do. do. (East Submontane)	73·7	50·8	62·3	22·9	38·6	+0·5	+1·9	—1·4
	Do. do. (West do.)	69·6	46·6	58·1	23·0	38·1	+1·1	+1·7	—0·6
	Do. do. (Hills)	50·6	38·9	44·8	11·7	27·4	—0·5	+1·4	—1·9
Punjab	Punjab (South-East)	70·8	47·9	59·4	22·9	40·3	—0·2	?	?
	Do. (South)	68·6	45·1	56·8	23·6	43·5	—2·2	+2·2	—4·4
	Do. (Central)	65·1	45·1	55·1	20·0	37·4	—2·3	+3·8	—6·1
	Do. (Submontane)	66·5	45·3	55·9	21·2	38·1	+2·1	+1·9	+0·2
	Do. (Hill Districts)	36·4	23·2	29·8	13·2	36·6	—2·3	—2·0	—0·3
	Do. (North)	59·2	38·2	48·7	21·0	34·1	—4·3	+0·8	—5·1
	Do. (West)	68·4	42·0	55·2	26·4	41·6	+0·4	+1·2	—0·8
Bombay and Malabar Coast Districts (Madras).	Malabar Coast	88·3	72·7	80·5	15·6	23·7	+1·6	+2·7	—1·1
	Madras (South Central)	89·3	65·3	77·3	24·0	35·7	+1·9	+1·8	+0·1
	Coorg	78·8	59·0	68·9	19·8	28·3	+2·4	+3·1	—0·7
	Mysore	85·3	60·3	72·9	25·0	36·8	+3·6	+3·2	+0·4
	Konkan	84·8	69·3	77·0	15·5	27·8	—0·6	+1·5	—2·1
	Bombay Deccan	89·4	61·5	75·4	28·0	39·5	+4·0	+3·7	+0·3
	Hyderabad (North)	87·8	62·4	75·1	25·4	37·3	?	?	?
	Khandesh	87·2	56·3	71·8	30·9	47·9	+2·3	+4·0	—1·7
Central Provinces and Berar.	Berar	87·3	61·8	74·6	25·6	40·1	+3·0	+6·5	—3·5
	Central Provinces (West)	83·7	58·3	71·0	25·3	41·2	+1·5	+5·1	—3·6
	Do. (Central)	80·8	55·3	68·0	25·5	40·8	+1·3	+4·1	—2·8
	Do. (East)	83·9	59·9	72·0	24·0	35·7	+2·4	+4·8	—2·4
Bombay (North)	Gujarat	84·8	57·2	71·1	27·6	48·5	+0·7	+1·7	—1·0
	Kathiawar and Cutch	79·6	52·4	66·0	27·2	47·1	—3·8	—2·9	—0·9
	Sind	74·9	48·1	61·5	26·7	44·4	—0·7	—1·4	+0·7
	Baluchistan Hills	52·3	31·0	41·9	21·3	53·9	—2·0	+1·2	—3·2
Rajputana and Central India.	Central India (East)	76·4	50·9	63·7	25·5	47·2	—0·2	+2·6	—2·8
	Rajputana (East), Central India (West)	74·9	47·7	61·3	27·2	50·8	—0·8	0	—0·8
	Do. (West)	74·3	46·9	60·6	27·4	51·7	—1·7	?	?
Madras	East Coast (North)	84·9	67·7	76·3	17·2	27·9	+2·6	+3·7	—1·1
	Hyderabad (South)	89·2	64·6	76·9	24·6	35·7	+3·4	+5·0	—1·6
	Madras (Central)	91·2	65·3	78·3	25·9	39·5	+3·4	+4·1	—0·7
	East Coast (Central)	85·6	68·6	77·1	17·1	24·2	+1·7	+2·1	—1·0
	Do. (South)	85·6	70·2	77·9	15·4	22·7	+1·5	+2·0	—0·5
	Madras (South)	86·6	73·0	79·8	13·6	23·5	+0·1	+1·4	—1·3

The temperature conditions at the commencement of the month in Northern India were determined by the advance of the cool wave in the rear of the storm of the last week of the previous month.

The greatest excess of temperature due to the warm wave in front of the storm was in Chota Nagpur and West Bengal on the 1st, in East Bengal and Burma on the 2nd, and in Burma on the 3rd.

The greatest deficiency due to the cool wave on the 1st was in Rajputana and Central India, for which area data are given below :—

Station.	Variation from normal of Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Indore	—7·6	—8·0	—7·8
Jeypore	—12·7	—2·9	—7·8
Ajmere	—9·0	—4·3	—6·7
Jhansi	—12·2	—1·1	—6·7
Saugor	—8·3	—4·4	—6·4

The cool wave extended across Bihar and Chota Nagpur on the 2nd, but the greatest deficiency of temperature on that date and the 3rd was observed in the same area as on the 1st, *viz.*, Rajputana and Central India. The following gives data for the stations at which the reduction of temperature was greatest on these dates:—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		Change from 2nd to 3rd January.
	2nd January.	3rd January.	
	°	°	°
Indore	−6·8	−5·0	+1·8
Saugor	−6·7	−4·5	+2·2
Nowgong	−6·5	−6·1	+0·4
Jhansi	−5·5	−5·5	0

The cool wave hence advanced eastwards unusually slowly. The depression of temperature due to it was greatest on the 4th in Central India (in about Long. 80° E.), on the 5th in the Central Provinces (in about Long. 82° E.), on the 6th in Chota Nagpur (Long. 86° E.) and on the 7th in Bengal (Long. 89° E.). The following gives variation data for the three stations at which the temperature was most largely below the normal on these dates:—

Date.	STATION.	VARIATION FROM NORMAL OF		
		Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
		°	°	°
4th	Jeypore	−7·8	−3·4	−5·6
,,	Indore	−5·4	−5·0	−5·2
,,	Neemuch	−7·6	−1·7	−4·7
,,	Jhansi	−7·0	−2·4	−4·7
5th	Nowgong	−6·8	−3·2	−5·0
,,	Jubbulpore	−5·3	−4·0	−4·7
,,	Benares	−4·2	−4·8	−4·5
6th	Gaya	−3·5	−2·9	−3·2
,,	Ranchi	−2·6	−3·6	−3·1
,,	Berhampore	−2·3	−3·2	−2·8
7th	Jessore	−0·6	−6·7	−3·7
,,	Calcutta	−1·0	−4·8	−2·9
,,	Saugor Island	−1·2	−4·4	−2·8

Temperature was during the whole of this period from the 1st to the 8th more or less considerably in excess in the peninsula. The excess was most marked throughout in the Deccan. The following table, giving mean temperature variation data of this area for the period, illustrates these features:—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE PRECEDING 8 A.M. OF							
	1st January.	2nd January.	3rd January.	4th January.	5th January.	6th January.	7th January.	8th January.
	°	°	°	°	°	°	°	°
Madras Coast	+2·5	+3·9	+4·4	+3·9	+3·0	+3·1	+2·7	+2·1
Do. Deccan	+4·1	+6·0	+4·3	+5·9	+5·2	+4·7	+4·1	+3·4
Bombay Coast	+0·8	+2·1	+2·8	+3·2	+3·0	+3·2	+3·2	+1·9
Do. Deccan	+4·4	+4·7	+6·8	+6·3	+6·1	+6·0	+5·0	+3·9
Mysore	+3·6	+6·2	+3·5	+4·0	+3·5	+1·2	+2·3	+3·3

Temperature increased steadily in North-Western India from the 4th to the 7th and rather rapidly over the whole of Northern and Central India on the 8th and 9th and was in general excess on the 9th and 10th. The following gives mean variation data for the 10th and also for the 3rd for comparison:—

POLITICAL AREA OR PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		Change from 3rd to 10th January.
	10th January.	3rd January.	
	°	°	°
Burma	+0·9	+4·2	−3·3
Bengal and Assam	+1·0	+1·9	−0·9
North-Western Provinces and Oudh	+3·9	−2·5	+6·4
Punjab	+5·2	−2·7	+7·9
Sind and Rajputana	+6·6	−1·9	+8·5
Central India and Gujarat	+5·6	−4·3	+9·9
Central Provinces and Berar	+4·8	+0·6	+4·2
Bombay	+3·2	+3·6	−0·4
Madras	+1·0	+4·0	−3·0

The temperature conditions of the next ten days were determined by two cold weather depressions or storms which advanced across Northern India from Baluchistan between the 10th and the 16th. They were preceded by a warm wave of considerable intensity. The following gives variation data of two or three stations for each day

at which the excess of temperature was greatest from the 9th to the 18th :—

Date.	Station.	Variation from normal of		
		Maximum temperature.	Minimum temperature.	Mean temperature.
		°	°	°
9th	Quetta	+11·3	+13·8	+12·6
10th	Do.	+ 4·2	+15·1	+ 9·7
,,	Jeypore	+ 8·3	+10·1	+ 9·2
,,	Mooltan	+ 7·0	+10·3	+ 8·7
11th	Ajmere	+12·3	+15·8	+14·1
,,	Sambhar	+13·6	+12·6	+13·1
,,	Neemuch	+10·4	+ 9·1	+ 9·8
12th	Sutna	+13·1	+11·4	+12·3
,,	Jhansi	+12·4	+11·2	+11·8
,,	Agra	+11·0	+ 7·9	+ 9·5
13th	Sutna	+11·0	+ 7·5	+ 9·3
,,	Allahabad	+12·9	+ 6·3	+ 9·6
,,	Gaya	+ 5·6	+ 9·9	+ 7·8
14th	Allahabad	+10·8	+11·6	+11·2
,,	Sutna	+ 9·4	+10·8	+10·1
,,	Lucknow	+ 7·8	+10·9	+ 9·4
15th	Sutna	+12·6	+12·1	+12·4
,,	Allahabad	+14·2	+ 9·0	+11·6
,,	Benares	+11·6	+ 7·7	+ 9·7
16th	Burdwan	+15·0	+12·0	+13·5
,,	Berhampore	+ 9·5	+ 9·2	+ 9·4
,,	Calcutta	+10·7	+ 8·0	+ 9·4
17th	Silchar	+ 5·9	+ 8·5	+ 7·2
,,	Chittagong	+ 6·5	+ 8·2	+ 7·4
18th	Sibsagar	+ 3·6	+ 5·3	+ 4·5
,,	Kindat	+ 6·0	+ 2·5	+ 4·3

The warm wave hence advanced eastwards with the usual velocity of about 300 miles per diem from the 10th to the 13th and again from the 15th to the 18th, but was stationary in the eastern districts of the North-Western Provinces and Central India from the 13th to the 15th.

The cool wave in the rear of the disturbance was well defined, more especially in Persia, Baluchistan, and Upper India. It originated in the south-eastward extension of the winter anti-cyclone from Central Russia into Persia on the 10th and 11th. The following table gives variation data for three or more stations at which the reduction of temperature was greatest on each day from the 11th to the 19th. It hence enables the progress of the cool wave to be roughly estimated :—

Date.	Station.	Variation from normal of		
		Maximum temperature.	Minimum temperature.	Mean temperature.
		°	°	°
11th	Teheran	— 4·0	— 4·6	— 4·3
,,	Ispahan	+ 0·7	— 1·3	— 0·3
,,	Bushire	— 7·3	— 4·5	— 5·9
12th	Teheran	— 9·4	— 8·1	— 8·8
,,	Ispahan	— 2·0	— 3·4	— 2·7
,,	Bushire	— 6·1	— 5·3	— 5·7
13th	Ispahan	—19·5	—13·5	—16·5
,,	Jask	— 2·6	— 5·9	— 4·3
,,	Quetta	+0·2	+ 4·4	+ 2·3
14th	Quetta	—14·4	—13·8	—14·1
,,	Peshawar	—14·8	+ 0·8	— 7·0
,,	Kalat	—18·4	—16·1	—17·3
,,	Kabul	— 9·2	— 0·8	— 5·0
15th	Quetta	—31·9	—20·2	—26·1
,,	Kalat	—33·8	—29·9	—31·9
,,	Mount Abu	—19·0	—18·6	—18·8
,,	Murree	—15·3	—16·7	—16·0
,,	Deesa	—16·8	—14·8	—15·8
16th	Quetta	—27·4	—15·9	—21·7
,,	Rajkot	—18·0	—13·6	—15·8
,,	Deesa	—19·1	—11·6	—15·4
,,	Mount Abu	—14·8	—15·7	—15·3
17th	Quetta	—17·8	—10·9	—14·4
,,	Rajkot	—16·0	—11·7	—13·9
,,	Bhuj	—17·6	— 7·7	—12·7
,,	Ajmere	—11·0	—10·9	—11·0
18th	Bhuj	—15·9	—12·1	—14·0
,,	Bickaneer	—12·9	—11·8	—12·4
,,	Allahabad	— 6·1	—10·0	— 8·1
,,	Benares	— 7·0	—10·2	— 8·6
19th	Rajkot	— 9·6	—12·2	—10·9
,,	Bhuj	—11·2	— 8·8	—10·0
,,	Jessore	— 3·0	—10·0	— 6·5

A noteworthy feature of this cool wave was the large and prolonged reduction of temperature which followed its advance in Lower Sind, Cutch, Kathiawar and South-West Rajputana.

The following table shows more clearly than the preceding data the extension of the cool wave eastwards :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	14th January.	15th January.	16th January.	17th January.	18th January.	19th January.	20th January.
	°	°	°	°	°	°	°
Punjab . .	+3·4	—5·6	—8·5	—7·9	—6·0	—3·3	—2·9
Sind and Rajputana.	+1·7	—8·2	—10·6	—11·6	—8·0	—3·9	—3·4
North-Western Provinces and Oudh.	+7·8	+6·2	—3·1	—6·4	—6·2	—0·3	+3·3
Central India and Gujarat.	+2·5	—3·7	—10·1	—10·6	—6·6	—2·0	—0·4
Bihar . .	+5·3	+7·6	+6·7	—2·6	—5·0	—2·0	—0·6
Chota Nagpur	+6·2	+8·3	+6·4	—2·2	—2·1	+0·4	+6·0
Bengal . .	+4·5	+6·0	+7·2	+3·5	—3·3	—3·5	—1·2

The cool wave hence advanced from the Indus valley frontier districts on the 15th to Bengal on the 19th.

The variation or range of the mean daily temperature at several stations during this period is given in the following table which states the greatest excess of temperature due to the warm wave and the greatest deficiency of temperature caused by the cool wave at the same stations, and also the total variation or range of the temperature :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE PRECEDING 8 A.M. OF DATE.				Total range of variation during period.
	Greatest excess.	Date.	Greatest defect.	Date.	
	°		°		°
Baghdad . . .	+2·4	7th	—9·3	13th	11·7
Ispahan . . .	+3·2	8th	—16·5	13th	19·7
Kalat . . .	+13·1	10th	—31·9	15th	45·0
Quetta . . .	+12·6	9th	—26·1	15th	38·7
Jeypore . . .	+9·2	10th	—11·5	17th	20·7
Deesa . . .	+7·2	10th	—15·8	15th	23·0
Rajkot . . .	+6·3	10th	—16·2	16th	22·5
Agra . . .	+9·5	12th	—8·7	17th	18·2
Allahabad . . .	+11·6	15th	—8·1	18th	19·7
Benares . . .	+9·7	15th	—8·6	18th	18·3
Jubbulpore . .	+9·4	14th	—4·9	17th	14·3
Patna . . .	+9·3	15th	—5·9	18th	15·2
Hazaribagh . .	+8·8	15th	—5·1	17th	13·9
Burdwan . . .	+13·4	16th	—3·6	19th	17·0
Calcutta . . .	+9·4	16th	—4·5	19th	13·9
Dacca . . .	+7·0	16th	—4·4	18th	11·4

The range of temperature was hence abnormally large at Quetta and Kalat, and varied between 45° in Baluchistan and 11° in South-West Bengal.

Very low night temperatures were registered during the progress of the cold wave. The following gives the lowest recorded at a number of stations and also the lowest hitherto registered in the month of January at the same stations for comparison :—

STATION.	Lowest minimum temperature recorded in January 1897.	Date on which recorded.	Lowest minimum temperature recorded in January, previous to 1897.	Year in which recorded.
	°		°	
Skardu . . .	—10·0	18th	?	?
Kalat	—6·4	15th	0	1895
Kabul	—0·2	17th	5·4	1894
Quetta	9·3	15th	14·0	1878 and 1879
Ispahan . . .	11·3	13th	11·6	1894
Srinagar . . .	11·6	17th	6·1	1893
Teheran . . .	18·1	13th	8·8	1895
Murree	18·0	15th	19·2	1893
Simla	27·1	15th	19·2	1893
Jacobabad . . .	30·5	16th	30·3	1885
Jodhpur . . .	34·6	15th	?	?
Mardan . . .	31·0	17th	27·0	1896
Peshawar . . .	32·4	16th	28·8	1878 and 1880
Pachpadra . . .	31·0	15th	30·0?	1895
Bickaneer . . .	38·6	18th	39·1	1895
Jeypore . . .	36·2	17th	35·0	1888
Lahore	36·2	17th	29·2	1889
Allahabad . . .	38·4	18th	36·0	1878
Patna	42·9	17th	36·4	1878

Temperature was steadily above the normal during this period from the 10th to the 20th in the Deccan, Mysore and Madras. The following gives variation data for every second day :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	10th January.	12th January.	14th January.	16th January.	18th January.	20th January.
	°	°	°	°	°	°
Bombay Deccan . .	+2·1	+2·9	+3·4	—1·4	+3·0	+1·8
Madras do. . .	+2·2	+3·6	+4·6	+5·8	+5·4	+3·5
Do. Coast . .	+1·3	+1·8	+2·0	+2·9	+1·7	+2·5
Mysore . . .	+1·0	+1·8	+2·7	+2·9	+2·7	+4·6

Temperature increased considerably on the 21st and 22nd and was more or less above the normal from the 21st

to the 24th over the whole of India with the exception of the Punjab, Rajputana, Sind, Cutch and Kathiawar.

The following gives comparative data for this cool area:—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	21st January.	22nd January.	23rd January.	24th January.
	°	°	°	°
Punjab . . .	−3·5	−2·1	−0·5	−0·5
Sind and Rajputana .	−1·9	−3·2	−2·3	−2·1
Cutch	−5·6	−7·0	−4·3	−5·3
Kathiawar . . .	−7·3	−5·1	−5·1	−3·5

The chief feature of this period was the excessive temperature in the North Deccan, the Central Provinces, and the eastern districts of the North-Western Provinces and Central India. The conditions in this area are indicated by the following data for Berar and the Central Provinces, the area of greatest excess of temperature at this time:—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	21st January.	22nd January.	23rd January.	24th January.
	°	°	°	°
Central Provinces and Berar.	+6·6	+6·1	+4·7	+5·5

During the remainder of the month the temperature conditions in Northern India were somewhat variable. Temperature was in slight to moderate defect in North-Western India from the 25th to the 28th and in moderate defect in Bengal on the 30th and 31st. A warm wave appeared in Baluchistan on the 29th and began to affect Upper India on the 30th. The chief feature of the temperature conditions of the last week of the month was the persistent high temperature in the Peninsula. The following gives data in illustration:—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	25th January.	26th January.	27th January.	28th January.	29th January.	30th January.	31st January.
	°	°	°	°	°	°	°
Burma . .	+3·1	+2·8	+3·0	+2·9	+2·7	+2·6	+1·3
Bengal and Assam.	+2·8	+2·7	+5·6	+6·7	+4·9	+0·5	+0·2
North-Western Provinces and Oudh.	+2·8	+5·7	+7·1	+2·6	−0·6	0	+0·5
Punjab . .	+1·9	+3·2	+3·4	0	−0·5	−1·1	+1·7
Sind and Rajputana.	+4·5	+6·1	+3·8	−1·0	+0·4	+2·0	+4·3
Central India and Gujarat.	+1·5	+3·5	+3·9	+0·3	−1·8	−1·1	+1·5
Central Provinces and Berar.	+7·1	+7·4	+5·9	+3·6	+1·2	−0·1	+4·4
Bombay .	+3·5	+3·4	+3·6	+2·7	+2·5	+1·8	+1·8
Madras . .	+1·8	+2·6	+1·9	+1·8	+2·0	+2·2	+3·5

The following gives the variations of the mean daily temperature from the normal, week by week during the month, in nine of the larger provinces or political divisions of the empire:—

POLITICAL AREA OR PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE FOR WEEK ENDING				
	9th January.	16th January.	23rd January.	30th January.	For whole month.
	°	°	°	°	°
Burma	+2·8	+0·3	+2·2	+3·0	+2·3
Bengal and Assam . . .	−0·5	+3·7	+1·4	+3·8	+2·1
N.-W. Provinces and Oudh .	+0·2	+4·8	−0·3	+2·8	+1·5
Punjab	+0·9	+0·9	−3·7	+0·9	−0·3
Sind and Rajputana . . .	+1·0	+0·8	−4·9	+2·0	−0·4
Central India and Gujarat . .	−0·4	+1·5	−3·1	+1·1	−0·5
Central Provinces and Berar .	+1·5	+4·6	+4·1	+4·4	+3·5
Bombay	+3·8	+1·0	+0·7	+3·2	+2·2
Madras	+2·9	+1·8	+3·1	+2·1	+2·6

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, and also the mean hourly air movement. It 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 were 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 observations 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.

Winds were slightly weaker than usual, but more steady at Port Blair and in Burma. Winds were on the mean of the month somewhat stronger than usual in Bengal and the westerly element in the north-west winds of the month in that area was more marked than usual. The following data show the amount of the westerly deflection at three stations:—

STATION.	WIND DIRECTION.		
	Mean actual, January 1897.	Mean normal, January.	Westerly deflection.
			°
Calcutta	N 40° W	N 36° W	4
Berhampore	N 59° W	N 46° W	13
Burdwan	N 46° W	N 31° W	15

Winds were slightly stronger and much steadier in the Gangetic Plain than usual in January. The mean direction of the air movement varied irregularly from the normal at different stations, but the westerly element of the winds was on the whole slightly more pronounced than usual in this area, as in Bengal.

Winds were also slightly stronger and steadier in Rajputana and Central India.

The following gives comparative data of the strength and steadiness of the winds in different parts of Northern India:—

PROVINCE.	VELOCITY IN MILES PER DIEM.			STEADINESS.		
	Mean actual, January 1897.	Mean normal January	Variation from normal.	Mean actual, January 1897.	Mean normal, January.	Variation from normal.
				%	%	
Bengal . . .	77	73	+ 4	43	40	+ 3
Bihar	75	59	+16	41	46	− 5
Chota Nagpur . .	172	135	+37	61	49	+12
North-Western Provinces and Oudh.	66	57	+ 9	43	30	+13
Punjab . . .	41	44	− 3	30	19	+11
Rajputana . . .	120	114	+ 6	27	20	+ 7
Central India .	90	68	+22	34	31	+ 3

The mean air movement of the month in Berar and the Central Provinces was considerably above the normal. Winds were, however, less steady than usual, and the mean directions varied very irregularly from the normal, more especially in the Central Provinces.

Winds were practically of normal strength in the West Coast districts, but steadier than usual, and contained an abnormally strong westerly component, as is shown by the following data:—

STATION.	WIND DIRECTION.		
	Mean actual, January 1897.	Mean normal, January.	Westerly deflection.
			°
Bombay	N 17° W	N 6° E	23
Ratnagiri	N 50° W	N 32° W	18
Karwar	N 45° W	N 19° W	26

Winds were also practically of normal strength in Mysore and at the Madras inland stations. The air movement was unusually feeble in South Madras as represented by the stations of Madras (where the winds were 33 per cent. below the normal strength on the mean of the month) and Trichinopoly (where they were 27 per cent. below the normal).

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

DIVISION.	VELOCITY IN MILES PER DIEM.			STEADINESS.		
	Mean actual, January 1897.	Mean normal, January.	Variation from normal.	Mean actual, January 1897.	Mean normal, January.	Variation from normal.
				%	%	
Berar	132	110	+22	18	21	− 3
Central Provinces .	92	67	+25	15	24	− 9
West Coast . . .	163	159	+ 4	58	38	+20
Deccan . . .	181	152	+29	51	50	+ 1
Madras Coast . .	113	123	−10	45	55	−10

Winds were slightly above the normal at the hill stations of Northern and Central India but were, as usual in January, very unsteady. The prevailing southerly winds at the hill stations in Upper India had a stronger easterly

component than usual as is shown by the following table:—

Station.	Wind direction. Mean actual, January 1897.	Mean normal, January.	Easterly deflection.
			°
Leh	S 21° E	S 10° W	31
Murree	S 54° E	S 51° E	3
Simla	S 2° E	S 6° W	8
Chakrata	S 38° E	S 84° W	Large.

The mean direction of the winds at Darjeeling was N 61° W. almost identical with its value in January 1896 (N 58° W), but differing very considerably from the normal (S 89° W).

The following gives a brief summary of the chief features of the air movement in India during the month:—

(1) Winds were normal in Burma.

(2) They were slightly stronger and more westerly than usual in Bengal.

(3) Winds were somewhat stronger and steadier in the Gangetic Plain, Rajputana and Central India.

(4) Winds were stronger than usual in the Central Provinces and Berar, but were even more unsteady than usual.

(5) Winds were of normal strength but more westerly than usual in the Konkan.

(6) Winds were feebler than usual in South India, more especially in the area represented by Madras and Trichinopoly.

(7) Winds were stronger and more easterly than usual at the hill stations in Upper India.

Humidity and Cloud.

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

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

The humidity conditions at Port Blair and in Burma were on the mean of the month practically identical with the normal.

The average amount of aqueous vapour present in the air in Bengal, Assam, Bihar and the eastern districts of the North-Western Provinces was normal, but the relative humidity was in moderate defect in consequence of the high temperature which prevailed during the month.

The following gives comparative data for these areas:—

Division.	Absolute humidity. Mean actual, January 1897.	Mean normal, January.	Variation from normal.	Relative humidity. Mean actual, January 1897.	Mean normal, January.	Variation from normal.
	"	"	"	%	%	
Bengal	·432	·433	—·001	63	69	—6
Assam	·429	·424	+·005	75	78	—3
Bihar	·373	·380	—·007	64	69	—5
North-Western Provinces (East).	·339	·339	0	59	66	—7

The air was slightly damper than usual on the mean of the month in Chota Nagpur, the North-Western Provinces, (excepting the eastern districts), Central India, Rajputana and the Punjab. The relative humidity was most largely in excess in this area at Hazaribagh and Nowgong (+6) and at Lucknow and Peshawar (+5).

The following table gives variation data of the mean absolute and relative humidity of the month in these areas:—

Division.	Absolute humidity. Mean actual, January 1897.	Mean normal, January.	Variation from normal.	Relative humidity. Mean actual, January 1897.	Mean normal, January.	Variation from normal.
	"	"	"	%	%	
Chota Nagpur	·325	·268	+·057	57	51	+6
North-Western Provinces (except East).	·308	·291	+·017	64	63	+1
Central India	·345	·288	+·057	62	56	+6
Rajputana	·269	·267	+·002	49	47	+2
Punjab	·261	·263	—·002	64	63	+1

Humidity was more largely in excess at the hill stations in North-Western and Central India than at the adjacent plain stations. The following gives comparative data for four representative stations :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1897.	Normal, January.	Variation from normal.	Actual, January 1897.	Normal, January.	Variation from normal.
	"	"	"	%	%	
Srinagar . . .	·144	·154	—·010	90	82	+8
Murree . . .	·175	·141	+·034	78	60	+18
Simla	·156	·147	+·009	63	58	+5
Chakrata . . .	·167	·156	+·011	66	62	+4

The mean humidity of the month was normal in amount in Baluchistan and below the normal to a moderate extent locally in Sind as is shown below :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1897.	Normal, January.	Variation from normal.	Actual, January 1897.	Normal, January.	Variation from normal.
	"	"	"	%	%	
Quetta . . .	·161	·158	+·003	67	67	0
Jacobabad . . .	·213	·229	—·016	46	49	—3
Kurrachee . . .	·301	·351	—·050	49	56	—7

The amount of aqueous vapour present in the air in the Central Provinces, Berar and the Deccan was considerably larger than usual, by amounts averaging 21 per cent. in excess in the Central Provinces.

The mean humidity of the month was, on the other hand, only in slight to moderate excess, due to the abnormally high temperature over this area during the month.

The observations appear to indicate that the mean humidity of the month was 16 above the normal at Pachmarhi and 14 at Nagpur. The data for these stations are very doubtful, due apparently to some error on the part of the observers at these stations in the use of the wet bulb thermometer.

Comparative data for this area of increased humidity are given below :—

STATION.	ABSOLUTE HUMIDITY.		
	Mean actual, January 1897.	Mean normal, January.	Variation from normal.
	"	"	"
Central Provinces	·401	·332	+·069
Berar	·386	·319	+·067
Deccan	·396	·368	+·028

The air contained slightly more aqueous vapour than usual in Mysore and Madras, but in consequence of the prevalence of somewhat higher temperature than usual the relative humidity differed little from the normal.

The air was much drier than usual at Aden and Perim and was slightly damper at Zanzibar and the Seychelles.

A noteworthy feature of the meteorology of the month was the great reduction in the amount of aqueous vapour present in the air produced by the passage of the cool dry wave across Northern India after the storm in the second and third weeks of the month. The data of the following table show clearly the east-ward propagation of the dry wave and the large reduction in the amount of aqueous vapour pressure in the lowest air stratum caused by its passage :—

STATION.	AQUEOUS VAPOUR PRESSURE.			
	Date.	4 P.M. of date.	4 P.M. of succeeding date.	Change in 24 hours.
		"	"	"
Quetta	12th	·346	·126	—·220
Jacobabad	13th	·259	·122	—·137
Mount Abu	13th	·300	·087	—·213
Deesa	13th	·379	·118	—·261
Jeypore	14th	·408	·141	—·267
Jubbulpore	15th	·417	·271	—·146
Allahabad	15th	·418	·190	—·228
Patna	15th	·465	·269	—·196
Burdwan	16th	·479	·283	—·196
Calcutta	16th	·466	·315	—·151

Skies were on the whole slightly more clouded than usual in Burma, Bengal, Bihar, Chota Nagpur and the North-Western Provinces, as is shown by the comparative data of the following table :—

STATION.	MEAN CLOUD AMOUNT.		
	Mean actual, January 1897.	Mean normal, January.	Variation from normal
Burma	2·4	1·9	+0·5
Bengal	1·8	1·6	+0·2
Assam	2·7	3·3	—0·6
Bihar	2·4	2·0	+0·4
Chota Nagpur	3·4	2·3	+1·1
North-Western Provinces and Oudh .	3·2	3·0	+0·2

Cloud was on the other hand normal or in slight excess

in Sind, the Punjab, Rajputana and Central India. The following gives comparative data :—

Station.	Mean cloud amount.		
	Mean actual, January 1897.	Mean normal, January.	Variation from normal.
Sind	2·9	2·8	+0·1
Punjab	4·0	4·0	0
Rajputana	2·7	2·6	+0·1
Central India	3·1	2·4	+0·7

There was somewhat more cloud than usual at the Upper India hill stations and in Baluchistan. The excess was most marked at Leh (+1·9), Simla (+1·6) and Chakrata (+1·4).

The mean cloud amount of the month was in moderate to considerable excess in the Central Provinces, Berar, and the Konkan, and in slight excess in the Deccan, as is shown below :—

Station.	Mean cloud amount.		
	Mean actual, January 1897.	Mean normal, January.	Variation from normal.
Berar	3·0	1·7	+1·3
Central Provinces	2·6	1·8	+0·8
Konkan	1·9	1·0	+0·9
Deccan	2·2	1·9	+0·3

There was slightly less cloud than usual in Southern India. Cloud was on the other hand in moderate excess in Ganjam and the Circars.

The following summarizes the chief features of the mean distribution of cloud during the month :—

(1) Cloud was normal or in slight excess in the Punjab, Sind, Rajputana, the Gangetic Plain, Bengal and Burma.

(2) It was in slight defect in Assam.

(3) It was in moderate to considerable excess in Berar, the Central Provinces, Central India, the Deccan, and Konkan.

(4) It was in slight defect in Southern India.

(5) It was in moderate to considerable excess at the hill stations in North-Western and Central India and in moderate defect at Darjeeling and Wellington.

Skies were most serene during the month at the following stations in the Konkan, Deccan and Bengal for which comparative data are given below :—

Station.	Mean cloud amount.		
	Mean actual, January 1897.	Mean normal, January.	Variation from normal.
Karwar	0·5	0·7	—0·2
Ratnagiri	1·4	0·6	+0·8
Burdwan	1·5	1·6	—0·1
Berhampore	1·5	2·0	—0·5
Belgaum	1·5	1·5	0
Hyderabad (Deccan)	1·3	2·1	—0·8

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. A weekly statement of the rainfall of every district is telegraphed to the Simila Meteorological Office by District Officers, and a summary of this information is published in the *Gazette of India* weekly.

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 information relating to the month telegraphed to Simla by District Officers, and 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 170 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.

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

The month of January 1897 was fine and less disturbed than usual in Northern India, and the rainfall of the month was hence in general defect.

There were three periods of disturbance and of rainfall during the month.

The first period extended from the 10th to the 15th and was due to the advance of two cold weather storms across Northern India. The second depression was of onsiderably greater int ensity than the first and gave rise to a secondary depression in the North Punjab. Baluchistan, Kashmir, the Punjab, and the western districts of the North-Western Provinces obtained a moderate burst of rain during this period. The largest amounts were recorded in the northern districts of the Punjab. Heavy snow fell during this period in Kashmir and the Afghan Mountains.

The second period of rainfall was on the 21st and the 22nd, and was due to a local disturbance giving rise to series of thunderstorms, such as occur more frequently in February than in January. The eastern and central districts of the North-Western Provinces, Bundelkhand, Baghelkhand and the northern districts of the Central Provinces had heavy local falls, but the rainfall, as usual in these disturbances, was very irregularly distributed.

The third period of rainfall was from the 25th to the 27th. It was, like the preceding, due to local disturbance giving rise to series of thunderstorms. The eastern and central districts of the North-Western Provinces, Baghelkhand, Bundelkhand, the Central Provinces and Berar obtained light to moderate rain during this period. This rainfall was on the whole most general in Baghelkhand. Some light local showers fell in the Punjab during this period, chiefly in the hill and submontane districts.

No rain fell during the month over the greater part of India, including Burma, South and Central Bengal, South Bihar, Orissa, Sind, Bombay, the Madras Deccan, Mysore and South and North Madras.

The following gives comparative rainfall data of the month for the 57 meteorological districts into which India is divided :—

Province.	Division.	Number of rainy days. Average actual, January 1897.	Number of rainy days. Average normal, January.	Rainfall. Average actual, January 1897.	Rainfall. Average normal, January.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	0	0	0
	Lower Burma (Deltaic)*	?	?	0	0·09	−0·09
	Central do.*	?	?	0	0·05	−0·05
	Upper do.*	?	?	0	?	?
	Arakan*	?	?	0	0·08	−0·08
Bengal and Assam	Eastern Bengal	0·1	0·9	0·03	0·45	−0·42
	Assam (Surma)*	?	?	0·46	0·72	−0·26
	Do. (Hill Tracts)*	?	?	0·04	0·83	−0·79
	Do. (Brahmaputra)*	?	?	0·26	0·95	−0·69
	Deltaic Bengal	0	0·8	0·01	0·40	−0·39
	Central do.	0·2	0·8	0·10	0·43	−0·33
	North do.	0·4	1·0	0·12	0·50	−0·38
	Bengal Hills	0·6	1·4	0·14	0·86	−0·72
	Orissa	0	0·6	0·01	0·36	−0·35
	Chota Nagpur	0·9	1·2	0·29	0·58	−0·29
	Bihar (South)	0·3	1·2	0·12	0·66	−0·54
	Do. (North)	0·5	1·2	0·15	0·71	−0·56
North-Western Provinces and Oudh.	North-Western Provinces (East)	1·6	1·4	0·46	0·65	−0·19
	Oudh (South)	2·1	1·4	1·32	0·72	+0·60
	Do. (North)	2·0	1·3	1·06	0·78	+0·28
	North-Western Provinces (Central)	2·1	1·3	1·34	0·56	+0·78
	Do. do. (West)	0·7	1·4	0·15	0·56	−0·41
	Do. do. (Submontane East)	1·4	1·2	0·63	0·57	+0·06
	Do. do. (do. West)	2·1	2·3	0·89	1·38	−0·49
	Do. do. (Hills)	3·8	3·1	1·60	2·54	−0·94
Punjab	Punjab (South-East)	0·3	1·5	0·07	0·70	−0·63
	Do. (South)	1·4	1·3	0·74	0·65	+0·09
	Do. (Central)	2·5	2·1	1·70	1·11	+0·59
	Do. (Submontane)	3·6	2·5	1·65	1·55	+0·10
	Do. (Hill Districts)	7·3	4·2	4·64	3·36	+1·28
	Do. (North)	4·3	2·8	3·38	1·81	+1·57
	Do. (West)	1·0	1·3	0·50	0·55	−0·05

* NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

Province.	Division.	Number of rainy days. Average actual, January 1897.	Number of rainy days. Average normal, January.	Rainfall. Average actual, January 1897.	Rainfall. Average normal, January.	Rainfall. Variation from normal.
				Inches.	Inches.	Inch.
Bombay and Malabar Coast Districts (Madras).	Malabar Coast	0	0·3	0·02	0·19	—0·17
	Travancore	0·2	?	0·13	?	?
	Madras (South-Central)	0	0·3	0	0·12	—0·12
	Coorg	0	?	0	?	?
	Mysore*	?	?	0·01	0·08	—0·07
	Konkan	0	0·2	0	0·12	—0·12
	Bombay Deccan	0	0·2	0	0·07	—0·07
	Khandesh	0·1	0·2	0·01	0·10	—0·09
Central Provinces and Berar.	Berar*	?	?	0·61	0·37	+0·24
	Central Provinces (West)*	?	?	1·22	0·48	+0·74
	Do. (Central)*	?	?	1·54	0·54	+1·00
	Do. (East)*	?	?	0·89	0·36	+0·53
Bombay (North)	Gujarat	0	0·2	0	0·06	—0·06
	Kathiawar	0·1	0·2	0·04	0·04	0
	Sind	0·1	?	0·05	0·40	—0·35
	Baluchistan Hills	3·2	?	1·67	1·64	+0·03
Rajputana and Central India.	Central India (East)	1·9	?	0·92	0·57	+0·35
	Rajputana (East) and Central India (West)	0·3	?	0·09	0·38	—0·29
	Rajputana (West)	0·5	?	0·09	0·32	—0·23
Madras	East Coast (North)	0·1	0·3	0·03	0·19	—0·16
	Do. (do.) (a)	0·5	0·3	0·08	0·07	+0·01
	Hyderabad (South)*	?	?	0	0·14	—0·14
	Madras (Central)	0·1	0·1	0·05	0·05	0
	East Coast (Central)	1·3	0·6	1·29	0·48	+0·81
	Do. (South)	0·5	0·8	0·18	0·47	—0·29
	Madras (South)	0·4	1·0	0·12	0·61	—0·49

* NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

The Baluchistan plateau received daily rain from the 5th to the 14th. The rainfall was heaviest and most general on the 10th. Light to moderate showers were received on the 24th and general and heavy rain on the 30th and 31st.

The following large falls were recorded on the 30th:—

Date.	District.	Station.	Heaviest rainfall during 24 hours preceding 8 A.M. of
			Inches.
31st.	Baluchistan	Kachkotal	3·50
		Shahrig	1·80

The rainfall of the month was in considerable to large excess over the whole area. The average rainfall of the stations about 3,000 ft. in elevation in January was 2·88 inches, the normal being 2·10 inches.

The following gives data for four stations at which the rainfall was most excessive:—

Station.	Rainfall. Actual, January 1897.	Rainfall. Normal, January.	Rainfall. Variation from normal.
	Inches.	Inches.	Inches.
Kachkotal	8·31	1·34	+6·97
Khanai	6·82	2·45	+4·37
Chaman	4·59	1·55	+3·04
Bostan	4·32	2·44	+1·88

Kashmir obtained more frequent and heavier rain than usual.

The chief periods were the 10th to the 15th and the 25th to the 27th. The precipitation was unusually heavy during the first period. The following gives the

largest amounts (exceeding 2 inches) recorded in 24 hours) :—

Date.	District.	Station.	Rainfall during 24 hours preceding 8 A.M. of
			Inches.
14th	Kashmir	Domel	5·10
,,	,,	Anantnag	2·85
,,	,,	Ramban	2·27
,,	,,	Punch	2·05
15th	,,	Srinagar	2·62

The total precipitation of the month was more or less above the normal over the whole state and the snowfall on the higher ranges was exceptionally heavy.

The rainfall of the month in the Punjab was more irregularly distributed than usual. The following gives a brief statement of the chief periods of rainfall.

1st.—From the 10th to the 15th. The precipitation in this period was due to two cold weather storms, the second of which gave rise to a deep secondary depression in the Punjab. The rainfall was heaviest in the northern and submontane districts, and more especially in the Lahore, Gurdaspur, Simla, Kangra, Sialkot, Gujrat, Rawalpindi, Peshawar, Hazara, Kohat and Shahpore districts.

The following gives the most noteworthy rainfalls in 24 hours during this period :—

Date.	District.	Station.	Rainfall during 24 hours preceding 8 A.M. of
			Inches.
11th	Kangra	Kulu	2·06
14th	Lahore	Van	2·00
,,	Gurdaspur	Dalhousie	2·32
,,	Simla	Kot Khai	3·19
15th	Do.	Simla	3·02
,,	Kangra	Palampur	2·00
,,	Do.	Kangra	2·08
,,	Do.	Dharmsala	2·35
,,	Do.	Nurpur	2·18

The fall was light in the central, south-east and south-west districts and was practically or absolutely *nil* in the Gurgaon, Rohtak, Delhi, Dera Ghazi Khan and Muzaffargarh districts.

2nd.—The 19th to the 21st. Light rain or snow fell in the Simla and Kangra hill districts and in the Gurdaspur, Hoshiarpur and Umballa districts.

3rd.—The 26th to the 28th. The hill districts and the submontane districts including Umballa, Ludhiana, Jullundur, Hoshiarpur, Gurdaspur, Amritsar, Sialkot and Peshawar obtained light rain during this period.

The following gives a comparative statement of the rainfall in each district of the Punjab during the month of January 1897.

District.	Rainfall.		
	Average actual, January 1897.	Average normal, January.	Variation from normal.
	Inches.	Inches.	Inches.
Hissar	0·35	0·67	—0·32
Ferozepore	1·31	0·62	+0·69
Montgomery	1·30	0·35	+0·95
Gurgaon	0·01	0·50	—0·49
Rohtak	0	0·65	—0·65
Delhi	0·11	0·77	—0·66
Karnal	0·26	1·02	—0·76
Lahore	1·70	0·82	+0·88
Umballa	0·92	1·62	—0·70
Ludhiana	0·65	1·11	—0·46
Jullundur	1·03	1·27	—0·24
Hoshiarpur	1·31	1·79	—0·48
Gurdaspur	3·65	2·16	+1·49
Amritsar	1·29	1·08	+0·21
Simla	4·12	2·08	+2·04
Kangra	4·96	3·88	+1·08
Gujranwala	1·87	1·08	+0·79
Sialkot	1·96	1·41	+0·55
Gujrat	1·87	1·59	+0·28
Jhelum	1·30	1·41	—0·11
Rawalpindi	3·89	2·30	+1·59
Peshawar	3·57	1·64	+1·93
Hazara	5·05	2·53	+2·52
Kohat	2·75	1·27	+1·48
Bannu	1·51	0·88	+0·63
Shahpur	0·79	1·08	—0·29
Jhang	0·54	0·44	+0·10
D. I. Khan	0·34	0·43	—0·09
D. G. Khan	0·11	0·33	—0·22
Muzaffargarh	0·07	0·20	—0·13
Mooltan	0·12	0·30	—0·18

The Jeysulmere, Jodhpore, Bickaneer and Sirohi States of Rajputana received some light local showers on the 14th and the Dholpur and Kotah States on the 21st to 24th. The rainfall of the month was practically *nil* in the greater part of Rajputana and was below the small normal of the month in the whole area.

The following gives comparative data for the larger states.

STATE.	RAINFALL		
	Average actual, January 1897.	Average normal, January.	Variation from normal.
	Inch.	Inch.	Inch.
Jeysulmere	0·13	0·34	−0·21
Jodhpore	0·08	0·30	−0·22
Jeypore	0·08	0·59	−0·51
Ulwar	0	0·64	−0·64
Bhurtpore	0·06	0·47	−0·41
Dholpur	0·20	?	?
Kerowlee	0·17	0·38	−0·21
Kotah	0·27	0·28	−0·01
Ajmere Merwara	0·02	0·26	−0·24
Sirohi	0·16	0·22	−0·06

Central India received occasional thundershowers during the second and third periods of disturbance of the month, *viz.*, 21st and 22nd and the 24th to the 26th. The rainfall was heaviest in Bundelkhand. The total rainfall of the month was more or less in excess over the whole of Central India. The following gives comparative data for four of the largest states or divisions:—

STATE.	RAINFALL.		
	Average actual, January 1897.	Average normal, January.	Variation from normal.
	Inches.	Inch.	Inches.
Bhopal	0·78	0·45	+0·33
Gwalior	0·60	0·31	+0·29
Rewah	1·33	0·91	+0·42
Bundelkhand	1·87	0·60	+1·27

More or less general rain was received during the month in the North-Western Provinces:—

1st.—The hill districts of Gurhwal, Kumaon and Dehra Dun received light showers on the 10th and 11th.

2nd.—The hill districts obtained moderately heavy rain on the 14th, 15th and 16th and the submontane districts of Saharanpur, Bareilly and Meerut light to moderate showers on the 15th.

3rd.—The eastern and central districts of the North-Western Provinces and the greater part of Oudh received moderately heavy and general rain between the 20th and 22nd. Amounts exceeding two inches in 24 hours were received at the following stations:—

Date.	District.	Station.	Rainfall during 24 hours preceding 8 A.M. of
			Inches.
21st	Hamirpur	Bija Nagar	2·01
22nd	Jhansi	Mahroni	2·21
,,	Do.	Talbahat	2·20
,,	Hamirpur	Mahoba	2·00

This was the only general and heavy burst of rain during the month.

Light to moderate showers fell in the submontane and central districts of the North-Western Provinces from the 26th to 28th.

The following gives comparative data for each of the eight divisions of this province.

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, January 1897.	Average normal, January.	Variation from normal.	Average actual, January 1897.	Average normal, January.	Variation from normal.
				Inches.	Inches.	Inch.
North-Western Provinces (East).	1·6	1·4	+0·2	0·46	0·65	−0·19
Oudh (South)	2·1	1·4	+0·7	1·32	0·72	+0·60
,, (North)	2·0	1·3	+0·7	1·06	0·78	+0·28
North-Western Provinces (Central).	2·1	1·3	+0·8	1·34	0·56	+0·78
,, (West)	0·7	1·4	−0·7	0·15	0·56	−0·41
,, (East Submontane).	1·4	1·2	+0·2	0·63	0·57	+0·06
,, (West)	2·1	2·3	−0·2	0·89	1·38	−0·49
,, (Hills)	3·8	3·1	+0·7	1·60	2·54	−0·94

The rainfall of the month in the province of Bengal was scanty in all districts.

North Bihar, North Bengal, the Sonthal Parganas and Chota Nagpur received light showers during the 24 hours preceding 8 A.M. of the 1st from the disturbance of the last week of December. The Saran and Champaran districts obtained some light showers on the 22nd and 23rd and some parts of Chota Nagpur light local showers on the 27th and 28th.

The following comparative statement is drawn up from the rainfall data for the month published in the *Calcutta Gazette*.

Division.	Number of rainy days.			Rainfall.		
	Average actual, January 1897.	Average normal, January.	Variation from normal.	Average actual, January 1897.	Average normal, January.	Variation from normal.
				Inch	Inch.	Inch.
Eastern Bengal	0·1	0·9	—0·8	0·03	0·45	—0·42
Deltaic "	0	0·8	—0·8	0·01	0·40	—0·39
Central "	0·2	0·8	—0·6	0·10	0·43	—0·33
North "	0·4	1·0	—0·6	0·12	0·50	—0·38
Bengal Hills	0·6	1·4	—0·8	0·14	0·86	—0·72
Orissa	0	0·6	—0·6	0·01	0·36	—0·35
Chota Nagpur	0·9	1·2	—0·3	0·29	0·58	—0·29
South Bihar	0·3	1·2	—0·9	0·12	0·66	—0·54
North "	0·5	1·2	—0·7	0·15	0·71	—0·56

Assam was practically rainless during the month. Some light showers of no importance were received in the Sibsagar and Lakhimpore districts during the first week of the month and again on the 16th.

Light local showers were received in the northern and eastern districts of the Central Provinces on the 3rd and 4th. Moderate general rain (chiefly accompanying thunderstorms) fell on the 21st and 22nd in the Saugor, Jubbulpore, Damoh, Narsinghpur and Hoshangabad districts. The following gives the largest falls in 24 hours :—

Date.	District.	Station.	Rainfall during 24 hours preceding 8 A.M. of
			Inches.
21st	Narsinghpur	Narsinghpur	1·16
22nd	"	Mohpani	1·88
"	"	Gadarwara	1·08
22nd	Hoshangabad	Pachmarhi	2·25
"	"	Sohagpur	1·50
22nd	Jubbulpore	Jubbulpore	1·10

The whole province received light to moderate rain, chiefly due to thunderstorms, from the 25th to the 28th. The following falls exceeding one inch were received.

Date.	District.	Station.	Rainfall during 24 hours preceding 8 A.M. of
			Inches.
25th	Saugor	Rehli	1·16
"	Narsinghpur	Mohpani	1·23
26th	Betul	Shahpur	1·40
27th	Bilaspur	Mungeli	1·25

The following is a comparative statement of the average rainfall of the month in each district and its variation from the normal.

District.	Rainfall.		
	Average actual, January 1897.	Average normal, January.	Variation from normal.
	Inches.	Inches.	Inches.
Sambalpur	0·23	0·42	—0·19
Bilaspur	0·68	0·63	+0·05
Raipur	0·35	0·29	+0·06
Chanda	0·05	0·29	—0·24
Bhandara	0·99	0·70	+0·29
Balaghat	1·25	0·52	+0·73
Seoni	2·02	0·76	+1·26
Mandla	2·04	0·23	+1·81
Narsinghpur	2·09	0·50	+1·59
Saugor	1·50	0·56	+0·94
Damoh	1·19	0·45	+0·74
Jubbulpore	1·86	0·70	+1·16
Nagpur	0·74	0·61	+0·13
Wardha	1·04	0·47	+0·57
Chindwara	1·74	4·76	—3·02
Hoshangabad	1·94	0·37	+1·57
Betul	1·34	0·86	+0·48
Nimar	0·34	0·29	+0·05

Over the greater part of the Madras Presidency little or no rain fell. The Nellore, Chingleput and North and South Arcot districts had series of thunderstorms on the 2nd, 3rd and 4th, which gave light to moderate rain. The Nellore district, where the showers were heavy, received an average of ·96 inch on the 2nd and of ·30 inch on the 3rd.

The following gives a summary of the provincial rainfal data of the month as published in the *Fort St. George Gazette.*

Division.	Number of rainy days.			Rainfall.		
	Average actual, January 1897.	Average normal, January.	Variation from normal.	Average actual, January 1897.	Average normal, January.	Variation from normal.
				Inches.	Inch.	Inch.
Malabar	0	0·3	—0·3	0·02	0·19	—0·17
Madras South-Central	0	0·3	—0·3	0	0·12	—0·12
" East-Coast North.	0·1	0·3	—0·2	0·03	0·19	—0·16
" " " (a)	0·5	0·3	+0·2	0·08	0·07	+0·01
" Central	0·1	0·1	0	0·05	0·05	0
" East Coast Central.	1·3	0·6	+0·7	1·29	0·48	+0·81
" " South	0·5	0·8	—0·3	0·18	0·47	—0·29
" South	0·4	1·0	—0·6	0·12	0·61	—0·49

Table

Abstract of Observations taken at 8 A.M. at 212 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	I.—Burma Coast and Bay Islands.		...	...	−·012	...	...	...	...	...	...	...	87·8	+1·5	66·8	+2·1	77·3	+2·0	21·0	...	...	...	...	30·1
1	Tenasserim and Bay Islands.	Port Blair	61	29·947	?	29·939	30·031	21st	29·891	29th	·140	78·6	87·0	?	76·0	?	81·5	?	11·0	90·5	3rd	70·4	12th	20·1
		Mergui	96	29·923	?	29·951	30·018	21st	29·823	29th	·195	78·0	89·7	?	70·1	?	79·9	?	19·6	94·6	29th	65·6	18th	29·0
		Tavoy	26	30·023	?	29·980	30·110	21st	29·959	31st	·151	69·5	91·4	?	63·5	?	77·5	?	27·9	94·7	23rd	56·2	17th	38·5
		Moulmein	94	29·945	−·007	29·978	30·035	22nd	29·859	31st	·176	69·3	89·6	+1·3	66·2	+0·6	77·9	+1·0	23·4	93·5	23rd	60·9	16th	32·6
2	Lower Burma	Rangoon	41	29·982	−·020	29·960	30·094	21st	29·898	31st	·196	68·2	90·3	+1·6	65·2	+1·3	77·8	+1·5	25·1	93·7	23rd	57·7	11th	36·0
		Bassein	27	30·006	−·009	29·969	30·117	21st	29·931	31st	·186	69·2	87·5	+2·1	64·9	+3·9	76·2	+3·0	22·6	90·2	3 days	60·0	11th	30·2
		Diamond Island	41	29·986	−·007	29·962	30·096	21st	29·911	29th	·185	77·7	84·7	+0·8	74·3	+4·0	79·5	+2·4	10·4	88·1	2 days	72·4	13th	15·7
5	Arakan	Akyab	20	30·026	−·015	29·989	30·122	21st	29·956	29th	·166	64·4	83·3	?	60·2	+0·7	71·8	?	23·1	86·2	2 days	55·7	9th	30·5
3	Central Burma	Toungoo	183	29·835	−·016	29·968	29·954	21st	29·745	31st	·209	65·8	86·9	+1·6	60·6	?	73·8	?	26·3	91·7	24th	53·1	12th	38·6
	II.—Burma Inland		...	...	...	...	...	...	...	...	...	...	86·0	+4·5	55·7	+1·4	70·9	+3·0	30·3	...	...	...	...	40·7
2	Central Burma	Thayetmyo	134	29·885	?	29·967	30·002	21st	29·785	29th	·217	62·0	90·1	+4·7	54·9	+1·3	72·5	+3·0	35·2	94·1	2 days	48·7	10th	45·4
4	Upper Burma	Minbu	?	29·876	?	?	30·001	21st	29·756	29th	·245	64·9	88·3	?	58·7	?	73·5	?	29·6	94·1	24th	54·0	8th	40·1
		Yamethin	645	29·360	?	29·980	29·471	21st	29·262	31st	·209	65·0	90·4	?	58·1	?	74·3	?	32·3	94·5	22nd	49·7	15th	44·8
		Mandalay	249	29·760	?	29·973	29·880	21st	29·646	29th	·234	63·6	87·8	?	58·7	?	73·3	?	29·1	91·0	22nd	53·7	12th	37·3
		Kindat	?	29·686	?	?	29·817	2 days	29·514	29th	·303	56·5	80·1	+4·3	53·7	+1·4	66·9	+2·9	26·4	85·3	24th	48·0	27th	37·3
		Bhamo	?	29·668	?	?	29·800	21st	29·527	29th	·273	54·7	79·3	?	49·9	?	64·6	?	29·4	85·0	24th	45·9	15th	39·1
5a	Burma Hill Stations	Taunggyi	?			Not	recorde	d.				58·7	75·0	?	43·8	?	59·4	?	31·2	78·9	23rd	37·0	15th	41·9
		Lashio	?	27·232	?	?	27·324	21st	27·126	28th	·198	52·7	77·4	?	46·8	?	62·1	?	30·6	80·6	2 days	35·0	25th	45·6
	III.—Assam		...	...	−·022	...	...	...	...	...	...	...	75·7	+2·0	51·7	+0·5	63·7	+1·3	24·0	...	...	...	...	34·8
7	Surma	Silchar	104	29·975	?	30·038	30·082	21st	29·850	29th	232	58·6	79·8	+2·6	53·2	+0·9	66·5	+1·8	26·6	84·6	25th	47·5	6th	37·1
		Salona	?	29·835	?	?	29·959	21st	29·671	23th	·288	54·5	76·2	?	49·5	?	62·8	?	26·7	80·5	21st	42·7	31st, 6th	37·8
9	Brahmaputra	Sibsagar	333	29·746	−·026	30·060	29·898	24th	29·560	29th	·338	53·5	71·7	+1·8	50·7	+0·9	61·3	+1·4	21·0	75·8	24th	43·9	6th	31·9
		Dhubri	115	29·955	−·018	30·053	30·080	21th	29·793	29th	·287	57·0	75·0	+1·5	53·3	−0·3	64·2	+0·6	21·7	81·1	29th	48·6	6th	32·5
	IV.—Bengal and Orissa		...	...	−·011	...	...	...	...	...	...	...	79·6	+2·8	55·5	+1·3	67·6	+2·1	24·1	...	...	...	...	38·0
6	East Bengal	Chittagong	87	29·970	−·013	30·010	30·056	24th	29·866	29th	·190	60·9	82·1	+4·3	56·4	+1·0	69·3	+2·7	25·7	87·2	2 days	49·1	19th	38·1
		Lungleh	?			Not	recorde	d.				58·7	68·4	?	54·4	?	61·4	?	14·0	74·6	23rd	50·5	8th	24·1
		Noakhali	43	30·011	?	30·003	30·093	4th	29·891	28th	·202	61·1	79·8	?	54·0	?	66·9	?	25·8	85·5	22nd & 23rd,	46·0	19th	39·5
		Comilla	36	30·034	?	30·019	30·129	21st	29·933	16th	·196	61·9	81·2	?	53·9	?	67·6	?	27·3	85·9	16th	47·1	18th	38·8
		Sirajganj	49	30·013	?	30·014	30·125	24th	29·868	28th	·257	56·8	78·5	?	52·4	?	65·5	?	26·1	85·2	30th	45·2	18th	40·0
		Narayanganj	26	30·035	−·021	30·011	30·129	24th	29·897	28th	·232	60·2	78·8	?	55·9	+0·9	67·4	?	22·9	83·6	2 days	48·2	18th	35·4
		Barisal	13	30·042	−·016	30·001	30·130	24th	29·937	16th	·193	61·6	80·5	+4·0	55·4	+0·4	68·0	+2·2	25·1	86·8	29th	48·0	19th	38·8
		Mymensingh	59	29·938	−·023	30·013	30·106	21st	29·864	28th	·242	56·5	77·0	+2·5	52·6	+0·2	64·8	+1·4	24·4	82·9	16th	46·4	30th	36·5
10	Deltaic Bengal	Faridpur	46	30·024	?	30·021	30·143	21st	29·883	28th	·260	58·4	79·2	?	52·6	?	65·8	?	26·6	85·8	29th	45·0	18th	40·8
		Jessore	33	30·038	−·009	30·019	30·144	24th	29·890	28th	·254	59·6	80·3	+2·3	53·7	+0·5	67·3	+1·4	26·6	86·5	16th	46·4	7th	40·1
		Calcutta	21	30·057	−·013	30·025	30·157	24th	29·920	28th	·237	61·7	79·7	+2·8	57·1	+1·7	68·5	+2·3	22·6	87·9	16th	49·2	19th	38·7
		Saugor Island	25	30·040	−·018	30·011	30·132	22nd	29·919	28th	·213	65·0	79·7	+3·1	60·8	+1·4	70·3	+2·3	18·9	83·9	2 days	51·2	18th	32·7
		Krishnagar	47	30·039	?	30·038	30·148	24th	29·889	28th	·259	60·4	81·5	?	51·9	?	66·7	?	29·6	90·4	16th	41·5	18th	48·9
		Midnapore	149	29·926	?	30·030	30·032	22nd	29·798	28th	·234	63·9	85·6	?	58·6	?	72·1	?	27·0	94·8	16th	51·2	6th & 7th	43·6

I.

in India, Burma, etc., in January 1897.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	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 January 1897.	Normal rainfall for period from 1st to 31st January.	Variation from normal of period, from 1st to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	-	...	...	...	...	...	...	0	0·33	—0·33	...	...	...	...	I.—Burma Coast and Bay Islands.		
...	8	14	2	1	...	...	2	4	6·1	7·0	− 13	82	·799	2·9	0	?	?	0	0·81	− 0·81	0	0·81	− 0·81	0	Port Blair .	Tenasserim and Bay Islands.	1
...	17	1	...	...	...	...	...	13	2·4	2·0	+ 20	80	·768	3·4	0	?	?	0	0·61	− 0·61	0	0·61	− 0·61	0	Mergui.		
26	...	...	...	...	...	...	...	5	1·2	?	?	89	·649	0	0	?	?	0	?	?	0	?	?	0	Tavoy.		
...	...	18	10	...	...	...	1	2	1·9	2·4	− 21	89	·636	1·0	0	0·09	−0·09	0	0·51	− 0·51	0	0·51	− 0·51	0	Moulmein.		
...	4	4	2	3	5	4	5	4	2·2	4·3	− 49	91	·635	1·4	0	0·27	−0·27	0	0·17	− 0·17	0	0·17	− 0·17	0	Rangoon .	Lower Burma.	2
16	2	...	1	1	...	...	...	11	4·4	2·9	+ 52	90	·645	1·5	0	0	0	0	0·17	− 0·17	0	0·17	− 0·17	0	Bassein.		
...	21	6	...	...	...	...	...	4	10·7	6·6	+ 62	74	·703	3·1	0	0·44	−0·44	0	0·18	− 0·18	0	0·18	− 0·18	0	Diamond Island.		
...	7	22	2	...	...	...	...	...	3·1	2·6	+ 19	87	·531	1·3	0	0·18	−0·18	0	0·08	− 0·08	0	0·08	− 0·08	0	Akyab .	Arakan.	5
2	13	6	2	...	1	...	2	5	2·2	1·9	+ 16	88	·541	0·9	0	0·27	−0·27	0	0·12	− 0·12	0	0·12	− 0·12	0	Toungoo .	Central Burma.	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·31	—0·31	...	...	...	...	II.—Burma Inland.		
...	4	4	3	...	2	5	11	2	1·6	2·4	− 33	69	·386	0	0	0	0	0	0·02	− 0·02	0	0·02	− 0·02	0	Thayetmyo.	Central Burma.	
11	2	...	..	3	...	1	2	12	5·5	?	?	66	·411	1·6	0	?	?	0	?	?	0	?	?	0	Minbu .	Upper Burma.	4
29	1	1	...	...	...	...	...	...	0·1	?	?	70	·437	1·0	0	?	?	0	?	?	0	?	?	0	Yamethin.		
9	9	2	1	2	2	2	2	2	2·2	?	?	81	·473	0·9	0	?	?	0	?	?	0	?	?	0	Mandalay.		
29	...	...	...	...	...	...	1	1	?	?	?	97	·419	0·9	0	?	?	0	0·59	− 0·59	0	0·59	− 0·59	0	Kindat.		
24	...	3	...	...	...	2	2	...	1·8	?	?	96	·419	1·2	0	?	?	0	?	?	0	?	?	0	Bhamo.		
7	1	2	1	5	11	4	...	...	?	?	?	70	·349	2·2	0	?	?	0	?	?	0	?	?	0	Taunggyi.	Burma Hill Stations.	5(a)
				Not recorded.					?	?	?	89	·354	5·4	0	?	?	0	?	?	0	?	?	0	Lashio.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·32	0·86	—0·44	...	...	...	...	III.—Assam.		
31	...	...	...	...	...	...	...	...	1·2	2·0	− 40	89	·440	2·9	1	1·79	−0·79	0·96	0·72	+ 0·26	0·98	0·72	+ 0·26	0·89	Silchar .	Surma.	7
25	1	1	2	1	...	...	1	...	?	?	?	95	·407	3·1	0	?	?	0	?	?	0	?	?	0	Salona .		
17	2	3	1	4	...	4	...	...	2·8	1·8	+ 56	99	·414	?	0	4·30	−4·30	0·16	1·47	− 1·31	0·16	1·47	− 1·31	0·07	Sibsagar .	Brahmaputra	9
3	5	15	1	...	2	5	...	...	3·8	3·9	− 3	89	·417	1·4	1	0·93	+0·07	0·12	0·40	− 0·28	0·12	0·40	− 0·28	0·12	Dhubri.		
...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	0·05	0·45	−0·40	...	...	...	...	IV.—Bengal and Orissa.		
9	9	9	2	1	...	...	...	1	2·1	3·7	− 43	85	·464	1·7	0	0·73	−0·73	0	0·49	− 0·49	0	0·49	− 0·49	0	Chittagong	East Bengal.	6
				Not recorded.					?	?	?	64	·316	?	0	?	?	0	?	?	0	?	?	0	Lungleh.		
...	19	6	...	3	1	1	...	1	2·6	?	?	88	·477	2·0	0	0·96	−0·96	0	0·47	− 0·47	0	0·47	− 0·47	0	Noakhali.		
16	9	...	2	...	2	2	...	...	1·5	?	?	88	·498	1·2*	0	1·30	−1·30	0	0·53	− 0·53	0	0·53	− 0·53	0	Comilla.		
22	8	...	...	...	...	...	...	1	2·0	?	?	88	·408	1·4†	0	1·04	−1·04	0	0·45	− 0·45	0	0·45	− 0·45	0	Sirajganj.		
7	6	1	...	5	...	2	1	9	3·1	2·1	+ 48	89	·468	?	0	0·91	−0·91	0·05	0·24	− 0·19	0·05	0·24	− 0·19	0·03	Narayanganj.		
29	...	2	...	...	...	...	...	...	0·9	?	?	88	·487	0·8	0	1·04	−1·04	0	0·63	− 0·63	0	0·63	− 0·63	0	Barisal.		
17	1	2	6	1	...	...	2	2	0·9	?	?	90	·413	?	0	0·85	−0·85	0	0·39	− 0·39	0	0·39	− 0·39	0	Mymensingh.		
27	4	...	...	...	...	...	...	...	1·4	?	?	91	·453	1·0*	0	0·77	−0·77	0	0·36	− 0·36	0	0·36	− 0·36	0	Faridpur .	Deltaic Bengal.	10
20	3	1	1	1	...	...	...	5	1·5	1·6	− 6	80	·416	1·9	0	0·88	−0·88	0·01	0·55	− 0·54	0·01	0·55	− 0·54	0·01	Jessore.		
2	9	4	1	1	...	1	5	8	3·1	3·0	+ 3	78	·433	1·9	0	0·72	−0·72	0·04	0·60	− 0·56	0·04	0·60	− 0·56	0·04	Calcutta.		
1	8	13	2	...	1	1	1	4	8·3	6·3	+ 32	86	·547	1·6	0	0·77	−0·77	0·05	0·32	− 0·27	0·05	0·32	− 0·27	0·05	Saugor Island.		
4	3	...	...	7	...	1	9	7	3·0	?	?	75	·398	1·8‡	0	0·73	−0·73	0·01	0·30	− 0·29	0·01	0·30	− 0·29	0·01	Krishnagar.		
13	9	1	...	...	...	1	...	7	0·9	?	?	65	·392	1·3	0	0·35	−0·85	0	0·52	− 0·52	0	0·52	− 0·52	0	Midnapore.		

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

Table

Abstract of Observations taken at 8 A.M. at 212 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.
11	Central Bengal	Bankura	298	29·747	?	30·013	29·863	22nd	29·625	28th	·238	61·4	82·2	?	57·6	?	69·9	?	24·6	91·1	16th	49·7	19th	41·4
		Raniganj	334	29·745	?	30·048	29·868	22nd	29·614	28th	·254	60·9	81·6	?	56·3	?	68·9	?	25·3	92·3	16th	48·4	18th	43·9
		Burdwan	99	29·983	−·008	30·035	30·087	22nd	29·832	28th	·255	63·5	83·0	+4·5	57·0	+2·3	70·0	+3·4	26·0	93·7	16th	49·1	2 days	44·6
		Naya Dumka	489	29·563	?	30·042	29·695	22nd	29·429	28th	·266	59·5	77·6	?	54·1	?	65·9	?	23·5	87·7	16th	45·0	18th	42·7
		Berhampore	67	30·011	−·012	30·030	30·125	22nd	29·860	28th	·265	54·6	79·4	+2·6	53·4	+0·1	66·4	+1·4	26·0	86·7	16th	45·1	19th	41·6
		Rampur Boalia.	70	29·994	?	30·018	30·109	2nd	29·839	28th	·270	58·9	78·7	?	52·2	?	65·5	?	26·5	86·1	17th	43·1	18th	43·0
		Malda	72	29·990	?	30·019	30·119	22nd	29·834	28th	·285	56·3	77·0	?	50·4	?	63·8	?	26·6	83·8	28th	41·9	18th	41·9
		Bogra	61	29·996	?	30·013	30·098	21st	29·853	28th	·245	57·7	77·8	+2·1	52·6	+1·0	65·2	+1·6	25·2	84·2	16th	46·2	30th	38·0
12	North Bengal	Dinajpur	123	29·937	−·006	30·023	30·075	22nd	29·782	29th	·293	55·1	76·5	+1·2	50·0	+0·8	63·3	+1·0	26·5	82·8	29th	43·0	31st	39·8
		Rangpur	123	29·951	?	30·037	30·062	24th	29·793	29th	·269	55·1	75·5	?	50·6	?	63·1	?	24·9	80·7	29th	43·8	31st	36·9
		Jalpaiguri	284	29·783	+·008	30·044	29·890	21st	29·643	28th	·247	55·4	74·4	+1·3	51·3	+0·6	62·9	+1·0	23·1	78·7	29th	45·6	17th	33·1
17	North Bihar	Purnea	125	29·948	−·006	30·037	30·072	22nd	29·793	29th	·279	53·6	76·1	+1·4	49·4	+1·5	62·9	+1·5	26·7	82·6	28th	43·5	18th	39·1
14	Orissa	Balasore	56	30·035	−·004	30·031	30·137	24th	29·915	28th	·222	63·5	84·5	+4·4	58·6	+2·9	71·6	+3·7	25·9	92·4	16th	52·5	19th	39·9
		False Point	21	30·056	−·010	30·019	30·146	22nd	29·929	29th	·217	68·1	81·8	+3·0	60·9	+2·0	71·3	+2·5	20·9	89·0	29th	54·5	11th	34·5
		Cuttack	80	29·991	−·015	30·017	30·088	22nd	29·863	29th	·225	65·8	87·0	+2·4	63·2	+3·3	75·1	+2·9	23·8	92·7	16th	57·1	10th	35·6
		Shortt's Island	?	30·091	?	?	30·194	23rd	29·961	12th	·233	72·1	80·1	?	68·8	?	74·4	?	11·3	87·1	16th	64·0	8th	23·1
		Puri	20	30·059	?	30·022	30·152	22nd	29·939	29th	·213	68·9	82·3	?	65·1	?	73·8	?	17·2	85·7	3 days	61·5	6th	24·2
	V.—Gangetic Plain and Chota Nagpur.		...	...	−·005	...	...	...	...	...	...	...	75·5	+1·8	51·7	+2·8	63·6	+2·3	23·9	...	...	...	...	41·7
15	Chota Nagpur	Hazaribagh	2,007	28·009	−·004	30·056	28·157	22nd	27·901	29th	·256	58·3	73·8	+1·0	53·7	+3·2	63·8	+2·1	20·1	81·9	16th	45·1	17th	36·8
		Ranchi	2,128	27·899	+·013	30·062	28·032	22nd	27·797	29th	·235	59·3	76·4	+2·7	51·0	+3·9	65·2	+3·3	22·4	83·5	22nd	46·3	17th	37·2
		Daltonganj	730?	29·356	?	30·092	29·534	22nd	29·229	12th	·305	55·4	73·9	?	50·6	?	62·3	?	23·3	81·4	12th	43·0	18th	38·4
		Chaibassa	760?	29·298	?	30·046	29·414	22nd	29·184	12th	·230	61·6	84·1	+3·9	57·3	+3·8	70·7	+3·9	26·8	90·2	13th	50·2	6th	40·0
16	South Bihar	Gaya	375	29·698	−·008	30·051	29·813	22nd	29·579	15th	·264	58·7	76·8	+1·1	54·6	+3·1	65·7	+2·1	22·2	87·2	15th	45·0	18th	42·2
		Dehri	351			Not	recorde	d.				60·1	76·8	?	55·8	?	66·3	?	21·0	87·7	15th	46·5	18th	41·2
		Patna	183	29·895	−·016	30·042	30·007	22nd	29·766	29th	·241	58·2	75·0	+2·3	52·7	+2·8	63·9	+2·6	22·3	82·2	15th	42·9	17th	39·3
		Arrah	190			Not	recorde	d.				55·6	?	?	?	?	?	?	?	?	...	?	...	?
		Buxar	239	29·842	?	30·052	29·971	1st	29·712	29th	·259	59·2	76·0	?	52·3	?	64·2	?	23·7	85·1	15th & 16th	40·5	18th	44·6
17	North Bihar	Bhagalpur	160	29·907	?	30·029	30·045	22nd	29·773	28th	·272	59·8	76·5	?	52·7	?	64·6	?	23·8	85·0	15th	43·7	18th	41·3
		Darbhanga	166	29·900	−·014	30·032	30·035	22nd	29·750	29th	·285	55·8	74·9	+2·7	52·8	+0·7	63·8	+1·7	22·1	80·9	28th	45·9	18th	35·0
		Muzaffarpur	178	29·898	?	30·044	30·024	22nd	29·760	29th	·264	54·7	74·8	?	50·1	?	62·5	?	24·7	81·2	13th	40·8	18th	40·4
		Motihari	224	29·851	?	30·051?	29·980	22nd	29·686	29th	·294	51·7	75·1	?	47·7	?	61·4	?	27·5	82·0	13th	38·0	18th	44·0
		Chapra	181	29·892	?	30·040	30·010	22nd	29·737	12th	·243	54·5	76·6	?	50·0	?	63·8	?	25·7	83·9	15th	41·5	18th	42·4
18	N.-W. Provs., East.	Benares	267	29·814	+·002	30·056	29·945	1st	29·687	12th	·258	54·9	76·0	+1·6	50·0	+2·0	63·0	+1·8	26·0	86·2	15th	38·6	18th	47·6
		Allahabad	309	29·770	−·002	30·055	29·913	22nd	29·640	12th	·273	56·0	76·7	+2·7	50·8	+3·1	63·8	+2·9	25·9	88·1	15th	38·4	18th	49·7
23	N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·796	−·015	30·029	29·923	22nd	29·649	29th	·274	55·3	73·7	+0·5	50·8	+1·9	62·3	+1·2	22·9	81·4	13th	42·8	17th	38·6
19	South Oudh	Lucknow	368	29·704	−·004	30·059	29·871	22nd	29·583	12th	·288	54·4	73·4	−0·4	50·1	+3·7	61·8	+1·7	23·3	81·7	13th & 14th.	40·1	18th	41·6
20	North Oudh	Bahraich	403	29·643	?	30·037	29·810	22nd	29·506	29th	·304	53·6	73·7	?	49·1	?	61·4	?	24·6	82·4	13th	40·6	17th	41·8
	N.-W. Provs. (Central).	Cawnpore	416	29·642	?	30·043?	29·800	22nd	29·495	14th	·305	55·1	73·9	?	49·8	?	61·9	?	24·1	85·3	15th	38·0	18th	47·3
		Mainpuri	516	29·556	?	30·070	29·732	22nd	29·379	14th	·353	52·3	72·6	?	47·9	?	60·3	?	24·7	81·8	12th	38·0	17th & 18th.	43·8

I—*continued.*

in India, Burma, etc., in January 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	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 January 1897.	Normal rainfall for period, from 1st to 31st January.	Variation from normal of period from 1st to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
23	...	...	...	...	...	...	6	2	0·6	?	?	70	·390	2·2	0	0·96	− 0·96	0·02	0·34	− 0·32	0·02	0·34	− 0·32	0·02	Bankura	Central Bengal	11
13	2	1	...	...	...	...	4	11	2·5	?	?	62	·338	1·7	0	0·96	− 0·96	0·11	0·40	− 0·29	0·11	0·40	− 0·29	0·05	Raniganj.		
21	7	...	...	...	...	...	1	2	1·6	1·8	−11	68	·399	2·8	0	0·77	− 0·77	0·06	0·36	− 0·30	0·06	0·36	− 0·30	0·06	Burdwan.		
16	2	...	...	...	...	...	2	11	0·9	?	?	67	·344	2·7	0	1·17	− 1·17	0·03	0·60	− 0·57	0·03	0·60	− 0·57	0·03	Naya Dumka		
27	...	...	...	...	...	2	1	1	1·2	1·8	− 33	83	·399	1·7	0	1·04	− 1·04	0·01	0·52	− 0·51	0·01	0·52	− 0·51	0·01	Berhampore.		
20	6	...	...	...	...	...	3	2	1·9	?	?	81	·408	1·1*	0	0·81	− 0·81	0·01	0·41	− 0·40	0·01	0·41	− 0·40	0·01	Rampur Boalia.		
...	1	...	...	...	...	...	23	7	2·2	?	?	86	·394	0·6	1	0·81	+ 0·19	0·40	0·52	− 0·12	0·40	0·52	− 0·12	0·36	Malda.		
26	...	1	...	...	...	1	...	3	1·5	?	?	81	·396	?	0	0·88	− 0·88	0·03	0·47	− 0·44	0·03	0·47	− 0·44	0·03	Bogra.		
1	2	7	2	1	1	8	5	4	3·0	?	?	85	·376	1·7	1	0·88	+ 0·12	0·31	0·45	− 0·14	0·31	0·45	− 0·14	0·31	Dinajpur	North Bengal.	12
9	4	7	...	2	1	4	2	2	1·4	?	?	92	·403	1·2	1	0·85	+ 0·15	0·28	0·61	− 0·33	0·28	0·61	− 0·33	0·28	Rangpur.		
...	11	6	2	3	...	2	3	4	2·1	?	?	91	·405	0·5	0	1·04	− 1·04	0·08	0·53	− 0·45	0·08	0·53	− 0·45	0·07	Jalpaiguri.		
14	...	...	2	...	...	6	7	2	3·3	1·7	+94	88	·367	2·6	0	0·80	− 0·80	0·08	0·49	− 0·41	0·08	0·49	− 0·41	0·08	Purnea	North Bihar.	17
9	7	2	1	...	...	5	1	6	2·3	?	?	84	·497	0·9	0	0·65	− 0·65	0	0·39	− 0·39	0	0·39	− 0·39	0	Balasore	Orissa.	14
7	11	...	...	...	...	1	3	9	5·4	6·0	−10	89	·613	1·8	0	0·81	− 0·81	0	0·57	− 0·57	0	0·57	− 0·57	0	False Point.		
18	...	3	6	1	..	1	2	...	1·7	1·4	+21	79	·507	1·8	0	0·65	− 0·65	0	0·32	− 0·32	0	0·32	− 0·32	0	Cuttack.		
2	7	8	...	...	1	1	5	7	8·3	?	?	77	·609	0·9	0	?	?	0	?	?	0	?	?	0	Shortt's Island.		
13	7	6	...	...	...	...	1	4	8·8	?	?	80	·571	1·1	0	0·50	− 0·50	0	0·28	− 0·28	0	0·28	− 0·28	0	Puri.		
...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	..	...	...	0·38	0·70	−0·	...	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**		
7	3	...	...	...	2	5	6	8	7·1	4·9	+ 45	66	·326	3·0	1	1·38	− 0·38	0·37	0·56	− 0·19	0·37	0·56	− 0·19	0·28	Hazaribagh.	Chota Nagpur.	15
7	2	...	1	1	1	4	4	11	5·7	?	?	3	·319	1·5	1	1·28	− 0·28	0·47	0·52	− 0·05	0·47	0·52	− 0·05	0·40	Ranchi.		
...	3	1	1	2	6	13	3	2	3·9	?	?	85	·380	1·3	2	1·52	+ 0·48	0·42	0·72	− 0·30	0·42	0·72	− 0·30	0·30	Daltonganj.		
14	...	...	...	2	...	8	6	1	1·2	?	?	78	·429	2·5	1	1·35	− 0·35	0·21	0·58	− 0·37	0·21	0·58	− 0·37	0·16	Chaibassa.		
15	...	...	1	2	4	3	5	1	3·0	1·6	+ 88	73	·363	2·0	0	1·31	− 1·31	0·02	0·58	− 0·56	0·02	0·58	− 0·56	0·02	Gaya	South Bihar.	16
7	1	1	...	3	5	12	2	...	6·3	?	?	72	·374	2·0†	0	0·12	− 0·12	0·06	0·62	− 0·56	0·06	0·62	− 0·56	0·06	Dehri.		
4	...	...	2	1	2	5	16	1	2·7	2·0	+ 35	74	·371	2·6	0	1·23	− 1·23	0	0·65	− 0·65	0	0·65	− 0·65	0	Patna.		
1	2	2	1	3	2	7	11	2	?	?	?	82	·370	1·5‡	0	1·50	− 1·50	0	0·73	− 0·73	0	0·73	− 0·73	0	Arrah.		
2	3	...	6	1	1	6	12	...	6·0	?	?	67	·346	2·3*	0	1·62	− 1·62	0·01	0·72	− 0·71	0·01	0·72	− 0·71	0·01	Buxar.		
18	...	...	...	1	...	4	8	...	2·2	?	?	72	·375	1·7*	1	1·12	− 0·12	0·35	0·48	− 0·13	0·35	0·48	− 0·13	0·35	Bhagalpur.	North Bihar.	17
6	1	1	4	3	...	6	9	1	3·4	2·3	+ 48	83	·376	2·2	0	1·24	− 1·24	0·05	0·66	− 0·61	0·05	0·66	− 0·61	0·03	Darbhanga.		
12	...	1	1	...	...	3	8	6	3·5	?	?	88	·380	1·7	1	1·36	− 0·36	0·13	0·84	− 0·71	0·13	0·84	− 0·71	0·13	Muzaffarpur		
...	4	3	3	1	3	5	7	5	4·3	?	?	95	·370	0·7	2	1·35	+ 0·65	0·25	0·71	− 0·46	0·25	0·71	− 0·46	0·10	Motihari.		
17	...	1	...	...	2	8	3	...	1·6	?	?	80	·351	2·6	0	1·46	− 1·46	0·01	0·68	− 0·67	0·01	0·68	− 0·67	0·01	Chapra.		
6	...	3	2	2	3	5		1	3·8	2·9	+ 31	80	·354	2·7	2	1·55	+ 0·45	0·22	0·79	− 0·57	0·22	0·79	− 0·57	0·11	Benares	N.-W. Prov. East.	18
10	...	4	3	1	...	...	10	3	3·9	1·9	+105	75	·344	2·7	3	2·09	+ 0·91	0·81	0·85	− 0·04	0·81	0·85	− 0·04	0·37	Allahabad.		
5	3	4	...	1	3	6	2	7	1·7	1·7	0	84	·375	2·8	2	1·18	+ 0·82	0·91	0·84	+ 0·07	0·91	0·84	+ 0·07	0·61	Gorakhpur	N.-W. Provinces (East Sub-montane).	23
6	1	1	3	1	1	2	9	7	1·9	2·4	− 21	82	·349	2·3	2	1·64	+ 0·36	1·10	1·10	0	1·10	1·10	0	0·74	Lucknow	South Oudh.	19
16	2	1	1	2	...	1	5	3	1·4	?	?	83	·352	1·2	2	?	?	0·98	0·86	+ 0·12	0·98	0·86	+ 0·12	0·72	Bahraich	North Oudh.	20
12	1	1	3	1	...	1	6	6	3·7	?	?	75	·332	2·3	2	1·40	+ 0·60	1·09	0·64	+ 0·45	1·09	0·64	+ 0·45	0·93	Cawnpore	N.-W. Prov. (Central).	21
25	1	...	1	...	...	...	3	1	0·6	?	?	73	·292	4·8	1	?	?	0·50	0·61	− 0·11	0·50	0·61	− 0·11	0·50	Mainpuri.		

* Mean of 30 days. † Mean of 29 days. ‡ Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 212 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	VI.—Upper Sub-Himalayas.		...	...	−·004	...	...	...	...	...	...	...	67·7	−0·8	45·4	+2·0	56·6	+0·6	22·3	...	...	...	...	38·8
24	N.-W. Provinces, West (Sub-montane).	Bareilly	568	29·473	−·003	30·056	29·657	22nd	29·329	14th	·328	50·5	72·2	+1·9	47·4	+1·4	59·8	+1·7	24·8	79·5	13th	39·2	17th & 18th	40·3
		Dehra Dun	2,233	27·754	−·014	30·065	27·940	22nd	27·615	14th	·325	49·8	66·6	+0·9	46·8	+2·1	56·7	+1·5	19·8	73·5	27th	40·5	3rd	33·0
		Roorkee	887	29·131	−·014	30·055	29·312	22nd	28·938	14th	·374	48·9	70·0	+0·6	45·7	+1·5	57·9	+1·1	24·3	78·3	27th	37·4	17th	40·9
22	N.-W. P., West.	Meerut	738	29·366	−·001	30·070	29·467	22nd	29·129	14th	·338	49·3	71·8	+1·7	47·4	+2·8	59·6	+2·3	24·4	78·6	27th	37·5	17th	41·1
26	South-East Punjab.	Delhi	718	29·332	−·005	30·068	29·495	22nd	29·121	14th	·374	52·3	70·8	−0·2	47·9	?	59·4	?	22·9	78·2	11th	37·9	17th	40·3
28	Central Punjab.	Lahore	702	29·317	−·003	30·083	29·545	3rd	28·959	14th	·586	46·4	65·1	−2·3	45·1	+3·8	55·1	+0·8	20·0	73·6	10th	36·2	17th	37·4
27	South Punjab	Sirsa	662	29·396	0	30·079	29·605	22nd	29·079	14th	·526	48·3	68·7	−2·2	44·7	+2·2	56·7	0	24·0	81·3	4th	36·2	16th & 18th	45·1
		Patiala	818	29·206	?	30·057	29·368	3rd	28·931	14th	·437	48·9	68·5	?	45·4	?	56·9	?	23·1	77·6	27th	35·8	16th	41·8
29	Punjab (Sub-montane).	Ludhiana	812	29·227	−·002	30·073	29·438	22nd	28·902	14th	·536	48·9	65·3	−2·3	46·8	+3·0	56·1	+0·4	18·5	74·1	26th & 27th	36·8	16th	37·3
		Sialkot	830	29·209	+·009	30·081	29·403	3rd	28·847	14th	·556	48·0	64·6	−1·9	43·6	+0·7	54·1	−0·6	21·0	72·0	12th	37·1	16th	34·9
		Umballa	892	29·136	?	30·058	29·319	22nd	28·851	14th	·468	50·4	69·6	?	45·4	?	57·5	?	24·2	79·0	27th	37·0	16th	42·0
31	North Punjab	Rawalpindi	1,643	28·360	?	30·115	28·599	22nd	27·894	14th	·705	43·3	59·6	−3·7	38·8	+0·8	49·2	−1·5	20·8	65·0	3 days	33·9	16th & 18th	31·1
	VII.—Indus Valley and North-West Rajputana.		...	...	+·005	...	...	...	...	...	...	...	69·9	−1·5	44·1	−0·2	57·0	−0·8	25·8	...	...	...	...	43·8
31	North Punjab	Peshawar	1,110	28·986	+·011	30·128	29·225	22nd	28·529	14th	·696	42·8	59·0	−4·9	40·2	+0·6	49·6	−2·1	18·8	68·7	9th	32·4	16th	36·3
		Mardan	?	29·073	?	?	29·300	22nd	28·574	14th	·726	39·4	58·9	?	35·5	?	47·2	?	23·4	66·0	9th	31·0	17th	35·0
32	West Punjab	Khushab	612	29·448	?	30·090	29·668	3rd	28·959	14th	·709	44·9	66·4	?	41·2	?	53·8	?	25·2	74·2	9th	34·0	16th	40·2
		Montgomery	558	29·511	?	30·086	29·724	22nd	29·074	14th	·650	47·0	68·7	?	41·7	?	55·2	?	27·0	78·0	10th	34·5	17th	43·5
		D. I. Khan (Tel. Office).	593	29·511	−·001	30·107	29·725	22nd	29·027	14th	·698	45·6	68·1	−1·5	41·1	−0·2	54·6	−0·9	27·0	75·3	9th	35·0	18th & 19th	40·3
		Mooltan	420	29·665	−·016	30·094	29·882	22nd	29·203	14th	·679	46·0	70·2	+0·4	43·9	+1·2	57·1	+0·8	26·3	76·8	10th	34·5	17th	42·3
47	Sind	Jacobabad	186	29·917	+·007	30·083	30·124	22nd	29·615	14th	·509	46·0	72·9	−0·4	42·5	−0·6	57·7	−0·5	30·4	77·9	30th & 31st	30·5	16th	47·4
		Hyderabad	96	30·018	+·011	30·075	30·218	22nd	29·808	13th	·410	53·6	75·6	−0·9	49·1	−2·1	62·4	−1·5	26·5	82·0	11th & 30th	37·5	15th	44·5
		Kurrachee (Tel. Office).	12	30·110	+·017	30·073	30·304	22nd	29·905	13th	·399	58·1	76·1	?	52·8	?	64·5	?	23·3	82·5	27th	41·0	16th	41·3
51	West Rajputana	Bickaneer*	771?	29·293	?	30·093	29·499	22nd	28·965	14th	·534	50·6	70·1	−1·7	47·1	?	58·6	?	23·0	83·7	11th	38·6	18th	45·1
		Pachpadra	380?	29·7.7	?	30·086	29·885	22nd	29·492	14th	·393	50·6	77.0	?	43·9	?	60·4	?	33·1	87·6	11th	31·0	15th	56·6
		Jodhpur	810	29·279	?	30·108	29·457	22nd	29·026	14th	·431	53·5	75·7	?	49·6	?	62·7	?	26·1	88·1	11th	34·6	15th	53·5
	VIII.—East Rajputana, Central India and Gujarat.		...	...	+·004	...	...	...	...	...	...	..	77·7	−1·1	51·2	+0·3	64·5	−0·4	26·5	...	...	...	...	48·0
50	East Rajputana	Jeypore	1,431	28·619	+·001	30·104	28·781	22nd	28·392	14th	·389	52·5	73·2	−0·5	48·9	+0·5	61·1	0	24·3	84·5	11th	36·2	17th	48·3
		Sambhar	1,254	28·790	+·005	30·100	28·959	22nd	28·544	14th	·415	49·1	72·9	+0·5	46·0	−0·1	59·5	+0·2	26·9	85·4	11th	34·0	17th	51·4
		Ajmere	1,611	28·441	0	30·132	28·594	22nd	28·216	14th	·378	48·5	72·7	−1·3	45·7	+0·8	59·2	−0·3	27·0	85·9	11th	35·9	16th	50·0
		Deesa	466	29·597	−·001	30·051	29·719	22nd	29·445	14th	·274	56·1	80·8	−1·9	50·2	−1·2	65·5	−1·6	30·6	91·3	10th	38·0	15th	53·3
46	Kathiawar and Cutch.	Bhuj	395	29·688	+·009	30·065	29·819	22nd	29·568	31st	·251	57·8	76·4	−3·7	52·0	−2·8	64·2	−3·3	24·4	83·4	9th & 11th	42·5	18th	43·9
		Rajkot	429	29·643	+·015	30·050	29·740	22nd	29·557	31st	·183	58·3	80·3	−3·9	48·2	−3·0	64·2	−3·5	32·1	90·9	10th	38·1	16th	52·8
		Veraval	?	30·053	?	30·013	30·128	1st	29·981	30th	·147	61·8	79·4	?	56·8	?	68·1	?	22·6	87·1	29th	47·3	16th	39·8
		Ghadechi	35	30·038	?	30·020	30·126	1st	29·946	14th	·180	59·5	82·3	?	52·7	?	67·5	?	29·6	94·8	11th	42·8	16th	52·0
49	Central India	Nowgong	757	29·311	−·008	30·076	29·449	1st	29·140	14th	·309	55·1	72·8	−2·5	50·8	+3·9	61·8	+0·7	22·0	85·5	12th	40·0	17th	45·5
		Indore	1,823	28·238	+·008	30·063	28·318	1st	28·078	31st	·240	57·9	80·3	+1·4	51·2	+0·9	65·8	+1·2	29·1	87·7	25th	39·6	16th	48·1
		Neemuch	1,630	28·428	+·031	30·107	28·549	22nd	28·260	14th	·289	55·8	76·2	−1·2	48·7	−0·2	62·5	−0·7	27·5	87·3	11th	37·5	17th	50·3
45	Gujarat	Surat	39	30·020	−·004	30·002	30·094	15th	29·934	30th	·160	62·8	87·0	+0·7	58·1	+1·7	72·6	+1·2	28·9	96·7	7th & 9th	48·7	16th	48·0
		Ahmedabad	164	29·906	?	30·027	30·014	1st	29·810	14th	·204	61·3	82·6	?	56·3	?	69·5	?	26·3	93·2	10th	44·2	16th	49·0
22	N.-W. P., West	Agra	555	29·514	−·004	30·071	29·686	22nd	29·331	14th	·355	53·2	73·2	−0·3	50·0	+1·5	61·6	+0·6	23·2	84·0	12th	39·9	17th	44·1
21	N.-W. P., Central.	Jhansi	858	29·210	−·004	30·079	29·350	22nd	29·044	14th	·306	57·7	74·9	−1·0	52·7	+2·1	63·8	+0·6	22·2	88·1	11th & 12th	44·4	17th	43·7

I—*continued.*

in India, Burma, etc., in January 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	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 January 1897.	Normal rainfall for period from 1st to 31st January.	Variation from normal of period from 1st to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·97	1·67	−0·65	...	...	...	...	**VI.—Upper Sub-Himalayas.**		
16	...	...	2	...	...	...	3	10	1·2	2·8	−57	83	·315	3·5	2	2·36	−0·36	0·35	1·10	−0·75	0·35	1·10	−0·75	0·14	Bareilly	N.-W. Provinces, West (Sub-montane).	24
27	...	...	1	...	...	2	...	1	1·2*	1·8	−33	80	·287	5·8	5	3·73	+1·27	2·44	2·54	−0·10	2·44	2·54	−0·10	0·86	Dehra Dun		
22	1	...	1	2	...	...	2	3	1·9	2·2	−14	83	·293	3·7	1	2·73	−1·73	0·50	1·76	−1·26	0·50	1·76	−1·26	0·33	Roorkee.		
16	...	...	...	1	...	2	10	2	2·0	2·1	− 5	76	·273	3·3	1	2·45	−1·45	0·20	1·27	−1·07	0·20	1·27	−1·07	0·20	Meerut	N.-W. Provinces, West.	22
27	...	...	1	...	...	2	1	...	3·9	3·0	+30	66	·264	4·3	1	1·82	−0·82	0·11	1·24	−1·13	0·11	1·24	−1·13	0·11	Delhi	South-East Punjab.	26
19	...	1	3	...	2	1	4	1	1·9	1·9	0	82	·261	4·8	2	2·00	0	1·42	1·06	+0·36	1·42	1·06	+0·36	0·90	Lahore	Central Punjab	28
10	3	1	3	3	...	...	5	6	4·9	2·6	+88	76	·264	5·4	2	1·36	+0·64	0·37	0·90	−0·53	0·37	0·90	−0·53	0·19	Sirsa	South Punjab.	27
13	1	4	...	...	3	9	1	...	3·2	?	?	87	·306	4·3	3	?	?	0·40	?	?	0·40	?	?	0·12	Patiala.		
20	...	2	...	1	...	...	4	4	1·1	1·1	0	84	·297	5·1	3	3·00	0	0·90	1·97	−1·07	0·90	1·97	−1·07	0·42	Ludhiana	Punjab (Sub-montane).	29
24	2	1	1	1	...	...	1	1	1·5	1·4	+ 7	83	·282	3·6	3	2·36	+0·64	2·09	2·49	−0·40	2·09	2·49	−0·40	0·89	Sialkot.		
18	...	...	2	...	...	...	3	8	2·1	?	?	86	·316	3·7	1	?	?	0·29	1·15	−0·86	0·29	1·15	−0·86	0·12	Umballa.		
12	5	...	2	...	1	...	11	...	3·6	1·9	+89	80	·227	4·7	4	4·00	0	2·55	2·84	−0·29	2·55	2·84	−0·29	0·95	Rawalpindi	North Punjab.	31
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·80	0·55	+0·02	...	...	...	...	**VII.—Indus Valley and North-West Rajputana.**		
9	1	...	...	5	9	5	1	1	2·9	2·5	+16	79	·220	5·7	5	2·73	+2·27	3·23	1·77	+1·46	3·23	1·77	+1·46	1·07	Peshawar	North Punjab.	31
		Not	recorde	d.					?	?	?	96	·236	6·6	5	?	?	3·63	?	?	3·63	?	?	1·29	Mardan.		
8	2	4	4	1	4	1	5	2	3·1	?	?	70	·207	4·5	2	1·30	+0·70	0·78	0·52	+0·26	0·78	0·52	+0·26	0·40	Khushab	West Punjab.	32
18	2	1	2	2	1	...	2	3	2·6	?	?	72	·231	4·0	1	0·90	+0·10	0·68	0·24	+0·44	0·68	0·24	+0·44	0·68	Montgomery		
22	3	...	...	...	...	...	...	6	1·7	1·4	+22	75	·234	4·0	1	1·45	−0·45	0·34	0·53	−0·19	0·34	0·53	−0·19	0·31	D. I. Khan		
21	...	7	...	2	...	1	...	...	1·1	1·7	−35	73	·229	2·5	0	1·27	−1·27	0·11	0·48	−0·37	0·11	0·48	−0·37	0·05	Mooltan.		
14	4	1	5	2	...	1	1	3	3·4	2·1	+62	59	·193	4·1	0	0·73	−0·73	0·03	0·25	−0·22	0·03	0·25	−0·22	0·03	Jacobabad	Sind.	47
9	9	1	...	...	2	2	...	8	8·4	7·2	+17	48	·203	3·0	0	0·90	−0·90	0	0·31	−0·31	0	0·31	−0·31	0	Hyderabad.		
3	2	15	8	...	...	...	1	2	5·8	10·0	−42	58	·303	2·2	0	1·18	−1·18	0·10	0·72	−0·62	0·10	0·72	−0·62	0·04	Kurrachee.		
...	5	2	3	6	3	2	1	8	5·3	2·9	+83	63†	·244†	3·9	1	?	?	0·31	0·30	+0·01	0·31	0·30	+0·01	0·31	Bickaneer*	West Rajputana.	51
...	4	10	5	5	1	3	1	2	7·3	2·8	+161	60	·222	1·0	1	?	?	0·13	0·37	−0·24	0·13	0·37	−0·24	0·13	Pachpadra.		
6	5	18	...	...	...	1	1	...	4·2	?	?	52	·212	2·6	1	?	?	0·21	?	?	0·21	?	?	0·21	Jodhpur.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·31	0·36	+0·02	...	...	...	...	**VIII.—East Rajputana, Central India and Gujarat.**		
8	7	7	1	1	...	2	2	3	2·9	3·9	−26	70	·286	3·4	0	1·60	−1·60	0	0·69	−0·69	0	0·69	−0·69	0	Jeypore	East Rajputana.	50
21	3	3	2	...	1	...	...	1	3·8*	4·5	−16	65	·237	3·3	0	1·10	−1·10	0	0·47	−0·47	0	0·47	−0·47	0	Sambhar.		
23	1	4	...	...	1	...	2	...	2·3	1·9	+21	73	·256	3·1	0	1·45	−1·45	0	0·52	−0·52	0	0·52	−0·52	0	Ajmere.		
...	1	12	12	1	1	1	2	1	9·5	8·5	+10	57	·260	1·7	0	0·36	−0·36	0·07	0·17	−0·10	0·07	0·17	−0·10	0·07	Deesa.		
3	3	4	1	2	5	5	5	3	8·6	6·0	+43	55	·275	1·9	1	?	?	0·10	0·11	−0·01	0·10	0·11	−0·01	0·10	Bhuj	Kathiawar and Cutch.	46
11	3	7	4	2	1	...	1	2	5·4	5·2	+ 4	46	·232	2·7	1		+0·80	0·11	0·04	+0·07	0·11	0·04	+0·07	0·11	Rajkot		
...	20	6	1	1	...	...	...	3	6·3	?	?	56	·319	1·3	0	?	?	0·04	?	?	0·04	?	?	0·04	Veraval.		
...	4	2	...	...	...	3	10	12	7·0	?	?	45	·241	1·5	0	?	?	0	?	?	0	?	?	0	Ghadechi.		
5	4	2	3	...	3	2	9	3	2·9	1·4	+107	81	·368	3·3	3	1·73	+1·27	1·99	0·65	+1·34	1·99	0·65	+1·34	1·65	Nowgong	Central India.	49
12	2	8	1	...	1	2	1	4	2·2	2·5	−12	58	·285	2·7	0	0·36	−0·36	0·07	0·18	−0·11	0·07	0·18	−0·11	0·05	Indore.		
2	3	18	3	1	...	1	...	3	6·4	8·1	−21	55	·253	1·8	0	0·45	−0·45	0	0·30	−0·30	0	0·30	−0·30	0	Neemuch.		
4	8	10	5	1	2	...	...	1	4·4	5·2	−15	61	·361	1·0	0	0·18	−0·18	0	0·05	−0·05	0	0·05	−0·05	0	Surat	Gujarat.	45
...	4	15	7	...	...	...	...	4	5·9	?	?	49	·272	2·3	0	?	?	0	?	?	0	?	?	0	Ahmedabad‡		
4	...	5	...	...	...	7	...	15	4·9	3·5	+40	74	·290	2·6	1	1·27	−0·27	0·37	0·53	−0·16	0·37	0·53	−0·16	0·37	Agra	N.-W. P., West	24
17	1	2	1	...	...	3	1	6	1·8	2·2	−18	66	·318	2·3	3	1·18	+1·82	1·86	0·59	+1·27	1·86	0·59	+1·27	1·35	Jhansi	N.-W. P., Central.	21

* Mean of 30 days. † Mean of 28 days. ‡ Wind observations of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 212 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	IX.—Deccan		...	...	**—·005**	...	...	...	...	...	...	...	**85·9**	**+2·3**	**60·0**	**+4·7**	**73·0**	**+3·6**	**25·9**	...	...	...	...	**39·4**
39	Bombay, Deccan	Belgaum	2,524	27·492	+·008	29·987	27·535	22nd	27·426	29th	·109	68·2	86·8	+3·8	59·9	+2·5	73·3	+3·2	26·9	90·2	24th	54·9	3 days	35·3
		Sholapur	1,590	28·438	—·008	30·012	28·493	22nd	28·352	29th	·141	70·4	91·1	+3·8	63·4	+5·7	77·3	+4·8	27·7	97·7	31st	57·1	13th	40·6
		Poona	1,840	28·187	—·006	30·031	28·238	22nd	28·116	30th	·122	64·4	89·5	+4·4	57·9	+2·9	73·7	+3·7	31·6	93·5	24th & 31st,	50·0	16th	43·5
		Bijapur	1,946	28·079	?	30·002	28·158	7th	27·992	29th	·166	70·7	90·3	?	64·7	?	77·5	?	25·6	95·2	31st	58·1	17th	37·1
4	Khandesh	Malegaon	1,430	28·599	—·009	30·034	28·689	1st	28·514	31st	·175	64·4	87·4	+2·3	56·0	+4·0	71·7	+3·2	31·4	93·4	25th	44·5	16th	48·9
		Ahmednagar	2,152	27·878	?	30·030	27·933	6th	27·795	31st	·138	65·2	87·0	?	56·6	?	71·8	?	30·4	96·8	19th	50·0	31st	46·8
41	Berar	Akola	930	29·097	—·016	30·009	29·179	1st	28·980	31st	·199	66·6	88·2	+3·8	61·0	+7·7	74·6	+5·8	27·2	94·9	25th	52·6	16th	42·3
		Amraoti	1,215	28·813	—·007	30·026	28·889	1st	28·685	31st	·204	66·3	86·5	+2·3	62·5	+5·2	74·5	+3·8	24·0	92·7	25th	54·9	16th	37·8
42	Central Provinces, West.	Khandwa	1,044	28·995	—·003	30·045	29·106	1st	28·872	31st	·234	61·9	85·2	+1·8	57·3	+5·4	71·3	+3·6	27·9	93·2	25th	47·1	16th	46·1
		Hoshangabad	1,006	29·038	—·001	30·057	29·162	1st	28·913	31st	·249	59·6	80·3	+0·1	56·8	+4·4	68·6	+2·3	23·5	89·3	25th	49·3	1st	40·0
		Nagpur	1,025	29·011	—·011	30·033	29·091	1st	28·882	31st	·209	64·6	85·4	+2·4	60·9	+5·5	73·2	+4·0	24·5	91·1	12th	55·2	17th	35·9
43	Central Provinces, Central.	Chanda	634	29·404	—·019	30·007	29·479	22nd	29·265	31st	·214	68·2	88·1	+3·2	58·9	+4·3	73·5	+3·8	29·2	93·2	31st	53·4	4 days	39·8
		Seoni	2,033	28·000	+·002	30·058	28·081	23rd	27·895	31st	·186	59·9	79·6	+0·6	54·5	?	67·0	?	25·1	86·0	13th	47·0	1st	39·0
		Jubbulpore	1,327	28·715	—·005	30·065	28·813	1st	28·595	14th	·218	59·1	78·7	+1·5	53·0	+4·7	65·9	+3·1	25·7	86·9	12th	43·9	5th	43·0
		Saugor	1,807	28·226	?	30·067	28·353	22nd	28·085	14th	·268	58·9	76·3	−0·3	54·2	+2·8	65·3	+1·3	22·1	86·3	11th & 12th,	45·1	17th	41·2
49	Central India	Sutna	1,040	29·010	—·004	30·072	29·180	22nd	28·868	14th	·312	56·4	76·3	+1·7	53·0	+5·7	64·7	+3·7	23·3	87·4	12th	42·7	17th	44·7
	Central Provinces, East.	Raipur	970	29·079	0	30·042	29·166	22nd	28·979	13th	·187	64·3	83·6	+2·6	60·1	+4·9	71·9	+3·8	23·5	89·8	13th	55·3	5th	34·5
		Sambalpur	486	29·598	+·012	30·054	29·698	22nd	29·498	13th	·200	66·7	84·2	+2·2	59·7	+4·7	72·0	+3·5	24·5	91·0	12th	54·2	3 days	36·8
39	Hyderabad, (North.)	Aurangabad	1,865?	28·179	?	30·035	28·231	1st	28·098	31st	·133	68·7	88·7	?	59·9*	?	74·2*	?	28·8	93·6	31st	53·4	17th	40·2
		Indur	?			Not	recorde	d.				72·3	88·7	?	63·3	?	76·0	?	25·4	95·4	31st	55·3	9th	40·1
		Bidar	2,165?	27·870	?	30·001	27·927	5th & 6th	27·778	31st	·149	72·5	86·0	?	64·1	?	75·1	?	21·9	92·7	31st?	61·2	19th	31·5
53	Hyderabad, (South)	Gulbarga	1,502	28·518	?	30·006	28·572	6th	28·430	29th	·142	69·1	90·6	?	63·3	?	76·9	?	27·3	97·2	31st	56·0	12th	41·2
		Raichur	1,309	28·716	?	29·999	28·761	6th	28·636	30th	·125	72·5	89·4	?	66·9	?	78·2	?	22·5	95·6	30th	60·2	12th	35·4
		Hyderabad (Deccan).	1,690	28·345	—·008	30·027	28·411	5th	28·260	31st	·151	67·9	87·5	+3·4	62·9	+5·0	75·2	+4·2	24·6	94·4	31st	58·8	3 days	35·6
		Secunderabad.	1,787	28·246	?	30·028	28·310	5th	28·166	13th & 29th	·144	66·8	87·6	?	62·7	?	75·2	?	24·9	93·6	30th	59·0	14th	34·6
		Khamamet	373	29·687	?	30·015	29·763	22nd	29·596	29th	·167	73·0	90·7	?	67·2	?	79·0	?	23·5	95·0	31st	63·2	10th & 12th.	31·8
	X.—West Coast		...	...	**+·004**	...	...	...	...	...	...	...	**86·3**	**+0·5**	**70·8**	**+2·1**	**78·6**	**+1·3**	**15·5**	...	...	...	...	**26·0**
37	Konkan	Bombay	37	30·012	+·012	29·990	30·081	15th	29·934	29th	·147	70·5	81·2	−1·1	67·4	−0·5	74·3	−0·8	13·8	89·0	10th	61·0	20th	28·0
		Ratnagiri	110	29·918	+·013	29·968	29·959	19th	29·845	29th	·114	73·4	86·0	−1·4	68·7	+2·6	77·4	+0·6	17·3	92·4	3 days	63·9	31st	28·5
		Mormugao	60	29·973	?	29·968	30·026	21st	29·900	29th	·126	73·8	85·9	?	71·7	?	78·8	?	14·2	92·0	7th	68·3	11th	23·7
		Goa	199	29·824	+·002	29·963	29·879	21st	29·757	29th	·122	75·5	83·5	?	70·4	?	77·0	?	13·1	88·0	8th	61·0	20th	27·0
		Karwar	44	29·988	+·011	29·965	30·041	21st	29·921	29th	·120	70·7	87·2	+0·7	68·2	+2·4	77·7	+1·6	19·0	94·3	7th	62·5	11th	31·8
33	Malabar	Cochin	11	29·995	—·001	29·933	30·041	11th	29·942	29th	·099	76·7	91·3	+2·7	73·5	+2·2	82·4	+2·5	17·8	93·8	4 days	66·8	13th	27·0
		Calicut	27	29·987	—·007	29·944	30·028	11th	29·931	13th	·097	76·9	88·8	+1·3	72·0	+2·8	80·4	+2·1	16·8	90·3	4 days	67·5	13th	22·8
		Mangalore	65	29·957	—·001	29·955	29·998	21st	29·904	29th	·094	76·5	88·7	+0·9	72·2	+3·0	80·5	+2·0	16·5	93·	6th & 7th,	69·0	4 days	24·8
		Trivandrum	198	29·789	?	29·921	29·841	15th	29·735	29th	·106	76·1	84·4	?	73·1	?	78·8	?	11·3	87·0	26th	67·0	13th	20·0
	XI.—South India		...	...	**+·001**	...	...	...	...	...	...	...	**86·3**	**+2·3**	**66·7**	**+2·8**	**76·5**	**+2·6**	**19·6**	...	...	...	...	**29·9**
57	Madras (South).	Pamban	37	30·003	?	29·967	30·055	22nd	29·953	29th	·102	79·5	83·8	?	76·3	?	80·1	?	7·5	86·3	22nd	71·2	17th	15·1
		Tinnevelly	168	29·875	?	29·975	29·922	24th	29·820	29th	·102	76·2	88·0	?	72·8	?	80·4	?	15·2	91·7	30th & 31st,	64·9	13th	26·8
		Madura	447	29·590	+·009	29·982	29·631	24th	29·532	28th	·099	75·0	88·0	+0·1	69·9	+1·4	79·0	+0·8	18·1	91·4	31st	62·7	13th	28·7

* Mean of 30 days.

I—*continued.*

in India, Burma, etc., in January 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	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 January 1897.	Normal rainfall for period, from 1st to 31st January.	Variation from normal of period, from 1st to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·50	0·32	+0·30	...	...	...	...	IX.—Deccan.		
16	...	1	4	6	1	...	2	1	8·4	10·9	−23	64	·436	1·0	0	0·27	−0·27	0	0·06	− 0·06	0	0·06	− 0·06	0	Belgaum .	Bombay, Deccan.	3
2	1	..	1	22	...	3	2	...	10·2	7·1	+44	53	·397	1·7	0	0·36	−0·36	0	0·11	− 0·11	0	0·11	− 0·11	0	Sholapur.		
11	...	1	1	2	...	6	5	5	7·5	5·7	+32	59	·360	1·9	0	0·36	−0·36	0	0·06	− 0·06	0	0·06	− 0·06	0	Poona.		
...	...	1	9	9	...	1	6	5	4·7	?	?	80	·604	1·5	0	0·20	−0·20	0	?	?	0	?	?	0	Bijapur.		
3	9	2	1	...	...	3	5	8	7·7	3·9	+97	73	·439	2·2	0	0·27	−0·27	0	0·16	− 0·16	0	0·16	− 0·16	0	Malegaon .	Khandesh.	40
4	5	2	4	5	1	1	1	8	11·7	?	?	63	·395	1·9	0	?	?	0	?	?	0	?	?	0	Ahmednagar.		
4	...	3	14	2	1	...	6	1	5·1	3·4	+50	64	·415	2·8	1	0·45	+0·55	0·47	0·43	+ 0·04	0·47	0·43	+ 0·04	0·34	Akola .	Berar.	41
...	1	8	12	4	2	1	2	1	5·4	3·2	+69	66	·436	3·2	2	0·55	+1·45	1·58	0·39	+ 1·19	1·58	0·39	+ 1·19	1·20	Amraoti.		
8	...	9	6	1	...	2	2	3	5·0	2·8	+79	61	·339	1·9	1	0·45	+0·55	0·40	0·31	+ 0·09	0·40	0·31	+ 0·09	0·40	Khandwa .	Central Provinces, West.	42
11	...	12	8	...	...	...	...	...	4·6	2·5	+84	69	·360	2·5	3	0·82	+2·18	0·77	0·25	+ 0·52	0·77	0·25	+ 0·52	0·36	Hoshangabad.		
21	3	2	2	1	2	...	...	...	3·7	3·1	+19	75	·459	3·0	3	0·64	+2·36	0·66	0·55	+ 0·11	0·66	0·55	+ 0·11	0·23	Nagpur.		
6	2	6	9	5	...	...	2	1	1·3	2·1	−38	71	·498	2·0	0	?	?	0·02	0·37	− 0·35	0·02	0·37	− 0·35	0·02	Chanda .	Central Provinces, Central.	43
...	8	10	...	1	5	4	1	2	3·6	2·7	+33	72	·379	3·3	3	1·18	+1·82	1·69	0·63	+ 1·06	1·69	0·63	+ 1·06	0·77	Seoni.		
10	1	4	...	9	4	2	1	...	2·4	2·2	+ 9	79	·404	2·6	3	1·73	+1·27	2·10	0·76	+ 1·34	2·10	0·76	+ 1·34	1·10	Jubbulpore.		
1	2	10	4	6	1	4	2	1	3·7	2·8	+32	60	·301	2·6	3	1·36	+1·64	1·81	0·70	+ 1·11	1·81	0·70	+ 1·11	0·85	Saugor.		
5	6	...	4	1	2	2	7	4	4·4	4·0	+10	77	·356	1·9	3	1·73	+1·27	1·64	1·05	+ 0·59	1·64	1·05	+ 0·59	0·66	Sutna	Central India.	4
16	1	6	2	2	1	1	1	1	4·1	2·6	+58	69	·414	2·5	3	0·45	+2·55	0·81	0·20	+ 0·61	0·81	0·20	+ 0·61	0·36	Raipur .	Central Provinces, East.	44
...	10	16	2	1	...	1	1	...	4·9	1·6	+206	73	·476	2·0	3	?	?	0·99	0·30	+ 0·69	0·99	0·30	+ 0·69	0·68	Sambalpur.		
14	...	9	2	1	2	1	...	2	4·3	?	?	59	·416	1·4	0	?	?	0·10	0·19	− 0·09	0·10	0·19	− 0·09	0·07	Aurangabad	Hyderabad (North.)	39
15	1	...	1	5	4	2	3	...	4·4	?	?	75	·597	1·4	0	?	?	0	0·05	− 0·05	0	0·05	− 0·05	0	Indur.		
...	1	1	5	8	6	7	3	...	6·3	?	?	68	·540	0·5	0	?	?	0	0	0	0	0	0	0	Bidar.		
10	1	6	6	3	3	1	1	...	7·5	?	?	61	·437	1·6	0	?	?	0	0·08	− 0·08	0	0·08	− 0·08	0	Gulbarga.	Hyderabad, (South.)	53
29	...	...	...	1	1	...	...	...	8·7	?	?	69	553	0·8	0	?	?	0	?	?	0	?	?	0	Raichur.		
19	...	1	1	9	...	...	...	1	3·9	?	?	76	·523	2·2	0	?	?	0	0·09	− 0·09	0	0·09	− 0·09	0	Hyderabad (Deccan).		
5	...	...	11	14	...	...	...	1	5·4	3·8	+42	73	·482	1·8	0	?	?	0	?	?	0	?	?	0	Secunderabad.		
20	...	...	3	7	1	...	...	...	6·0	?	?	82	·674	0·6	0	?	?	0	?	?	0	?	?	0	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·05	0·2	−0·21	...	...	...	...	X.—West Coast.		
...	10	11	7	3	...	...	...	...	·5	10·1	− 6	73	·555	3·1	0	0·27	−0·27	0·01	0·13	− 0·12	0·01	0·13	− 0·12	0·01	Bombay.	Konkan.	7
10	4	7	7	2	...	...	...	1	4·7	9·8	−52	67	·552	2·1	0	0·45	−0·45	0	0·22	− 0·22	0	0·22	− 0·22	0	Ratnagiri.		
1	6	4	14	5	1	...	...	...	7·9	?	?	84	·710	0·8	0	?	?	0	?	?	0	?	?	0	Mormugao.		
3	6	4	17	...	1	...	...	...	?	?	?	73	·645	1·5	0	?	?	0	0·25	− 0·25	0	0·25	− 0·25	0	Goa.		
...	1	12	18	...	...	...	...	...	4·6	?	?	83	·619	0·5	0	0·27	−0·27	0	0·12	− 0·12	0	0·12	− 0·12	0	Karwar.		
2	9	18	2	...	...	...	...	...	5·1	?	?	75	·704	1·4	1	0·82	+0·18	0·42	0·59	− 0·17	0·42	0·59	− 0·17	0·33	Cochin .	Malabar	33
...	...	14	15	2	...	...	...	...	12·0	?	?	78	·713	1·7	0	0·38	−0·38	0	0·08	− 0·08	0	0·08	− 0·08	0	Calicut.		
2	...	3	14	12	...	...	...	...	2·6	3·9	−33	74	·677	1·3	0	0·10	−0·10	0	0·09	− 0·09	0	0·09	− 0·09	0	Mangalore.		
11	6	7	2	...	...	3	1	1	?	?	?	81	·737	2·4	0	?	?	0	0·64	− 0·64	0	0·64	− 0·64	0	Trivandrum.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·19	0·38	−0·32	...	...	...	...	XI.—South India.		
...	4	21	5	...	...	...	...	1	11·7	?	?	82	·825	3·0	1	1·50	−0·50	0·20	1·80	− 1·60	0·20	1·80	− 1·60	0·16	Pamban .	Madras (South)	57
...	14	5	...	...	...	...	...	12	4·1	?	?	83	·756	5·1	0	2·20	−2·20	0·17	?	?	0·17	?	?	0·08	Tinnevelly.		
...	14	4	...	1	..	...	...	12	4·1	5·4	−24	78	·690	2·0	0	1·00	−1·00	0·03	0·33	− 0·30	0·03	0·33	− 0·30	0·03	Madura.		

Table

Abstract of Observations taken at 8 A.M. at 212 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
34	Madras, South Central.	Salem	940	29·129	+·002	30·030	29·167	22nd & 24th.	29·071	29th	·096	73·1	90·2	+2·0	65·1	+1·8	77·7	+1·9	25·1	95·4	30th & 31st.	58·9	3 days	36·5
		Coimbatore	1,348	28·694	+·012	30·012	28·746	22nd	28·634	29th	·112	72·2	88·3	+1·7	65·5	+1·5	76·9	+1·6	22·8	92·4	30th & 31st.	57·5	13th	34·9
35	Coorg	Mercara	3,781	26·314	+·004	?	26·359	22nd	26·256	13th	·103	64·4	78·8	+2·4	59·0	+3·1	68·9	+2·8	19·8	82·5	3 days	54·2	11th & 13th	28·3
36	Mysore	Chitaldroog	2,405	27·627	?	29·975	27·675	6th	27·569	29th	·106	72·4	88·0	?	64·0	?	76·0	?	24·0	92·1	3 days	56·4	12th	35·7
		Bangalore	3,021	27·036	−·003	30·011	27·086	22nd	26·982	13th	·104	65·0	82·9	+3·6	59·8	+3·2	71·4	+3·4	23·1	88·3	30th & 31st.	54·4	12th & 14th	33·9
		Hassan	3,091	26·976	?	30·020	27·017	22nd	26·921	29th	·096	66·8	84·2	?	56·0	?	70·1	?	28·2	89·1	31st.	48·1	11th	41·0
		Mysore	2,518	27·534	?	30·007	27·576	22nd	27·480	13th	·096	69·3	86·2	?	61·5	?	73·9	?	24·7	90·9	30th	54·4	13th	36·5
56	Madras, East Coast, South.	Negapatam	31	30·009	+·004	29·970	30·068	22nd	29·959	28th	·109	77·4	83·5	+1·7	73·3	+2·7	78·4	+2·2	10·2	87·2	31st	68·0	16th	19·2
		Cuddalore	12	30·037	?	29·979	30·089	22nd & 23rd.	29·983	29th	·106	74·3	84·1	?	69·7	?	76·9	?	14·4	85·3	6 days	65·3	13th	20·0
		Trichinopoly	255	29·785	−·006	29·979	29·826	22nd & 24th.	29·722	28th	·104	74·4	89·1	+1·9	68·7	+1·8	79·0	+1·9	20·4	91·5	27th & 29th	62·4	13th	29·1
		Madras	22	30·041	−·008	29·994	30·107	22nd	29·973	29th	·134	75·4	85·5	+0·9	69·0	+1·5	77·3	+1·2	16·5	87·5	23rd & 27th.	65·0	16th	22·5
55	Madras, East Coast, Central.	Nellore	71	29·987	?	29·993	30·052	22nd	29·901	29th	·151	73·8	86·8	?	69·3	?	78·1	?	17·5	90·7	31st	66·1	14th	24·6
		Masulipatam	15	30·062	+·009	30·012	30·136	22nd	29·972	29th	·164	73·2	84·4	+1·1	67·8	+2·1	76·1	+1·6	16·6	87·5	13th	63·7	29th	23·8
54	Madras, Central	Cuddapah	433	29·616	+·002	29·999	29·670	22nd	29·523	29th	·147	71·3	90·7	+3·1	67·5	+3·3	79·1	+3·2	23·2	99·7	31st	61·9	11th	37·8
		Kurnool	923	29·111	−·012	30·004	29·168	6th	29·024	30th	·144	70·7	91·7	+3·4	63·8	+5·0	77·8	+4·2	27·9	97·2	30th	55·7	12th	41·5
		Bellary	1,475	28·557	0	30·008	28·602	6th	28·476	29th	·126	71·5	91·2	+3·7	64·5	+4·0	77·9	+3·9	26·7	98·2	31st	59·1	13th	39·1
52	Madras, East Coast, North.	Rajahmundry	112			Not recorded.						73·4	89·9	+3·2	68·6	+4·3	79·3	+3·8	21·3	94·8	17th	64·0	11th	30·8
		Cocanada	26	30·050	+·011	30·011	30·127	22nd	29·963	13th	·164	73·5	82·8	+3·5	69·7	+4·4	76·2	+4·0	13·1	90·5	13th	66·0	11th	24·5
		Vizagapatam	31	30·032	−·010	30·002	30·115	22nd	29·932	13th	·183	73·2	84·3	+1·7	67·5	+2·4	75·9	+2·1	16·8	89·8	15th & 16th.	60·9	11th	28·9
		Gopalpur	21	30·059	?	30·020	30·151	22nd	29·936	29th	·215	71·6	83·0	?	65·0	?	74·0	?	18·0	89·2	17th	60·1	10th & 11th.	29·1
	XII.—Hill Stations																							
48	Baluchistan	Sharigh	?	25·987(a)	?	?	26·160	22nd	25·540	14th	·620	41·9(a)	58·0(a)	?	34·7†	?	46·5†	?	23·3	65·0	10th	22·0	15th	43·0
		Pishin	?			Not recorded.						?	51·5	?	30·8‡	?	41·9‡	?	20·7	65·4	5th	14·9	15th	50·5
		Quetta	5,502	24·670	−·011	?	24·840	22nd	24·424	13th	·416	32·2	49·5	−2·0	30·5	+1·2	40·0	−0·4	19·0	64·2	9th	9·3	15th	54·9
		Kalat	?			Not recorded.						31·8(a)	51·4	?	23·5(a)	?	37·4	?	27·9	63·7	9th	−6·4	15th	70·1
		Chaman	4,311	25·756	?	?	25·905	22nd	25·560	13th	·345	39·6	51·3	?	35·7	?	43·5	?	15·6	66·3	5th	15·1	3 days	51·2
30	Punjab	Leh	11,503	19·609	?	?	19·973	23rd	19·275	14th	·698	8·9†	20·2	?	5·3	?	12·7	?	14·9	31·1	7th & 12th	−8·5	23rd	39·6
		Srinagar	5,204	24·982	?	?	25·325	23rd	24·526	11th	·799	27·3	35·7	?	23·8	?	29·8	?	11·9	44·5	1st	11·6	17th	32·9
		Astor (Kashmir)	?	22·244	?	?	22·591	23rd	21·797	14th	·794	20·2	33·7	?	16·4	?	25·0	?	17·3	41·4	23rd	6·2	18th	35·2
		Minimarg*	?	21·328	?	?	21·867	25th	20·888	14th	·979	17·0	29·8	?	12·8	?	21·3	?	17·0	43·3	22nd	2·0	21st	41·3
		Skardu	?	22·973	?	?	23·445	23rd	22·498	14th	·947	18·1	30·3	?	12·9	?	21·6	?	17·4	56·0	15th	−10·0	18th	66·0
		Dras	?	20·748	?	?	21·058	23rd	20·363	14th	·695	?	?	?	?	?	?	?	?	?	?	?	?	?
		Gilgit	?	24·783(a)	?	?	25·190	18th & 21st	24·350	14th	·840	33·8	42·6	?	32·0	?	37·3	?	10·6	49·0	31st	25·7	22nd	23·3
		Chitral	?			Not recorded.						26·6	40·6	?	23·6	?	32·1	?	17·0	46·7	7th	5·4	17th	41·3
		Cherat	?	25·760	?	?	25·948	22nd	25·301	14th	·647	40·7	46·1	?	37·5	?	41·8	?	8·6	51·7	9th	27·5	15th	24·2
		Murree	6,344	23·846	−·007	?	24·053	22nd	23·459	14th	·594	36·9	43·7	−4·2	31·3	−4·1	37·5	−4·2	12·4	52·7	10th	18·0	15th	34·7
		Poo	?			Not recorded						?	39·8	?	22·0	?	30·9	?	17·8	46·1	16th	11·5	28th	34·6
25	N.-W. Provinces	Simla	7,224	23·116	−·006	?	23·274	22nd	22·941	14th	·333	39·7	45·9	−0·5	36·7	+0·2	41·3	−0·2	9·2	53·3	24th	27·1	15th	26·2
		Chakrata	6,977	23·344	+·016	?	23·492	22nd	23·222	29th	·270	39·4	50·1	−0·5	37·1	+1·1	43·6	+0·3	13·0	59·3	10th	28·1	3rd	31·2
		Mussooree	6,705	23·543	?	?	23·688	22nd	23·430	29th	·258	41·3	47·9	?	38·3	?	43·1	?	9·6	54·7	25th	31·0	3rd	23·7
		Ranikhet	6,069	24·160	+·025	?	24·291	22nd	24·027	29th	·264	44·2	53·8	−0·4	41·3	+1·6	47·6	+0·6	12·5	60·2	25th	33·0	3rd	27·2
13	Bengal	Yatung	10,180?			Not recorded.						?	44·2	?	21·1	?	34·3	?	20·1	56·9	20th	12·9	1st	44·0
		Darjeeling	7,421	22·984	+·006	?	23·134	22nd	22·828	29th	·306	39·3	46·2	+1·2	35·6	+1·0	40·9	+1·1	10·6	53·9	24th	32·5	4th	21·4
		Gantok	5,660?	24·542	?	?	24·679	22nd	24·389	29th	·290	45·9	55·7	?	33·6	?	44·7	?	22·1	61·3	25th	29·2	4th	32·1

* Observations of 25 days. (a) Uncorrected. † Mean of 30 days. ‡ Mean of 28 days.

I—*continued.*

in India, Burma, etc., in January 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity: Mean velocity in miles per hour.	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 January 1897.	Normal rainfall for period, from 1st to 31st January.	Variation from normal of period, from 1st to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
3	...	12	14	...	...	...	1	1	6·1	5·0	+22	77	·634	1·5	0	0·36	−0·36	0·02	0·31	− 0·29	0·02	0·31	− 0·29	0·02	Salem	Madras, South Central.	34
...	...	...	30	...	...	...	1	...	3·4	3·1	+10	85	·682	4·2	0	0·64	−0·64	0	0·19	− 0·19	0	0·19	− 0·19	0	Coimbatore		
13	...	7	9	1	...	...	...	1	5·1	4·3	+19	79	·480	3·6	0	0·30	−0·30	0	0·04	− 0·04	0	0·04	− 0·04	0	Mercara	Coorg.	5
1	1	1	10	9	1	2	4	2	7·5	?	?	58	·466	1·3	0	?	?	0	?	?	0	?	?	0	Chitaldroog	Mysore.	36
...	...	3	17	5	3	2	1	...	7·7	3·8	+103	79	·495	3·9	0	0·50	−0·50	0·01	0·19	− 0·18	0·01	0·19	− 0·18	0·01	Bangalore.		
6	...	4	10	8	1	1	1	...	2·6	?	?	78	·511	2·9	0	?	?	0·01	?	?	0·01	?	?	0·01	Hassan.		
7	...	12	6	2	1	1	1	1	8·4	?	?	75	·536	3·2	0	?	?	0	?	?	0	?	?	0	Mysore.		
10	...	11	...	...	...	...	...	10	10·5	5·4	+94	83	·779	4·7	0	2·82	−2·82	0	1·46	− 1·46	0	1·46	− 1·46	0	Negapatam	Madras, East Coast, South.	58
...	13	2	...	...	...	...	6	10	1·9	?	?	89	·762	2·2	0	1·40	−1·40	0	?	?	0	?	?	0	Cuddalore.		
20	1	8	1	...	...	...	...	1	3·4	4·7	−28	81	·693	3·0	0	0·91	−0·91	0·05	0·26	− 0·21	0·05	0·26	− 0·21	0·05	Trichinopoly.		
8	10	6	2	2	2	...	1	...	4·0	6·1	−34	87	·770	3·5	2	1·36	+0·64	0·46	0·89	− 0·43	0·46	0·89	− 0·43	0·30	Madras.		
22	...	1	...	1	1	...	...	6	2·5	?	?	90	·752	4·0	1	0·60	+0·40	3·28	?	?	3·28	?	?	3·28	Nellore	Madras, East Coast, Central	55
2	18	7	1	2	...	...	...	1	5·5	5·2	+ 6	91	·736	3·2	0	0·27	−0·27	0	0·12	− 0·12	0	0·12	− 0·12	0	Masulipatam.		
...	...	6	9	16	...	...	...	...	?	?	?	75	636	1·2	0	0·20	−0·20	0·07	0·02	+ 0·05	0·07	0·02	+ 0·05	0·07	Cuddapah.	Madras, Central.	54
26	...	...	5	...	...	...	...	...	?	?	?	66	·498	0·6	0	0·60	−0·60	0	0·08	− 0·08	0	0·08	− 0·08	0	Kurnool.		
12	...	...	...	11	6	...	...	2	3·4	3·3	+ 3	65	505	2·4	0	0·18	−0·18	0	0·13	− 0·13	0	0·13	− 0·13	0	Bellary.		
9	15	4	3	...	...	...	...	...	?	?	?	72	·595	2·5	0	0·30	−0·30	0	0·08	− 0·08	0	0·08	− 0·08	0	Rajahmundry.	Madras, East Coast, North.	52
...	11	7	3		1	...	3	6	8·6	?	?	76	·620	2·3	0	0·50	− 0·50	0	0·14	− 0·14	0	0·14	− 0·14	0	Cocanada.		
28	...	...	...	1	...	...	1	1	1·7	1·8	− 6	80	·660	2·1	1	0·64	+ 0·36	0·14	0·19	− 0·05	0·14	0·19	− 0·05	0·13	Vizagapatam.		
...	11	...	...	...	...	...	...	20	9·5	6·5	+46	72	·554	0·3	0	0·38	−0·38	0	0·16	− 0·16	0	0·16	− 0·16	0	Gopalpur.		
																									XII.—Hill Stations.		
15	3	...	...	...	...	...	2	11	3·0†	?	?	62	·168	2·3	4	?	?	1·07	?	?	1·07	?	?	0·37	Sharigh	Baluchistan	48
				Not recorded.					?	?	?	?	?	?	0	?	?	0	?	?	0	?	?	0	Fishin.		
26	...	...	...	1	2	...	2	...	3·7	3·8	− 3	88	·165	4·5	5	4·36	+0·64	2·68	2·11	+ 0·57	2·68	2·11	+ 0·57	0·74	Quetta.		
...	...	...	...	...	25	4	2	...	?	?	?	84‡	·178‡	3·8	5	?	?	1·62	?	?	1·62	?	?	0·63	Kalat.		
1	2	...	5	14	5	2	2	...	7·4	?	?	74	·187	5·2	5	?	?	2·60	?	?	2·60	?	?	1·15	Chaman.		
1	1	11	4	2	8	3	1	...	0·5	?	?	45	031	8·4	2	?	?	0·91	?	?	0·91	?	?	0·25	Leh	Punjab.	30
12	2	3	1	3	4	3	...	3	5·1	?	?	94	·113	6·2	9	?	?	6·18	?	?	6·18	?	?	2·62	Srinagar.		
14	...	...	...	...	4	8	4	1	2·3	?	?	80	·093	7·1	9	?	?	2·81	?	?	2·81	?	?	0·59	Astor (Kashmir)		
10	...	2	8	1	...	...	3	1	4·4	?	?	93	·092	7·8	12	?	?	4·29		?	4·29	?	?	0·70	Minimarg.		
27	...	1	...	...	1	...	2	...	1·5	?	?	100	·107	8·1	7	?	?	2·48	?	?	2·48	?	?	0·75	Skardu (Kashmir).		
26	1	...	...	...	...	...	2	2	1·1	?	?	?	?	7·7	16	?	?	7·18	?	?	7·18	?	?	1·05	Dras.		
				Not recorded.					?	?	?	44	·148	7·9	1	?	?	0·53	?	?	0·53	?	?	0·51	Gilgit.		
...	3	4	3	11	4	2	...	4	?	?	?	?	?	7·1	7	?	?	4·88	?	?	4·88	?	?	1·80	Chitral.		
2	13	2	...	3	1	...	...	10	2·0	?	?	65	·163	4·6	4	?	?	2·57	?	?	2·57	?	?	1·37	Cherat.		
3	...	4	9	12	...	...	...	3	13·3	8·1	+64	84	·185	6·1	6	3·18	+2·82	4·15	3·52	+ 0·63	4·15	3·52	+ 0·63	1·45	Murree.		
19	1	...	2	...	...	2	2	5	?	?	?	?	?	6·4	8	?	?	3·93	?	?	3·93	?	?	1·25	Poo.		
10	2	4	4	1	5	1	...	...	5·1	2·0	+155	56	·132	6·3	7	4·27	+2·73	5·19	2·35	+ 2·84	5·19	2·35	+ 2·84	3·02	Simla.*		
13	12	3	...	...	1	1	...	1	8·0	4·8	+67	63	·151	5·7	9	?	?	5·90	3·53	+ 2·37	5·90	3·53	+ 2·37	2·34	Chakrata	N.-W. Provinces.	
...	3	2	13	4	1	...	1	7	?	?	?	69	·178	4·8	9	3·30	+5·70	4·68	?	?	4·68	?	?	1·71	Mussooree		
7	3	5	4	5	4	1	1	1	2·5	1·4	+79	61	·175	4·3	5	3·71	+1·29	2·00	2·94	− 0·94	2·00	2·94	− 0·94	0·83	Ranikhet	Bengal.	
				Not recorded.					?	?	?	?	?	?	2	?	?	0·61	?	?	0·61	?	?	0·28	Yatung.		
4	1	2	9	4	1	8	2	...	5·0	2·6	+92	86	·208	4·6	1	1·65	−0·65	0·41	0·67	−0·26	0·41	0·67	− 0·26	0·35	Darjeeling.		
12	1	3	2	4	4	2	...	2	1·0	?	?	83	·257	?	2	?	?	0·51	?	?	0·51	?	?	0·25	Gantok.		

* Winds of 27 days. † Mean of 18 days. ‡ Mean of 24 days.

Table

Abstract of Observations taken at 8 A.M. at 212 Stations

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.
Central India	Mount Abu	3,945	26·118	−·021	?	26·214	3rd & 22nd	25·933	14th	·281	54·7	63·9	−3·1	49·1	−2·0	56·5	−2·6	14·8	72·6	8th	33·0	15th	39·6
	Pachmarhi	3,528	26·571	+·011	?	26·693	23rd	26·460	14th	·233	58·9	71·7	+0·8	52·3	+4·9	62·1	+2·9	19·4	77·7	11th & 12th	40·8	16th	36·9
South India	Wellington	6,200	24·310	+·001	?	24·358	22nd	24·268	13th	·090	55·0	70·3	+3·8	45·8	+0·3	58·1	+2·1	24·5	75·7	30th	38·2	12th	37·5
XIII.—Extra India.																							
Ceylon	Trincomalee	12	30·001	?	29·939	30·046	21st & 22nd.	29·940	28th	·106	78·7	84·1	?	75·2	?	79·7	?	8·9	86·0	21st	70·0	12th	16·0
	Colombo	40	29·956	+·004	29·922	30·006	21st	29·902	28th	·104	79·1	89·1	?	73·6	?	81·4	?	15·5	92·0	7th	68·0	13th	24·0
Persia	Meshed	3,104			Not recorded.						29·1	?	?	25·8	?	?	?	?	?	?	6·1	15th	?
	Resht§	?			Not recorded.						41·2	52·9	?	39·0	?	46·0	?	13·9	60·6	3rd	25·4	18th	35·2
	Teheran	?	26·125* 25·542*	? ?	? ?	26·405 25·790	14th 14th	25·915 25·380	22nd 22nd	·490 ·410	32·1	44·6	?	28·9	?	36·7	?	15·7	54·9	1st	18·1	13th	6·8
	Isphahan	?	24·403* 24·683*	? ?	? ?	24·620 24·890	14th 13th & 14th	24·240 24·520	21st 21st	·380 ·370	30·6	49·1	?	24·8	?	37·0	?	24·3	63·5	1st	11·3	13th	52·2
	Bushire	14	30·138	+·018	30·111	30·340	14th	29·935	21st	·405	55·7	63·9	−1·3	51·5	−0·5	57·7	−0·9	12·4	76·1	1st	38·9	13th	37·2
	Jask	?	30·126	?	30·078	30·332	14th	29·956	9th	·376	63·1	71·9	?	59·2	?	65·6	?	12·7	78·3	5th	41·8	14th	36·5
Arabia	Muscat	20	30·121	?	30·090	30·321	14th	29·936	9th	·385	67·6	70·6	?	65·7	?	68·1	?	4·9	79·0	10th	57·5	15th	21·5
	Baghdad	220?	30·012	−·013	30·227	30·344	13th	29·373	21st	·971	44·1	59·9	−3·5	40·7	+2·9	50·3	−0·3	19·2	67·8	1st	30·7	16th	37·1
	Aden	94	29·987	+·003	30·014	30·071	16th	29·862	30th	·209	74·4	79·3	−2·3	72·8	+0·6	76·1	−0·9	6·5	84·3	11th	68·4	17th	15·9
	Perim	?	29·807‡	?	?	29·924	11th & 13th	29·726	29th	·198	75·4	82·4	?	71·7‡	?	77·0‡	?	10·7	84·1	1st	60·2	8th & 9th	23·9
Afghanistan	Kabul	?			Not recorded.						18·8	37·3	?	13·2	?	25·3	?	24·1	53·2	3rd	−0·2	17th	53·4
Central Asia	Kashgar	?	25·722†	?	?	25·970	18th	25·400	11th & 31st	·570	14·2	27·3‡	?	10·6	?	19·1‡	?	16·7	55·3	31st	−2·2	19th	57·5
Arabian Sea Islands.	Amini Devi	15	30·019	?	29·962	30·064	13th	29·980	2nd	·084	82·2	82·3	?	75·6	?	78·9	?	6·7	84·0	1st	71·3	8th	12·7
Africa	Zanzibar	23	29·930	?	29·929	30·007	22nd	29·877	30th	·130	82·0	86·4	?	80·4	?	83·4	?	6·0	88·6	15th	78·7	27th	9·9

* Aneroid uncorrected.
† Aneroid corrected.
§ 9 A.M., obs.

I—*concluded.*

in India, Burma, etc., in January 1897—concluded.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	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 January 1897.	Normal rainfall for period, from 1st to 31st January.	Variation from normal of period from 1st to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
6	4	6	...	4	2	7	1	4	6·8	4·8	+42	46	·198	2·9	1	0·73	+0·27	0·37	0·42	− 0·05	0·37	0·42	− 0·05	0·37	Mount Abu	Central India.
17	...	...	...	4	4	3	2	1	6·5	3·1	+110	77	·385	3·3	5	1·55	+3·45	4·41	0·51	+ 3·90	4·41	0·51	+ 3·90	2·25	Pachmarhi.	
31	...	...	...	...	...	...	...	...	2·2	2·4	−8	70	·313	1·9	0	1·75	−1·75	0·06	1·04	− 0·98	0·06	1·04	− 0·98	0·05	Wellington.	South India.
																									XIII.—Extra India.	
9	...	16	1	2	...	3	...	...	1·1	?	?	84	·825	3·7	8	?	?	11·10	5·26	+5·84	11·10	5·26	+ 5·84	3·95	Trincomalee	Ceylon.
—	4	19	5	3	...	...	...	...	8·1	8·4	− 4	81	·808	2·5	5	?	?	3·84	2·92	+0·92	3·84	2·92	+ 0·92	1·81	Colombo.	
				Not recorded.					?	?	?	88	·147	6·4	3	?	?	1·15	?	?	1·15	?	?	0·37	Meshed.	Persia.
				Not recorded.					?	?	?	?	?	?	9	?	?	6·40	?	?	6·40	?	?	0·90	Resht§ .	
8	15	7	...	...	...	...	...	1	3·6	?	?	?	?	3·7	6	?	?	2·56	?	?	2·56	?	?	0·99	Teheran.	
8	1	1	4	2	2	4	6	3	3·6	?	?	89	·158	3·0	1	?	?	0·19	?	?	0·19		?	0·19	Isphahan.	
...	5	8	6	9	...	1	...	2	7·6	?	?	71	·322	4·3	3	?	?	4·41	?	?	4·41	?	?	3·70	Bushire.	
5	10	4	9	...	...	...	...	3	7·4	?	?	77	·465	3·6	1	?	?	0·53	?	?	0·53	?	?	0·33	Jask.	
...	2	...	3	6	4	3	9	4	5·0	?	?	69	·474	2·0	2	?	?	0·54	?	?	0·54	?	?	0·33	Muscat .	Arabia.
8	7	1	1	2	4	3	2	3	2·8	?	?	84	·251	0·8	2	?	?	0·75	?	?	0·75	?	?	0·30	Baghdad.	
3	3	10	13	2	...	...	...	...	12·1‡	12·0	+ 1	74	·628	7·1	0	?	?	0·04	0·28	−0·24	0·04	0·28	−0·24	0·03	Aden.	
...	1	6	15	3	...	...	...	...	16·8	?	?	77	·675	4·7	1	?	?	0·25	?	?	0·25	?	?	0·19	Perim.	
...	8	2	6	...	4	1	5	5	?	?	?	?	?	4·2	8	?	?	3·50	?	?	3·50	?	?	1·00	Kabul .	Afghanistan.
31	...	...	...	...	...	...	...	...	0·1	?	?	?	?	8·9	1	?	?	0·32	?	?	0·32	?	?	0·12	Kashgar .	Central Asia.
...	17	6	...	...	...	...	...	8	?	?	?	73	·805	2·6	2	?	?	0·52	?	?	0·52	?	?	0·28	Amini Devi	Arabian Sea Islands.
...	19	10	...	...	...	...	...	2	6·5	?	?	83	·902	6·1	5	?	?	1·60	?	?	1·60	?	?	0·79	Zanzibar .	Africa.

‡Mean of 30 days.

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.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Burma Coast and Bay Islands.	Port Blair	...	29·957	29·860	·097	29·904	+·015	29·895	86·9	76·0	10·9	90·5	70·4	20·1	83·9	85·4	80·7	+1·2	72·7	76·9	77·1	75·6
	Rangoon	...	30·000	·868	·132	·933	−·017	·911	90·4	65·2	25·2	94·0	57·7	36·3	78·4	88·2	75·5	+1·5	63·2	70·9	71·8	68·6
	Diamond Island	...	·002	·893	·109	·944	−·011	·920	81·5	74·3	10·2	88·3	72·6	15·7	81·5	81·7	78·3	+2·4	70·0	73·1	72·7	71·9
	Cocos Island	111	29·905	·809	·096	·853	−·004	·897	83·7	75·2	8·5	85·4	72·8	12·6	81·4	80·4	78·2	+3·3	70·2	73·5	73·2	72·3
	Akyab	...	30·044	·932	·112	·982	−·012	·945	83·3	60·2	23·1	86·2	55·9	30·3	73·6	79·8	71·3	+1·3	58·1	67·1	71·2	65·5
Assam.	Silchar	...	29·991	·858	·123	·925	−·005	·983	79·8	53·2	26·6	84·6	47·5	37·1	68·1	77·8	65·3	+1·9	52·2	62·3	63·8	59·4
	Sibsagar	...	·770	·624	·146	·694	−·025	·997	71·6	50·7	20·9	75·8	43·9	31·9	60·4	70·0	60·0	+2·0	50·8†	58·6	62·4	57·3
	Dhubri	...	·983	·840	·143	·905	−·013	·979	75·4	53·3	22·1	81·1	48·6	32·5	64·7	74·3	63·0	+0·9	52·2	59·7	63·2	58·4
Bengal and Orissa.	Chittagong	...	·999	·874	·125	·933	−·009	·970	82·3	56·4	25·9	87·1	49·2	37·9	71·9	78·9	68·9	+2·8	55·2	64·2	66·3	61·9
	Narayanganj	...	30·061	·940	·121	·991	−·019	·968	79·0	56·0	23·0	83·9	48·3	35·6	70·1	77·5	67·7	+1·5	53·6	62·8	64·2	60·2
	Calcutta (Alipore)	...	·083	·952	·131	30·006	−·008	·973	79·8	57·5	22·3	87·7	49·0	38·7	70·4	79·1	67·8	+2·6	55·5	61·2	63·7	60·1
	Saugor Island	...	·064	·939	·125	29·992	−·013	·961	79·6	60·8	18·8	84·0	51·2	32·8	73·6	77·0	69·1	+2·0	58·4	65·5	67·2	63·7
	Burdwan	...	·010	·866	·144	·926	−·008	·975	83·2	57·0	26·2	93·8	49·1	44·7	71·3	81·3	69·2	+3·2	54·0	61·1	64·2	59·8
	Berhampore	...	·030	·903	·127	·955	−·006	·971	79·7	53·4	26·3	86·7	45·1	41·6	69·9	79·2	66·0	+1·3	51·0	60·4	63·3	58·2
	False Point	...	·077	·959	·118	30·013	−·012	·976	81·9	60·8	21·1	89·0	54·5	34·5	77·2	78·3	70·1	+2·3	60·6	69·0	69·5	66·4
	Cuttack	...	·013	·874	·139	29·940	−·014	·963	87·2	63·1	24·1	92·6	57·3	35·3	75·1	85·3	74·1	+3·3	60·8	65·6	67·6	64·7
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	28·036	27·931	·105	27·976	−·002	·977	74·1	53·7	20·4	81·9	45·1	36·8	65·7	71·9	62·8	+1·9	49·5	56·1	58·5	54·7
	Patna	...	29·917	29·798	·119	29·849	−·012	·991	75·3	52·7	22·6	82·2	42·9	39·3	65·8	73·7	63·4	+2·7	49·7	58·3	60·8	56·3
	Darbhanga	...	·928	·797	·131	·854	−·019	·980	75·4	52·8	22·6	81·0	45·9	35·1	65·5	73·6	63·4	+1·3	51·4	58·7	61·1	57·1
	Allahabad	...	·799	·674	·125	·723	−·003	·998	76·7	50·7	26·0	88·0	38·4	49·6	66·0	75·5	62·7	+2·1	48·1	57·4	60·7	55·4
	Lucknow	...	·736	·621	·115	·670	+·003	30·012	73·7	50·0	23·7	81·7	40·2	41·5	63·5	71·3	62·7	+1·8	48·2†	56·4	59·1	54·6
Upper Sub-Himalayas.	Dehra Dun	...	27·802	27·708	·094	27·745	−·003	·020	66·7	46·8	19·9	73·1	40·6	32·5	57·5	63·1	55·4	+0·6	44·2	51·9	53·9	50·0
	Roorkee	...	29·171	29·067	·104	29·108	−·006	·004	70·4	45·7	24·7	78·4	37·5	40·9	58·3	68·3	57·0	+1·2	45·0	52·9	56·5	51·5
	Meerut	...	·336	·237	·099	·278	−·005	·016	72·2	47·5	24·7	78·6	37·4	41·2	59·0	69·6	58·7	+2·5	45·9	51·7	55·7	51·1
	Lahore	...	·383	·293	·090	·326	−·002	·039	64·9	45·2	19·7	73·5	36·4	37·1	54·6	64·8	53·9	+1·9	42·9	49·7	54·3	49·0
	Ludhiana	...	·261	·173	·088	·205	+·003	·032	65·6	46·6	19·0	74·1	36·9	37·2	56·1	63·8	54·8	+1·1	45·1	51·4	54·1	50·2
Indus Valley and N.-W. Rajputana.	Peshawar	...	·016	28·927	·089	28·960	+·016	·123	59·3	40·3	19·0	69·1	32·8	36·3	51·7	57·1	48·1	−1·4	38·1	45·9	48·9	44·3
	Mooltan	...	·695	29·[illegible]7	·108	29·629	+·001	·042	70·3	44·0	26·3	76·6	34·5	42·1	56·8	68·0	55·5	+1·3	40·2	48·8	54·3	47·8
	Jacobabad	...	·954	·822	·132	·876	+·005	·030	73·0	42·4	30·6	78·1	30·5	47·6	60·1	71·7	56·3	−0·3	38·2	49·6	55·6	47·8
	Kurrachee	...	30·132	30·014	·118	30·064	+·015	·026	76·0	52·7	23·3	82·3	40·8	41·5	68·5	73·4	63·4	−1·6	47·7	56·6	59·1	54·4
E. Rajputana, C. India and Gujarat.	Jeypore	...	28·654	28·545	·109	28·588	+·008	·025	73·8	48·6	25·2	84·5	35·8	48·7	65·3	71·6	59·3	+0·5	45·0	54·6	58·6	52·7
	Ajmere	...	·463	·350	·113	·400	−·005	·028	73·1	45·6	27·5	85·8	36·1	49·7	60·8	72·2	58·6	+0·4	42·0	51·7	57·9	50·5
	Deesa	...	29·622	29·500	·122	29·549	+·013	29·982	80·9	50·1	30·8	91·0	37·9	53·1	70·4	79·1	65·5	−2·1	44·4	55·9	58·3	52·9
	Nowgong	...	·332	·213	·119	·263	−·001	30·005	73·4	50·7	22·7	85·4	39·7	45·7	63·5	72·3	61·5	+1·2	48·5	56·6	59·7	54·9
	Agra	...	·546	·425	·121	·474	−·007	·013	73·8	49·9	23·9	84·0	39·8	44·2	63·4	72·0	60·9	+0·8	46·8	54·7	58·6	53·4
Deccan.	Belgaum	...	27·499	27·377	·122	27·433	+·001	29·859	86·9	59·8	27·1	90·1	54·7	35·4	77·7	83·9	72·6	+2·7	57·2	63·1	64·0	61·4
	Sholapur	...	28·448	28·299	·149	28·370	−·013	898	91·3	63·5	27·8	97·8	57·2	40·6	78·9	89·9	76·7	+4·7	56·4	64·4	66·7	62·5
	Poona	...	·191	·055	·136	·121	−·009	·898	89·6	57·8	31·8	93·5	50·0	43·5	76·7	87·1	73·3	+4·0	53·0	61·2	63·9	59·4
	Akola	...	29·110	·960	·150	29·027	−·025	·916	88·7	61·2	27·5	94·9	52·7	42·2	76·4	87·0	73·8	+5·6	56·6	64·4	67·6	62·9
	Buldana	2,132	27·901	27·780	·121	27·832	−·007	·908	84·1	61·2	22·9	89·6	50·4	39·2	75·0	82·6	71·6	+3·1	54·5	60·9	62·8	59·4

† Mean of 30 days.

II.

at 84 Stations in India, Burma, etc., for January 1897.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from										Wind Steadiness.		Wind Velocity.		Rainfall.			
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.	Station.	Meteorological Province.
																									%	%						
·761	·838	·823	·807	+·020	85	73	67	75	−1	3·3	3·5	3·4	0	...	17	30	13	1	1	...	...	...	N 44° E	N 41° E	81	76	146	162	...	...	Port Blair	Burma Coast and Bay Islands.
·559	·660	·502	·594	+·043	90	68	42	67	+3	1·2	2·8	2·0	0	...	13	20	8	6	3	3	4	5	N 38° E	N 27° E	43	36	53	95	...	...	Rangoon	
·679	·703	·685	·689	+·059	80	65	63	69	−1	3·1	3·8	3·5	+1·2	...	17	9	1	1	1	1	2	30	N 21° W	N 1° W	72	71	290*	176	...	...	Diamond Island	
·674	·720	·721	·705	+·043	77	67	69	71	0	2·6	3·1	2·9	+0·9	...	39	10	3	...	...	...	...	10	N 3° E	N 18° E	85	86	?	391	*Nil*	*Nil*	Cocos Island.	
·460	·580	·650	·563	+·069	87	70	64	74	+4	1·8	1·3	1·6	+0·3	...	1	25	5	...	...	1	4	26	N 1° W	N 19° W	58	42	76	67	...	...	Akyab	
·384	·487	·407	·426	+·001	94	71	43	69	−5	2·5	3·5	3·0	−0·1	48	...	1	1	...	3	6	3	...	S 41° W	S 30° E	14	25	26*	40	...	...	Silchar	Assam.
·376†	·471	·466	·438	+·012	100†	89	64	84	−2	2·8	3·1	3·0	−2·1	12	6	30	1	3	2	5	2	1	N 42° E	N 64° E	43	50	66*	42	...	...	Sibsagar	
·380	·452	·435	·422	+·001	92	74	52	73	−3	2·1	1·8	2·0	+0·4	7	3	21	7	...	3	15	5	1	N 49° E	N 75° E	11	22	93*	94	...	...	Dhubri	
·426	·504	·483	·471	+·004	92	64	49	68	−5	1·6	1·5	1·6	+0·2	3	9	17	...	3	...	4	8	18	N 18° W	N 26° W	48	47	49*	75	...	...	Chittagong	Bengal and Orissa.
·384	·480	·428	·431	−·001	84	65	45	65	−3	2·3	2·4	2·4	+0·8	...	10	4	3	9	1	6	12	17	N 51° W	N 60° W	34	34	73	53	...	...	Narayanganj	
·422	·426	·388	·412	+·010	88	57	39	61	−8	1·5	1·7	1·6	+0·3	3	16	6	1	...	...	7	11	18	N 40° W	N 36° W	59	39	76	62	...	...	Calcutta (Alipore).	
·467	·528	·542	·512	−·007	86	63	58	69	−6	1·7	2·1	1·9	+0·3	...	20	11	1	1	13	4	5	7	N 12° W	N 6° W	26	20	197	166	...	...	Saugor Island.	
·384	·407	·379	·390	+·006	81	53	36	57	−5	1·2	1·7	1·5	−0·1	21	12	2	...	...	...	4	10	13	N 46° W	N 31° W	47	47	37*	42	...	...	Burdwan	
·346	·405	·373	375	−·019	84	55	38	59	−10	1·5	1·5	1·5	−0·5	25	8	1	...	...	1	2	15	10	N 59° W	N 46° W	42	50	27*	42	...	...	Berhampore	
·531	·602	·602	·578	+·041	99	64	62	75	−3	2·4	2·5	2·5	+0·5	...	5	13	15	4	11	3	8	3	N 89° E	N 57° E	24	22	130*	147	...	...	False Point	
·507	·508	·440	·485	+·021	87	58	36	60	−4	1·4	1·8	1·6	0	7	9	14	14	2	2	1	6	7	N 35° E	N 28° E	39	14	4	33	...	...	Cuttack	
·309	·336	·330	·325	+·057	74	53	43	57	+6	3·2	3·6	3·4	+1·1	1	12	2	1	2	3	3	12	26	N 49° W	N 53° W	61	49	172	135	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·325	·395	·367	·362	−·001	79	61	44	61	−6	2·5	3·8	3·2	+0·6	6	3	2	5	2	4	4	31	5	S 89° W	N 84° W	47	46	63*	55	...	...	Patna	
·367	·408	·377	384	−·012	91	64	46	67	−4	1·3	1·6	1·5	+0·1	4	1	3	6	6	2	9	21	10	S 84° W	S 80° W	35	46	37‡	63	...	...	Darbhanga	
·310	·366	·340	·339	0	83	57	33	59	−7	2·7	3·5	3·1	+1·0	8	5	8	7	2	...	...	17	15	N 34° W	N 40° W	39	25	87	62	...	...	Allahabad	
·321†	·366	·348	·345	+·038	88†	63	46	66	+5	2·6	2·4	2·5	−0·4	8	6	4	5	...	3	3	21	12	N 62° W	N 51° W	43	38	48*	55	...	...	Lucknow	
·261	·320	·302	·294	+·020	82	68	54	68	+1	5·4	5·3	5·4	+1·2	13	2	...	1	2	6	17	10	10	S 69° W	S 69° W	47	18	26	40	...	...	Dehra Dun	
·292	·331	·304	·309	+·020	95	68	45	69	+3	3·3	3·6	3·5	+0·1	24	1	3	2	5	2	...	2	23	N 38° W	N 76° W	27	19	43	51	...	...	Roorkee	Upper Sub-Himalayas.
·295	·294	·266	·285	−·005	88	58	37	61	−4	2·8	2·7	2·8	−0·4	21	...	...	3	2	...	3	26	7	N 87° W	N 56° W	47	42	55*	49*	...	...	Meerut	
·251	·298	·286	·278	+·006	82	69	47	66	+3	4·2	3·0	3·6	0	7	9	2	5	6	...	2	13	18	N 43° W	N 27° W	39	20	45	43	...	...	Lahore	
·286	·323	·295	·301	+·012	89	71	50	70	+1	5·1	5·2	5·2	+0·8	21	2	2	...	5	2	...	7	23	N 52° W	N 54° W	37	29	26	35	...	...	Ludhiana	
·207	·240	·248	·232	+·007	83	63	55	67	+5	4·5	4·3	4·4	−0·4	18	2	4	7	4	5	3	10	9	N 77° W	S [illegible] W	10	5	70*	64	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·205	·243	·245	·231	−·032	71	52	36	53	−6	2·7	2·6	2·7	−0·4	15	...	28	1	6	2	8	...	2	N 63° E	N 5° E	32	23	23*	34	...	...	Mooltan	
·184	·222	·233	·213	−·016	68	43	30	46	−3	3·5	3·5	3·5	+0·5	12	5	5	13	7	...	3	5	12	N 31° E	N 4° W	19	24	86*	51	...	...	Jacobabad	
·274	·309	·319	·301	−·050	66	43	37	49	−7	2·2	2·2	2·2	−0·4	1	2	16	7	7	5	9	11	4	N 58° E	N 23° E	6	23	168*	239	...	...	Kurrachee	
·263	·303	·338	·301	+·027	75	47	43	55	+2	2·9	3·9	3·4	+0·2	3	7	14	5	5	3	5	8	12	N 6° E	N 8° E	24	18	73	83	...	...	Jeypore	E. Rajputana, C. India and Gujarat.
·227	·279	·310	·272	−·003	73	51	39	54	+1	2·8	3·2	3·0	+0·6	6	5	14	3	12	6	4	7	5	N 82° E	S 80° E	13	4	58	52	...	...	Ajmere	
·223	·264	·218	·235	−·017	61	35	22	39	+2	1·7	1·9	1·8	−0·4	...	4	22	16	...	4	2	8	6	N 44° E	N 20° E	45	38	228	208	...	...	Deesa	
·320	·374	·353	·349	+·048	85	64	45	65	+6	3·5	3·9	3·7	+0·8	3	9	7	9	...	2	3	21	8	N 44° W	N 40° W	34	22	?	34	...	...	Nowgong	
·284	·319	·322	308	+·013	77	54	41	57	−1	1·8	2·3	2·1	−0·4	...	...	9	...	7	...	7	...	39	N 41° W	N 55° W	52	35	136*	83	...	...	Agra	
·410	·397	·353	·397	+·052	85	42	30	53	+6	0·7	2·3	1·5	0	1	2	4	8	15	11	7	10	4	S 44° E	S 75° E	31	43	211	249	...	...	Belgaum	Deccan.
374	·427	·366	·389	+·039	63	43	26	44	0	1·5	2·2	1·9	+0·1	2	...	3	4	34	7	6	4	2	S 33° E	S 59° E	52	55	221*	184	...	...	Sholapur	
·348	·349	·308	·335	+·019	72	38	24	45	+3	1·9	2·0	2·0	+0·5	7	...	1	3	6	1	14	22	8	S 73° W	N 63° E	50	9	208*	134	...	...	Poona	
·403	·455	·421	·426	+·097	74	50	33	52	+4	2·2	3·3	2·8	+1·4	3	7	9	14	7	3	2	7	10	N 42° E	N 50° E	24	28	124*	88	...	...	Akola	
·347	·365	·328	·346	+·036	64	43	30	46	+2	2·8	3·4	3·1	+1·1	1	7	4	1	12	12	6	2	17	S 65° W	N 75° E	11	13	140	132	0·24	0·14	Buldana	

* Corrected.

‡ Mean of 29 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M at 84 Stations

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Deccan—*concluded.*	Khandwa	...	29·012	28·869	·143	28·933	0	29·943	85·6	57·3	28·3	93·4	47·1	46·3	74·4	84·8	70·6	+3·7	52·0	60·7	65·0	59·2
	Hoshangabad	...	·067	·920	·147	·986	−·006	·972	80·7	56·8	23·9	89·3	49·2	40·1	67·9	80·3	68·0	+2·4	52·1	59·3	65·3	58·9
	Nagpur	...	·036	·888	·148	·954	−·011	·946	85·9	61·0	24·9	92·9	55·2	37·7	73·4	83·9	72·2	+4·0	57·3	65·7	70·9	64·6
	Do. (Sanitary Commr.'s Office)	...	·054	·915	·139	·977	?	·958	86·8	60·6	26·2	93·7	55·4	38·3	74·5	85·3	73·3	?	56·1	62·7	67·4	62·1
	Jubbulpore	...	28·736	·608	·128	·664	+·001	·976	79·4	53·1	26·3	86·9	43·8	43·1	67·7	77·8	65·2	+3·5	51·9	59·6	64·5	58·7
	Saugor	...	·250	·132	·118	·183	−·005	·977	76·8	54·2	22·6	86·4	45·1	41·3	67·7	75·4	64·5	+1·5	49·1	55·7	60·3	55·0
	Sutna	...	29·030	·907	·123	·959	−·004	·989	76·7	53·0	23·7	87·6	42·7	44·9	66·9	75·2	63·7	+3·4	49·6	57·6	60·9	56·0
	Raipur	...	·099	·963	·136	29·023	−·004	·946	84·1	60·1	24·0	89·9	55·1	34·8	73·2	82·7	71·0	+4·0	55·7	61·9	65·3	61·0
	Hyderabad (Deccan).	...	28·357	·229	·128	28·287	−·002	·921	87·9	62·9	25·0	94·7	58·7	36·0	78·3	85·2	74·7	+4·4	59·7	66·7	67·4	64·6
West-Coast.	Bombay	...	30·022	29·909	·113	29·957	+·006	·934	81·1	67·1	14·0	88·8	61·1	27·7	74·8	77·9	72·9	−0·3	62·2	66·6	69·7	66·2
	Ratnagiri	...	29·929	·815	·114	·863	+·012	·910	86·1	68·7	17·4	92·6	64·0	28·6	81·8	82·6	76·1	+1·0	63·5	69·0	72·0	68·2
	Karwar	...	·995	·872	·123	·924	+·010	·900	87·1	68·2	18·9	94·5	62·5	32·0	79·4	85·2	76·8	+1·6	66·6	71·4	73·5	70·6
	Cochin	...	30·000	·892	·108	·937	+·017	·874	91·4	73·5	17·9	94·1	67·0	27·1	85·1	88·3	81·3	+2·5	70·5	74·6	76·5	73·9
South India.	Salem	...	29·128	28·987	·141	·061	+·010	·938	90·4	65·1	25·3	95·5	58·9	36·6	80·2	87·6	76·4	+1·9	64·2	71·2	72·1	69·2
	Mercara	...	26·321	26·222	·099	26·275	+·004	?	78·9	58·9	20·0	82·8	54·1	28·7	70·3	76·0	68·2	+2·6	56·3	62·0	62·5	60·3
	Chitaldroog	...	27·637	27·509	·128	27·569	+·017	·879	88·2	64·0	24·2	92·4	56·3	36·1	78·3	86·4	75·6	+3·6	57·7	64·6	64·4	62·2
	Bangalore	...	·048	26·934	·114	26·990	−·006	·898	83·1	59·9	23·2	88·5	54·3	34·2	73·6	81·6	71·1	+3·5	57·9	62·9	62·4	61·1
	Hassan	...	26·983	·864	·119	·923	+·024	·886	84·3	56·0	28·3	89·1	48·1	41·0	75·6	82·8	69·8	+2·0	54·8	63·7	63·2	60·6
	Mysore	...	27·536	27·404	·132	27·470	+·015	·890	86·4	61·4	25·0	91·2	54·6	36·6	76·8	84·9	73·6	+2·3	58·8	66·1	64·7	63·2
	Trichinopoly	...	29·791	29·663	·128	29·730	−·008	·918	89·3	68·7	20·6	91·7	62·3	29·4	81·3	87·2	77·8	+2·0	66·9	71·3	72·5	70·2
	Madras	...	30·051	·947	·104	·996	−·006	·949	85·6	68·9	16·7	87·6	65·1	22·5	81·3	81·9	76·7	+1·2	?	74·0	73·5	72·4
	Bellary	...	28·570	28·421	·149	28·492	+·003	·903	91·4	64·5	26·9	98·0	59·1	38·9	80·3	89·3	77·2	+4·0	59·0	66·1	68·1	64·4
	Cocanada	...	30·066	29·943	·123	29·995	0	·957	82·9	69·7	13·2	90·5	66·0	24·5	79·1	81·4	75·9	+3·2	66·4	71·3	71·8	69·8
	Vizagapatam	...	·016	·927	·119	·977	−·015	·946	84·4	67·5	16·9	90·0	60·7	29·3	81·1	81·6	76·8	+1·5	66·3	71·2	72·0	69·9
Hill Station, Baluchistan.	Quetta	...	24·692	24·618	·074	24·645	−·010	?	49·1	30·5	18·6	64·0	9·3	54·7	41·7	45·6	38·9	−0·7	27·9	36·5	38·8	34·4
Hill Stations, Punjab.	Leh	...	19·618	19·574	·044	19·597	−·028	?	20·2	5·3	14·9	31·1	−8·5	39·6	12·8	17·5	11·8	−6·7	3·8	8·7	** 13·0	8·5
	Srinagar	...	25·031	24·958	·073	24·985	+·028	?	35·2	23·8	11·4	43·5	11·6	31·9	29·4	33·0	29·0	−4·0	23·3	28·2	31·4	27·6
	Murree	...	23·856	23·833	·023	23·835	−·021	?	43·7	31·6	12·1	52·7	18·0	34·7	40·3	40·0	36·2	−3·4	29·1	36·8	37·6	34·5
	Kailang	10,087	20·751	20·700	·051	20·725	−·034	?	34·8	13·6	21·2	39·6	−3·5	43·1	22·7	26·2	20·9	−0·5	12·7	20·2	23·0	18·6
	Simla (Ridge)	...	23·150	23·094	·056	23·112	+·009	?	46·0	36·2	9·8	53·3	27·1	26·2	42·6	42·9	39·8	−0·8	32·0	36·1	38·0	35·4
Hill Stations, N.W.P.	Chakrata	...	·380	·312	·068	·336	+·007	?	50·1	37·1	13·0	59·1	28·2	30·9	41·9 **	44·8	41·8	+0·2	33·9	36·0	39·1	36·3
	Ranikhet	...	24·192	24·117	·075	24·140	+·029	?	54·2	41·3	12·9	60·2	32·9	27·3	48·8	50·2	46·3	+0·3	37·5	42·7	44·0	41·4
Hill Station, Nepal.	Katmandu	4,388	25·701	25·630	·071	25·660	−·027	?	65·9	38·6	27·3	73·1	32·0	41·1	52·0	60·6	51·0	+0·7	37·5	47·3	50·9	45·2
Hill Station, Bengal.	Darjeeling	...	23·016	22·935†	·081	22·969†	+·012	?	46·4	35·6	10·8	53·9	32·5	21·4	42·6	43·9†	(a) 40·3	+1·0	35·0‡	46·3	41·7†	39·0
Hill Stations, Central India.	Mount Abu	...	26·142	26·065	·077	26·091	−·030	30·046	64·2	49·1	15·1	72·6	33·2	39·4	60·6	61·3	55·9	−1·7	41·3	48·6	49·0	46·3
	Pachmarhi	...	·603	·510	·093	·549	+·025	?	72·2	52·3	19·9	77·9	40·8	37·1	66·1	70·6	66·2	+3·2	50·7	58·4	61·8	57·0
	Chikalda	3,642	·477	·374	·103	·417	+·006	30·036	75·0	58·6	16·4	80·6	45·9	34·7	67·4	73·9	64·8	+2·4	53·7	58·0	60·1	57·2

** Mean of 30 days.
† Mean of 29 days.
‡ Mean of 27 days.
(a) Mean of 28 days.

II—*continued.*

in India, Burma, etc., for January 1897—continued.

Vapour tension. From minimum.	Vapour tension. Mean 10 hours.	Vapour tension. Mean 16 hours.	Vapour tension. Mean daily.	Vapour tension. Variation from normal.	Humidity. From minimum.	Humidity. Mean 10 hours.	Humidity. Mean 16 hours.	Humidity. Mean daily.	Humidity. Variation from normal.	Cloud. Mean 10 hours.	Cloud. Mean 16 hours.	Cloud. Mean daily.	Cloud. Variation from normal.	Wind direction. Number of winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Wind steadiness. Average percentage.	Wind steadiness. Normal percentage.	Wind velocity. Mean velocity in miles per diem.	Wind velocity. Normal.	Rainfall. Total rainfall for the month.	Rainfall. Heaviest rainfall during the month.	Station.	Meteorological Province.
																									%	%							
·327	·370	·376	·358	+·033	68	44	32	48	−1	1·8	2·0	1·9	+0·4	2	2	12	6	9	3	9	8	11	N 28° W	N 21° E	5	21	119	74	...	...	Khandwa	Deccan—concluded.
·338	·406	·445	·396	+·055	72	59	43	58	+4	2·0	2·6	2·3	+0·5	18	...	24	7	1	1	6	3	2	N 52° E	N 62° E	32	37	105	66	...	...	Hoshangabad	
·433?	·540?	·599?	·524?	+·165?	79?	66?	53?	66?	+14?	3·1	3·6	3·4	+1·3	14	3	11	9	9	9	4	1	2	S 72° E	N 71° E	31	30	87	81	...	...	Nagpur	
·401	·426	·451	·426	?	75	50	38	54	?	1·9	1·8	1·9	?	16	9	11	6	10	5	3	...	2	N 77° E	?	29	?	39*	?	0·63	0·21	Do. (Sanitary Commr.'s Office)	
·379	·416	·449	·415	+·081	92	61	46	66	+6	2·8	3·1	3·0	+0·9	9	8	13	1	12	6	3	5	5	N 62° E	N 3° E	14	14	55	42	...	...	Jubbulpore	
·294	·304	·344	·314	+·031	69	44	39	51	+2	1·9	2·5	2·2	+0·5	25	2	8	5	4	...	11	4	3	S 32° W	N 32° E	2	17	89	69	...	...	Saugor	
·289	·368	·367	·341	+·065	78	55	42	58	+6	1·9	2·9	2·4	+0·5	...	11	3	6	2	5	18	17	...	S 73° W	N 20° W	34	33	90*	101	...	...	Raipur	
·390	·405	·394	·398	+·048	75	50	36	54	+2	2·5	2·4	2·5	+1·0	23	2	7	7	4	4	5	2	8	N 57° E	N 8° W	6	22	97*	66	...	...	Sutna	
·479	·511	·453	·481	+·044	83	53	38	58	−2	1·1	1·5	1·3	−0·8	9	...	3	10	26	6	1	6	1	S 46° E	S 51° E	52	60	96*	90	...	...	Hyderabad (Deccan)	
·501	·550	·622	·558	−·019	74	63	64	67	−2	2·5	2·1	2·3	+0·9	...	8	10	7	3	...	...	7	27	N 17° W	N 6° E	53	58	227	239	...	...	Bombay	West Coast.
·521	·542	·647	·570	+·019	74	51	58	61	+1	1·5	1·2	1·4	+0·8	3	7	...	5	2	1	3	11	30	N 50° W	N 32° W	59	32	195	205	...	...	Ratnagiri	
·630	·663	·671	·658	+·068	90	68	56	71	+2	0·3	0·7	0·5	−0·2	...	...	7	6	...	...	...	16	33	N 45° W	N 19° W	65	53	107	73	...	...	Karwar	
·710	·719	·756	·728	+·048	86	59	56	67	−1	1·8	1·5	1·7	−0·1	3	14	11	1	...	...	...	22	10	N 35° W	S 82° W	56	9	122	119	...	...	Cochin	
·592	·645	·582	·606	+·042	95	62	45	67	+2	1·7	2·6	2·2	−0·6	2	3	20	22	8	...	2	2	3	N 71° E	N 82° E	61	62	148	117	...	...	Salem	South India.
·429	·462	·414	·435	+·022	86	63	47	65	+3	3·4	2·7	3·1	−0·1	25	3	3	10	11	...	1	2	2	N 85° E	N 71° E	31	64	122	117	...	...	Mercara	
·403	·442	·336	·394	+·040	67	46	26	46	0	1·9	2·2	2·1	+0·3	1	2	9	24	15	...	1	5	5	N 89° E	S 88° E	52	77	157*	175	...	...	Chitaldroog	
·462	·450	·345	·419	+·014	89	55	32	59	−2	2·0	1·8	1·9	−0·6	...	...	9	29	13	5	3	3	...	S 76° E	N 88° E	66	79	185*	111	...	...	Bangalore	
·411	·454	·352	·406	+·021	93	51	32	59	+2	2·9	3·1	3·0	−0·1	3	...	13	21	20	2	3	...	...	S 78° E	N 87° E	69	74	71	75	...	...	Hassan	
·466	·509	·364	·446	−·001	85	55	30	57	−3	3·3	2·6	3·0	+0·2	7	1	15	25	11	...	1	1	1	N 85° E	N 82° E	66	83	201*	218	...	...	Mysore	
·638	·635	·602	·625	+·027	90	59	47	65	−2	2·9	4·3	3·6	−0·5	17	5	33	7	...	...	...	...	...	N 47° E	N 46° E	66	79	81	111	...	...	Trichinopoly	
?	·742	·715	·743	+·089	?	69	66	81	+6	4·5	3·5	4·0	0	...	5	23	19	7	3	2	2	1	N 71° E	N 49° E	61	78	94	141	...	...	Madras	
·438	·465	·424	·442	+·016	71	45	31	49	−3	3·0	4·0	3·5	+1·3	10	1	...	21	20	4	2	3	1	S 60° E	S 68° E	56	64	79	81	...	...	Bellary	
·605	·664	·652	·640	+·042	83	67	61	70	−2	1·8	1·3	1·6	+0·3	...	...	12	20	18	4	2	6	..	S 74° E	N 81° E	56	59	205*	187	...		Cocanada	
·633	·635	·660	·642	+·067	94	60	61	71	+5	3·0	2·1	2·6	+0·9	2	8	10	8	11	8	7	5	3	S 72° E	S 59° E	18	29	40	40	...	...	Vizagapatam	
·135	·172	·175	·161	+·003	76	65	59	67	0	3·6	5·6	4·6	+0·5	46	2	...	1	1	2	5	4	1	S 60° W	N 85° W	11	25	91*	74	...	...	Quetta	Hill Station, Baluchistan.
·042	036	·046**	·041	−·021	74	49	48**	57	−10	8·5	8·5	8·5	+1·9	11	3	11	6	3	14	11	3	...	S 21° E	S 10° W	23	29	12	22	...	...	Leh	Hill Stations, Punjab.
·125	·146	·161	·144	−·010	95	89	85	90	+8	6·1	6·7	6·4	−1·5	12	8	10	...	4	5	5	2	16	N 24° W	S 37° E	27	10	91*	71	...	...	Srinagar	
·138	·187	·205	·177	+·036	78	75	82	78	+18	5·9	6·8	6·4	+0·3	4	1	2	19	21	13	...	...	2	S 54° E	S 51° E	66	46	312*	220	...	...	Murree	
·076	·093	·100	·090	+·002	89	75	70	78	+7	8·2	8·3	8·3	+1·6	...	5	1	1	9	10	11	14	11	S 64° W	S 66° W	39	52	29	20	5·62	1·53	Kailang	
·141	·148	·180	·156	+·009	68	56	66	63	+5	5·8	8·5	7·2	+1·6	24	2	4	2	2	15	7	...	...	S 2° E.	S 6° W	27	49	122	128	...	...	Simla (Ridge)	
·164	·154	·182	·167	+·011	75	60	63	66	+4	5·8	6·2	6·0	+1·4	14	15	5	...	4	21	2	...	...	S 38° E	S 84° W	13	5	193	123	...	...	Chakrata	Hill Stations, N. W. P.
·187	·212**	·226	·208	+·015	74	62**	64	67	+4	4·0	5·0	4·5	+0·4	20	3	12	2	4	3	9	4	5	N 11° W	S 51° W	5	15	66*	44	...	...	Ranikhet	
·215	·275	·262	·251	+·002	90	71	51	71	−2	2·9	3·7	3·3	0	...	1	1	24	8	2	...	22	4	S 58° E	N 76° W	10	49	22	21	1·14	0·66	Katmandu	Hill Station, Nepal.
·199‡	·229	·244†	·224	+·021	95‡	84	85†	88	+7	4·0	4·1†	4·1	−1·6	2	1	7	14	...	1	6	21	8	N 61° W	S 89° W	22	22	122	86	...	...	Darjeeling§	Hill Station, Bengal.
·176	·211	·212	·200	−·007	50	39	39	43	0	2·6	2·5	2·6	+0·2	...	5	15	3	5	3	19	6	6	S 80° W	N 69° W	11	11	161*	119	...	...	Mount Abu	Hill Stations, Central India.
·360?	·408?	·457?	·408?	+·124?	90?	63?	61?	71?	+16?	3·1	4·3	3·7	+1·4	19	1	2	1	5	12	12	6	4	S 31° W	N 79° W	35	10	143*	78	...	...	Pachmarhi	
·359	·376	·362	·366	+·057	73	57	44	58	+6	2·7	2·9	2·8	+0·6	22	3	2	...	3	12	12	7	1	S 36° W	S 40° W	35	24	184*	123	1·49	0·71	Chikalda	

* Corrected.

§ Wind observation of 60 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 84 Stations

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Hill Station, South India.	Wellington	...	24·316	24·252	·064	24·285	+·015	?	70·4	45·7	24·7	75·5	38·3	37·2	66·2	66·1	57·0	+1·8	43·2	54·6	57·3	51·7
Extra India.	Muscat	...	30·138	30·043	·095	30·091	+·025	30·059	70·6	65·7	4·9	79·0	57·5	21·5	69·5	70·3	68·1	−1·6	60·2	62·9	63·8	62·3
	Aden	...	29·996	29·890	·106	29·935	+·008	29·962	79·6	72·8	6·8	84·1	68·3	15·8	76·6	78·0	75·8	−0·2	66·8	69·1	68·4	68·1
	Perim	...	·844*	·735†	·109†	·780†	+·014	?	82·5	71·7*	10·8*	84·3	60·2	24·1	78·3*	80·0*	76·4†	−1·0	65·9	71·0	71·4	69·4
	Zanzibar	...	·920‡	·807*	·113	·864	+·026	?	86·5*	80·4	6·1	88·4	78·7	9·7	83·1‡	86·2*	83·4*	+1·0	77·1	77·8‡	79·0*	78·0
	Port Victoria (Seychelles)	15	·965	·877	·088	·921	−·004	·860	84·0	77·8	6·2	86·6	75·4	11·2	82·8	83·5	80·8	+1·1	74·3	77·8	77·8	76·6
	Mauritius	181	?	?	?	·747	−·020	·873	?	?	?	92·2	65·6	26·6	?	?	79·4	+0·9	?	?	?	?

* Mean of 30 days. † Mean of 29 days. ‡ Mean of 20 days. § Mean of 28 days.

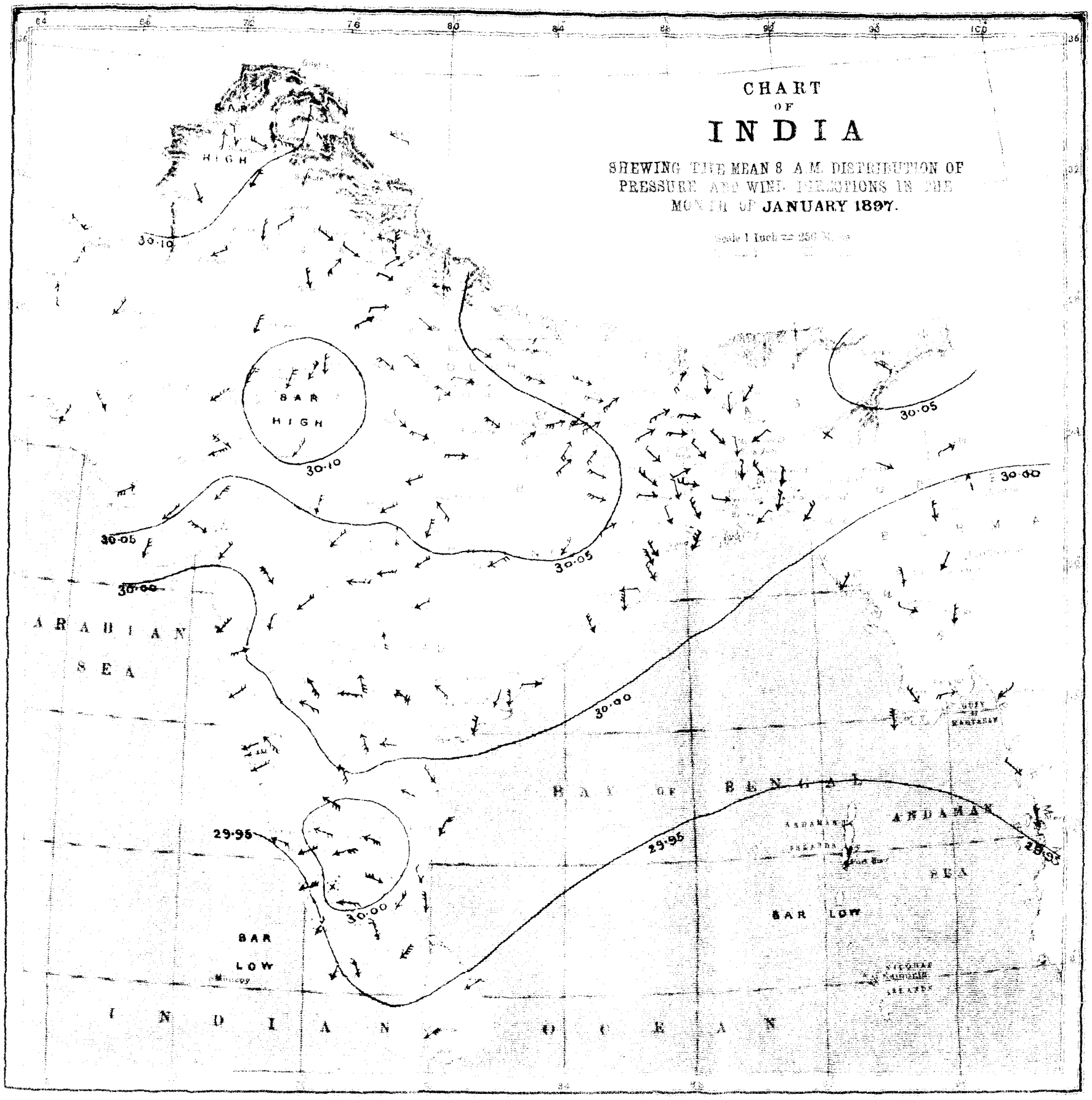
II—*concluded.*

in India, Burma, etc., for January 1897—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.		
																									%	%						
·261	·311	·366	·313	+·011	82	50	58	63	−5	2·3	3·0	2·7	−0·5	2	...	4	6	37	12	1	...	...	S 44° E	S 27° E	81	65	48	52	...	...	Wellington	Hill Station, South India.
·453	·495	·515	·488	−·020	70	68	68	69	+1	1·7	2·3	2·0	−0·5	...	2	12	18	2	1	...	8	19	N 17° E	N 3° E	35	35	121	100	...	...	Muscat	Extra India.
·580	·615	·569	·588	−·052	72	67	59	66	−6	7·3	1·7	4·5	+0·7	2	1	7	33	14	3	2	...	...	S 80° E	N 89° E	76	70	371*	319	...	...	Aden	
·570*	·665*	·659*	·631	−·031	72*	69*	64*	68	−2	3·6	1·3	2·5	+0·1	...	1	6	18	17	...	...	...	...	S 79° E	S 63° E	56	78	514	472	...	...	Perim	
·888	·883‡	·896*	·889	+·039	86	78‡	72*	79	+2	3·8‡	2·4‡	3·1	−1·3	...	17	25	4	2	1	...	...	1	N 34° E	N 35° E	79	69	159‖	196	...	...	Zanzibar	
·804	·886	·876	·855	+·035	84	79	77	80	0	6·5	6·5	6·5	−0·5	7	10	2	2	3	1	1	7	29	N 39° W	N 43° W	58	66	136	144	14·08	5·60	Port Victoria (Seychelles).	
?	?	?	·767	?	?	?	?	78	+2	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	202	269	6·35	1·36	Mauritius	

‖ Corrected.

G. I. C. P. O.—No. 146 Meteo.—21-5-97.—385.



LITHO. BY J. N. MUNDLE

Explanation

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

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

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

LITHO. BY J. N. MUNDLE.

Explanation

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

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

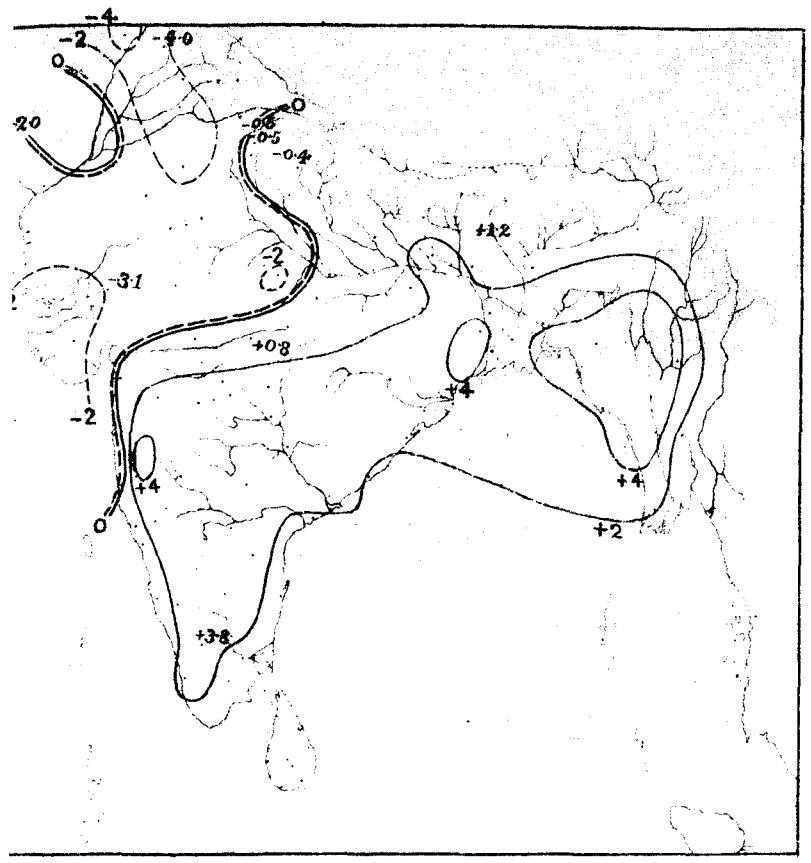
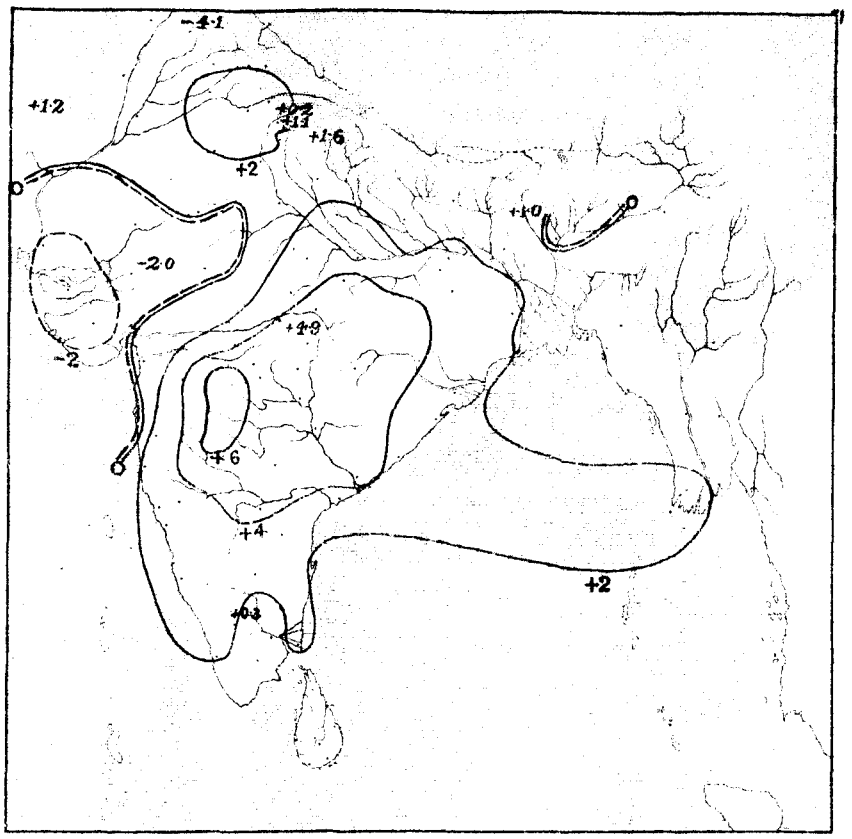


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

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

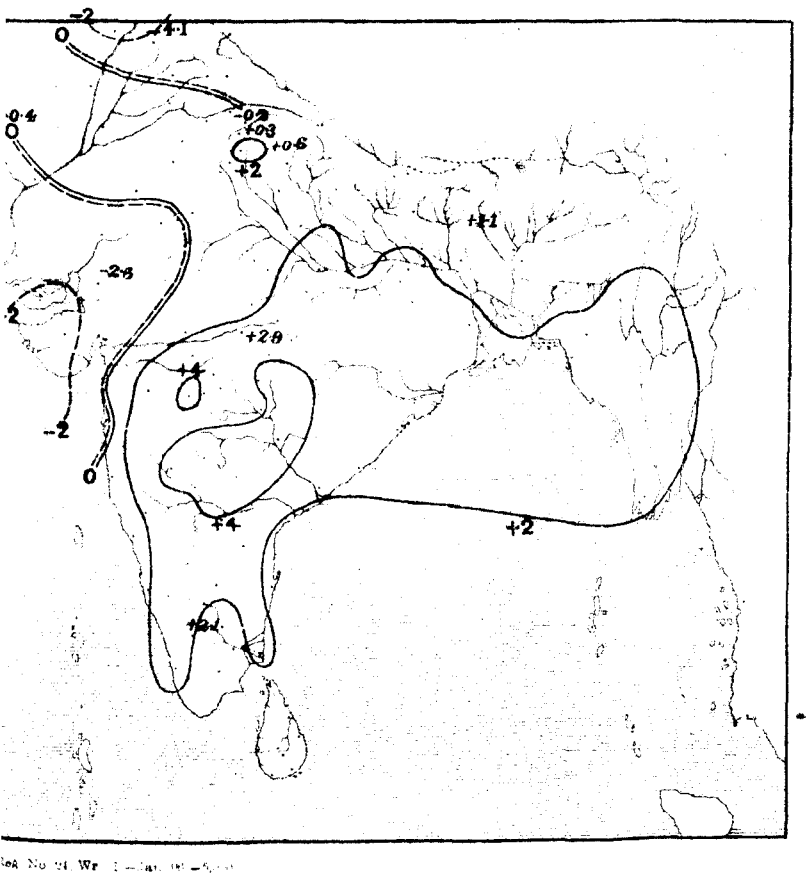
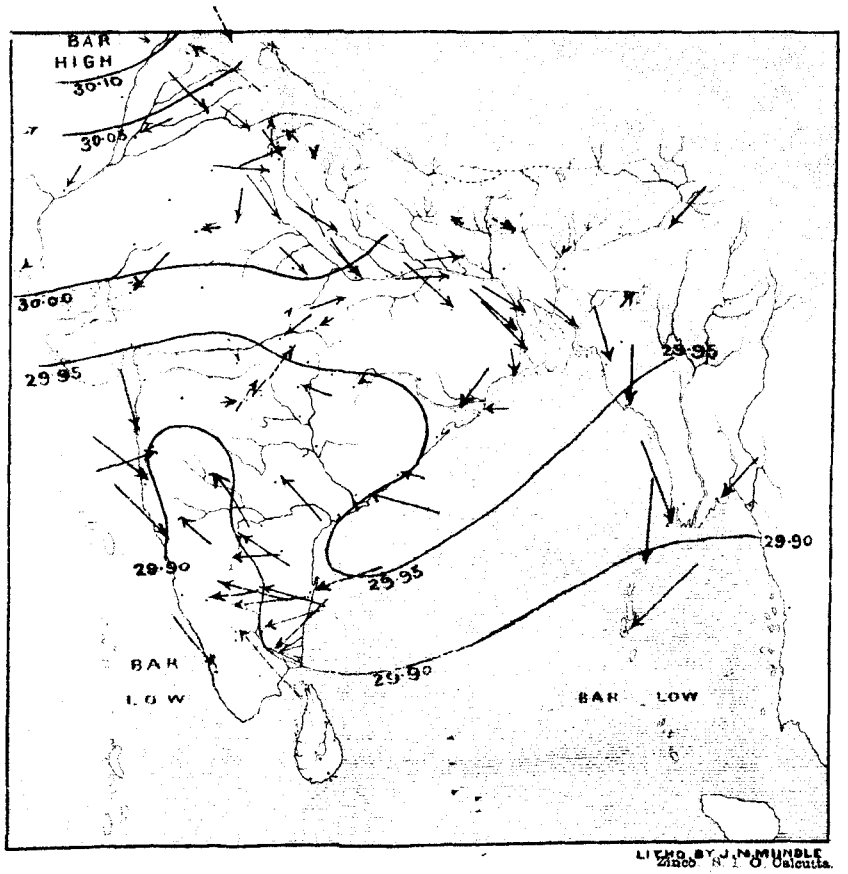


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JANUARY 1897.



LITHO BY J. N. MUNDLE
Zinco N. I. O. Calcutta.

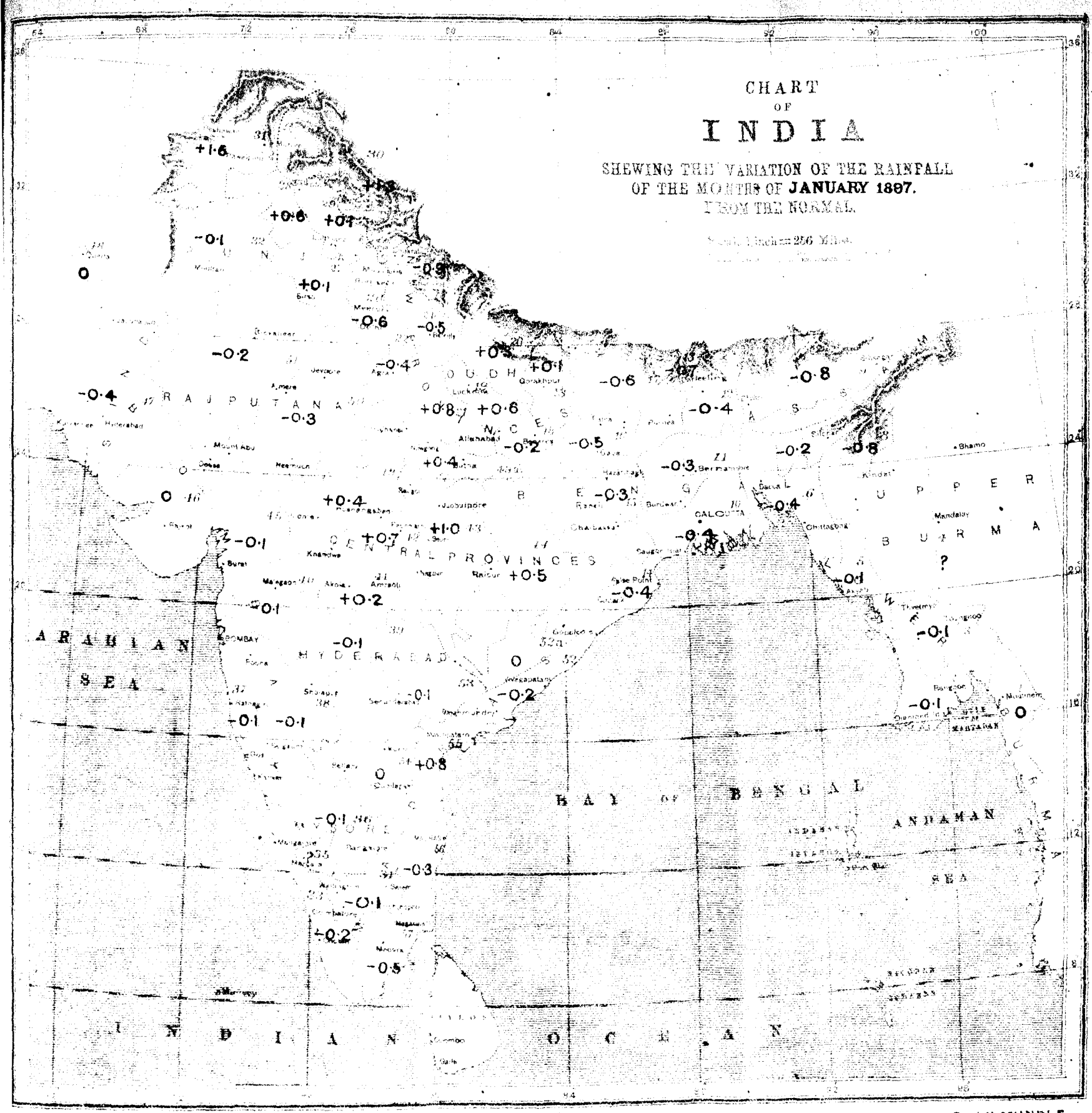
Explanation.

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 the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value

Explanation.

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



LITHO. BY J. N. MUNDLE

Explanation

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable and useful means. The country is divided into 57 areas, over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both actual and normal for the month) have been calculated, and the numbers given in the centre of each division (usually with a + or − sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The 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 Delta
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. North Western Provinces, East
19. South Oudh
20. North Do.
21. North Western Provinces, Central
22. Do. do., West
23. Do do., East Submontane
24. Do. do., West do
25. Do. do., Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
34. Madras, South Central
35. Coorg
36. Mysore
37. Konkan
38. Bombay Deccan
39. Hyderabad, North
40. Khandesh
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
49a Do. do.
50. Rajputana East, Central India West
51. West Rajputana
52. East Coast, North
52(a). Do. do. (a)
53. Hyderabad, South
54. Madras, Central
55. East Coast, Central
56. East Coast, South
57. Madras, South

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, FEBRUARY 1897.

INTRODUCTION.

THIS Review of the weather in India during the month of February 1897 is based on observations taken daily at 8 A.M. at 211 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 84 stations. In the rainfall summary, the rainfall data of the meteorological observatories and the weekly rainfall telegrams received during the month from District Officers throughout India, 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 given.

Summary of the chief features of the weather in India during the month of February, 1897.

February is usually the last month of the cold weather in Northern India. Temperature increases rapidly, more especially in the latter half of the month, and pressure decreases slowly in Upper India. The north-east winds in the Bay of Bengal and Arabian Sea usually diminish slightly in strength during the month. The general character of the air movement in India in February is similar to that of January. An important change, however, commences at the head of the Bay in the latter half of the month, shown by the establishment of local southerly winds on the Bengal Coast. These extend at first to a short distance from the coast landwards and seawards and are very unsteady, but gradually increase in intensity and volume, and become an important feature of the air movement in India during the hot weather months. The establishment of these winds usually accompanies the appearance of a shallow depression in West Bengal and Chota Nagpur. It is at first very shallow, but gradually developes, and becomes an important feature of the pressure distribution of the hot weather months.

The chief disturbances of February are cold weather storms similar in all respects to the corresponding storms of the preceding month. In North-Eastern India there are periods of slight local disturbance, shown chiefly by the occurrence of series of thunderstorms at irregular intervals after the setting in of the hot weather southerly winds on the Bengal Coast.

The following is a summary of the more important features of the meteorology of the month of February 1897:—

At the commencement of the month temperature was above the normal over the whole of India. The excess was large and marked in Central India, the Central Provinces, Orissa and the Madras and Hyderabad Deccan in which it ranged between 5° and 8°. A shallow depression lay over the eastern districts of the Central Provinces. It advanced eastwards into Orissa on the 2nd and filled up during the next 24 hours. The disturbance gave light showers in South Bihar and Chota Nagpur on the 1st and in Orissa and South-West Bengal on the 2nd.

Temperature continued steadily in excess from the 2nd to the 5th, the only important change being the transfer of the area of greatest excess from the Central Provinces to Orissa and South Bengal on the 3rd. The

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following gives the variations of the mean temperature from the normal in those areas from the 3rd to the 6th :—

AREA	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	3rd February.	4th February.	5th February.	6th February.
	°	°	°	°
Orissa	+7·6	+6·6	+7·3	+6·3
South Bengal . .	+3·9	+5·4	+6·9	+6·4

Temperature increased considerably on the 6th in the Central Provinces and Central India and the area of greatest excess of temperature was again transferred to the Central Provinces on that day. Temperature averaged 7° above the normal during the 24 hours preceding 8 A.M. of the 6th in the Central Provinces, 5° above in Central India and Bengal and 4° above in Burma, Madras and Rajputana.

Pressure gave way rapidly in Persia on the 2nd and 3rd and a depression of moderate intensity formed in West Persia. It passed eastwards on the 4th and 5th into East Persia and Baluchistan. Baghdad received heavy rain from this disturbance and the higher stations on the Indo-European Telegraph line in Persia moderate to heavy snow. The disturbance lay over Baluchistan on the 5th and filled up during the next 24 hours in Upper India. Baluchistan received a moderate burst of rain from this disturbance on the 4th and 5th and the North and West Punjab on the 6th.

A cool wave advanced across Baluchistan on the 4th and affected the Punjab slightly on the 5th but it was unusually feeble. Temperature increased considerably on the 6th in Upper India and was in general excess on the 7th. Temperature was excessive during the period from the 7th to the 11th over nearly the whole of North-Eastern and Central India and the Deccan. The following gives variation data for this area of large excess of temperature during that period :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	7th Feb.	8th Feb.	9th Feb.	10th Feb.	11th Feb.
	°	°	°	°	°
Central Provinces and Berar .	+7·4	+8·1	+7·3	+5·9	+6·3
Central India	+5·1	+7·3	+7·7	+6·0	+3·7
North Western Provinces and Oudh.	+4·6	+4·6	+6·2	+4·6	+4·3
Bihar	+3·6	+4·9	+5·4	+7·2	+7·1
Chota Nagpur . . .	+6·4	+7·3	+8·1	+7·8	+7·2
South Bengal	+6·6	+6·6	+8·7	+7·4	+7·2
Burma	+4·5	+3·9	+4·3	+5·5	+5·0

The preceding data show that the area of greatest excess which was in the Central Provinces on the 8th was transferred to Bengal on the 9th and 10th. The following comparative data for the 11th show that the excess was much more pronounced in the night than the day temperature.

POLITICAL AREA OR PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean daily temperature.
	°	°	°
Burma	+4·7	+5·3	+5·0
Bengal and Assam . .	+6.7	+6·9	+6·8
N.-W. Provinces and Oudh .	+0.3	+8·2	+4·3
Punjab	+2.8	+6·4	+4·6
Sind and Rajputana . .	+1.5	+4·3	+2·9
Central India and Gujarat .	—1·8	+6·0	+2·1
Central Provinces and Berar .	+4·6	+7·9	+6·3
Bombay	+0·4	+2·2	+1·3
Madras	+3·4	+3·8	+3·6

A shallow primary depression formed in Upper Sind and the South West Punjab on the 10th. It advanced eastwards during the next 24 hours and was in the South-East Punjab at 8 A.M. of the 12th. It filled up during the next 24 hours. No rain fell in Baluchistan during this disturbance. The Punjab received light to moderate showers and the middle and higher elevations of the Punjab and Kashmir Himalayas obtained heavy falls of snow.

The weather was also locally disturbed in Bihar and Chota Nagpur and the eastern and central districts of the North-Western Provinces on the 10th and 11th and series of thunderstorms occurred on these days which gave a moderate burst of rain, more especially in Bihar.

A cool wave of moderate intensity affected North-Western India from the 12th to the 15th but it failed to advance into Central India or the eastern districts of the North-Western Provinces. Temperature was most largely reduced in the hill districts and the lowest temperatures of the month were observed on the 12th and 13th at the hill stations in Upper India. Temperature was from the 12th to the 14th more or less in excess in the Peninsula, North-Eastern India and Burma.

The following gives variation data for the areas of greatest excess of temperature during this period.

Date.	Province.	Variation from normal of		
		Mean maximum temperature of date.	Mean minimum temperature of date.	Mean daily temperature of date.
		°	°	°
12th	Burma	+4·4	+8·9	+6·7
	Madras	+2·7	+5·7	+4·2
	Central Provinces and Berar.	+1·3	+5·2	+3·3
13th	Burma	+2·0	+9·9	+6·0
	Madras	+1·5	+6·5	+4·0
	Central Provinces and Berar.	+0·3	+4·9	+2·6
14th	Burma	−2·1	+8·0	+3·0
	Madras	+0·7	+6·8	+3·8
	Central Provinces and Berar.	−0·7	+8·2	+3·8

The pressure changes were large and irregular during the next week, *i.e.* from the 14th to the 20th, and the weather was slightly disturbed by series of thunderstorms in two areas, *viz.* North-Eastern India and South India. Thunderstorms gave showery weather in Bengal, Bihar and Chota Nagpur from the 14th to the 18th. South-West Bengal, Orissa and Chota Nagpur received moderate rain from these storms and North and East Bengal light rain.

Pressure was from the 14th to the 20th in moderate to considerable defect in Southern India. The increased indraught of sea winds accompanying this pressure distribution gave numerous thunderstorms and heavy rain over the whole of Southern India, but more especially in the coast districts of South Madras. The following is a statement of the average daily rainfall in these districts during this period :—

District.	Average actual rainfall in 24 hours preceding 8 A.M. of							Total rainfall of period.
	14th Feb.	15th Feb.	16th Feb.	17th Feb.	18th Feb.	19th Feb.	20th Feb.	
	"	"	"	"	"	"	"	"
Chingleput	0·10	0·31	0·10	0	0	0	0·05	0·56
North Arcot	0·01	0·42	0·10	0·14	0·03	0·08	0·08	0·86
South Arcot	0·31	1·67	0·21	0·05	0·05	0	0·09	2·38
Tanjore	0·62	2·52	0·15	0·04	0·20	0·20	0	3·73
Trichinopoly	0·08	2·78	0·07	0	0·02	0	0·31	3·26
Madura	1·02	1·86	0·31	0·17	0·08	0·02	0·09	3·55
Tinnevelly	0·44	1·16	0·29	0·55	0·01	0	0	2·45

The rainfall during this period reduced temperature considerably in South Bengal and South Madras, but temperature was more or less excessive throughout the whole period in Burma, the Deccan and the Central Provinces, as is shown by the following data :—

Province.	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	+3·0	+3·6	+3·2	+4·8	+5·5	+3·2	+0·5
Madras Deccan and Hyderabad	+3·5	+5·0	+6·0	+6·7	+6·0	+7·5	+7·2
Bombay Deccan	+3·2	+3·5	+4·6	+6·5	+6·7	+6·1	+4·6
Central Provinces and Berar	+3·8	+4·4	+4·4	+1·7	−0·8	+2·8	+1·9
Mysore	+3·6	+3·8	+5·5	+4·5	+6·6	+6·3	+6·2

Pressure increased over the whole Indian area on the 21st and 22nd. The depression in Southern India and Ceylon filled up on the 21st, and the pressure conditions on the 22nd differed little from the normal. Weather was disturbed in the Persian area on the 20th and 21st and light to heavy snow fell at Dasht Arjin, Kazeroon and other stations on the 21st. This disturbance began to affect Baluchistan on the 22nd when the large rise of temperature which usually immediately precedes the advance of cold-weather storms in Upper India occurred. Thus, the mean temperature of the 24 hours preceding 8 A.M. of the 22nd was 10° above the normal at Quetta and Jacobabad, and of the next 24 hours was 12°·2 in excess at Quetta and 10°·7 at Mooltan. Pressure gave way very rapidly in Baluchistan and the Indus Valley districts and rapidly over the whole of Northern India on the 22nd and a well marked depression covered Upper Sind, the South-West Punjab and adjacent districts of Baluchistan at 8 A.M. of the 23rd. The primary depression advanced into North-East Rajputana during the next 24 hours and a deep secondary depression formed very rapidly in the North Punjab. An unusually large increase of pressure occurred during the next 24 hours over the whole of North-Western and Central India which filled up both depressions. This storm gave light rain in the North Punjab and moderate to heavy snow on the Kashmir Himalayas. An unusually well marked cool wave crossed the frontier from Baluchistan on the 24th and advanced across Northern India during the remainder of the month

The following variation data illustrate the progressive reduction of temperature effected by this cool wave.

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	24th Feb.	25th Feb.	26th Feb.	27th Feb.	28th Feb.
	°	°	°	°	°
Baluchistan (Quetta)	−7·3	−18·4	−3·6	−2·4	+0·5
Punjab	+9·4	−1·2	−4·1	−3·7	−2·9
Sind and Rajputana	+5·5	−7·0	−8·9	−7·5	−4·4
North-Western Provinces and Oudh.	+5·9	+7·5	−3·6	−4·4	−5·4
Central India (East)	+4·9	+9·7	−5·3	−5·3	−4·5
Bihar	+2·7	+3·1	+4·2	−3·2	−3·3
Central Provinces and Berar	+4·4	+6·3	−1·8	−0·5	−2·2
Chota Nagpur	+1·4	+3·3	+3·8	−3·0	−2·4
Bengal	+1·1	+2·9	+5·2	−2·8	−2·3
Orissa	+2·7	+3·0	+4·2	−3·2	−3·3
Assam	+0·3	+1·9	+5·7	+2·1	−0·9
Upper Burma	+0·8	+1·5	+2·7	+3·7	+1·9

The crest of the cool wave or the belt of greatest reduction of temperature was in Baluchistan on the 25th, Rajputana and Kathiawar on the 26th and 27th, and East Rajputana and Central India on the 28th.

This cool wave also caused a great reduction of humidity in its passage across Northern India, and the period from the 25th to 28th was one of unusual dryness in Northern and Central India.

Temperature was steadily in considerable to large excess in Madras and Mysore during this period from the 23rd to the 28th, as is shown by the following data:—

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.
	°	°	°	°	°	°
Madras Deccan	+6·3	+6·3	+5·6	+5·0	+5·1	+4·8
Madras Coast	+3·4	+5·0	+3·8	+3·4	+3·7	+4·9
Mysore	+5·6	+6·6	+4·4	+2·9	+4·8	+4·5

A rapid local fall of pressure in Baluchistan and Upper India on the 26th and 27th gave rise to a moderate depression in Baluchistan and Upper Sind on the morning of the 28th. It gave disturbed weather in Upper India during the first two days of March.

Pressure.—The mean pressure of the whole of India for the month was ·036″ below the normal. The pressure anomalies at the level of the plains were generally small in amount. They were negative in the eastern half of the Peninsula, Berar, the Central Provinces, Orissa, South Bengal and Arakan and exceeded ·02″ at Hyderabad (—·030″), Nagpur (—·026″), Kurnool (—·025″) and Chanda (—·022″). Pressure was in local excess over the remainder of India. The excess was most marked in Lower Sind, Cutch, Kathiawar and the Konkan where it ranged between ·034″ at Kurrachee and ·023″ at Karwar. Pressure was in moderate excess at the hill stations relatively to the adjacent plains, due chiefly to the prevailing high temperature of the month. The following table gives comparative pressure variation data for ten meteorological provinces of India:—

METEOROLOGICAL PROVINCE.	Variation of mean 8 A. M. pressure of February 1897 from normal.	Pressure anomaly February 1897.
	″	″
Burma Coast and Bay Islands	—·032	+·004
Assam	—·034	+·002
Bengal and Orissa	—·041	—·005
Gangetic Plain and Chota Nagpur	—·036	0
Upper Sub-Himalayas	—·028	+·008
Indus Valley and North-West Rajputana	—·029	+·007
East Rajputana, Central India and Gujarat	—·024	+·012
Deccan	—·045	—·009
West Coast	—·021	+·015
South India	—·047	—·011

Temperature.—The chief abnormal features of the temperature conditions of the month were persistent excess of temperature over nearly the whole of India and Burma (most marked in the Deccan and Mysore), and persistent moderate deficiency of temperature in a small area including Lower Sind, Cutch and Kathiawar.

The mean day temperature of the month was above the normal over the whole of India except the South-East Punjab and the west coast districts north of Mangalore. The excess ranged between 2° and 5° over the large area including Bengal, Bihar, the North-Western Provinces, Berar, the Central Provinces, Deccan, Mysore and North and Central Madras. It was 4° or over at the following stations:—Akola (+4°·4), Nagpur (+4°·5) and Cuddapah (+4°·5).

The mean night temperature was above the normal over the whole of India except Sind, Cutch, Kathiawar, South-West Rajputana and Gujarat. The excess was more than 2° over nearly the whole of the Peninsula, South Bengal, Orissa, Chota Nagpur, South Bihar, Central Provinces, Berar and Central India. It was absolutely greatest for the

following stations :— Kurnool (+7°·3), Bellary (+7°·1), Hyderabad and Cuddapah (each +6°·7), False Point (+6°·8) and Balasore (+6°·3). The deficiency in North Bombay exceeded 2° at Bhuj (—2°·6) and Rajkot (—2°·1).

The mean temperature of the month was slightly lower than usual in North Bombay including Sind, Cutch, Kathiawar and Gujarat, and was in excess over the remainder of India and in Burma. The excess was more than 2° over by far the greater part of this area and was absolutely greatest in the Deccan and Mysore, more especially at the following stations :— Cuddapah (+5°·6), Kurnool (+5°·5), Bellary (+5°·4), Secunderabad (+4°·9), Nagpur (+5°·0) and Bangalore (+4°·6).

The following table gives temperature variation data of the month of February 1897 for the eleven meteorological provinces of India :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean Maximum temperature, February 1897.	Mean minimum temperature, February 1897.	Mean daily temperature, February 1897.
	°	°	°
Burma Coast and Bay Islands . .	+1·5	+4·0	+2·7
Burma Inland	+2·6	+3·4	+3·1
Assam	+2·1	+1·1	+1·6
Bengal and Orissa	+2·2	+3·4	+2·7
Gangetic Plain and Chota Nagpur .	+2·3	+2·2	+2·2
Upper Sub-Himalays . .	+1·1	+1·1	+1·3
Indus Valley and North-West Rajputana.	+0·9	+1·1	+1·0
East Rajputana, Central India and Gujarat.	+0·8	+0·1	+0·5
Deccan	+2·8	+3·8	+3·3
West Coast	—0·3	+2·0	+0·9
South India	+2·1	+5·3	+3·7

Winds.—The mean air movement of the month was stronger but less steady in Burma and the east of the Bay (represented by Port Blair). The setting in of the southerly sea winds on the Bengal coast was slightly delayed and winds were even more unsteady than usual in February over South and Central Bengal. The air movement in the Gangetic Plain was steady but slightly weaker than usual. Winds were remarkably steady in Berar and the Central Provinces, and the mean direction was on the whole normal. Winds were very variable in Southern India. The air movement at the hill stations was somewhat stronger than usual.

Humidity and Cloud.—The air contained considerably more vapour than usual in the Andamans, Burma, Arakan, South Bengal, Orissa and Chota Nagpur and the mean humidity of the month was normal or in slight excess in those areas. The air was much drier, both absolutely and relatively, in Assam, North Bengal, the Gangetic Plain, Rajuptana, Central India, Berar and the northern and central districts of the Central Provinces. The deficiency was most marked in Berar, Bihar and the North-Western Provinces. Conditions were normal in Sind and the Punjab, but the air was considerably drier than usual at the hill stations in Upper India and on the Baluchistan Plateau. The mean amount of aqueous vapour present in the air was in moderate excess in the Deccan, Mysore and the Madras coast districts and the mean humidity slightly above the normal.

There was somewhat more cloud than usual in Burma, Assam, Bengal, Orissa and Chota Nagpur. The mean cloud amount of the month was more or less in defect in the large area including Bihar, the North-Western Provinces, Punjab, Baluchistan, Sind, Rajputana, Central India, North Bombay, Berar and the Central Provinces. The deficiency in the amount of cloud in February was most marked in Sind and Rajputana. Cloud was, on the other hand, in moderate to large excess in the Madras Deccan, Mysore and the Madras coast districts.

The following table gives variation data of the mean aqueous vapour pressure, mean humidity and mean cloud amount of ten meteorological provinces for the month of February 1897 :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean aqueous vapour pressure.	Mean humidity.	Mean cloud amount.
	"		
Burma Coast and Bay Islands . .	+·062	+1	+0·5
Assam	—·002	—4	+0·1
Bengal and Orissa	+·040	—2	+1·1
Gangetic Plain and Chota Nagpur .	—·022	—6	—0·3
Upper Sub-Himalayas . . .	—·021	—4	—1·2
Indus Valley and North West Rajputana	—·001	+1	—0·8
East Rajputana, Central India and Gujarat.	—·008	—2	—1·0
Deccan	+·023	—1	—0·3
West Coast	+·021	0	+0·3
South India	+·087	+4	+1·4

Rainfall.—A large part of the rainfall of the month occurred under unusual conditions, accompanying local disturbances of the hot weather type and was hence not due to the march of cold weather depressions across Northern India. Baluchistan, the Punjab and Kashmir received moderate rain or snow between the 2nd and 6th from a feeble cold weather storm. A depression which originated in Upper Sind on the 10th, and marched eastwards to the foot of the Simla Hills gave light rain in the

North Punjab and heavy snow on the Kashmir and Punjab Himalayas. An independent disturbance occurred during the same period, *i.e.*, the 10th and 11th, in Bihar, Chota Nagpur and the eastern districts of the North-Western Provinces. Bihar received moderate and fairly general rain from thunderstorms during this period. Weather was feebly unsettled with thunderstorms in Bengal and Orissa from the 14th to the 18th, and in Southern India from the 14th to the 20th. The southern coast districts obtained a moderately heavy burst of rain from these local thunderstorms.

The rainfall of the month was absolutely or practically *nil* in Burma, Bombay, Central India, Rajputana and the greater part of the North-Western Provinces. The rainfall of the month was more or less in defect over the Punjab, and was very scanty in the North-Western Provinces. It was in moderate excess in Chota Nagpur, Orissa and South-West Bengal, and in defect over the remainder of North-Eastern India; the deficiency being greatest and most serious in North Bengal, Sikkim and Assam. The rainfall of the month was small in amount and generally less than the small normal of the month in Berar, the Central Provinces and the Deccan. It was more or less in excess in Madras, the amount of the excess increasing southwards. The southern districts received from six to ten times the normal fall of the month.

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

Meteorological Province.	Rainfall.		
	Average actual for February 1897.	Average Normal for February.	Variation from normal.*
	Inches.	Inches.	Inch.
Burma Coast and Bay Islands	0·06	0·48	−0·41
Burma, Inland	0·40	0·10	+0·14
Assam	0·52	1·59	−0·91
Bengal and Orissa	0·97	0·94	−0·05
Gangetic Plain and Chota Nagpur	0·84	0·53	+0·31
Upper Sub-Himalayas	0·61	1·18	−0·55
Indus Valley and North-West Rajputana.	0·47	0·45	−0·08
East Rajputana, Central India and Gujarat.	0	0·18	−0·18
Deccan	0·26	0·21	+0·04
West Coast	0·22	0·17	+0·08
South India	1·18	0·26	+0·89

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

Atmospheric Pressure.

The mean pressure of the Indian land area during the month of February was ·036″ lower than usual. This large deficiency was, in part at least, due to the prevalence of higher temperature than usual over nearly the whole of India.

Pressure, relatively to the general condition, was locally in defect or the anomalies were negative in the eastern half of the Peninsula, Berar, the Central Provinces, Orissa, South Bengal and Arakan. The negative anomalies slightly exceeded ·02″ in the area of greatest excess of temperature, including a belt of country stretching from Nagpur to Kurnool. The following gives pressure variation and anomaly data of the stations in this area of greatest deficiency of pressure and greatest excess of temperature :—

Station.	Variation of mean 8 A.M. pressure of February 1897 from normal.	Pressure anomaly, February 1897.
	″	″
Nagpur	−·062	−·026
Chanda	−·058	−·022
Hyderabad (Deccan)	−·066	−·030
Kurnool	−·061	−·025

Pressure was in relative excess over the remainder of India, but the anomalies were small except over a narrow belt of the west coast stretching from Kurrachee to Karwar. The mean temperature of the month was below the normal to a slight extent in this area. The following gives comparative data illustrating the local excess of pressure in that area :—

Station.	Variation of mean 8 A.M. pressure of February 1897 from normal.	Pressure anomaly, February 1897.
	″	″
Kurrachee	−·002	+·034
Bhuj	−·002	+·034
Rajkot	−·012	+·024
Ratnagiri	−·012	+·024
Karwar	−·013	+·023

The mean pressure of the month at the hill stations in Upper India was generally in very slight defect and hence pressure was in relative excess at these hill stations when compared with the neighbouring plain stations, or the vertical pressure anomalies were positive and moderate in amount. This is the usual rule when pressure is in general

moderate or large defect in India due to persistent high or excessive temperature. The following gives data for eight pairs of stations :—

HILL STATION.	Variation of pressure from normal (a).	NEIGHBOURING PLAIN STATION.	Variation of pressure from normal (b).	Vertical pressure anomaly or (a)−(b).
	"		"	"
Leh . . .	+·025	Lahore . . .	−·034	+·059
Kailang . . .	−·022	Do. . . .	−·034	+·012
Murree . . .	+·003	Peshawar . .	−·033	+·036
Quetta . . .	−·030	Jacobabad . .	−·020	−·010
Simla . .	−·008	Ludhiana . .	−·023	+·015
Chakrata . .	0	Roorkee . .	−·034	+·034
Ranikhet . .	0	Bareilly . . .	−·031	+·031
Darjeeling . .	−·008	Dhubri . . .	−·027	+·019

Barometric depressions and cold weather storms of the month.

The following gives a brief sketch of the disturbances of the month so far as can be drawn from the available data.

Pressure at the commencement of the month was below the normal in India. The only feature of importance was a shallow depression which lay on the 1st over the Central Provinces. It was transferred eastwards and filled up during the next 36 hours. Some light local showers of little importance were received on the 1st in Chota Nagpur and South Bihar and on the 2nd in Orissa and South-West Bengal.

Weather was disturbed in Persia and Asiatic Turkey from the 2nd to the 6th. Fine weather prevailed in the Mediterranean area and South Russia, and the disturbance hence almost certainly originated in the Persian area. Pressure gave way very rapidly at Baghdad and Bushire and briskly to rapidly at Teheran, Ispahan and Jask on the 2nd. Weather was showery at Baghdad from the 3rd to the 6th, at Bushire and Jask on the 3rd and 4th, and at Teheran and Ispahan on the 4th. Strong north-west winds (force 6) with a high sea were experienced by the S.S. *Pachumba* and *Pemba* in the Persian Gulf on the 4th. Heavy snow fell during the same period at Dasht Arjin and the higher stations on the Indo-European line of telegraph.

The disturbance began to affect Baluchistan on the 4th, when pressure gave way and skies clouded over. A shallow depression lay over Baluchistan and Sind on the morning of the 5th, and light showers had been received during the previous 24 hours in that area. A rapid increase of pressure occurred over the whole of North-Western India during the next 24 hours. The depression was probably passing through Rajputana on the morning of the 6th, but it had almost filled up and was no longer of importance. Light to moderate rain had fallen during the previous 24 hours in Baluchistan and the North and West Punjab. Skies cleared slowly on the 6th and 7th in Upper India and fine clear weather obtained generally on the 8th in Northern and Central India. Fine weather with clear or lightly clouded skies held steadily at this time in the Peninsula.

Pressure gave way rapidly on the 9th and 10th in Baluchistan and Upper India and on the morning of the 11th a shallow depression lay over the South-West Punjab and Upper Sind. The depression apparently originated in that area and was not transmitted from Persia, as high pressure conditions held steadily at Baghdad, Bushire, Jask Teheran and Ispahan from the 6th to the 11th, on which day pressure gave way in Persia as in Upper India, but by smaller amounts. High pressure conditions also obtained throughout this period in the Mediterranean and Southern Russia, where pressure ranged between 30″·1 and 30″·8. The following data show the position of the depression in Upper India at 8 A.M. of the 11th :—

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.	
Bickaneer .	29·872	−·115	?	SE	4	4	...	Fine.
Lahore . .	·904	−·059	−·131	SE	3	10	...	
Khushab . .	·927	−·023	?	ENE	2	10	0·06	Drizzling.
D. I. Khan .	·899	−·043	−·170	NE	2	3	...	Fine.
Mooltan . .	·862	−·096	−·208	NE	1	3	...	"
Jacobabad .	·897	−·072	−·157	NW	2	0	...	

Skies were clear at 8 A.M. in Baluchistan, but were overcast in the North and East Punjab and the Kashmir and Punjab Himalayan regions.

Pressure fell slightly in the submontane and hill districts

of the South-East Punjab and increased very rapidly in the South-West Punjab during the next 24 hours and the depression was in the South-East Punjab at 8 A.M. of the 12th, but was of slight importance. The following data indicate its position at 8 A.M. :—

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	
Umballa . .	29·927	0	?	SE	4	10	0·20	Hailstorm.
Ludhiana . .	·969	+·058	—·055	NE	4	10	1·12	Thunderstorm.
Lahore . .	·994	+·090	—·053	Calm	4	10	0·35	
Montgomery .	·991	+·102	?	NNW	0	2	0·43	
Sirsa . .	·957	+·082	—·073	SSW	8	0	0·26	

General rain had fallen in the Punjab during the previous 24 hours and heavy falls of snow had been received in the Kashmir and Punjab Himalayas.

Pressure increased rapidly over the whole of North-Western India and skies cleared in the hill districts as well as in the plains of the Punjab during the next 24 hours. Fine clear dry weather hence obtained over the whole of North-Western and Central India at 8 A.M. of the 13th.

The Upper India hill districts received a heavy and general fall of snow during this disturbance from the 11th to the 13th. It caused a large reduction of temperature and the lowest night temperatures of the month were recorded at the hill stations in Upper India on the 12th and 13th.

The disturbance of the 11th to the 13th under discussion is interesting as an example of the cold weather storms which originate in Upper India. The present storm formed in the South-West Punjab, further north than is the usual rule, and drifted eastwards across the South Punjab to the foot of the Simla hills and then disappeared. It was hence a comparatively short-lived storm.

Conditions were slightly disturbed at this time in North-Eastern India, indicated chiefly by large and irregular local changes of pressure. Series of thunderstorms, giving light to moderate rain, occurred in Chota Nagpur, Bihar and North Bengal on the 10th and 11th, and were followed by a brief large increase of pressure, such as almost invariably accompanies local rain and series of thunderstorms in the hot weather. Pressure gave way locally in that area on the afternoon of the 12th and normal conditions were established in Bihar again on the 13th.

The large increase of pressure which accompanied the disappearance of the cold weather storm in Upper India on the 13th gave rise to marked high pressure and anticyclonic conditions in the Persian area and Upper India which continued until the 17th. Weather was feebly unsettled in North-Eastern India from the 14th to the 18th and in the Deccan and Southern India from the 14th to the 20th. The only important barometric indication of the unsettled weather in Bengal, shown by the occurrence of series of thunderstorms approaching in violence in one or two cases to tornadoes, was the irregularity of the pressure changes from day to day.

A shallow depression, the position of which shifted slightly from day to day lay over Ceylon and Southern India from the 14th to the 20th. Southern India received moderately heavy and fairly general rain from the numerous thunderstorms which occurred in that area throughout the period.

Pressure gave way more or less steadily over Northern and Central India from the 17th to the 20th, and increased over the whole of India (more especially in Southern India) on the 21st and 22nd.

The following gives mean pressure variation data of the 18th, 20th and 22nd for the larger provinces of India :—

Political Province.	Variation from normal of mean pressure of 24 hours preceding 8 A.M. of		
	18th Feb.	20th Feb.	22nd Feb.
	"	"	"
Burma	—·046	—·045	—·002
Bengal and Assam	—·049	—·102	—·011
North-Western Provinces and Oudh .	—·044	—·139	+·001
Punjab	—·052	—·092	—·004
Sind and Rajputana	—·034	—·085	—·002
Central India and Gujarat . . .	—·038	—·059	+·026
Central Provinces and Berar . .	—·048	—·074	+·019
Bombay	—·049	—·053	+·021
Madras	—·050	—·086	+·009

Fine dry weather with clear or lightly clouded skies obtained over the whole of India and Burma on the 21st and 22nd. High pressure conditions held steadily during the period from the 13th to the end of the month in the Mediterranean, South Europe and South Russia.

Pressure gave way briskly to rapidly at Baghdad and Bushire during the 24 hours preceding 8 A.M. of the 20th, and feebly unsettled weather prevailed in that area. Heavy snow fell at Dasht Arjin and light to moderate snow at Kazeroon and on all the neighbouring hills.

The disturbance was apparently of little importance in the interior of Persia. It gave fresh winds in the Persian Gulf and showers at Bushire. It apparently

passed eastwards as a shallow depression and began to affect Baluchistan on the afternoon of the 22nd. Its eastward advance was accompanied by a rapid increase of pressure in Persia and Asiatic Turkey, and higher pressures were recorded at Baghdad on the 22nd and 23rd in that area than have been observed during the past six years. The following gives the highest readings at Baghdad and Bushire reduced to sea-level:—

STATION.	PRESSURE.	
	Highest 8 A.M. pressure reduced to sea-level and constant gravity at Lat. 45°.	Variation from normal.
	"	"
Baghdad	30·556	+·390
Bushire	30·332	+·326

The following gives a history of this cold weather storm during its progress across Baluchistan and Northern India.

Cold weather storm of the 23rd to the 25th February.—The origin of this depression in the Persian area has been described above. The storm was of slight intensity in West Persia, but probably increased as it advanced eastwards through East Persia on the 21st and 22nd. It entered Baluchistan on the 22nd, on which day pressure gave way very rapidly at Quetta and Chaman and in the Indus Valley. Pressure was at this time falling over the whole of India and was in general defect. A well marked depression, in which pressure was about ·25″ below the normal, lay over Upper Sind, the South-West Punjab and the neighbouring districts of Baluchistan on the morning of the 23rd. The following gives 8 A.M. observations taken at stations in 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.	
	"	"	"				
Quetta . . .	...	—·216	—·216	SSE	7	0	Dust haze.
Jacobabad . .	29·731	—·225	—·266	Calm	4	0	
Bickaneer. . .	·841	—·171	?	SSW	5	2	Fine.
Mooltan . . .	·761	—·251	—·265	SE	2	0	
Montgomery . .	·814	—·187	?	Calm	6	6	Fine.
D. I. Khan . .	·791	—·233	—·243	Calm	2	5	Fine.
Cherat . . .	...	—·165	?	SE	5	5	Fine.
Murree . . .	...	—·138	—·069	ESE	11	8	

The storm had given practically no rain in Baluchistan and Sind during the previous 24 hours, and skies at 8 A.M. were clear in those areas, but were beginning to cloud over in the North Punjab. They were clear in the remainder of India.

24th February.—The barometric changes of the previous 24 hours were chiefly due to the formation of a secondary depression in the North Punjab. The primary depression at 8 A.M. was, as indicated by the lie of the isobars, in North-East Rajputana. Pressure had increased briskly to rapidly in Sind and Baluchistan, but had fallen very rapidly in the North Punjab, in the area covered by the secondary depression. The following gives 8 A.M. data for that 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.	
D. I. Khan .	29·653	—·138	—·376	NW	10	6	...	Gale.
Khushab .	·638	—·195	?	WSW	7	0	0·06	Duststorm with rain
Rawalpindi .	·663	—·182	—·293	ESE	10	10	0·21	Ditto.
Peshawar .	·647	—·205	—·380	NW	5	10	0·23	Ditto.
Cherat .	...	—·188	?	SE	11	10	0·46	Cloudy.
Murree .	...	—·184	—·254	SE.	21	10	0·57	Duststorm with rain.
Srinagar .	...	—·296	?	NNW	4	10	0·15	Snowstorm.
Astor .	...	—·258	?	S	6	0	0·46	Ditto.
Minimarg .	...	—·225	?	Calm	1	10	0·80	Ditto.
Skardu .	...	—·213	?	W	3	10	0·16	Snowing.
Dras .	...	—·235	?	Calm	0	10	0.44	Snowstorm.
Leh . .	...	—·159	?	SW	1	10	...	Dull.
Kashgar .	...	+·118	...	Calm	2	10	0·17	Snowing.

Skies were clear in Baluchistan and over the whole of India, except to the north and east of the secondary depression. Numerous duststorms and thunderstorms had occurred in the North and East Punjab and the adjacent hill districts and snowstorms were in progress on the higher elevations of the Kashmir and Punjab Himalayas and also at Kashgar.

25th February.—Pressure had increased with great rapidity in North-Western India and the secondary depression had filled up even more quickly than it formed. The

following gives data for the stations at which the increase of pressure was greatest:—

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.	
D. I. Khan	30·097	+·444	+·060	NW	8	0	...	Gale of wind.
Khushab	·055	+·417	?	ENE	4	0	...	Duststorm.
Rawalpindi	·132	+·469	+·133	Calm	3	0	...	
Peshawar	·168	+·521	+·116	S	5	0	0·05	Hailstorm.
Cherat		+·386	?	NNW	16	3		
Murree		+·263	+·008	SE	23	10	0·21	
Srinagar		+·234	?	NNW	11	0	0·23	
Astor		+·210	?	Calm	10	0	0·24	Snowstorm.
Minimarg		+·155	?	Calm	6	0	1·10	Ditto.
Skardu		+·115	?	S	6	8	0·03	Gale of wind.
Dras		+·068	?	NNW	3	5	0·48	Snowstorm.
Leh		−·103	?	S	1	10	0·13	
Kashgar		−·010	?	Calm	1	10	0·06	Snowing.

Skies had completely cleared in the Punjab and also at the majority of the hill stations in Kashmir and the Punjab. Hailstorms had visited the lower hill stations and snowstorms the higher elevations of the Kashmir and Punjab Himalayas. Unusually strong winds prevailed in the hill districts during the storm.

The fall at Leh and the small barometric rise at Dras appear to indicate an eastward extension of the storm across the Himalayas into Thibet. The following gives the barometric changes at the hill stations in Upper India during the next 24 hours:—

Station.	Pressure change in 24 hours preceding 8 A.M. of 26th February 1897.
	"
Cherat	−·105
Murree	+·139
Srinagar	+·094
Astor	+·204
Minimarg	+·156
Dras	+·255
Skardu	+·299
Leh	+·368
Kashgar	+·005

The rapid rise of the barometer at Leh, Skardu and Dras during the previous 24 hours confirms the inference of an eastward extension of the storm across the Himalayas and is a strong proof of the very great elevation of the active field of the cold weather depressions.

Pressure on the 25th was in moderate to considerable excess in Upper India, and was normal or in slight defect in the Peninsula and North-Eastern India. It was in considerable to large excess from the 21st to the end of the month in Persia. Pressure gave way during the next three days, the 26th to 28th, over the Indian area. The fall was large in Upper India and Baluchistan, and on the morning of the 28th a shallow depression lay over Sind and the adjacent districts of Baluchistan and the South-West Punjab. It drifted eastwards during the next two days and filled up on the 2nd of March. It gave some cloud, but practically no rain, in the plains of Upper India, and was hence of little importance.

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

The following is a statement of the information relating to the snowfall of the month of February 1897 in the Himalayan and Afghan mountain areas received up to date:—

1.—Afghan Mountain Districts.

(*1*). *Dera Ismail Khan District* (*Kulachi border*).—The following report has been received from the Deputy Commissioner: "The total snowfall during the month of February 1897 on the following peaks is shown below. It fell on the 6th, 7th and 11th February.

	6th.	7th.	11th.	Total.
Kat peak, Zamra Suliman range	2 feet	*nil*	3 feet.	5 feet.
Ubashta range, Nawa Tiza, Marmaz Gat peak and Zamra	*nil*	2 feet	3 feet.	5 feet.
Dabra peak near Moghalkot	*nil*	*nil*	1 inch.	1 inch.

The general character of the weather at the time of the snowfall was cold. It was stormy between the 7th

and 11th February. The total snowfall from November 1896 up to the end of February 1897 amounted to 14 feet on the higher peaks. It has melted rapidly, and only 8 or 9 feet of snow were lying on the Ubashta peak and 6 feet on the Marmaz and Nawa Tiza peaks at the end of the month. Before the 11th February the weather was dry, while after that it was damp. The general condition of the crops was good, and the snowfall caused no damage to them. The snowfall of the month under report was considerably greater than that in the corresponding month of the preceding year."

(2) *Wano* (*Waziristan*).—The following account of the snowfall during the month of February 1897 has been received from the Political Officer, Wano:—

"On the 2nd February 1897 slight fall on the Marwattai Hills (10,000 feet).

On the 4th, fall of snow about 4 inches in depth on the surrounding hills down to about 6,500 feet.

On the 5th, fall of snow, about 6 to 9 inches in depth, on the higher hills, and a slight sprinkling on the Wano plain at 4,500 feet."

On each occasion, the snow on the hils was accompanied by rain on the Wano plain and the storms extended over the whole neighbourhood. On the 28th February a depth about 6 inches of snow was remaining on the northern slopes of the hills from 8,000 feet upwards. The snowfall of the present year was heavier than that of the past three years.

(3) *Kurram.*—The following report has been received from C. S. Hastings, Esq.:—

"Snow fell as follows this month:—

5th February	1 foot.
11th "	2½ inches.
23rd "	½ inch.

On these dates the snow line descended as low as 4,000 feet on the Para Chinar plain. These falls, added to the abnormal fall of last month, have given a total snowfall very unusual in the Kurram Valley. The storms above noted were general from Kurram to Kabul. Dull heavy weather prevailed prior to and during the storms and bright cold weather with strong winds after each fall."

(4) *Khyber Pass Districts.*—It is reported that a "storm gave about 6 inches of snow in Tirah during the second week of February. On the 16th February snow again fell in Tirah and on the Lakka and Tor Sappar hills. The average fall in Tirah is reported to have been about 2 feet. On the Shinwari hills snow fell only during the first week of February, about 8 or 9 inches deep. At the end of February and the beginning of March, the unusual coldness of the weather at Landikotal and Tirah was remarked on by the natives. The snowfall of the year under report is said by the elders of Landikotal and Tirah to be more than that of the past five or six years."

(5) *Kabul* (*Afghanistan*).—The following statement of the snowfall at Kabul and in the neighbouring districts has been received from the British Agent:—

Month.	Date.	Snowfall. Inches.
November and December 1896.		*nil.*
January 1897	1st	3
"	4th	4
"	5th and 6th	2
"	10th	10
"	11th	10
"	14th and 15th	6
"	24th	2
"	31st	1
February 1897	3rd	3
"	5th and 6th	14
"	11th and 12th	9
"	22nd to 24th	8

"It was very cold, especially in the middle of January, and temperature was below zero on three occasions. Weather was dry, but the amount of cloud much greater than usual. It is stated by the inhabitants of this place that the snowfall was more than during the three previous years."

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Murree.*—The following statement of the snowfall at Murree and the hills adjacent to Kahuta in this district in February has been received from the Deputy Commissioner, Rawalpindi:—

Murree.

	Feet.	Inches.
5th February 1897	1	6
6th " "	0	6
8th " "	0	8
12th " "	0	3
TOTAL	2	11

Kahuta. *Nil.*

(2) *Chamba.* The Deputy Conservator of Forests has sent the following account of the snowfall in that state. "Local snowstorms occurred on the 1st, 5th and 6th and 10th. A severe snowstorm visited this state on the 12th and 13th February. The storm was unusually severe. Snow fell down to 2,500 feet. The weather cleared up and was fine for some days after the storm. The depth of the snow accumulation on the 15th February at Kalatop was 6¼ feet and at Bhandal 7 inches. The snowfall is considered to have been heavier than usual on the higher ranges but to be somewhat below it on the lower ranges.

The following gives the amounts received at different elevations :—

Month.	Date.	Depth of snowfall at Kalatop 8,000 feet.	Chanan 6,500 feet.	Thanela 7,000 feet.	Tisa 5,000 feet.	Bhandal 6,000 feet.
		Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
February 1897.	1st .	...	...	1 3	...	0 9
	5th and 6th.	...	...	0 9	...	0 2
	10th .	...	...	0 2	...	...
	12th and 13th.	4 6	1 6	2 6	0 3	1 9
	16th .	...	...	0 2	...	...
	24th .	...	0 8	0 10	0 1	...
	Total of month.	4 6	2 2	5 8	0 4	2 8

"During the month under report there were no general snowstorms, but on the 16th and 24th February there were storms which brought snow in the eastern part of the state down to 5,000 feet.

"Above 7,000 feet there were more frequent snowfalls which were more or less of a local nature, but there was no snowfall on the outer range below 9,000 feet. The storms were preceded by strong winds which brought rain followed by slight falls of snow. After the storms the weather cleared for one or two days but generally it was cloudy and windy, and rain fell frequently. The snowfall would appear to have been perhaps heavier than the normal on the high ranges, but elsewhere it is said to resemble that of 1894."

(3) *Kulu.*—According to the account of the snowfall in this district, received from the Assistant Commissioner, there were falls of snow on the 1st, 5th, 6th, 11th, 12th, 16th and 24th February in the Kulu Tahsil, and on the 1st, 6th, 7th, 11th, 12th, 13th and 25th February in the Plach Tahsil. The fall of the 12th February descended to an elevation of 2,650 feet. The weather was very cold for some days after the fall of the 12th. It was not so cloudy as in the month of January. The fall of snow on the 12th February was general in the sub-division At the end of February nearly all the passes were closed.

The following table gives the reported depth of snow on the higher passes at the end of the month, with corresponding data for the past four years :—

Tahsil.	Name of pass	Height above sea level in feet.	Reported depth of snow on 25th February. Feb. 1897.	Feb. 1896.	Feb. 1895.	Feb. 1894	Feb. 1893.
			Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
Kulu .	Rotang . .	13,000	12 0	16 0	21 0	19 0	29 0
	Hamta . .	14,500	12 6	12 0	12 0	16 0	24 6
	Barsai . .	...	5 0	5 0	8 0	12 0	19 6
	Chandarkhani .	...	6 0	7 0	6 0	12 0	26 0
	Bujadhar .	...	6 0	5 0	7 0	11 0	19 0
	Lohri Achri .	...	12 0	11 0	8 0	11 0	19 0
	Bhubu . .	10,000	6 0	6 0	8 0	8 0	17 6
	Pastari . .	...	5 0	5 0	9 0	5 0	12 0
Plach .	Srikhand . .	15,000	12 0	14 0	24 0	18 0	33 0
	Chul . .	...	8 0	5 0	9 0	6 0	24 0
	Maghin . .	...	7 0	5 0	7 0	6 0	20 0
	Tikar . .	...	9 0	5 0	7 0	6 0	20 0
	Dundku . .	...	11 0	6 0	8 0	8 0	22 0
	Nuhnu .	...	3 0	?	7 0	4 0	10 0
	Jalori . .	10,500	8 0	6 0	9 0	6 0	20 0
	Raghopur .	...	8 0	5 0	10 0	6 0	21 0
	Lambri . .	...	8 0	5 0	9 0	6 0	22 0
	Sakiran . .	...	10 0	5 0	10 0	6 6	19 0
	Supakun . .	...	10 0	5 0	10 0	9 0	19 0
	Gargarasan .	17,000	12 0	7 0	19 0	11 0	24 0
	Basleo . .	11,000	9 0	6 0	9 6	6 0	22 0
	Plach . .	...	6 0	6 0	14 0	9 0	23 0
	Tirath . .	...	10 0	6 0	17 0	11 0	24 0

The snowfall in the month under report was about the same in amount as during the corresponding period of last year.

(4) *Simla Hill District (Bushahr).*—The following statement of the snowfall in the Sutlej valley and the Bushahr State has been received from Mr Minniken, Deputy Conservator of Forests: "Snow fell in this district on five days during the month, *viz.*, the 1st, 6th, 7th, 12th and 13th February. The heaviest fall was on the 12th, and the snow fall descended to the bed of the valley in Kanawar, *viz.*, 5,700 feet in height. At Kilba the depth of snow was 1½ feet. The snowstorm on the 7th was accompanied by a north wind, and there was a heavy downpour of rain on the slopes below 7,000 feet, which diminished the previously collected snow below that elevation. At Kilba one inch of rain was registered. Generally speaking, the wind was from the north or north-east during the snowstorms."

"The following gives the depth of snow on four passes in this district on the 15th February :—

	Elevation. Feet.	Depth of snow on 15th February. Feet.
Darin Pass	10,000	7½
Borenda "	16,000	15
Rupin "	15,000	12
Chensil "	13,000	10

"The people generally state that the crops are doing well, and the abundant snowfall was all that could be desired for the coming season.

"The snowfall of the present year has been heavier than that of the last four years.

"During the period from the 16th to the 28th of February snowstorms occurred above 10,000 feet on the 24th and 25th. The snow rapidly disappeared from the lower slopes, the lower limit being 10,000 feet on southern slopes and 8,000 to 9,000 feet on northern. The snowfall of the season was much heavier than last year, but very few avalanches or snow slips have as yet occurred. Snow fell on the hill side opposite Kilba on ten occasions during the period from the 16th January to the 12th of February, of which the heaviest fall was reported on the 12th of February 1897."

(5) *Upper Sutlej Valley (Poo).*—The following statement of the snowfall at Poo (elevation about 10,000 feet) in the Upper Sutlej Valley has been received from the Revd. T. Schreve :—

Month.	Date.	Snowfall. Ft.	In.
December 1896,	24th	0	8
"	28th to 30th	0	9
January 1897,	2nd	0	3
"	5th	0	3
"	10th	1	3
"	14th	0	4
"	19th and 20th	0	9
"	26th and 27th	1	0
February 1897,	1st	0	4
"	2nd	0	2
"	5th	0	6
"	11th and 12th	0	6
"	24th and 25th	0	7
	TOTAL	7	4

"The passes were all closed at the end of February. The winter was considered to be favourable by the natives as the snowfall was larger than usual."

III.—NORTH-WESTERN PROVINCES HIMALAYAS.

(1). *Garhwal.*—The following report of the snowfall in this district during the period from November 1896 to the end of February 1897 has been received from the Deputy Commissioner :—

"The first snowstorm of the season occurred on the 21st and 22nd November 1896. Snow fell down to about 8,000 feet and at higher elevations was fairly heavy (three to four feet). The next snowfall of moderate intensity occurred on the 28th December. A more considerable fall (about three feet) followed on the 1st and 2nd January 1897. Snow fell more or less intermittently throughout January, the more considerable falls being from the 11th to 14th and on the 27th and 28th. Considerable falls took place on the 4th and the 11th of February. Except in and near the region of the great snows, all these falls were light (from six inches to one foot in depth). Snow descended to about 5,500 feet in the midland portion of the district.

"The weather was very cold. During the intervals of snowfalls in the northern part of the country it was cloudy with occasional rain. Snow fell in all portions of the district over 6,000 feet during December and first week of January. There is no snow on any of the passes, except those leading into Tibet which lie behind the great snow mountains and are entirely deserted at this time of the year.

"In the northern part of the district the snowfalls were more frequent, but the falls were not so heavy as in previous years. In the southern part of the district the falls were neither frequent nor heavy. Snowfall was, generally speaking, light this year."

(2) *Almora District.*—The following report of the snowfall in this district from the 16th December 1896 to 15th February 1897 has been received from the office of the Commissioner of Kumaon :—

"*Malla Danpur.*—Snow fell as under during the period :—

	Ft.	In.
25th December 1896	2	6
28th December to 1st January 1897	4	0
5th January	2	6
11th "	1	0
13th to 15th January	5	0
17th, 23rd and 25th January	5	0
3rd and 4th February	1	0
10th, 11th and 12th February	2	0
TOTAL	23	0

This was the depth on the well-known passes of Pindari, Kaphini and Kantela.

Mallas Byans, Chandans and Darma.—Snow fell as under during the period :—

	Ft.	In.
30th December 1896	1	6
2nd January 1897	0	6
11th "	1	0
14th "	1	0
15th "	1	0
19th "	0	6
27th "	0	6
31st "	0	6
9th February 1897	0	6
10th "	1	0
11th "	1	0
12th "	0	6
TOTAL	6	6

Malla Johar.—Snow fell during the period from the 17th December 1896 to the 15th January 1897 on the peak of Uttamdhura to a depth of 11 feet 3 inches and on the peak of Ralamdhura to a depth of 5 feet 3 inches. The following is a statement of the falls on these peaks during the period from the 16th January to the 15th February.

Again snow fell as under on—

	Ft.	In.
16th January 1897	3	6
27th "	6	0
1st February	7	6
5th "	3	6
11th "	10	6
TOTAL	31	0

This was the depth on the well-known peaks of Uttamdhura and Ralamdhura. The weather was unusually cold, and the snowall was greater than in previous years.

Summary of Special Storm Reports.

Local thunderstorms and hailstorms occasionally occur in the month of February during the periods of general disturbance known as cold-weather storms. They also occur during hot-weather disturbances, when temperature increases more rapidly than usual and is considerably above the normal. Severe local storms appear to be more frequent under the latter conditions than during the cold-weather disturbances. The following reported storms were of sufficient importance to be deserving of record:—

1st—Severe duststorm at Burdwan from 3-10 P.M. to 3-15 P.M.

Thunderstorm at Calcutta from 3-40 P.M. to 4 P.M. Temperature fell from 80°·7 at 3 P.M. to 63°·0 at 3-45 P.M. The wind veered suddenly from south-east to north-west as the storm approached. Rain began to fall in torrents at 3-45 P.M. and continued for about ten minutes, during which 1·07 inches were recorded by the rain-gauge. The storm is said to have been very local, extending only over a few square miles. Many trees were blown down on the maidan.

2nd.—Thunderstorm at False Point from 4 P.M. to 4-20 P.M.

11th.—Thunderstorm at Jubbulpore from north-east. The storm lasted for an hour.

Duststorm at Ludhiana at 1-45 P.M.

Hailstorm in the Mirzawalla Tahsil of the Bickaneer State.

12th.—Severe hailstorm and thunderstorm at Raipur during the night. The storm caused slight damage to property in the station.

Severe thunderstorm at Simla at 7-30 A.M.

23rd.—Severe duststorm at Jacobabad at 4 P.M.

24th.—Thunderstorm and hailstorm with very violent winds at Simla from 7 P.M. to 10-30 P.M. The wind during the strongest gusts blew with a velocity of 40 to 60 miles per hour.

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

Arabian Sea.—Ordinary north-east monsoon winds held more or less steadily throughout the month over nearly the whole of the Arabian Sea except in the west where abnormal south-easterly winds were experienced for a short period, *viz*, from the 3rd to the 8th. The mean force of the winds in February 1897 was 3·3 or 0·3 above the normal of the month. Winds were more or less above their normal strength on at least eighteen days. The variations of strength were, however, less than usual, the mean force over the whole area ranging between an average of 2·4 on the 21st and of 4·1 on the 25th. Except in the south-east, where occasional rain and squalls were experienced from the 13th to the 17th, weather was even finer than usual throughout in the Arabian sea.

Conditions were much less disturbed in the Persian Gulf than is usually the case in February. The air movement was moderate in intensity in that area except from the 21st to the 24th when north-west winds blew with the force of a fresh gale (7 to 8) in the Centre of the Gulf.

Bay of Bengal.—Winds were of normal strength, but even more untseady than usual in the north and centre of the Bay. An importaut feature of the air circulation of the month is the local southerly sea winds which usually set in over the head of the bay in the second week of the month. During the month under review the establishment of these winds was delayed until the 22nd of the month. In the west and south of the Bay on the other hand, north-east winds prevailed with their usual steadiness except during the period from the 16th to the 20th when abnormal south-east winds blew over the greater part of the western half of the Bay, due probably to actions over the land. Weather was more or less squally and rainy off the Ceylon coast from the 9th to the 18th and off the Madras coast from the 12th to the 20th. Heavy showers and

occasional squalls were also experienced in the extreme north of the Bay on the 16th and 20th. The normal force of the winds over the whole area in February is 2·5 and the mean force in February 1897 (*viz.*, 2·6) was almost identical with the normal.

Temperature of the Air.

The temperature conditions prevailing in India during the month of February were very similar to those of the preceding month, the chief feature being general excess of temperature. The excess was on the whole more marked in the night than in the day temperature, and was greatest in the central districts of the Peninsula.

The mean maximum or day temperature was above the normal over the whole of Burma and India with the exception of a small area in the South-East Punjab and the West Coast districts between Kurrachee and Mangalore. The following gives data for these two areas of decreased day temperature in February :—

Province.	Station.	Mean maximum temperature. Actual, February 1897.	Normal, February.	Variation of actual from normal.
		°	°	°
Punjab	Ludhiana	70·1	71·4	−1·3
	Lahore	69·3	70·5	−1·2
	Sirsa	74·1	75·1	−1·0
West Coast	Rajkot	84·8	87·5	−2·7
	Bhuj	81·9	83·8	−1·9
	Ratnagiri	84·5	86·3	−1·8
	Karwar	85·1	86·2	−1·1
	Bombay	81·5	82·5	−1·0
	Mangalore	87·1	87·8	−0·7

The decreased day temperature in these areas was hence not marked. The deficiency was (as in January) greatest in Cutch and Kathiawar.

The mean day temperature of the month was more than 2° above the normal in the Gangetic Plain, North and Central Bengal, Upper Burma, the Peninsula with the exception of the west coast districts and South Madras. The excess was more than 4° in amount at the stations for which data are given below :—

Station.	Mean maximum temperature. Actual, February 1897.	Normal, February	Variation of actual from normal.
	°	°	°
Cuddapah	98·9	94·4	+4·5
Nagpur	93·6	89·1	+4·5
Akola	94·7	90·3	+4·4

The mean maximum temperature of the month was slightly higher than usual at Quetta and at the hill stations in North-Western India. It was 2°·6 above the normal at Darjeeling, 2°·4 at Wellington and 2°·3 at Pachmarhi.

The mean night or minimum temperature of the month was below the normal in an area including Sind, Cutch, Kathiawar, Gujarat and South-West Rajputana. The deficiency was small in amount, except at Bhuj (−2°·6) and Rajkot (−2°·1).

The mean night temperature of the month was above the normal over the remainder of India and in Burma. Over by far the greater part of this area the excess was more than 2° in amount. In the Central Provinces, the southern districts of Chota Nagpur, Orissa, Hyderabad, the Madras Deccan and North and Central Madras it was over 4°. It exceeded 5° in the districts represented by the stations for which comparative data are given below :—

Province.	Station.	Mean minimum temperature. Actual, February 1897.	Normal, February.	Variation of actual from normal.
		°	°	°
Central Burma	Thayetmyo	62·0	56·0	+6·0
Orissa	False Point	71·1	64·3	+6·8
	Balasore	66·5	60·2	+6·3
	Cuttack	70·3	65·1	+5·2
Madras Coast	Cocanada	74·8	69·3	+5·5
	Masulipatam	73·1	67·7	+5·4
Deccan and Mysore	Kurnool	71·0	63·7	+7·3
	Bellary	71·9	64·8	+7·1
	Hyderabad	69·4	62·7	+6·7
	Cuddapah	74·9	68·2	+6·7
	Bangalore	64·7	58·9	+5·8

The night temperature was hence most largely above the normal in Hyderabad, the Madras Deccan and Mysore. This was also the area of greatest excess of the night temperature in the preceding month.

The mean temperature of the month was in general excess by amounts averaging 2°·0 for the whole Indian land area. The only area in which the mean temperature of the month was lower than usual included Lower Sind, Cutch, Gujarat and Kathiawar. The deficiency was small and of no importance except at Rajkot (representative of Central Kathiawar) where the mean temperature of the month was 2°·4 below the normal and Bhuj (representative

of Cutch) where the mean temperature of the month was 2°·3 in defect.

The mean temperature of the month was more than 2° above the normal over Burma and the remainder of India, except the Punjab, Rajputana, North Bengal, Upper Assam, the West Coast districts and South Madras. It was more than 4° above the normal over the greater part of the interior of the Peninsula defined by the stations for which comparative data are given below and also locally at False Point (+4°·4) and perhaps Thayetmyo (+4°·2) and Balasore (+4°·3).

Station.	Mean daily temperature.		
	Actual, February 1897.	Normal, February.	Variation of actual from normal.
	°	°	°
Cuddapah	87·0	81·4	+5·6
Kurnool	84·5	79·0	+5·5
Bellary	84·9	79·5	+5·4
Nagpur	79·2	74·2	+5·0
Hyderabad (Deccan)	81·8	76·9	+4·9
Bangalore	76·6	72·0	+4·6
Akola	77·8	73·5	+4·3

The mean temperature of the month was in slight excess at Quetta and the hill stations in Upper India and in moderate excess at Darjeeling (+2°·5), Pachmarhi (+2°·4) and Wellington (+3°·3). It was, on the other hand, in slight defect at Mount Abu (—1°·3) where the temperature conditions were hence determined by the same actions as in the plains of Cutch, Kathiawar and Gujarat.

A noteworthy feature of the temperature conditions of the month was the unusual cold at the interior and more elevated stations in the Western Himalayas and probably also in Afghanistan and Persia. The following gives data illustrating this feature:—

Station.	Mean daily temperature.		
	Actual, February 1897.	Normal, February.	Variation actual from normal.
	°	°	°
Leh	15·5	21·4	—5·9
Kailang	20·2	20·4	—0·2
Srinagar	31·2	33·2	—2·0
Kabul	28·8	?	?
Teheran	40·2	?	?
Ispahan	39·9	?	?
Baghdad	52·0	53·0	—1·0

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

Province.	Division.	Actual Temperature.					Variation from normal of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°		
Burma	Tenasserim	91·4	68·7	80·1	22·7	34·4	+1·2	+2·4	—1·2
	Lower Burma (Deltaic)	90·3	71·1	80·7	19·2	29·4	+1·6	+4·1	—2·5
	Central do.	93·2	63·6	78·4	29·6	43·4	+1·6	+5·5	—3·9
	Upper do.	89·3	60·0	74·7	29·3	45·2	+0·8	+1·9	—1·1
	Arakan	86·4	65·1	75·8	21·3	34·5	+1·8	+4·2	—2·4
Bengal and Assam	Eastern Bengal	81·6	59·6	70·6	22·0	36·9	+2·6	+3·6	—1·0
	Assam (Surma)	82·2	54·1	68·2	28·1	42·6	+3·1	+2·0	+1·1
	Do. (Brahmaputra)	76·6	54·5	65·6	22·1	35·3	+1·7	+0·6	+1·1
	Deltaic Bengal	84·1	61·5	72·8	22·6	40·7	+1·0	+3·5	—2·5
	Central do.	83·9	57·6	70·8	26·3	42·1	+2·8	1·8	+1·0
	North do.	79·3	51·4	65·4	27·9	40·7	+2·8	+1·3	+1·5
	Bengal Hills	49·9	32·2	41·1	17·7	31·8	+2·6	+2·4	+0·2
	Orissa	86·5	71·0	78·8	15·5	27·1	+2·1	+6·0	—3·9
	Chota Nagpur	79·7	57·5	68·7	22·2	39·4	+1·3	+3·3	—2·0
	Bihar (South)	82·3	56·6	69·5	25·7	41·3	+2·5	+2·8	—0·3
	Do. (North)	81·1	52·3	66·8	28·8	43·4	+3·1	+0·4	+2·7
North-Western Provinces and Oudh.	North-Western Provinces (East)	82·5	53·6	68·1	28·9	46·4	+2·4	+2·4	0
	Oudh (South)	80·7	52·2	66·5	28·5	46·6	+2·2	+1·9	+0·3
	Do. (North)	80·4	50·3	65·4	30·1	44·4	?	?	?
	North-Western Provinces (Central)	81·1	53·1	67·2	28·0	46·9	+1·5	+2·5	—1·0
	Do. do. (West)	78·5	50·9	64·7	27·6	47·3	+2·2	+1·3	+0·9
	Do. do. (Submontane East)	80·3	52·5	66·4	27·8	40·6	+2·2	+0·6	+1·6
	Do. do. (do. West)	74·8	47·5	61·2	27·3	45·3	+2·6	0	+2·6
	Do. do. (Hills)	53·4	39·3	46·4	14·1	32·5	+1·4	+1·5	—0·1

Province.	Division.	Actual temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Punjab	Punjab (South-East)	76·2	51·4	63·8	24·8	43·3	?	?	?
	Do. (South)	73·6	48·4	61·0	25·2	44·8	—1·0	+1·8	—2·8
	Do. (Central)	69·3	48·3	58·8	21·0	38·4	—1·2	+4·4?	—5·6?
	Do. (Submontane)	71·6	47·2	59·4	24·4	42·9	—0·2	+1·3	—1·5
	Do. (Hills)	41·1	23·9	32·5	17·2	38·6	+1·0	0	+1·0
	Do. (North)	66·5	41·7	54·1	24·8	38·3	+0·7	+2·6	—1·9
	Do. (West)	72·9	46·6	59·8	26·3	44·0	+2·3	+2·6	—0·3
Bombay and Malabar Coast Districts (Madras).	Malabar	88·5	75·0	81·7	13·5	19·3	+0·8	+2·8	—2·0
	Madras (South Central)	93·1	68·9	81·0	24·2	33·9	+0·4	+4·0	—3·6
	Coorg	81·6	62·1	71·9	19·5	27·8	+0·4	+4·8	—4·4
	Mysore	90·2	65·2	77·7	25·0	34·5	+3·3	+5·8	—2·5
	Konkan	83·6	70·2	77·0	13·4	23·9	—1·3	+1·2	—2·5
	Bombay Deccan	94·7	63·2	79·0	31·6	44·0	+3·3	+2·3	+1·0
	Hyderabad (North)	93·8	64·7	79·3	29·1	43·4	?	?	?
	Khandesh	91·9	57·2	74·6	34·8	52·9	+2·3	+2·2	+0·1
Central Provinces and Berar.	Berar	94·1	62·8	78·5	31·3	44·5	+4·1	+4·1	0
	Central Provinces (West)	90·8	60·9	75·8	30·0	44·7	+3·2	+4·4	—1·2
	Do. (Central)	86·8	53·4	72·5	28·4	45·4	+2·3	+3·5	—1·2
	Do. (East)	89·0	64·3	76·7	24·7	38·8	+1·7	+4·6	—2·9
Bombay (North)	Gujarat	88·4	58·8	73·7	29·6	42·1	—0·2	+1·1	—1·3
	Kathiawar & Cutch	84·1	55·6	69·8	28·5	46·4	—2·3	—2·4	+0·1
	Sind	79·2	52·6	65·9	26·6	47·7	+0·6	—0·6	+1·2
	Baluchistan Hills	56·1	32·2	44·2	23·9	53·0	+1·7	+1·0	+0·7
Rajputana and Central India.	Central India (East)	82·1	53·2	67·7	28·9	48·3	+2·2	+1·8	+0·4
	Rajputana (East), Central India (West)	80·8	50·4	65·6	30·3	48·1	+1·4	+0·1	+1·3
	Do. (West)	79·7	49·4	64·6	30·3	49·9	?	?	?
Madras	East Coast (North)	8·7	73·6	81·2	15·1	26·4	+2·4	+5·1	—2·7
	Hyderabad (South)	95·4	70·6	83·0	24·7	36·7	+3·1	+6·7	—3·6
	Madras (Central)	98·2	72·6	85·5	25·6	37·7	+3·9	+7·0	—3·1
	East Coast (Central)	90·9	73·5	82·2	17·4	32·6	+2·1	+5·4	—3·3
	Do. (South)	88·7	72·9	80·8	15·7	25·0	+1·1	+4·2	—3·1
	Madras (South)	90·2	74·1	82·2	16·1	26·8	?	?	?

Temperature was at the commencement of the month in general excess, the night temperature being above the normal to a greater amount than the day temperature in the majority of provinces. The following gives temperature variation data for the 24 hours preceding 8 A.M. of the 1st:—

Political Province.	Variation from normal of Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+3·6	—1·3	+1·2
Bengal and Assam	+3·1	+2·4	+2·8
N.-W. Provinces and Oudh	+1·4	+5·2	+3·3
Punjab	—3·8	+4·1	+0·2
Sind and Rajputana	+1·7	+2·8	+2·3
Central India and Gujarat	+1·4	+4·4	+2·9
Central Provinces and Berar	+5·0	+5·2	+5·1
Bombay	+1·1	+0·7	+0·9
Madras	+4·0	+3·6	+3·8

No important change occurred during the next four days. Temperature increased locally in Bengal on the 4th and 5th, and was most largely in excess from the 6th to the 9th in the Central Provinces, Berar, Central India, South Bengal, Orissa and Chota Nagpur.

The following gives variation data of the mean daily temperature from the 6th to the 9th in these areas of large excess of temperature :—

Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 6th February.	7th February.	8th February.	9th February.
	°	°	°	°
Central India	+5·7	+5·1	+7·3	+7·7
Central Provinces and Berar	+6·6	+7·4	+8·1	+7·3
Chota Nagpur	+5·1	+6·4	+7·3	+8·1
Orissa	+6·3	+7·0	+6·8	+6·5
South Bengal	+6·4	+6·6	+6·6	+8·7

It should be noted that South Bengal in the preceding table includes the whole of Bengal to the south of Lat. 24° N.

The following table gives variation data for the larger divisions for the 24 hours preceding 8 A.M. of the 9th, on which day the excess of temperature was large, averaging nearly 5° for the whole of India and Burma :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+3·8	+4·8	+4·3
Bengal and Assam	+5·7	+6·8	+6·3
N.-W. Provinces and Oudh	+7·4	+5·0	+6·2
Punjab	+2·6	+4·0	+3·3
Sind and Rajputana	+3·2	+4·9	+4·1
Central India and Gujarat	+3·3	+8·0	+5·7
Central Provinces and Berar	+6·4	+8·1	+7·3
Bombay	+2·2	+3·0	+2·6
Madras	+2·0	+2·9	+2·5

A feeble disturbance affected Upper India on the 11th and 12th. It gave moderate to heavy snow in the Afghan and Kashmir hills and slight rain showers in the Punjab plains. The area of greatest excess of temperature was hence transferred eastwards on the 11th from the Central Provinces to South Bengal and Orissa and on the 12th to Arakan and Central and Upper Burma. This movement of the area of greatest temperature excess is shown clearly by the following variation data:—

DIVISION OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	9th February.	10th February.	11th February.	12th February.	13th February.
	°	°	°	°	°
Central Provinces and Berar.	+7·3	+5·9	+6·3	+3·3	+2·6
Chota Nagpur	+8·1	+7·8	+7·2	+1·7	—0·2
Orissa	+6·5	+8·3	+6·5	+3·5	+2·6
South Bengal	+8·7	+7·4	+7·2	+2·9	+2·3
Arakan	+5·5	+4·9	+6·2	+8·7	+8·0
Upper & Central Burma	+4·4	+6·2	+5·0	+6·7	+7·0

The disturbance in Upper India was followed by the usual cool wave. It advanced somewhat irregularly across Northern India between the 12th and 19th. The following provincial variation data illustrate its progress :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF							
	12th Feb	13th Feb.	14th Feb.	15th Feb.	16th Feb.	17th Feb.	18th Feb.	19th Feb.
	°	°	°	°	°	°	°	°
Punjab	—0·1	—3·7	—1·5	—0·3	0	+0·9	+0·5	+1·1
Rajputana	+1·4	—1·8	—3·1	—0·5	—2·2	—1·7	—2·7	—1·9
North-Western Provinces and Oudh.	+2·2	+1·3	+0·4	+0·2	+0·9	—0·1	—0·6	—0·9
Central India	+0·9	+2·5	+2·7	+3·0	+2·4	—1·9	—1·8	—0·3
Bihar	—0·8	+0·4	+3·6	+3·4	+4·6	+4·0	+1·2	—1·1
Chota Nagpur	+1·7	—0·2	+1·6	+6·7	+0·2	+2·2	—0·8	—2·4
Bengal	+3·1	+2·9	—1·1	+4·8	—0·2	+0·6	—0·3	—3·1

During the later stages of the extension of the cool wave over the whole of Northern and Central India and Upper Burma, temperature was largely in excess in the centre and south of the Peninsula, as is shown by the following comparative data for the 17th, 18th, 19th and 20th :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	17th February.	18th February.	19th February.	20th February.
	°	°	°	°
Bombay Deccan	+6·5	+6·7	+6·1	+4·6
Madras Deccan and Hyderabad	+6·7	+6·0	+7·5	+7·2
Mysore	+4·5	+6·6	+6·3	+6·2
Madras Coast	+5·3	+6·2	+4·8	+5·1

Temperature increased rapidly in Northern and Central India on the 20th and 21st and was again in excess in the whole area on the 22nd, as is shown by the following data :—

PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	—0·3	+1·4	+0·6
Bengal and Assam	+2·0	—1·0	+0·5
North-Western Provinces and Oudh	+5·0	—1·9	+1·6
Punjab	+6·9	+3·1	+5·0
Sind and Rajputana	+8·2	+1·2	+4·7
Central India and Gujarat	+3·6	—1·7	+1·0
Central Provinces and Berar	+3·5	—0·3	+1·6
Bombay	+2·8	+2·1	+2·5
Madras	+2·6	+7·3	+5·0

Temperature had increased very rapidly in Baluchistan and the frontier districts and was 12°·2 above the normal at Quetta, 10°·7 above it at Mooltan and 8°·7 above it at Hyderabad on the 23rd.

This rapid increase of temperature in the frontier districts was due to the advance of a warm wave through Baluchistan in front of the second cold weather storm of the month. The data of the following table indicate that this warm wave was transferred to Rajputana and the East Punjab on the 24th, to the North-Western Provinces and Baghelkhand on the 25th, to Bengal on the 26th and to Upper Burma on the 27th :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	23rd February.	24th February.	25th February.	26th February.	27th February.
	°	°	°	°	°
Punjab	+6·9	+9·4	−1·2	−4·1	−3·7
Rajputana and Sind	+6·3	+5·5	−7·0	−8·9	−7·5
North-Western Provinces and Oudh.	+3·1	+5·9	+7·5	−3·6	−4·4
Central India East	+2·6	+4·9	+9·7	−5·3	−5·3
Bihar	+0·2	+2·7	+3·1	+4·2	−3·2
Chota Nagpur	−1·0	+1·4	+3·3	+3·8	−3·0
Bengal	+0·3	+1·1	+2·9	+5·2	−2·8
Assam	+1·4	+0·3	+1·9	+5·7	+2·1
Upper Burma	+0·1	+0·8	+1·5	+2·7	+3·7

The storm was followed by a well-marked cool wave which reduced temperature over Northern India from 10° to 30° below that which obtained during the passage of the preceding warm wave. The following data illustrate its progress :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	24th February.	25th February.	26th February.	27th February.	28th February.
	°	°	°	°	°
Baluchistan (Quetta)	−7·3	−18·4	−3·6	−2·4	+0·5
Punjab	+9·4	−1·2	−4·1	−3·7	−2·9
Sind and Rajputana	+5·5	−7·0	−8·9	−7·5	−4·4
North-Western Provinces and Oudh.	+5·9	+7·5	−3·6	−4·4	−5·4
Central India East	+4·9	+9·7	−5·3	−5·3	−4·5
Bihar	+2·7	+3·1	+4·2	−3·2	−3·3
Chota Nagpur	+1·4	+3·3	+3·8	−3·0	−2·4
Bengal	+1·1	+2·9	+5·2	−2·8	−2·3
Assam	+0·3	+1·9	+5·7	+2·1	−0·9
Upper Burma	+0·8	+1·5	+2·7	+3·7	+1·9

During this period temperature was in steady considerable excess in Madras, as is shown by the following data :—

AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	24th February.	25th February.	26th February.	27th February.	28th February.
	°	°	°	°	°
Madras	+5·0	+3·2	+2·1	+3·0	+3·8

The following gives the greatest excess and greatest deficiency of temperature due to the passage of the warm and cold waves across Northern India and the range of variation from the normal of the mean daily temperature at nine representative stations during this period :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				Total range of variation during period.
		Date.		Date.	
	°		°		°
Quetta	+11·8	23rd	−18·4	25th	30·2
Kalat	+ 9·9	22nd	−19·0	25th	28·9
Lahore	+15·2	24th	− 3·4	26th	18·6
Sirsa	+13·0	24th	− 5·9	26th	18·9
Rajkot	+ 3·7	23rd	−13·6	26th	17·3
Allahabad	+ 9·0	25th	− 5·1	27th	14·1
Nowgong	+10·9	25th	− 7·3	26th	18·2
Burdwan	+ 7·1	26th	− 2·4	28th	9·5
Calcutta	+ 5·6	26th	− 3·5	27th	9·1

The lowest minimum temperatures of the month were recorded at stations in the plains of Northern and Central India during the passage of this cold wave. The following gives data for eight stations, showing that the lowest temperatures were by no means so low as have been occasionally recorded in February :—

STATION.	Lowest minimum temperature recorded in February 1897.	Date on which recorded.	Lowest minimum temperature recorded in February previous to 1897.	Year in which recorded.
	°		°	
Kalat	7·6	25th	1·4	1895
Peshin	16·9	25th	9·9	1895
Pachpadra	39·0	25th	25·4	1882
Jacobabad	35·0	25th	29·0	1887
Jodhpur	40·6	25th	?	?
Ajmere	40·9	26th	32·0	1887
Rajkot	42·5	26th	33·6	1893
Neemuch	40·0	26th	31·2	1886

The following variation data for the 24 hours preceding 8 A.M. of the 28th illustrate the temperature conditions obtaining at the end of the month, more especially the contrast between the low temperature temporarily prevailing in Northern and Central India and the persistent high or excessive temperature obtaining in the centre and south of the Peninsula :—

POLITICAL AREA OR PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+0·6	+2·1	+1·4
Bengal and Assam	+0·6	−4·4	−1·9
North-Western Provinces and Oudh	−4·2	−6·5	−5·4
Punjab	−2·2	−3·5	−2·9
Sind and Rajputana	−3·3	−5·4	−4·4
Central India and Gujarat	−4·5	−6·1	−5·3
Central Provinces and Berar	+0·4	−4·8	−2·2
Bombay	−0·9	−3·2	−2·1
Madras	+3·8	+3·8	+3·8

The following table gives the variations of the mean temperature, week by week, and also for the month. The data are taken from the weekly weather reviews published in the *Gazette of India* :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF WEEK ENDING				
	6th February 1897.	13th February 1897.	20th February 1897.	27th February 1897.	For whole month.
	°	°	°	°	°
Burma	+2·1	+5·1	+3·4	+0·1	+2·8
Bengal and Assam	+3·4	+5·0	+0·7	+1·5	+2·5
North-Western Provinces and Oudh.	+2·0	+3·9	+0·2	+1·8	+1·8
Punjab	+2·1	+1·3	+0·6	+2·3	+1·3
Sind and Rajputana	+3·5	+2·5	—1·3	—0·5	+0·7
Central India and Gujarat	+2·3	+2·8	—1·0	—2·0	+0·2
Central Provinces and Berar	+4·5	+5·8	+2·6	+1·7	+3·4
Bombay	+1·0	+1·5	+2·9	+1·1	+1·5
Madras	+3·5	+2·9	+4·3	+4·0	+3·9

Winds.

The normal direction of the air movement in the Indian land and sea area in February is almost identical with that of January. In consequence of the increase of temperature and decrease of pressure which usually commences in February, the gradients favouring the southerly air movement in the Indian monsoon area diminish and the north-east winds in the Arabian Sea and Bay of Bengal are hence, as a rule, slightly feebler in February than in January.

A further consequence of the increasing temperature is a tendency to the establishment of local southerly winds in South Bengal. This is usually associated with the formation of a low pressure area in Chota Nagpur or West Bengal, which subsequently develops into the Chota Nagpur hot weather depression and the trough of low pressure of the rains, running from Orissa west-north-westwards to Upper Sind.

The rapid increase of temperature in the Deccan at this time also causes a considerable change in the air movement at the Coromandel coast stations, where the winds gradually shift to south-east and become the long shore winds of March and April.

Winds were on the mean of the month stronger, but not so steady as usual, at Port Blair and the Burma coast stations. They were of normal strength, but abnormally unsteady in Bengal, more especially at Saugor Island and Chittagong. This was due to a slight delay in the establishment of the sea winds on the Bengal coast. The mean wind directions varied irregularly from the normal. The most important feature was that at the interior stations of Calcutta and Narayanganj, they contained a northerly component instead of the normal southerly element. The following gives data in illustration :—

STATION.	WIND DIRECTION.	
	Mean actual, February 1897.	Mean normal, February.
Calcutta	N 41° W	S 89° W
Narayanganj	N 89° W	S 75° W

The mean direction of the air movement during the month in the Gangetic Plain was normal. Winds were steadier than usual over the whole area, more especially in the central and western districts of the North-Western Provinces. The following data for four stations illustrate the increased steadiness :—

STATION.	STEADINESS.		
	Actual percentage, February 1897.	Normal percentage, February.	Variation from normal.
Patna	61	51	+10
Allahabad	39	34	+5
Lucknow	61	44	+17
Roorkee	48	31	+17

Winds were of normal strength in Lower Sind and the West Punjab. They were remarkably unsteady at Peshawar and Mooltan. The mean wind direction of the month for Kurrachee was S 80° W., the normal being N 69° W.

Winds in Rajputana and Central India were of normal strength and steadiness, but were more easterly or less westerly than usual, as is indicated by the following data:—

Station.	Wind direction.		
	Mean actual, February 1897.	Mean normal, February.	Increased easting.
			°
Deesa	N 10° E	N 2° W	12
Ajmere	N 25° W	N 82° W	57
Nowgong	N 10° E	N 59° W	69
Agra	N 53° W	N 67° W	14

Winds were unusually steady in the Central Provinces, Berar and the Bombay Deccan. They were also stronger and were more westerly than usual at the majority of stations in that area. They were abnormally unsteady in Mysore, the Madras Deccan and South Madras. The following gives four examples:—

Station.	Velocity in miles per diem.			Steadiness.		
	Mean actual, February 1897.	Mean normal, February.	Variation from normal.	Actual percentage, February 1897.	Normal percentage, February.	Variation from normal.
Mercara	112	99	+13	25	38	—13
Bangalore	178	105	+73	43	65	—22
Bellary	96	92	+ 4	18	47	—29
Trichinopoly	64	97	—33	39	71	—32

The mean air movement of the month in that area was practically normal.

The air movement at the west coast stations was normal in strength and direction, but steadier than usual, more especially in Malabar.

The chief feature of the air movement of the month at the hill stations in Northern and Central India was its increased strength and steadiness. The following data for six stations illustrate these features:—

Station.	Velocity in miles per diem.			Steadiness.		
	Mean actual, February 1897.	Mean normal, February.	Variation from normal.	Actual percentage, February 1897.	Normal percentage, February.	Variation from normal.
Murree	266	218	+48	62	40	+22
Chakrata	214	134	+80	16	2	+14
Darjeeling	147	137	+10	34	31	+ 3
Mount Abu	174	140	+34	29	27	+ 2
Pachmarhi	137	98	+39	34	25	+ 9
Wellington	53	60	— 7	55	65	—10

The following table gives comparative data of the mean air movement of the month in Northern and Central India:—

Province.	Velocity in miles per diem.		
	Mean actual, February 1897.	Mean normal, February.	Percentage variation.
Burma	159	124	+28
Bengal	94	92	+ 2
Chota Nagpur	188	172	+ 9
Bihar	73	84	—13
North-Western Provinces and Oudh	70	71	— 1
Punjab	48	56	—14
Rajputana	123	124	— 1
Central India	77	81	— 5
Central Provinces	106	82	+29
Berar	135	123	—10

The following gives a brief summary of the chief abnormal features of the air movement of the month in India:—

(1) Southerly winds were established somewhat later than usual in South Bengal and the mean winds of the month in that area were hence very unsteady and at some stations contained a northerly instead of the normal southerly component.

(2) Winds were steadier and slightly weaker in the Gangetic Plain.

(3) Winds were stronger at the hill stations in Northern India.

(4) Winds were unusually steady in the Central Provinces and Berar and were normal in strength but steadier than usual on the West Coast.

(5) The air movement was very unsteady in Southern India, although normal in amount.

Humidity and Cloud.

The air contained, on the average of the month, more aqueous vapour than usual at Port Blair and in Lower Burma, Arakan, Orissa, Chota Nagpur and South Bengal, but in consequence of the increased temperature which prevailed during the month, the mean relative humidity of the month in these areas was normal or slightly below it, except in Arakan and Chota Nagpur where it was in slight excess. The following gives comparative data for these areas :—

STATION OR AREA.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, February 1897.	Average normal, February.	Variation from normal.	Average actual, February 1897.	Average normal, February.	Variation from normal.
	"	"	"	%	%	
Port Blair . . .	·840	·810	+·030	74	76	—2
Lower Burma . .	·675	·626	+·049	67	68	—1
Arakan . . .	·644	·523	+·121	73	68	+5
South Bengal . .	·588	·541	+·047	71	70	+1
Orissa	·670	·572	+·098	70	70	0
Chota Nagpur . .	·323	·253	+·070	50	42	+8

There was less aqueous vapour present in the air on the mean of the month in Assam, North Bengal, Bihar, the North-Western Provinces, Rajputana, Berar and the northern and central districts of the Central Provinces. The deficiency was most pronounced in the eastern and western districts of the North-Western Provinces. As the mean temperature of the month was more or less largely above the normal in all these provinces, the mean relative humidity of the month was more or less considerably below the normal. The increased dryness of the air was most strongly shown in the Gangetic Plain and Central Provinces, more especially in the areas represented by the stations for which comparative data are given below, and at which the mean relative humidity of the month was more than 10 in defect :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, February 1897.	Normal, February.	Variation from normal.	Actual, February 1897.	Normal, February.	Variation from normal.
	"	"	"	%	%	
Bernampore . . .	·360	·397	—·037	51	63	—12
Allahabad . . .	·257	·330	—·073	40	56	—16
Meerut . . .	·240	·294	—·054	47	58	—11
Khandwa . . .	·235	·307	—·072	28	40	—12

Comparative data are given below for the chief political divisions in this large area of increased dryness in February 1897 :—

PROVINCE OR AREA.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, February 1897.	Average normal, February.	Variation from normal.	Average actual, February 1897.	Average normal, February.	Variation from normal.
	"	"	"	%	%	
Assam . . .	·428	·430	—·002	69	73	—4
North Bengal . .	·376	·394	—·018	61	66	—5
Bihar . . .	·331	·368	—·037	52	61	—9
North-Western Provinces and Oudh.	·259	·298	—·039	48	56	—8
Rajputana . . .	·242	·251	—·009	38	39	—1
Central India . .	·286	·270	+·016	44	47	—3
Berar	·237	·285	—·048	27	36	—9
Central Provinces .	·308	·311	—·003	41	46	—5

The mean humidity conditions of the month were practically normal in the Punjab and Sind, as is shown by the following data :—

PROVINCE.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, February 1897.	Average normal, February.	Variation from normal.	Average actual, February 1897.	Average normal, February.	Variation from normal.
	"	"	"	%	%	
Punjab . . .	·279	·273	+·006	60	59	+1
Sind	·310	·320	—·010	50	50	0

The air contained less vapour and was drier than usual at the hill stations in Upper India and in Baluchistan. The mean humidity of the month was 15 in defect at Leh, 9 in defect at Quetta, 7 in defect at Murree and 6 in defect at Simla and Chakrata.

The amount of vapour present in the air was in large excess in the Deccan, Mysore and the Madras coast

districts, and hence although the mean temperature of the month in these areas was considerably above the normal, the mean relative humidity of the month was in slight excess. The following statement gives comparative data for this area :—

DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, February 1897.	Average normal, February.	Variation from normal.	Average actual, February 1897.	Average normal, February.	Variation from normal.
	"	"	"	%	%	
Bombay Deccan	·227	·210	+·017	38	36	+2
Madras Deccan	·441	·389	+·052	40	40	0
Mysore	·454	·396	+·058	54	52	+2
Madras East Coast	·737	·641	+·096	72	68	+4
Malabar	·830	·742	+·088	73	71	+2

Humidity was slightly below the normal in the Konkan and North Bombay.

The following gives the chief features of the mean humidity conditions of the month :—

(1) The air contained considerably more vapour than usual at Port Blair and in Burma, Arakan, South Bengal, Orissa and Chota Nagpur.

(2) The air was much drier, both absolutely and relatively, in Assam, North Bengal, the Gangetic Plain, Rajputana, Berar and the northern and central districts of the Central Provinces. The deficiency was most marked in Berar (—9), Bihar (—9) and the North-Western Provinces (—8) and was absolutely greatest at Allahabad (—16).

(3) The mean humidity conditions of the month were normal in Sind and the Punjab. The air was much drier at the hill stations in Upper India and also at Quetta in Baluchistan. The deficiency was greatest at Leh (—15).

(4) The air was, on the mean of the month, damper than usual in the Deccan, Mysore and Madras coast districts.

February 1897 was on the whole not so dry a month in Northern and Central India as February 1896.

The driest period during the month was from the 25th to the 28th and the decreased humidity during this period was solely a result of the very large reduction in the amount of aqueous vapour present in the air. The following gives the lowest humidity registered and the date at stations at which the humidity percentage fell below 10 during the month :—

STATION.	Lowest humidity recorded during February 1897.	DATE.
	%	
Jacobabad	8	23rd, 24th & 25th
Deesa	5	25th
Allahabad	5	25th
Meerut	7	25th
Poona	7	23rd
Akola	7	27th & 28th
Buldana	6	18th
Khandwa	5	27th
Raipur	7	28th
Mount Abu	4	26th

A very large and rapid reduction of the absolute and relative humidities of the air accompanied the advance of the cool wave and the extension of westerly winds across Northern India in the rear of the storm of the fourth week of the month. The following gives a few examples of the large reduction of the amount of aqueous vapour (as measured by its pressure) in 24 hours :—

STATION.	AQUEOUS VAPOUR PRESSURE.			
	Date.	4 P.M. of date.	4 P.M. of succeeding date.	Change in 24 hours.
		"	"	"
Jask	21st	·697*	·439*	—·258
Jacobabad	22nd	·309	·083	—·226
Kurrachee	22nd	·702	·435	—·267
Ditto.	23rd	·435	·139	—·296
Deesa	23rd	·287	·083	—·204
Mount Abu	23rd	·244	·099	—·145
Jeypore	24th	·454	·144	—·310

* 8 A.M. reading.

There was more cloud than usual at Port Blair and in Burma, Bengal, Assam, Orissa and Chota Nagpur. The following gives comparative data for these divisions :—

DIVISION.	MEAN CLOUD AMOUNT.		
	Mean actual, February 1897.	Mean normal, February.	Variation from normal.
Andaman Islands (Port Blair)	3·3	2·8	+0·5
Burma	2·3	1·8	+0·5
Assam	3·6	3·5	+0·1
Bengal	3·0	2·0	+1·0
Orissa	3·5	2·3	+1·2
Chota Nagpur	3·4	2·3	+1·1

Cloud was more or less considerably in defect in Bihar, the North-Western Provinces, the Punjab, Sind, Rajputana, Central India, Bombay Deccan, and the greater part of Berar and of the Central Provinces. The deficiency was most pronounced in Sind, Rajputana and the Punjab. The following gives comparative data :—

PROVINCE.	MEAN CLOUD AMOUNT.		
	Average actual, February 1897.	Average normal, February.	Variation from normal.
Bihar	1·5	2·1	—0·6
North-Western Provinces and Oudh	2·2	3·1	—0·9
Punjab	2·9	3·9	—1·0
Sind	1·9	3·1	—1·2
Rajputana	1·5	2·6	—1·1
Central India	1·8	2·5	—0·7
Konkan	0·7	0·7	0
Bombay Deccan	0·9	1·4	—0·5
Berar	1·4	1·7	—0·3
Central Provinces	2·0	2·0	0

The mean amount of cloud during the month was also in defect at the hill stations in North-Western and Central India and Baluchistan. The following gives comparative data for five stations:—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, February 1897.	Normal, February.	Variation from normal.
Leh	5·4	6.8	—1·4
Simla	3·9	5·7	—1·8
Ranikhet	3·2	4·5	—1·3
Mount Abu	1·0	2·6	—1·6
Quetta	3·9	4·2	—0·3

Skies were clouded to a larger extent than usual in the centre and south of the Peninsula. The excess is shown clearly by the comparative data of the five stations given below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, February 1897.	Normal, February.	Variation from normal.
Cochin	3·0	1·8	+1·2
Bangalore	2·3	1·9	+0·4
Madras	3·5	2·8	+0·7
Bellary	3·5	1·4	+2·1
Vizagapatam	2·8	1·5	+1·3

The mean cloud amount of the month was less than 1·0 for the following stations :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, February 1897.	Normal, February.	Variation from normal.
Ratnagiri	0·4	0·5	—0·1
Karwar	0·7	0·5	+0·2
Deesa	0·6	2·4	—1·8
Belgaum	0·9	1·2	—0·3
Poona	0·8	1·5	—0·7
Khandwa	0·7	1·4	—0·7

The following states briefly the chief abnormal features of the distribution of cloud during the month:—

(1) Cloud was in slight to moderate excess in Burma, Assam, Bengal, Orissa and Chota Nagpur.

(2) Cloud was in slight to moderate defect in Bihar, the North-Western Provinces, the Punjab, Baluchistan, Sind, Rajputana, Central India, North Bombay, Berar and the greater part of the Central Provinces. The deficiency was most pronounced in Sind, Rajputana and the Punjab.

(3) Cloud was in moderate to largish excess in the Madras Deccan, Mysore and the Madras coast districts.

(4) Cloud was almost as largely in defect at the hill stations in Upper India as at the adjacent plain stations.

Rainfall.

Rainfall in February is usually due to the occurrence of storms of the type known as cold weather storms. The rainfall is chiefly received in Northern India, and is generally heaviest in the Punjab, more especially in the hill and submontane districts. Bengal, Lower Burma and Malabar occasionally obtain thunder-showers, but as a rule, the conditions for these storms do not occur before March.

The rainfall of the month of February 1897 was less than the normal over the greater part of India and was absolutely or practically *nil* in Burma, Bombay (except Sind), Berar, the western districts of the Central Provinces, Central India, Rajputana and the greater part of the North-Western Provinces.

The chief periods of rainfall were as follows:—

(1) From the 4th to the 8th. Baluchistan received a moderate burst of rain during this period. The rainfall was heavy and general on the 4th, 5th and the 8th. The northern and western districts of the Punjab obtained

light showers on the 5th and 6th, and the hill districts and Kashmir on the 5th, 6th and 7th.

(2) The 11th to the 13th, during which the hill, north-west and submontane districts of the Punjab received moderately heavy and general rain. Light showers fell in the western districts of the Punjab. Practically no rain fell during this period in the south-eastern districts.

(3) The 14th to the 20th. This was a period of feebly unsettled weather and frequent thundershowers in North-Eastern India and the greater part of Madras and the Deccan. North-Eastern India received daily rain showers between the 14th and 18th. The rainfall due to these storms was moderate in amount in Chota Nagpur, Orissa and South-West Bengal, and light in Bihar and North, Central and East Bengal. In the Madras Presidency series of thundershowers were received from the 14th to the 20th. The rainfall was light and very irregularly distributed in North Madras and the Hyderabad and Madras Deccan. It was heavy and general in the southern districts of Madras, including Trichinopoly, Tanjore, Madura an d Tinnevelly.

(4) The 23rd to the 25th, when the northern and hill districts of the Punjab received light showers. Heavy snow is reported to have fallen on the mountain ranges to the north of the Punjab during this period.

The rainfall of the month was in slight to moderate defect over nearly the whole of India. The following were the chief features of the rainfall distribution of the month :—

(1) No rain fell in the Peninsula, Central India, the western half of Rajputana, Oudh and the greater part of the North-Western Provinces.

(2) Baluchistan received less rain than usual.

(3) The rainfall was normal or in slight defect in the northern, western and submontane districts of the Punjab and in moderate to considerable defect over the remainder of the province and in Oudh and the greater part of the North-Western Provinces.

(4) It was in largish excess in Chota Nagpur and Orissa and in slight to large defect in Bengal. The deficiency was most marked in North Bengal.

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

(6) The precipitation in the Western Himalayas was more or less above the normal of the month, but was small in amount and below the normal in the Eastern Himalayas.

The following table gives mean actual, mean normal and variation rainfall data for the 59 meteorological divisions or districts into which India is divided, in the same form as in the previous month, and has been prepared in the same manner as hitherto :—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, February 1897.	Average normal, February.	Average actual, February 1897.	Average normal, February.	Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	0·10	0·07	+ 0·03
	Lower Burma (Deltaic)*	?	?	0	0·23	— 0·23
	Central do.*	?	?	0·06	0·14	— 0·08
	Upper do.*	?	?	0·05	?	?
	Arakan*	?	?	0·55	0·14	+ 0·41
Bengal and Assam	Eastern Bengal	0·9	1·6	0·33	0·97	— 0·64
	Assam (Surma)*	?	?	0·92	1·63	— 0·71
	Do. (Hills)*	?	?	0·70	1·22	— 0·52
	Do. (Brahmaputra)*	?	?	0·67	1·13	— 0·46
	Deltaic Bengal	1·8	1·8	0·76	1·24	— 0·48
	Central do.	1·4	1·5	0·46	0·85	— 0·39
	North do.	0·9	1·1	0·19	0·52	— 0·33
	Bengal Hills	0·1	2·2	0·07	0·83	— 0·76
	Orissa	2·9	1·4	2·76	0·83	+ 1·93
	Chota Nagpur	3·9	1·6	1·92	0·84	+ 1·08
	Bihar (South)	2·0	1·3	0·99	0·63	+ 0·36
	Do. (North)	1·1	1·2	0·34	0·48	— 0·14
North-Western Provinces and Oudh.	North-Western Provinces (East)	1·2	0·8	0·57	0·34	+ 0·23
	Oudh (South)	0	0·6	0·01	0·23	— 0·22
	Do. (North)	0·3	0·8	0·09	0·31	— 0·22
	North-Western Provinces (Central)	0	0·6	0	0·23	— 0·23
	Do. do. (West)	0·1	0·8	0·02	0·32	— 0·30
	Do. do. (Submontane East)	0·7	1·0	0·25	0·44	— 0·19
	Do. do. (do. West)	1·3	2·0	0·61	1·05	— 0·44
	Do. do. (Hills)	2·7	3·1	1·66	2·03	— 0·37

NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

Province.	Division.	Number of rainy days. Average actual, February 1897.	Number of rainy days. Average normal, February.	Rainfall. Average actual, February 1897.	Rainfall. Average normal, February.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
Punjab	Punjab (South-East)	0·1	1·0	0·02	0·37	— 0·35
	Do. (South)	0·6	1·1	0·17	0·43	— 0·26
	Do. (Central)	2·0	2·0	0·59	0·89	— 0·30
	Do. (Submontane)	2·2	2·4	1·09	1·41	— 0·32
	Do. (Hills)	4·5	4·5	3·03	3·19	— 0·16
	Do. (North)	3·6	2·6	1·47	1·42	+ 0·05
	Do. (West)	0·9	1·1	0·36	0·46	— 0·10
Bombay and Malabar Coast Districts, Madras.	Malabar	1·4	0·2	0·86	0·16	+ 0·70
	Travancore	4·5	?	2·60	?	?
	Madras (South Central)	2·5	0·2	1·43	0·13	+ 1·30
	Coorg	2·5	?	0·84	?	?
	Mysore*	?	?	0·35	0·04	+ 0·31
	Konkan	0	0	0	0	0
	Bombay Deccan	0	0·1	0·02	0·03	— 0·01
	Hyderabad North	0·8	?	0·25	0·07	+ 0·18
	Khandesh	0	0	0	0·03	— 0·03
Central Provinces and Berar.	Berar*	?	?	0	0·18	— 0·18
	Central Provinces (West)	0·5	0·5	0·12	0·21	— 0·09
	Do. do. (Central)	1·0	0·6	0·30	0·24	+ 0·06
	Do. do. (East)	2·9	0·6	1·32	0·32	+ 1·00
Bombay (North)	Gujarat	0	0	0	0·02	— 0·02
	Kathiawar	0	0	0	0·09	— 0·09
	Sind	0·3	?	0·12	0·31	— 0·19
	Baluchistan Hills	3·4	?	1·43	1·91	— 0·48
Rajputana and Central India.	Central India (East)	0·2	?	0·09	0·37	— 0·28
	Rajputana (East), and Central India (West)	0	?	0	0·22	— 0·22
	Rajputana (West)	0	?	0	0·11	— 0·11
Madras	East Coast (North)	1·4	0·4	0·83	0·22	+ 0·61
	Do. (do.) (a)	0·5	0·4	0·25	0·19	+ 0·06
	Hyderabad (South)	1·1	?	0·35	0·12	+ 0·23
	Madras (Central)	0·3	0·1	0·10	0·03	+ 0·07
	East Coast (Central)	1·2	0·2	0·71	0·19	+ 0·52
	Do. (South)	2·4	0·2	2·18	0·30	+ 1·88
	Madras (South)	3·1	0·8	3·27	0·57	+ 2·70

NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

British Baluchistan received general rain from the 3rd to the 8th. No rain fell during the remainder of the month. The total rainfall of the month was on the whole slightly below the normal as is shown by the following comparative statement:—

Province.	Rainfall. Average actual, February 1897.	Rainfall. Average normal, February.	Rainfall. Variation from normal.
	Inches.	Inches.	Inch.
Baluchistan	1·43	1·91	—0·48

Shalabagh, at the entrance to the Khojak tunnel, reported the largest total fall of the month, *viz.*, 3·77 inches, of which 2·9 inches were registered on the 4th.

In Kashmir the precipitation of the month was not large and was below the normal. The chief periods of rainfall were the 1st, the 5th to the 12th and the 23rd to the 25th. The average number of rainy days at the twenty rainfall recording stations was only 3·7, and the average rainfall 1·13 inches.

There were three periods of rainfall in the Punjab. During the first period, lasting from the 5th to the 7th, the north-west, west and hill divisions received light to moderate showers. The second period, extending from the 11th to the 13th, was the only period of fairly general rain in the province during the month. The only districts which received no rain during this period were the south-eastern districts, including Delhi, Rohtak, Gurgaon and Hisar. The rainfall during this period was moderately heavy in the hill districts and in the Hoshiarpur and Gurdaspur districts, and light to moderate in other districts. During the third period, from the 23rd to the 25th, the hill and north-west districts received light showers of little importance.

The following gives a comparative statement of the rainfall in each of the seven divisions of the Province :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, February 1897.	Average normal, February.	Variation from normal.	Average actual, February 1897.	Average normal, February.	Variation from normal.
				Inches.	Inches.	Inch.
South-East Punjab .	0·1	1·0	—0·9	0·02	0·37	—0·35
South „ .	0·6	1·1	—0·5	0·17	0·43	—0·26
Central „ .	2·0	2·0	0	0·59	0·89	—0·30
Punjab, Submontane .	2·2	2·4	—0·2	1·09	1·41	—0·32
„ Hills . .	4·5	4·5	0	3·03	3·19	—0·16
North Punjab . .	3·6	2·6	+1·0	1·47	1·42	+0·05
West „ . .	0·9	1·1	—0·2	0·36	0·46	—0·10

No rain fell in Rajputana and Central India during the month.

No rain fell during the month over the greater part of the North-Western Provinces. The central division (including the districts of Banda, Fatehpur, Hamirpur, Cawnpur, Jalaun, Etawah, Farukhabad, Mainpuri and Etah), the Jhansi, Agra, Muttra, Aligarh and Bulandshahr districts of the west division, and the Gonda, Barabanki, Sitapur, Sultanpur, Partabgarh, Rai Bareli, Unao, Lucknow and Hardoi districts of Oudh had no rain during the month. The south-eastern districts including Jaunpur, Mirzapur and Benares and the submontane districts had light to moderate showers on the 11th, 12th and 13th. The hill districts received moderately heavy rain during this period and light local showers on the 5th and 6th and also on the 24th and 25th. The rainfall of the month was more or less in defect over the whole province except the eastern division, as is shown by the following table giving comparative data for the eight divisions of the province :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, February 1897.	Average normal, February.	Variation from normal.	Average actual, February 1897.	Average normal, February	Variation from normal.
				Inches.	Inches.	Inch.
North-Western Provinces, East.	1·2	0·8	+0·4	0·57	0·34	+0·23
South Oudh . .	0	0·6	—0·6	0·01	0·23	—0·22
North „ . .	0·3	0·8	—0·5	0·09	0·31	—0·22
North-Western Provinces, Central.	0	0·6	—0·6	0	0·23	—0·23
„ „ West	0·1	0·8	—0·7	0·02	0·32	—0·30
„ „ East	0·7	1·0	—0·3	0·25	0·44	—0·19
Submontane.						
„ „ „ West	1·3	2·0	—0·7	0·61	1·05	—0·44
„ „ Hills .	2·7	3·1	—0·4	1·66	2·03	—0·37

The following table gives data for the twenty-nine districts in which rain was received during the disturbed period from the 11th to the 13th :—

DISTRICT.	MEAN ACTUAL RAINFALL OF 24 HOURS PRECEDING 8 A.M. OF			
	11th February.	12th February.	13th February.	TOTAL.
	Inch.	Inch.	Inch.	Inches.
Fyzabad	0·01	0·02	0	0·03
Gonda	0	0·01	0	0·01
Bahraich	0·01	0·05	0·14	0·20
Kheri	0	0·28	0·12	0·40
Sultanpur	0·01	0·01	0	0·02
Partabgarh	0·01	0·02	0	0·03
Ghazipur	0·21	0·63	0	0·84
Benares	0·13	0·51	0	0·64
Jaunpur	0·10	0·16	0	0·26
Mirzapur	0·35	0·94	0·01	1·30
Allahabad	0·02	0·05	0	0·07
Fatehpur	0·01	0	0	0·01
Meerut	0·05	0	0	0·05
Pilibhit	0·01	0·15	0·23	0·39
Shahjahanpur . . .	0	0·26	0	0·26
Budaon	0	0·04	0	0·04
Bareilly	0·01	0·23	0·20	0·44
Moradabad	0·01	0·12	0·09	0·22
Bijnor	0·07	0·49	0·31	0·87
Muzaffarnagar	0·03	0·05	0	0·08
Saharanpore	0·09	0·29	0·05	0·43
Dehra Dun	0·24	1·05	0·60	1·89
Almora	0·81	0·96	0·21	1·98
Garhwal	0·29	0·92	0·48	1·69
Nainital	0·25	0·66	0·28	1·19
Gorakhpur	0·02	0·06	0	0·08
Basti	0	0·01	0·01	0·02
Azamgarh	0·04	0·28	0	0·32
Ballia	0·25	0·44	0	0·69

The following gives a statement of the periods of rainfall in Bengal during the month :—

1st.—The 1st and 2nd.—South Bihar and Chota Nagpur received light showers on the 1st, and Chota Nagpur, South-West Bengal and Orissa light to moderate local showers on the 2nd.

2nd.—The 11th to the 13th.—This was due to a local disturbance of unusual character. It gave a moderate and general burst of rain on the

11th and 12th to the whole of Bihar and Chota Nagpur and the northern districts of North Bengal.

3rd.—The 15th to the 18th.—South West and East Bengal obtained light rain from thunderstorms, Chota Nagpur moderate rain and Orissa heavy rain during this period. The following falls in 24 hours exceeding three inches were recorded:—

Date.	District.	Station.	Heaviest rainfall in 24 hours preceding 8 A.M. of date.
			Inches.
Feb. 15th.	Lohardagga	Gangpur	3·26
„ 17th.	Puri	Puri	4·25
„ „	„	Satpara	3·80
„ „	Cuttack	Kendrapara	4·11
„ „	„	False Point	3·45

The rainfall of the month was in large excess, relatively to the normal, in Orissa and Chota Nagpur and in moderate excess in South Bihar. It was below the normal over the remainder of the province, the deficiency increasing in importance from the coast to the northern districts of North Bengal and Sikkim where the rainfall of the month was practically *nil*.

The following gives comparative data, based on the rainfall statement of the province for the month published in the *Calcutta Gazette*:—

Division.	Number of rainy days.			Rainfall.		
	Average actual, February 1897.	Average normal, February.	Variation from normal.	Average actual, February 1897.	Average normal, February.	Variation from normal.
				Inches.	Inches.	Inches.
Eastern Bengal	0·9	1·6	−0·7	0·33	0·97	−0·64
Deltaic „	1·8	1·8	0	0·76	1·24	−0·48
Central „	1·4	1·5	−0·1	0·46	0·85	−0·39
North „	0·9	1·1	−0·2	0·19	0·52	−0·33
Bengal Hills	0·1	2·2	−2·1	0·07	0·83	−0·76
Orissa	2·9	1·4	+1·5	2·76	0·83	+1·93
Chota Nagpur	3·9	1·6	+2·3	1·92	0·84	+1·08
South Bihar	2·0	1·3	+0·7	0·99	0·63	+0·36
North „	1·1	1·2	−0·1	0·34	0·48	−0·4

The Central Provinces obtained considerably more than the normal rainfall of the month, due to numerous series of thunderstorms between the 12th and the 17th. The heaviest falls were received in the eastern districts, more especially Sambalpur, Bilaspur and Raipur. The following gives comparative mean data for the eighteen districts of the province:—

District.	Rainfall.		
	Actual February 1897.	Normal, February.	Variation from normal.
	Inches.	Inch.	Inches.
Sambalpur	1·05	0·34	+0·71
Bilaspur	1·74	0·37	+1·37
Raipur	0·97	0·24	+0·73
Chanda	0·25	0·11	+0·14
Bhandara	0·25	0·17	+0·08
Balaghat	0·29	0·40	−0·11
Seoni	0·48	0·57	−0·09
Mandla	1·00	0·59	+0·41
Narsinghpur	0·16	0·18	−0·02
Saugor	0	0·19	−0·19
Damoh	0·06	0·13	−0·07
Jubbulpore	0·40	0·28	+0·12
Wardha	0·18	0·20	−0·02
Nagpur	0·33	0·28	+0·05
Chindwara	0·11	0·25	−0·14
Hoshangabad	0·02	0·18	−0·16
Betul	0·04	0·16	−0·12
Nimar	0	0·21	−0·21

Comparative data for the three meteorological or rainfall divisions of the province are given in the table below:—

Division.	Number of rainy days.			Rainfall.		
	Average actual, Feb. 1897.	Average normal, Feb.	Variation from normal.	Average actual, Feb. 1897.	Average normal, Feb.	Variation from normal.
				Inches.	Inch.	Inch.
Central Provinces East	2·9	0·6	+2·3	1·32	0·32	+1·00
„ „ Central	1·0	0·6	+0·4	0·30	0·24	+0·06
„ „ West	0·5	0·5	0	0·12	0·21	−0·09

No rain fell in the Bombay Presidency with the exception of some light showers in Sind on the 1st and 5th and in Kathiawar on the 13th and 14th. The normal rainfall of the month in the Presidency ranges between *nil* and three tenths of an inch and hence the rainfall of the month was in defect by very small amounts.

Madras received abnormal and moderately heavy rain during the period from the 14th to the 20th. The rain

chiefly accompanied thunderstorms. These storms gave light showers in the northern coast districts and very light local showers of no value in the Deccan districts of Cuddapah, Anantapur, Bellary and Kurnool. The remainder of the presidency, and more especially the southern coast districts, received heavy showers. The following falls exceeding four inches were registered :—

Date.	District.	Station.	Heaviest rainfall in 24 hours preceding 8 A.M. of date.
			Inches.
15th	Tanjore	Nidamangalam	4·63
,,	,,	Shiyali	4·34
,,	,,	Mayavaram	4·05
,,	Trichinopoly	Jayankondasolapuram	5·30
,,	,,	Ariyalur	5·00
,,	Madura	Sivagunga	4·55
,,	South Arcot	Mannargudi	5·00

The rainfall of the month was in excess in each of the divisions of this presidency. The excess was large in amount in the southern districts, several of which received from five to ten times the normal fall of the period. The following gives comparative data for the 22 collectorates of the presidency and shows more fully than the data of the rainfall table on page 76 the distribution of the rainfall of the month :—

District.	Number of rainy days.		Rainfall.		
	Actual, February 1897.	Normal, February.	Actual, February 1897.	Normal, February.	Variation from normal.
			Inches.	Inches.	Inches.
Ganjam	2·2	0·8	1·59	0·44	+1·15
Vizagapatam	0·9	0·4	0·38	0·19	+0·19
Godavari	1·4	0·2	0·66	0·12	+0·54
Kistna	1·4	0·2	0·83	0·07	+0·76
Nellore	1·2	0·2	0·71	0·19	+0·52
Chingleput	1·2	0·2	0·56	0·42	+0·14
Madras	2·0	0·2	0·53	0·28	+0·25
North Arcot	2·3	0·2	0·88	0·21	+0·67
South Arcot	2·7	0·2	2·38	0·20	+2·18
Tanjore	3·2	0·5	3·76	0·54	+3·22
Trichinopoly	2·3	0·1	3·25	0·11	+3·14
Madura	3·2	0·5	3·59	0·39	+3·20
Tinnevelly	3·1	1·2	2·88	0·81	+2·07
Malabar	2·1	0·4	1·31	0·26	+1·05
South Canara	0·1	0	0·06	0·02	+0·04
Salem	2·0	0·2	1·35	0·10	+1·25
Coimbatore	3·2	0·2	1·53	0·17	+1·36
Nilgiris	4·8	0·5	2·62	0·23	+2·39
Cuddapah	0·3	0·1	0·14	0·06	+0·08
Anantapur	0·4	0·1	0·09	0·03	+0·06
Bellary	0	0	0·01	0·02	—0·01
Kurnool	0·5	0·1	0·12	0·01	+0·11

Coorg and Travancore received occasional showers during the disturbed period from the 14th to the 20th. The total rainfall of the period and month was small in Coorg, averaging only ·84 inch. It ranged between 10·32 inches at Nedumangad and *nil* at Alangad in the Travancore State and averaged 2·6 inches for the state as represented by its thirty-nine rainfall stations.

Table

Abstract of Observations taken at 8 A.M. at 211

Number of Districts.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest recorded pressure during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Temperature of Air. 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.
	I.—Burma Coast and Bay Islands.		...	...	−·032	...	...	...	...	...	...	...	90·3	+1·5	69·6	+4·0	80·0	+2·7	20·7	...	...	...	...	31·5
1	Tenasserim and Bay Islands.	Port Blair	61	29·907	?	29·899	29·965	22nd	29·849	28th	·116	79·6	89·6	?	76·7*	?	83·1*	?	12·9	92·0	17th	71·3	1st	20·7
		Mergui	96	29·887	?	29·916	29·940	13th	29·820	28th	·120	77·7	89·8	?	70·1	?	80·0	?	19·7	94·1	17th	64·0	14th	30·1
		Tavoy	26	29·988	?	29·945?	30·030	5th	29·914	28th	·116	71·8	91·9	?	66·0	?	79·0	?	25·9	95·7	17th	57·7	21st	38·0
		Mouimein	94	29·901	−·021	29·934	29·963	13th	29·847	28th	·116	72·6	92·5	+1·2	69·9	+2·4	81·2	+1·8	22·6	99·4	10th	64·4	2nd	35·0
2	Lower Burma	Rangoon	41	29·933	−·035	29·912	30·002	5th	29·874	2 days	·128	71·3	94·2	+1·8	68·6	+3·4	81·4	+2·6	25·6	99·1	18th	61·8	1st	37·3
		Bassein	27	29·953	?	29·916	30·011	5th	29·889	28th	·122	73·8	91·5	+2·0	68·8	+4·9	80·2	+3·5	22·7	95·7	2 days	61·5	2nd	34·2
		Diamond Island	41	29·937	−·033	29·913	30·000	5th	29·878	11th	·122	78·8	85·1	+1·0	75·8	+4·0	80·5	+2·5	9·3	87·1	12th & 18th	72·4	2 days	14·7
5	Arakan	Akyab	20	29·965	−·039	29·928	30·032	5th	29·904	28th	·128	70·0	86·4	+1·8	65·1	+4·2	75·8	+3·0	21·3	91·7	12th	57·2	1st	34·5
3	Central Burma	Toungoo	183	29·778	−·034	29·909	29·849	5th	29·699	28th	·150	69·1	91·6	+0·9	65·2	+5·0	78·4	+3·0	26·4	96·7	17th	57·8	1st	38·9
	II.—Burma Inland		...	...	?	...	...	...	...	...	...	...	90·2	+2·6	60·3	+3·4	75·3	+3·1	29·9	...	...	...	...	45·7
3	Central Burma	Thayetmyo	134	29·820	?	29·900	29·885	5th	29·740	28th	·145	71·0	94·7	+2·3	62·0	+6·0	78·4	+4·2	32·7	100·1	18th	52·2	1st	47·9
4	Upper Burma	Minbu	?	29·800	?	?	29·865	12th	29·715	27th	·150	71·0	93·6	?	64·7	?	79·2	?	28·9	99·6	18th	56·0	1st	43·6
		Yamethin	645	29·300	?	29·911	29·364	5th	29·224	27th	·140	70·4	94·6	?	63·8	?	79·2	?	30·8	98·5	10th	55·7	22nd	42·8
		Mandalay	249	29·694	?	29·900?	29·752	12th	29·594	26th	·158	69·0	91·8	?	62·7	?	77·3	?	29·1	98·5	2 days	55·7	1st	42·8
		Kindat	?	29·603?	?	?	29·675	11th	29·431	26th	·244	59·2	84·4	+2·9	54·1	+0·8	69·3	+1·9	30·3	96·3	1st	42·5	1st	53·8
		Bhamo	?	29·604	?	?	29·679	5th	29·480	26th	·199	60·1	82·2	?	54·7	?	68·5	?	27·5	90·1	27th	46·9	1st	43·2
5(a)	Burma Hill Stations.	Taunggyi	?			Not recorded.						62·6	77·2	?	49·1	?	63·2	?	28·1	83·2	28th	42·0	2 days	41·2
		Lashio	?	27·177	?	?	27·276	12th	27·072	19th	·204	57·1	80·3	?	49·9	?	65·2	?	30·4	87·0	10th	42·0	1st	45·0
	III.—Assam		...	...	−·034	...	...	...	...	...	...	...	79·4	+2·1	54·3	+1·1	66·8	+1·6	25·1	...	...	...	...	39·
7	Surma	Silchar	104	29·898	−·039	29·960	29·958	5th	29·778	26th	·180	62·6	83·0	+3·1	57·0	+2·0	70·0	+2·6	26·0	89·5	13th	49·5	1st	40·0
		Salonah	?	29·751	?	?	29·833	12th	29·543	26th	·290	59·2	81·4	?	51·2	?	66·3	?	30·2	88·2	26th	43·0	6th	45·2
9	Brahmaputra	Sibsagar	333	29·675	−·035	29·984	29·760	12th	29·484	26th	·276	57·3	73·7	+1·0	53·9	+0·8	63·8	+0·9	19·8	81·5	26th	49·1	2 days	32·4
		Dhubri	115	29·875	−·027	29·952	29·972	11th	29·709	26th	·263	60·0	79·4	+2·3	55·1*	+0·4	67·2*	+1·4	24·3	87·2	26th	49·0	2nd	38·2
	IV.—Bengal and Orissa		...	...	−·041	...	...	...	...	...	...	...	83·2	+2·2	60·2	+3·4	71·8	+2·7	23·0	...	...	...	...	37·8
6	East Bengal	Chittagong	87	29·899	−·040	29·938	29·966	7th	29·812	26th	·154	68·0	84·8	+3·3	62·6	+4·1	73·7	+3·7	22·2	92·2	13th	52·1	1st	40·1
		Lungleh	?			Not recorded.						62·4	71·4	?	57·8	?	64·6	?	13·6	80·2	13th	51·0	20th	29·2
		Noakhali	43	29·938	?	29·929	30·002	13th	29·838	26th	·164	69·0	82·4	?	61·3	?	71·9	?	21·1	89·5	12th	50·4	19th	39·1
		Comilla	36	29·951	?	29·936	30·009	13th	29·847	26th	·162	68·4	84·9	?	61·4	?	73·2	?	23·5	90·9	26th	50·6	1st	40·3
		Sirajganj	49	29·926	?	29·927	29·999	5th	29·796	26th	·203	60·3	82·1*	?	54·2*	?	68·2*	?	27·9	88·4	10th	49·6	20th	38·8
		Narayanganj	26	29·955	−·047	29·930	30·018	5th	29·839	26th	·179	66·0	83·1	+0·9	61·5	+3·7	72·3	+2·3	21·6	89·6	25th	53·8	19th	35·8
		Barisal	13	29·963	−·049	29·922	30·029	7th	29·886	23rd	·143	68·4	83·4	+3·4	63·3	+5·2	73·4	+4·3	20·1	90·3	26th	53·5	19th	36·8
		Mymensingh	59	29·915	−·055	29·928	29·982	5th	29·786	26th	·196	60·3	80·7	+2·9	54·8	+1·2	67·8	+2·1	25·9	85·2	2 days	50·5	2 days	34·7
10	Deltaic Bengal	Faridpur	46	29·942	?	29·938	30·014	12th	29·835	26th	·179	62·6	83·3	?	55·9	?	69·6	?	27·4	91·8	26th	47·5	19th	44·3
		Jessore	33	29·947	−·046	29·928	30·032	13th	29·849	23rd	·183	65·4	84·1	+1·0	58·9	+2·3	71·5	+1·7	25·2	92·5	26th	50·1	1st & 19th.	42·4
		Calcutta	21	29·968	−·043	29·935	30·080	13th	29·889	26th	·191	67·8	82·4	+0·8	63·3	+3·5	72·9	+2·2	19·1	91·4	26th	53·2	19th	38·2
		Saugor Island	25	29·948	−·052	29·918	30·031	13th	29·866	26th	·165	73·0	81·9	+1·0	70·1	+5·0	76·0	+3·0	11·8	84·8	21st	56·9	19th	27·9
		Krishnagar	47	29·948	?	29·946	30·052	13th	29·853	23rd	·199	66·8	85·0	?	56·5	?	70·8	?	28·5	93·9	26th	48·6	19th	45·3
		Midnapore	149	29·828	?	29·939	29·916	13th	29·751	26th	·165	69·5	87·7	?	64·5	?	76·1	?	23·2	98·3	26th	57·2	19th	41·1

* Mean of 27 days.

NOTE.—When a query is inserted in the variation returns from any station the data from that station are not employed for calculating the provincial variations.

I.

Stations in India, Burma, etc., in February 1897.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 January to 28th February 1897.	Normal rainfall for period, from 1st January to 28th February.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Districts.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·06	0·48	—0·41	...	...	...	...	**I.—Burma Coast and Bay Islands.**		
1	5	8	3	3	1	...	4	3	5·3	5·1	+ 4	84	·842	3·2	0	?	?	0·06	1·17	— 1·11	0·06	1·98	— 1·92	0·06	Port Blair	Tenasserim and Bay Islands.	1
...	9	2	3	...	...	2	...	12	2·8	2·0	+40	77	·731	3·5	1	?	?	0·40	1·43	— 1·03	0·40	2·04	— 1·64	0·40	Mergui.		
24	...	...	...	...	1	1	...	2	1·7	?	?	86	·677	0·1	0	?	?	0	?	?	0	?	?	0	Tavoy.		
...	2	4	10	4	3	1	2	2	2·8	2·4	+17	84	·669	0·7	1	0·45	+ 0·55	0·10	0·20	— 0·10	0·10	0·71	— 0·61	0·10	Moulmein.		
...	3	4	3	2	...	5	8	3	3·4	3·9	—13	87	·672	1·1	0	0·45	— 0·45	0	0·34	— 0·34	0	0·51	— 0·51	0	Rangoon	Lower Burma.	2
8	1	1	...	1	...	...	4	13	5·4	3·8	+42	87	·726	2·6	0	0·45	— 0·45	0	0·30	— 0·30	0	0·47	— 0·47	0	Bassein.		
...	15	4	1	...	...	...	2	6	11·9	7·2	+65	76	·746	3·0	0	0·40	— 0·40	0·02	0·10	— 0·08	0·02	0·28	— 0·26	0·02	Diamond Island.		
...	4	19	5	...	...	...	...	...	3·4	3·4	0	84	·620	2·3	0	0·36	— 0·36	0	0·11	— 0·11	0	0·19	— 0·19	0	Akyab	Arakan.	5
2	3	5	1	7	1	1	1	7	2·6	1·9	+37	82	·594	1·6	0	0·36	— 0·36	0	0·18	— 0·18	0	0·30	— 0·30	0	Toungoo.	Central Burma.	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·40	0·10	+0·14	...	...	...	...	**II.—Burma Inland.**		
...	6	2	...	2	3	...	6	9	2·5	4·2	—40	63	·481	1·7	1	0	+ 1·00	0·35	.0·01	+ 0·34	0·35	0·03	+ 0·32	0·35	Thayetmyo.	Central Burma.	3
9	1	...	...	8	4	1	2	3	7·3	?	?	58	·444	1·4	0	?	?	0	?	?	0	?	?	0	Minbu	Upper Burma.	4
18	...	...	...	8	2	...	...	...	5·5	?	?	63	·473	1·8	1	?	?	1·60	?	?	1·60	?	?	1·55	Yamethin.		
2	8	1	...	...	6	6	2	3	3·5	?	?	70	·499	1·0	0	?	?	0	?	?	0	?	?	0	Mandalay.		
26	...	...	...	...	...	...	1	1	?	?	?	94	·480	1·7	1	?	?	0·11	0·18	— 0·07	0·11	0·76	— 0·65	0·11	Kindat.		
18	...	5	2	...	...	1	1	1	2·6	?	?	89	·462	2·1	1	?	?	0·36	?	?	0·36	?	?	0·32	Bhamo.		
7	...	...	1	5	9	6	...	...	?	?	?	59	·336	2·9	1	?	?	0·10	?	?	0·10	?	?	0·10	Taunggyi	Burma Hill Stations.	5(a)
				Not	rec	orded.			?	?	?	77	·363	5·6	0	?	?	0·06	?	?	0·06	?	?	0·06	Lashio.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·52	1·59	—0·91	...	...	...	...	**III.—Assam.**		
27	...	...	...	...	...	1	...	...	2·2	2·8	—21	85	·487	4·1†	2	4·04	— 2·04	0·52	2·29	— 1·77	1·50	3·01	— 1·51	0·20	Silchar	Surma.	7
8	5	8	5	...	...	1	1	...	?	?	?	89	·444	1·7	0	?	?	0	?	?	0	?	?	0	Salonah.		
10	1	14	...	2	...	...	...	1	4·2*	2·2	+91	96	·456	7·2‡	2	5·30	— 3·30	1·37	1·96	— 0·59	1·54	3·43	— 1·89	1·05	Sibsagar	Brahmaputra.	9
...	7	11	3	...	...	6	...	1	4·6	4·0	+15	80	·415	1·3‡	1	1·14	— 0·14	0·17	0·53	— 0·36	0·29	0·93	— 0·64	0·11	Dhubri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·97	0·94	—0·05	...	...	...	...	**IV.—Bengal and Orissa.**		
4	4	8	7	3	...	...	...	2	3·3	4·4	—25	82	·569	2·4†	0	1·35	— 1·35	0	0·81	— 0·81	0	1·30	— 1·30	0	Chittagong	East Bengal.	6
				Not	rec	orded.			?	?	?	62	·353	?	1	?	?	0·34	?	?	0·34	?	?	0·25	Lungleh.		
...	6	4	4	3	2	4	3	2	3·1	?	?	87	·629	4·6	2	1·73	+ 0·27	0·63	1·02	— 0·39	0·63	1·49	— 0·86	0·52	Noakhali.		
4	2	...	...	...	21	...	...	1	3·2	?	?	89	·623	4·1‡	0	2·10	— 2·10	0·10	0·99	— 0·89	0·10	1·52	— 1·42	0·06	Comilla.		
19	2	...	1	...	1	4	1	...	2·3†	?	?	82	·434	1·5†	1	1·64	— 0·64	0·92	1·02	— 0·10	0·92	1·47	— 0·55	0·90	Sirajganj.		
6	3	1	3	3	1	6	2	3	3·5	2·6	+35	87	·560	4·0§	1	2·00	— 1·00	0·23	1·26	— 1·03	0·28	1·50	— 1·22	0·20	Narayanganj.		
22	2	...	...	...	...	4	...	...	1·5	?	?	89	·629	3·6‖	2	1·81	+ 0·19	1·00	1·13	— 0·13	1·00	1·74	— 0·74	0·58	Barisal.		
14	2	2	6	2	...	...	1	1	1·1	?	?	83	·441	?	1	1·50	— 0·50	1·32	1·13	+ 0·19	1·32	1·52	— 0·20	1·30	Mymensingh.		
24	1	...	...	...	...	2	...	1	1·5	?	?	86	·497	2·6‖	0	2·04	— 2·04	0·07	1·49	— 1·42	0·07	1·85	— 1·78	0·04	Faridpur	Deltaic Bengal	10
21	2	1	...	...	...	...	2	2	1·4	2·0	—30	82	·517	2·9**	2	1·77	+ 0·23	0·64	1·21	— 0·57	0·65	1·76	— 1·11	0·38	Jessore.		
5	6	3	...	2	1	4	4	3	3·4	3·8	—11	84	·577	4·6‡	3	1·92	+ 1·08	1·59	1·38	+ 0·21	1·63	1·98	— 0·35	1·26	Calcutta.		
1	5	6	2	...	5	6	2	1	10·0	7·9	+27	88	·716	5·6‡	4	1·77	+ 2·23	2·96	1·10	+ 1·86	3·01	1·42	+ 1·59	1·37	Saugor Island.		
3	2	3	2	6	1	2	5	4	3·5	?	?	65	·428	2·4	2	1·62	+ 0·38	0·46	1·23	— 0·77	0·47	1·53	— 1·06	0·31	Krishnagar.		
14	12	...	...	...	1	1	...	...	1·3	?	?	70	·499	3·7†	3	1·46	+ 1·54	1·03	1·07	— 0·04	1·03	1·59	— 0·56	0·69	Midnapore.		

† Mean of 26 days. ‡ Mean of 25 days. § Mean of 16 days. ** Mean of 20 days. ‖ Mean of 23 days.

Table

Abstract of Observations taken at 8 A.M. at 211 Stations

Number of Districts.	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.
11	Central Bengal.	Bankura‡	298	29·661	?	29·923	29·771	12th	29·575	23rd	·196	66·4	85·3	?	61·8	?	73·5	?	23·5	96·4	26th	55·8	19th	40·6
		Raniganj	334	29·658	?	29·957	29·753	12th	29·566	23rd	·187	65·4	84·9	?	60·2	?	72·6	?	24·7	95·5	26th	51·7	20th	43·8
		Burdwan	99	29·895	−·033	29·946	29·998	13th	29·799	23rd	·199	67·6	86·0	+2·8	61·2	+3·1	73·6	+3·0	24·8	95·6	26th	54·3	25th	41·3
		Naya Dumka	489	29·474	?	29·946	29·583	12th	29·371	23rd	·212	64·3	82·5	?	58·3	?	70·4	?	24·2	93·2	26th	52·8	1st	40·4
		Berhampore	67	29·925	−·035	29·943	30·043	12th	29·818	26th	·225	63·0	84·1	+2·2	56·8	+0·9	70·4	+1·6	27·3	93·2	26th	50·5	27th	42·7
		Rampur Boalia	70	29·910	?	29·933	30·017	12th	29·797	26th	·220	63·1	83·0	?	55·3	?	69·2	?	27·7	92·1	26th	48·9	1st	43·2
		Malda	72	29·905	?	29·933	30·058	12th	29·764	26th	·294	60·7	82·5	?	52·7	?	67·6	?	29·8	91·4	26th	46·3	1st	45·1
		Bogra	61	29·910	?	29·927	29·993	13th	29·783	26th	·210	62·1	82·6	+3·5	54·6	+1·3	68·6	+2·4	28·0	89·7	26th	50·2	2 days	39·5
12	North Bengal	Dinajpur	123	29·858	−·023	29·944	29·989	12th	29·730	26th	·259	58·1	81·1	+2·7	50·5	?	65·8	?	30·6	89·3	26th	45·0	2 days	44·3
		Rangpur	123	29·870	?	29·955	29·934	13th	29·714	26th	·280	58·6	79·2	?	51·7	?	65·5	?	27·5	86·5	26th	45·2	5th	41·3
		Jalpaiguri	284	29·704	?	29·962	29·826	12th	29·523	26th	·303	58·1	77·7	+2·8	52·1	+1·3	64·9	+2·1	25·6	83·9	26th	47·3	4th	36·6
17	North Bihar	Purnea	125	29·860	−·027	29·947	30·025	12th	29·725	26th	·300	56·0	81·3	+2·5	51·4	+0·7	66·4	+1·6	29·9	89·2	26th	45·3	1st	43·9
14	Orissa	Balasore	56	29·942	−·027	29·935	30·011	13th	29·846	26th	·165	71·0	85·8	?	66·5	+6·3	76·2	?	19·3	93·4	26th	59·6	2 days	33·8
		False Point	21	29·960	−·044	29·923	30·043	13th	29·873	26th	·170	76·2	84·5	+1·9	71·1	+6·8	77·8	+4·4	13·1	88·5	27th	63·0	14th	25·5
		Cuttack	80	29·889	−·057	29·914	29·969	13th	29·805	26th	·164	72·8	92·2	+2·2	70·3	+5·2	81·3	+3·7	21·9	99·2	27th	64·7	23rd	34·5
		Shortt's Island	?	29·970	?	?	30·072	13th	29·797	27th	·275	76·3	84·0	?	73·3	?	78·7	?	10·7	85·9	16th & 25th, 4 days	68·4	19th	17·5
		Puri	20	29·957	?	29·920	30·037	13th	29·875	26th	·162	77·4	85·7	?	73·8	?	79·8	?	11·9	88·7		64·6	13th	24·1
	V.—Gangetic Plain and Chota Nagpur.		...	...	−·036	...	...	...	...	...	...	...	81·1	+2·3	54·1	+2·2	67·6	+2·2	27·0	...	...	...	...	43·0
15	Chota Nagpur	Hazaribagh	2,007	27·939	−·029	29·965	28·045	12th	27·852	20th	·193	62·0	78·4	+0·7	56·7	+2·8	67·6	+1·8	21·7	91·8	26th	49·9	20th	41·9
		Ranchi	2,128	27·832	?	29·960	27·930	12th	27·750	20th	·180	?	?	?	?	?	?	?	?	?	?	?	?	?
		Daltonganj	730?	29·275‡	?	30·002‡	29·352	6th	29·202	25th	·150	59·7	73·7	?	54·1	?	63·9	?	19·6	80·4	17th	46·0	27th	34·4
		Chaibassa	760?	29·212	?	29·952	29·300	12th	29·135	26th	·165	65·5	85·5	+1·8	60·7	+3·8	73·1	+2·8	24·8	95·6	26th	54·4	27th	41·2
16	South Bihar	Gaya	375	29·611	−·036	29·958	29·729	12th	29·510	23rd	·219	64·2	83·0	+1·7	58·0	+2·2	70·5	+2·0	25·0	93·4	26th	51·8	1st	41·6
		Dehri	351	29·612††	?	29·934††	29·734	11th	29·526	25th	·208	64·2‡	81·9‡	?	59·0‡	?	70·5‡	?	22·9	91·3	25th	54·1	2nd	37·2
		Patna	183	29·801	−·050	29·946	29·887	6th	29·679	20th	·208	62·3	81·3	+3·3	55·9	+3·3	68·7	+3·3	25·4	91·2	26th	51·1	2nd	40·1
		Arrah	190	29·794	?	29·947	29·882	6th	29·683	20th	·199	60·0	83·2§	?	54·5‖	?	68·9‖	?	28·7	93·4	26th	49·1	19th	44·3
		Buxar	239	29·744	?	29·950	29·842	6th	29·623	20th	·219	63·4	82·2	?	55·6	?	68·9	?	26·6	93·5	26th	50·4	19th	43·1
17	North Bihar	Bhagalpur	160	29·818	?	29·937	29·972	12th	29·702	26th	·270	64·1	82·0	?	55·8	?	68·9	?	26·2	91·4	26th	50·2	2nd	41·2
		Darbhanga	166	29·808	−·040	29·938	29·919	11th	29·706	26th	·213	58·7	79·8	+3·6	53·8	+0·1	66·8	+1·9	26·0	87·9	26th	48·8	5th	39·1
		Muzaffarpur	178	29·798‖	?	29·941‖	29·922	12th	29·685	20th	·237	58·1	80·2	?	51·4	?	65·8	?	28·8	89·2	26th	45·3	2nd	43·9
		Motihari	224	29·752	?	29·951	29·877	12th	29·641	23rd	·236	52·0	80·6	?	47·4	?	64·1	?	33·2	90·0	26th	41·9	15th	48·1
		Chapra	181	29·802	?	29·947	29·891	6th	29·667	20th	·224	59·9	82·9	?	54·2	?	68·6	?	28·7	93·1	26th	48·7	2nd	44·4
18	N.-W. P., East	Benares	267	29·727	−·025	29·966	29·816	6th	29·624	20th	·192	59·4	81·7	+1·4	52·9	+1·5	67·3	+1·5	28·8	92·3	25th	47·7	28th	44·6
		Allahabad	309	29·684	−·029	29·964	29·770	6th	29·591	20th	·179	61·9	83·2	+3·4	54·3	+3·3	68·8	+3·4	28·9	95·6	25th	47·4	27th	48·2
23	N.-W. P. (East Submontane).	Gorakhpur	256	29·701	−·043	29·931	29·793	6th	29·573	20th	·220	58·8	80·3	+2·2	52·5	+0·6	66·4	+1·4	27·8	89·4	26th	48·8	20th	40·6
19	South Oudh	Lucknow	368	29·610	−·037	29·959	29·711	13th	29·498	20th	·213	59·4	80·8	+2·3	52·2	+1·9	66·5	+2·1	28·6	92·8	25th	46·2	28th	46·6
20	North Oudh	Bahraich	403	29·547	?	29·936	29·662	13th	29·416	20th	·246	57·2	80·4	?	50·3	?	65·4	?	30·1	89·9	24th & 25th,	45·5	19th	44·4
21	N.-W. Provinces (Central).	Cawnpore	416	29·565	?	29·960	29·644	6th	29·470	23rd	·174	60·1	81·7	?	53·0	?	67·4	?	28·7	94·3	25th	47·0	27th	47·3
		Mainpuri	516	29·467	?	29·975	29·567	13th	29·356	20th	·211	55·8	79·7	?	49·7	?	64·7	?	30·0	92·8	25th	44·1	28th	48·7

‖ Mean of 24 days. †† Mean of 18 days. ‡ Mean of 27 days. § Mean of 25 days.

1—*continued.*

in India, Burma, etc., in February 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 January to 28th February 1897.	Normal rainfall for period from 1st January to 28th February.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Districts.
15	3	...	1	...	...	...	8	...	2·2	P	P	67	·428	1·9*	2	1·81	+ 0·19	0·86	0·94	− 0·08	0·88	1·28	− 0·40	0·55	Bankura ‡‡	Central Bengal.	11
15	2	1	1	...	1	1	3	4	2·4	P	P	54	·342	2·8	2	1·62	+ 0·38	0·51	1·18	− 0·67	0·62	1·58	− 0·96	0·21	Raniganj.		
20	2	...	...	...	...	...	2	4	1·7	2·3	−26	61	·413	3·5†	2	1·58	+ 0·42	0·91	0·93	− 0·02	0·97	1·29	− 0·32	0·40	Burdwan.		
8	1	1	...	...	1	3	7	7	1·2	P	P	56	·331	2·9	2	1·67	+ 0·33	0·46	0·79	− 0·33	0·49	1·39	− 0·90	0·20	Naya Dumka		
19	2	...	...	...	...	5	1	1	1·7	2·4	−29	70	·409	2·4	1	1·73	− 0·73	0·24	1·04	− 0·80	0·25	1·56	− 1·31	0·12	Berhampore.		
14	5	2	...	...	1	3	2	1	2·1	P	P	68	·397	1·7‡	1	1·46	− 0·46	0·13	0·84	− 0·71	0·14	1·25	− 1·11	0·10	Rampur Boalia.		
...	...	...	...	...	...	15	13	...	2·2	P	P	72	·382	1·6	0	1·27	− 1·27	0·07	0·61	− 0·54	0·47	1·13	− 0·66	0·06	Malda.		
23	...	2	...	...	...	...	1	2	2·7	P	P	71	·399	P	1	1·46	− 0·46	0·32	0·97	− 0·65	0·35	1·44	− 1·09	0·32	Bogra.		
2	8	6	2	...	3	3	3	1	3·2	P	P	75	·362	1·5§	1	1·19	− 0·19	0·24	0·51	− 0·27	0·55	0·96	− 0·41	0·12	Dinajpur .	North Bengal.	12
6	6	8	1	...	2	4	1	...	2·0	P	P	82	·408	1·5*	1	1·08	− 0·08	0·16	0·43	− 0·27	0·44	1·04	− 0·60	0·10	Rangpur.		
...	4	7	4	6	1	1	3	2	2·8	P	?	81	·394	0·9‡	0	1·12	− 1·12	0·08	0·38	− 0·30	0·16	0·91	− 0·75	0·06	Jalpaiguri.		
11	1	1	5	1	1	4	4	...	3·6	2·5	+44	81	·370	1·1‖	1	1·20	− 0·20	0·30	0·59	− 0·29	0·38	1·08	− 0·70	0·22	Purnea .	North Bihar.	17
6	5	2	1	...	1	8	2	3	3·2	P	P	88	·667	4·0‡	4	2·23	+ 1·77	2·40	1·31	+ 1·09	2·40	1·70	+ 0·70	1·15	Balasore .	Orissa.	14
2	4	1	...	...	7	4	6	4	8·8	7·5	+17	85	·762	5·1¶	2	1·42	+ 0·58	3·85	0·86	+ 2·99	3·85	1·43	+ 2·42	3·45	False Point.		
10	3	4	5	2	...	2	1	1	3·0	2·2	+36	84	·678	3·9§	2	1·23	+ 0·77	0·54	0·63	− 0·09	0·54	0·95	− 0·41	0·21	Cuttack.		
...	...	5	3	...	7	4	5	4	12·6	P	P	79	·717	3·7	2	P	P	3·43	P	P	3·43	P	P	1·96	Shortt's Island.		
11	2	...	1	...	1	12	1	...	12·0	P	P	84	·797	3·6*	1	1·15	− 0·15	4·25	0·78	+ 3·47	4·25	1·06	+ 3·19	4·25	Puri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·84	0·53	+0·31	...	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**		
3	3	1	1	1	3	5	6	5	7·8	6·5	+20	61	·327	2·6‡	7	1·81	+ 5·19	2·16	0·82	+ 1·34	2·53	1·38	+ 1·15	0·78	Hazaribagh.	Chota Nagpur	15
12	1	1	1	2	1	2	2	6	5·8	P	P	P	P	1·5	5	2·12	+ 2·88	2·62	1·21	+ 1·41	3·09	1·73	+ 1·36	0·79	Ranchi.		
...	2	1	...	4	8	8	2	3	4·7	P	P	81	·420	1·8	3	1·32	+ 1·68	1·51	0·49	+ 1·02	1·93	1·21	+ 0·72	0·68	Daltonganj.		
14	...	...	...	...	2	6	4	2	1·2	P	P	76	·480	2·6	4	1·65	+ 2·35	3·13	0·97	+ 2·16	3·34	1·55	+ 1·79	1·51	Chaibassa.		
12	1	1	...	2	1	6	5	...	2·8	2·6	+ 8	58	·353	2·5	3	1·35	+ 1·65	1·23	0·67	+ 0·56	1·25	1·25	0	0·62	Gaya . .	South Bihar.	16
4	...	...	1	1	7	12	1	1	6·1‡	P	P	64‡	·374‡	2·3*	3	1·25	+ 1·75	1·78	0·44	+ 1·34	1·84	1·06	+ 0·78	0·85	Dehri.‡‡		
4	...	...	1	3	1	3	12	4	2·1	2·9	−28	60	·338	1·4	1	1·12	− 0·12	0·46	0·53	− 0·07	0·46	1·18	− 0·72	0·33	Patna.		
4	1	1	1	2	2	4	10	3	3·3**	P	P	67	·349	1·2*	2	1·04	+ 0·96	0·72	0·59	+ 0·13	0·72	1·32	− 0·60	0·60	Arrah.		
...	...	4	2	1	...	9	12	...	7·2	P	P	55	·323	1·7	2	1·46	+ 0·54	0·88	0·50	+ 0·38	0·89	1·22	− 0·33	0·56	Buxar.		
8	...	2	...	1	3	5	7	2	2·8	P	P	59	·354	2·0	2	1·46	+ 0·54	0·89	0·62	+ 0·27	1·24	1·10	+ 0·14	0·68	Bhagalpur.	North Bihar.	17
7	2	1	3	2	1	1	7	4	4·0	3·3	+21	69	·346	1·2	1	1·32	− 0·32	0·31	0·49	− 0·18	0·36	1·14	− 0·78	0·24	Darbhanga.		
8	...	...	2	3	...	4	7	4	3·8	P	P	72	·363	1·2	2	1·32	+ 0·68	0·50	0·48	+ 0·02	0·63	1·32	− 0·69	0·40	Muzaffarpur.		
...	1	3	4	1	5	4	5	5	6·0	P	P	91	·355	0·5	1	1·17	− 0·17	0·15	0·48	− 0·33	0·40	1·19	− 0·79	0·14	Motihari.		
8	...	...	...	...	4	9	6	1	3·1	P	P	66	·343	1·5	2	1·08	+ 0·92	0·39	0·46	− 0·07	0·40	1·14	− 0·74	0·25	Chapra.		
7	...	1	1	2	...	9	8	...	4·7	4·1	+15	68	·361	2·1	2	0·82	+ 1·18	0·65	0·37	+ 0·28	0·87	1·16	− 0·29	0·49	Benares .	N.-W. P. East.	18
8	...	1	3	1	...	3	9	3	3·4	2·7	+26	55	·300	1·9	0	0·64	− 0·64	0·03	0·28	− 0·25	0·84	1·13	− 0·29	0·02	Allahabad.		
...	6	4	...	1	3	6	5	3	2·2	2·3	− 4	68	·303	2·5	0	0·73	− 0·73	0·10	0·41	− 0·31	1·01	1·25	− 0·24	0·07	Gorakhpur .	N.-W. P. (East Submontane).	23
8	1	...	1	2	...	...	11	5	2·4	3·3	−27	58	·293	1·4	0	0·55	− 0·55	0	0·25	− 0·25	1·10	1·35	− 0·25	0	Lucknow .	South Oudh.	19
9	4	...	...	2	...	3	6	4	3·2	P	P	69	·324	0·9	0	P	P	0·03	0·63	− 0·60	1·01	1·49	− 0·48	0·01	Bahraich .	North Oudh.	20
7	3	2	...	2	...	5	5	4	5·0	P	P	55	·289	1·1	0	0·60	− 0·60	0	0·28	− 0·28	1·09	0·92	+ 0·17	0	Cawnpore .	N.-W. Provinces (Central).	21
12	2	...	3	...	...	1	9	1	2·6*	P	P	61	·274	2·6	0	P	P	0	0·16	− 0·16	0·50	0·77	− 0·27	0	Mainpuri.		

* Mean of 26 days. † Mean of 23 days. ¶Mean of 21 days. ** Mean of 22 days. ‡‡ Wind direction for 27 days.

Table

Abstract of Observations taken at 8 A.M. at 211 Stations

Number of Districts.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	VI.—Upper Sub-Himalayas		...	...	−·028	...	...	...	...	...	...	...	72·9	+1·1	47·8	+1·1	60·4	+1·3	25·2	...	...	...	...	43·4
24	N.-W. Provinces, West (Submontane).	Bareilly	568	29·385	−·031	29·956	29·504	13th	29·256	20th	·248	54·8	78·8	+3·9	49·8‡	+1·0‡	64·4	+2·5	29·0	89·9	25th	43·7	26th	46·2
		Dehra Dun	2,233	27·686	−·039	29·981	27·802	13th	27·558	20th	·244	52·1	70·3	+1·5	46·2	−0·5	58·3	+0·5	24·1	82·5	25th	40·0	13th	42·5
		Roorkee	887	29·054	−·034	29·971	29·184	13th	28·927	20th	·257	51·4	75·4	+2·3	46·5	−0·5	61·0	+0·9	28·9	88·8	25th	41·5	19th	47·3
22	N.-W. P., West	Meerut	738	29·221	−·030	29·975	29·350	13th	29·110	23rd	·240	53·7	77·1	+2·7	49·7	+2·2	63·4	+2·5	27·4	90·5	25th	44·1	18th	46·4
26	South-East Punjab.	Delhi	718	29·251	−·031	29·978	29·367	13th	29·135	24th	·232	56·2	76·2	+1·2	51·4	?	63·8	.	24·8	88·7	25th	45·4	13th	43·3
28	Central Punjab.	Lahore	702	29·273	−·029	29·999	29·421	13th	29·022	24th	·399	51·3	69·3	−1·2	48·3	+4·4?	58·8	+1·6?	21·0	82·6	24th	44·2	4 days	38·4
27	South Punjab	Sirsa	662	29·323	−·022	29·999	29·444	13th	29·148	24th	·296	52·6	74·1	−1·0	47·9	+1·8	61·0	+0·4	26·2	89·3	24th	42·7	3rd	46·6
		Patiala	818	29·142	?	29·981	29·277	13th	29·004	24th	·273	54·1	73·1	?	48·9	?	61·0	?	24·2	86·9	25th	44·0	3rd	42·9
29	Punjab (Submontane).	Ludhiana	812	29·150	−·023	29·988	29·286	13th	28·966	24th	·320	52·2	70·3	−1·1	48·5	+2·0	59·4	+0·5	21·8	83·6	24th	42·5	13th	41·1
		Sialkot	830	29·139	−·011	30·001	29·285	13th	28·889	24th	·396	51·3	70·3	+0·9	45·9	+0·6	58·1	+0·8	24·4	82·6	24th	40·1	18th & 19th.	42·5
		Umballa	892	29·059	?	29·975	29·190	13th	28·919	24th	·271	52·4	74·4	?	47·3	?	60·9	?	27·1	87·0	25th	42·0	6th	45·0
31	North Punjab	Rawalpindi	1,643	28·295	?	30·030	28·431	13th	27·997	24th	·434	47·7	65·9	+1·5	43·0	+2·4	54·5	+2·0	22·9	78·0	23rd	38·9	5 days	39·1
	VII.—Indus Valley and N.-W. Rajputana.		...	...	−·029	...	...	...	...	...	...	...	75·2	+0·9	47·9	+1·1	61·5	+1·0	27·3	...	...	...	...	45·5
31	North Punjab	Peshawar	1,110	28·905	−·033	30·031	29·057	7th	28·544	24th	·513	48·5	65·6	−0·1	41·3	+2·8	55·0	+1·4	21·3	74·6	22nd	39·4	17th	35·2
		Mardan	?	?	?	?	?	...	?	...	?	46·5	67·9	?	37·8	?	52·8	?	30·1	76·0	26th	34·0	8th	42·0
32	West Punjab	Khushab	612	29·370	?	30·004	29·523	13th	29·022	24th	·501	49·0	71·4	?	45·6	?	58·5	?	25·8	83·7	24th	41·5	3rd	42·2
		Montgomery	558	29·435	?	30·002	29·598	13th	29·145	24th	·453	52·8	72·7	?	46·5	?	59·6	?	26·2	88·9	24th	40·5	3rd & 13th.	48·4
		D. I. Khan	593	29·427	−·045	30·014	29·594	13th	29·085	24th	·509	50·5	72·3	?	45·8	?	59·1	?	26·5	82·3	24th	41·0	1st	41·3
		Mooltan	420	29·583	−·050	30·006	29·750	13th	29·276	24th	·474	51·5	75·2	+2·3	48·6	+2·6	61·8	+2·5	26·6	87·3	24th	43·4	25th	43·9
47	Sind	Jacobabad	186	29·845	−·020	30·006	30·008	13th	29·576	23rd	·432	53·7	77·3	+0·2	47·8	0	62·6	+0·1	29·5	91·5	23rd	35·0	25th	56·5
		Hyderabad	96	29·946	−·021	30·001	30·058	13th	29·760	28th	·298	59·0	81·0	+1·0	52·9	−1·2	67·0	−0·1	28·1	93·6	23rd	45·5	18th & 25th.	48·1
		Kurrachee	12	30·053	−·002	30·016	30·155	13th	29·881	28th	·274	62·4	79·3	?	57·0	?	68·2	?	22·3	85·8	17th	47·4	26th	38·4
51	West Rajputana	Bickaneer	771?	29·227	?	30·015	29·356	13th	29·050	24th	·306	56·2	75·8	+0·6	50·9	?	63·4	?	24·9	90·7	24th	45·6	12th	45·1
		Pachpadra	380?	29·609	?	29·972	29·702	26th	29·484	24th	·218	55·9	82·3	?	45·9	?	64·1	?	36·4	92·1	24th	39·0	25th	53·1
		Jodhpur	810	29·210	?	30·029	29·306	13th	29·062	24th	·244	58·3	81·0	?	51·3	?	66·2	?	29·7	92·1	22nd & 24th	40·6	25th	51·5
	VIII.—East Rajputana, Central India and Gujarat.		...	...	−·024	...	...	...	...	...	...	...	83·0	+0·8	53·8	+0·1	68·4	+0·5	29·2	...	...	...	...	46·8
50	East Rajputana	Jeypore	1,431	28·553	−·024	30·019	28·635	13th	28·434	24th	·201	57·6	80·0	+2·1	51·2	+1·2	65·6	+1·7	28·8	92·0	24th	45·2	25th	46·8
		Sambhar	1,254	28·724	?	30·016	28·806	13th	28·602	24th	·204	54·1	78·5	+2·1	47·9	−0·2	63·2	+1·0	30·6	91·4	24th	43·0	3 days	48·4
		Ajmere	1,611	28·377	−·022	30·046	28·457	9th	28·249	24th	·208	54·0	78·5	+1·2	49·2	+0·8	63·9	+1·0	29·3	89·4	24th	40·9	26th	48·5
		Deesa	466	29·537	−·025	29·984	29·637	25th	29·464	11th	·173	61·8	86·0	+0·3	53·4	−1·3	69·7	−0·5	32·6	92·8	23rd	44·1	27th	48·7
46	Kathiawar and Cutch.	Bhuj	395	29·634	−·002	30·003	29·708	25th	29·526	28th	·182	63·0	81·9	−1·9	55·3	−2·6	68·6	−2·3	26·6	92·0	23rd	47·0	25th	45·0
		Rajkot	429	29·589	−·012	29·992	29·674	25th	29·515	28th	·159	62·3	84·8	−2·7	52·0	−2·1	68·4	−2·4	32·8	91·9	24th	42·5	26th	49·4
		Veraval	?	30·001	?	29·961	30·089	25th	29·947	18th	·142	65·2	82·4	?	58·8	?	70·6	?	23·6	90·1	17th & 18th.	49·3	26th	40·8
		Ghadechi	35	29·982	?	29·963	30·088	25th	29·936	10th	·152	63·6	87·1	?	56·2	?	71·7	?	30·9	97·6	24th	47·3	26th	50·3
49	Central India	Nowgong	757	29·228	−·038	29·983	29·311	13th	29·125	24th	·186	59·6	79·5	?	53·1	+3·1	66·3	?	26·4	95·0	25th	46·0	27th	49·0
		Indore	1,823	28·141	−·027	29·983	28·236	25th	28·079	10th	·157	61·3	85·8	+3·3	52·7	+1·1	69·3	+2·2	33·1	94·2	23rd	46·1	26th	48·1
		Neemuch	1,630	28·359	?	30·017	28·453	13th	28·278	24th	·175	61·0	81·9	+1·4	51·4	−0·1	66·7	+0·7	30·5	89·8	3 days	40·0	26th	49·8
45	Gujarat	Surat	39	29·969	−·027	29·952	30·072	25th	29·901	17th	·171	64·7	89·3	−0·2	59·4	+1·1	74·4	+0·5	29·9	96·2	18th	54·5	28th	41·7
		Ahmedabad	164	29·853	?	29·973	29·961	25th	29·805	11th & 28th.	·156	64·9	87·5	?	58·2	?	72·9	?	29·3	94·2	24th	51·7	25th	42·5
22	N.-W. P., West	Agra	555	29·435	−·028	29·985	29·543	13th	29·316	24th	·227	56·9	79·8	+1·6	52·1	+0·4	65·9	+1·0	27·7	96·0	25th	47·9	3 days	48·1
21	N.-W.P., Central	Jhansi	858	29·133	−·035	29·988	29·223	13th	29·014	11th	·209	63·1	82·0	+1·5	56·7	+2·5	69·4	+2·0	25·3	98·1	25th	53·4	2nd	44·7

‡ Mean of 27 days.

I—*continued.*

in India, Burma, etc., in February 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 of month.	Total rainfall from 1st January to 28th February 1897.	Normal rainfall for period from 1st January to 28th February.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Districts.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·61	1·18	−0·55	...	...	...	...	VI.—Upper Sub-Himalayas.		
8	...	3	...	1	...	2	2	12	2·7*	4·0	− 33	62	·265	2·5	1	1·18	−0·18	0·11	0·61	− 0·50	0·46	1·71	− 1·25	0·10	Bareilly	N.-W. Provinces, West (Submontane).	24
24	1	1	...	...	...	...	1	1	1·2	2·0	− 40	67	·254	2·6	2	3·00	−1·00	1·32	1·93	− 0·61	3·76	4·47	− 0·71	0·63	Dehra Dun.		
16	2	1	1	2	...	...	...	6	1·7	2·8	− 39	72	·273	1·9	1	2·09	−1·09	1·00	1·22	− 0·22	1·50	2·98	− 1·48	0·86	Roorkee.		
12	1	...	2	...	...	...	9	4	2·5	2·6	− 4	59	·239	2·3	0	1·27	−1·27	0·05	0·79	− 0·74	0·25	2·06	− 1·81	0·05	Meerut.	N.-W. P., West	22
4	2	...	1	1	...	1	17	2	3·9	3·6	+ 8	51	·233	2·9	0	1·00	−1·00	0	0·61	− 0·61	0·11	1·85	− 1·74	0	Delhi	South-East Punjab,	26
14	3	1	1	2	2	...	2	3	2·5	2·4	+ 4	76	·281	2·8	3	2·00	+1·00	0·78	1·10	− 0·32	2·20	2·16	+ 0·04	0·35	Lahore	Central Punjab,	28
9	4	1	1	1	3	4	2	3	6·1	3·4	+ 79	64	·246	4·0	1	0·55	+0·45	0·26	0·27	− 0·01	0·63	1·17	− 0·54	0·26	Sirsa.	South Punjab.	27
12	...	3	...	...	2	11	...	...	3·3	?	?	76	·318	2·1	2	?	?	0·47	?	?	0·87	?	?	0·33	Patiala.		
18	1	2	...	...	2	...	...	5	1·3	1·6	− 19	76	·294	2·5	1	1·82	−0·82	1·12	1·23	− 0·11	2·02	3·20	− 1·18	1·12	Ludhiana	Punjab (Submontane),	29
20	2	2	1	1	...	...	1	1	1·6	1·7	− 6	76	·283	1·6	3	2·45	+0·55	0·64	1·70	− 1·06	2·73	4·19	− 1·46	0·26	Sialkot.		
17	1	...	...	2	...	...	...	8	2·3	?	?	79	·298	2·1	2	?	?	0·40	1·07	− 0·67	0·69	2·20	− 1·51	0·20	Umballa.		
14	3	...	1	2	2	1	2	3	3·5	2·4	+ 46	79	·262	3·6	5	3·18	+1·82	1·16	2·41	− 1·25	3·71	5·25	− 1·54	0·32	Rawalpindi.	North Punjab.	31
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·47	0·45	−0·08	...	...	...	...	VII.—Indus Valley and N.-W Rajputana.		
4	2	...	...	4	12	5	...	1	3·1	3·3	− 6	77	·264	4·6	3	2·00	+1·00	1·14	0·98	+ 0·16	4·37	2·75	+ 1·62	0·44	Peshawar	North Punjab.	31
Not recorded.									?	?	?	?	?	6·3	5	?	?	1·92	?	?	5·55	?	?	0·88	Mardan.		
15	3	2	3	...	1	2	2	...	2·4	?	?	67	·231	2·8	1	1·70	−0·70	0·39	0·76	− 0·37	1·17	1·28	− 0·11	0·24	Khushab	West Punjab.	32
10	3	1	3	1	1	2	4	3	4·8	?	?	66	·254	3·0	1	1·10	−0·10	0·50	0·63	− 0·13	1·18	0·87	+ 0·31	0·43	Montgomery.		
21	...	2	...	...	...	1	...	4	2·3	2·0	+ 15	74	·271	1·8	2	0·91	+1·09	0·94	0·52	+ 0·42	1·28	1·05	+ 0·23	0·75	D. I. Khan		
16	1	5	...	2	2	...	1	1	1·4	2·4	− 4	72	·273	2·3	1	1·00	0	0·26	0·38	− 0·12	0·37	0·86	− 0·49	0·16	Mooltan.		
10	1	1	6	1	...	1	2	6	3·6	3·0	+ 20	56	·238	3·0	2	1·00	+1·00	0·32	0·40	− 0·08	0·35	0·65	− 0·30	0·15	Jacobabad	Sind.	47
7	8	4	...	1	1	3	1	3	8·4	7·0	+ 20	56	·285	1·3	0	0·30	−0·30	0·03	0·23	− 0·20	0·03	0·54	− 0·51	0·03	Hyderabad.		
8	2	8	5	...	...	...	2	3	6·9	10·5	− 34	65	·379	1·3	1	0·36	+0·64	0·17	0·31	− 0·14	0·27	1·03	− 0·76	0·17	Kurrachee.		
2	6	3	...	2	3	4	...	8	6·0	3·7	+ 62	50	·222	2·6	0	?	?	0	0·22	− 0·22	0·31	0·52	− 0·21	0	Bickaneer	West Rajputana	51
...	9	7	1	4	3	2	...	2	7·2	3·3	+ 118	49	·221	1·2	0	?	?	0	0·09	− 0·09	0·13	0·46	− 0·33	0	Pachpadra.		
6	6	13	1	...	...	2	...	...	4·5	?	?	40	·197	1·5	0	?	?	0	?	?	0·21	?	?	0	Jodhpur.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·18	−0·18	...	...	...	...	VIII.—East Rajputana, C. India and Gujarat.		
8	8	6	2	...	...	...	1	3	3·3	4·4	− 25	53	·257	1·3	0	0·60	−0·60	0	0·19	− 0·19	0	0·88	− 0·88	0	Jeypore	East Rajputana.	50
14	7	4	...	...	1	...	1	1	4·3	5·3	− 19	54	·226	1·3	0	0·55	−0·55	0·03	0·21	− 0·18	0·03	0·68	− 0·65	0·03	Sambhar.		
21	...	4	...	...	...	1	...	2	2·8	2·5	+ 12	59	·256	1·5	0	0·64	−0·64	0	0·30	− 0·30	0	0·82	− 0·82	0	Ajmere.		
...	...	16	5	...	...	...	3	4	9·2	9·0	+ 2	43	·240	1·4	0	0·27	−0·27	0	0·10	− 0·10	0·07	0·27	− 0·20	0	Deesa.		
...	6	3	1	1	2	3	10	2	8·3	6·7	+ 24	56	·332	1·6	0	?	?	0	0·11	− 0·11	0·10	0·22	− 0·12	0	Bhuj	Kathiawar and Cutch,	46
8	...	7	2	...	...	...	4	7	5·9	6·2	− 5	50	·289	1·3	0	0·10	−0·10	0	0·08	− 0·08	0·11	0·12	− 0·01	0	Rajkot.		
...	19	4	...	...	...	...	...	5	7·6	?	?	57	·357	0·6	0	?	?	0	?	?	0·04	?	?	0	Veraval.		
...	4	...	...	...	...	1	4	19	7·6	?	?	40	·245	1·1	0	?	?	0	?	?	0	?	?	0	Ghadechi.		
4	4	3	6	...	...	6	3	2	2·4	1·7	+ 41	63	·323	1·8	0	0·73	−0·73	0	0·27	− 0·27	1·99	0·92	+ 1·07	0	Nowgong	Central India.	48
13	5	5	...	...	...	...	1	4	2·3	3·0	− 23	43	·236	1·2	0	0·55	−0·55	0	0·18	− 0·18	0·07	0·36	− 0·29	0	Indore.		
4	5	15	1	...	...	1	1	1	6·4	9·1	− 30	38	·205	0·4	0	0·55	−0·55	0	0·19	− 0·19	0	0·49	− 0·49	0	Neemuch.		
5	11	8	1	1	1	...	...	1	4·3	5·4	− 20	60	·372	0·7	0	0	0	0	0·01	− 0·01	0	0·06	− 0·06	0	Surat	Gujarat.	45
...	10	9	1	...	...	...	...	8	5·4	?	?	45	·281	1·1	0	?	?	0	?	?	0	?	?	0	Ahmedabad.		
5	...	3	...	1	...	3	...	16	4·3	4·0	+ 20	54	·260	1·6	0	0·36	−0·36	0	0·21	− 0·21	0·37	0·74	− 0·37	0	Agra	N.-W. P., West.	22
15	1	...	...	1	...	4	1	6	2·3	2·7	− 15	45	·257	0·5	0	1·09	−1·09	0	0·33	− 0·33	1·86	0·92	+ 0·94	0	Jhansi.	N.-W.P., Central.	21

* Mean of 26 days.

Table

Abstract of Observations taken at 8 A.M. at 211 Stations

Number of Districts.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	IX.—Deccan		...	...	**−·045**	...	...	...	...	...	...	...	**91·8**	**+2·8**	**63·1**	**+3·8**	**77·5**	**+3·3**	**28·7**	...	...	...	...	**43·2**
38	Bombay (Deccan)	Belgaum	2,524	27·436	−·030	29·912	27·489	8th	27·367	16th	·122	71·0	91·5	+2·9	61·1	+1·6	76·3	+2·3	30·4	96·2	22nd & 23rd.	53·4	1st	42·8
		Sholapur	1,590	28·365	−·046	29·923	28·418	8th	28·302	16th	·116	74·0	97·2	+3·4	65·6	+3·9	81·5	+3·7	31·6	101·2	23rd	57·6	3rd	43·6
		Poona	1,840	28·130	−·034	29·959	28·182	8th	28·071	16th	·111	67·4	94·3	+3·5	58·8	+1·3	76·6	+2·4	35·5	100·5	22nd	52·9	1st	47·6
		Bijapur	1,946	28·012	?	29·916	28·070	8th	27·947	16th	·123	74·4	95·8	?	67·1	?	81·5	?	28·7	100·2	24th	58·1	2nd	42·1
40	Khandesh	Malegaon	1,430	28·537	−·035	29·957	28·602	25th	28·482	16th	·120	68·5	92·1	+2·3	57·1	+2·2	74·6	+2·3	35·0	98·9	27th	46·0	28th	52·9
		Ahmednagar	2,152	27·812	?	29·948	27·869	8th	27·759	16th	·110	67·9	91·7	?	57·2	?	74·5	?	34·5	102·3	19th	49·4	1st	52·9
41	Berar	Akola	930	29·013	−·053	29·922?	29·070	22nd	28·943	16th	·127	69·0	94·7	+4·4	60·8	+4·2	77·8	+4·3	33·9	99·3	23rd & 24th.	53·6	28th	45·7
		Amraoti	1,215	28·727	−·045	29·927	28·790	22nd	28·658	16th	·132	70·1	93·5	+3·8	64·8	+3·9	79·2	+3·9	28·7	99·2	24th & 25th.	55·9	1st	43·3
42	Central Provinces (West).	Khandwa	1,044	28·919	−·039	29·959	29·013	25th	28·855	10th	·158	65·1	91·1	+2·6	59·2	+4·2	75·1	+3·4	31·9	98·7	23rd	50·6	26th	48·1
		Hoshangabad	1,006	28·956	−·043	29·965	29·044	25th	28·890	11th	·154	62·8	87·6	+2·4	58·8	+3·7	73·2	+3·1	28·8	95·9	24th	50·8	28th	45·1
		Nagpur	1,025	28·913	−·062	29·919	28·985	22nd	28·849	16th	·136	70·5	93·6	+4·5	64·7	+5·4	79·2	+5·0	29·4	100·1	24th	59·2	1st & 2nd.	40·9
43	Central Provinces (Central).	Chanda	634	29·312	−·058	29·903?	29·374	7th	29·216	16th	·158	74·3	95·1	+3·5	61·8	+3·0	78·5	+3·3	33·3	99·2	5 days	51·9	2nd	47·3
		Seoni	2,033	27·917	−·043	29·946	27·994	22nd	27·866	28th	·128	65·6	85·5	+1·6	58·3	+3·2	71·9	+2·4	27·2	95·0	24th	53·0	21st & 28th.	42·0
		Jubbulpore	1,327	28·634	−·039	29·970	28·690	22nd	28·576	28th	·114	62·7	83·7	+1·8	55·4	+3·7	69·6	+2·8	28·3	95·5	25th	45·9	18th	49·6
		Saugor	1,807	28·154	?	29·972	28·221	6th	28·085	11th	·136	64·0	82·8	+2·2	59·0*	+4·9*	70·9*	+3·6	23·8	94·3	24th	51·6	26th	42·7
49	Central India	Sutna	1,040	28·932	−·031	29·979	28·998	6th	28·861	23rd	·137	62·3	81·1	+1·9	55·4	+4·4	68·3	+3·2	25·7	94·5	25th	48·3	26th & 27th.	46·2
44	Central Provinces (East).	Raipur	970	28·979	−·049	29·929	29·057	13th	28·907	28th	·150	69·0	89·6	+2·8	64·6	+4·6	77·1	+3·7	25·0	97·4	25th	59·2	18th	38·2
		Sambalpur	486	29·488	−·050	29·937	29·603	13th	29·419	16th	·184	70·8	88·4	+0·5	64·0	+4·5	76·2	+2·5	24·4	95·5	28th	56·2	22nd & 23rd.	39·3
39	Hyderabad (North).	Aurangabad	1,865?	28·105	?	29·943	28·153	8th	28·062	16th	·091	71·8	94·0	?	60·4†	?	77·4†	?	33·6	100·0	23rd	53·0	28th	47·0
		Indur	?				Not recorded.					77·4	95·4	?	68·6	?	82·0	?	26·8	100·7	25th	56·0	2nd	44·7
		Bidar	2,165?	27·791	?	29·900	27·861	8th	27·700	16th	·161	76·4	92·0	?	65·1	?	78·5	?	26·9	96·7	28th	58·2	21st	38·5
53	Hyderabad (South).	Gulbarga	1,502	28·443	?	29·911	28·507	7th	28·386	16th	·121	74·6	96·1	?	68·5	?	82·3	?	27·6	99·3	3 days	58·7	3rd	40·6
		Raichur	1,309	28·632	?	29·898	28·697	8th	28·573	17th	·124	78·0	96·3	?	73·3	?	84·8	?	23·0	100·6	28th	66·6	1st	34·0
		Hyderabad (Deccan).	1,690	28·263	−·066	29·916	28·319	6th	28·201	28th	·118	75·0	94·1	+3·1	69·4	+6·7	81·8	+4·9	24·7	98·9	28th	62·2	2nd	36·7
		Secunderabad	1,787	28·167	?	29·921	28·228	6th	28·111	28th	·117	73·1	95·4	?	68·9	?	82·2	?	26·5	100·7	27th & 28th.	63·5	1st	37·2
		Khamamet	373	29·594	?	29·917	29·658	6th	29·502	28th	·156	77·2	94·9	?	73·1	?	84·1	?	21·8	101·3	28th	66·3	10th	35·0
	X.—West Coast		...	...	**−·021**	...	...	...	...	...	...	...	**85·8**	**−0·3**	**72·3**	**+2·0**	**79·1**	**+0·9**	**13·4**	...	...	...	...	**21·9**
37	Konkan	Bombay	37	29·963	−·022	29·941	30·028	5th	29·870	17th	·156	71·3	81·5	−1·0	68·2	−0·2	74·9	−0·6	13·3	83·5	4 days	63·5	28th	20·0
		Ratnagiri	110	29·869	−·012	29·921	29·938	5th	29·778	16th	·160	73·7	84·5	−1·8	68·4	+1·5	76·5	−0·2	16·1	87·9	18th	64·4	3rd	23·5
		Mormugao	60	29·932	?	29·927	29·987	5th	29·847	16th	·140	74·6	84·2	?	72·0	?	78·1	?	12·2	89·0	19th	68·3	4th	20·7
		Goa	199	29·781	−·012	29·919	29·832	5th	29·696	16th	·136	75·8	82·9	?	73·2	?	78·1	?	9·7	100·5	26th	69·0	4th	31·5
		Karwar	44	29·944	−·013	29·921	29·993	6th	29·846	16th	·147	71·6	85·1	−1·1	69·4	+2·3	77·3	+0·6	15·7	88·3	3 days	64·5	4th	23·8
33	Malabar	Cochin	11	29·955	−·032	29·893	29·018	22nd	29·873	16th	·145	80·1	91·6	+2·1	76·4	+3·3	84·0	+2·7	15·2	93·8	22nd	72·3	8th	21·5
		Calicut	27	29·946	−·032	29·902	30·003	22nd	29·858	16th	·145	79·4	89·7	+0·9	74·7	+2·2	82·2	+1·6	15·0	91·8	20th & 21st.	71·0	9th & 10th.	20·8
		Mangalore	65	29·919	−·023	29·917	29·971	22nd	29·817	16th	·154	78·5	87·1	−0·7	74·3	+2·9	80·7	+1·1	12·8	89·8	19th & 21st.	70·9	4th	18·9
		Trivandrum	198	29·745	?	29·876	29·800	22nd	29·653	16th	·147	76·8	85·4	?	74·4	?	79·9	?	11·0	87·0	22nd & 28th	71·0	7th	16·0
	XI.—South India		...	...	**−·047**	...	...	...	...	...	...	...	**90·6**	**+2·1**	**71·0**	**+5·3**	**80·9**	**+3·7**	**19·6**	...	...	...	...	**30·3**
57	Madras (South)	Pamban	37	29·946	?	29·910	30·013	22nd	29·863	16th	·150	81·0	86·7	?	75·9	?	81·3	?	10·8	90·3	22nd	72·2	3 days	18·1
		Tinnevelly	168	29·811	?	29·911	29·869	22nd	29·719	16th	·150	77·9	92·2	?	74·1	?	83·1	?	18·1	96·7	28th	68·9	4th	27·8
		Madura	447	29·529	−·041	29·918	29·582	6th & 22nd.	29·446	16th	·136	77·4	91·6	?	72·2	+3·0	81·9	?	19·4	100·5	24th	66·1	26th	34·4

* Mean of 25 days.
† " " 26 "

I—*continued.*

in India, Burma, etc., in February 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity: Mean velocity in miles per hour.	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 January to 28th February 1897.	Normal rainfall for period from 1st January to 28th February.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Districts.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·26	0·21	+0·04	...	...	...	...	IX.—Deccan.		
17	3	1	1	1	...	1	2	2	10·3	10·0	+ 3	49	·377	1·0	0	0·09	− 0·09	0	0·02	− 0·02	0	0·08	− 0·08	0	Belgaum	Bombay (Deccan).	38
3	5	4	...	1	2	3	2	8	8·1	6·5	+ 25	40	·346	0·8	0	0·09	− 0·09	0	0·03	− 0·03	0	0·14	− 0·14	0	Sholapur.		
6	1	...	...	4	...	5	6	6	9·4	6·3	+ 49	50	·324	0·8	0	0	0	0	0·04	− 0·04	0	0·10	− 0·10	0	Poona.		
2	...	...	2	2	...	3	10	9	4·7	P	P	61	·516	1·1	0	0·10	− 0·10	0	P	P	0	?	?	0	Bijapur.		
1	6	...	...	...	...	2	8	11	9·7	5·0	+ 94	73	·507	1·8	0	0·18	− 0·18	0	0·05	− 0·05	0	0·21	− 0·21	0	Malegaon	Khandesh.	40
1	9	2	2	1	...	...	...	13	14·7	P	P	61	·420	1·0	0	P	P	0	P	P	0	P	P	0	Ahmednagar.		
4	2	2	2	3	2	2	4	7	5·2	3·8	+ 37	37	·259	1·3	0	0·18	− 0·18	0	0·13	− 0·13	0·47	0·56	− 0·09	0	Akola	Berar.	41
...	1	5	9	2	2	4	4	1	4·5	3·7	+ 22	49	·363	1·6	0	0·27	− 0·27	0	0·19	− 0·19	1·58	0·58	+ 1·00	0	Amraoti.		
6	2	4	3	...	1	1	7	4	5·1	3·6	+ 42	36	·230	1·0	0	0·18	− 0·18	0	0·06	− 0·06	0·40	0·37	+ 0·03	0	Khandwa	Central Provinces (West).	42
6	...	14	5	...	...	1	1	1	3·3	2·9	+ 14	51	·298	2·0	0	0·36	− 0·36	0·05	0·23	− 0·18	0·82	0·48	+ 0·34	0·03	Hoshangabad.		
14	6	5	3	...	...	...	...	...	5·3	3·9	+ 36	60	·450	2·0	1	0·91	+ 0·09	0·20	0·27	− 0·07	0·86	0·82	+ 0·04	0·20	Nagpur.		
1	4	5	5	5	3	...	1	4	1·9	2·7	− 30	51	·434	1·1	0	P	P	0·06	0·23	− 0·17	0·08	0·60	− 0·52	0·03	Chanda	Central Provinces (Central).	43
...	5	13	4	4	...	1	...	1	3·5	2·9	+ 21	61	·394	1·9	2	1·55	+ 0·45	0·90	0·75	+ 0·15	2·59	1·38	+ 1·21	0·46	Seoni.		
6	3	6	1	6	4	...	1	1	2·8	2·5	+ 12	62	·361	2·3	1	0·91	+ 0·09	0·51	0·47	+ 0·04	2·61	1·23	+ 1·38	0·30	Jubbulpore.		
...	3	11	6	6	...	1	...	1	5·0	2·8	+ 79	44	·269	1·9	0	0·82	− 0·82	0	0·30	− 0·30	1·81	1·00	+ 0·81	0	Saugor.		
5	2	3	4	2	1	...	3	8	5·2	4·7	+ 11	49	·274	1·8	0	1·18	− 1·18	0	0·59	−0·59	1·64	1·64	0	0	Sutna	Central India	49
15	2	4	4	2	...	...	...	1	5·0	3·7	+ 35	58	·413	2·7	1	0·73	+ 0·27	0·81	0·33	+ 0·48	1·62	0·53	+ 1·09	0·81	Raipur	Central Provinces (East).	44
...	13	6	2	2	...	2	1	2	5·0	1·7	+194	68	·518	2·3	2	P	P	0·96	0·51	+ 0·45	1·95	0·81	+ 1·14	0·63	Sambalpur.		
18	...	6	2	1	...	...	1	...	4·2†	P	P	35	·269	0·7	0	P	P	0	0·03	− 0·03	0·10	0·22	− 0·12	0	Aurangabad.	Hyderabad (North).	33
5	2	2	4	4	1	2	2	6	4·9	P	P	64	·625	1·1	1	P	P	0·38	0·01	+ 0·37	0·38	0·06	+ 0·32	0·32	Indur.		
...	7	3	2	3	2	8	2	1	7·4	P	P	75	·684	0·4	3	P	P	0·37	0·01	+ 0·36	0·37	0·01	+ 0·36	0·16	Bidar.		
5	1	9	1	2	4	6	...	...	9·1	P	P	56	·486	1·2	2	P	P	0·84	0·12	+ 0·72	0·84	0·20	+ 0·64	0·43	Gulbarga	Hyderabad (South).	53
9	3	...	1	2	6	3	3	1	7·3	P	P	58	·563	0·9	0	P	P	0	P	P	0	P	P	0	Raichur.		
15	...	1	2	4	...	...	4	2	4·1	P	P	67	·581	1·3	1	P	P	0·20	0·04	+ 0·16	0·20	0·13	+ 0·07	0·20	Hyderabad (Deccan).		
4	1	2	8	9	...	1	1	2	6·2	3·8	+ 63	66	·536	1·4	1	P	P	0·16	P	P	0·16	P	P	0·16	Secunderabad.		
7	...	...	2	15	4	...	...	...	8·1	P	P	85	·800	2·2	3	P	P	1·22	P	P	1·22	P	P	0·92	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·22	0·17	+0·08	...	...	...	...	X.—West Coast.		
...	11	10	4	2	1	...	...	...	10·1	10·7	− 6	71	·552	1·1	0	0	0	0	0·01	− 0·01	0·01	0·14	− 0·13	0	Bombay	Konkan.	37
10	5	7	5	1	...	...	...	...	5·6	9·8	− 43	68	·567	1·0	0	0	0	0	0	0	0	0·22	− 0·22	0	Ratnagiri.		
...	14	3	3	6	1	...	1	...	10·4	P	P	82	·706	0·9	0	P	P	0	P	P	0	P	P	0	Mormugao.		
2	8	3	12	...	2	...	...	1	P	P	P	75	·660	1·0	0	P	P	0	0	0	0	0·25	− 0·25	0	Goa.		
2	2	13	11	...	...	...	...	...	5·5	P	P	86	·663	1·3	0	0	0	0·05	0	+ 0·05	0·05	0·12	− 0·07	0·05	Karwar.		
2	4	13	7	...	...	...	1	1	6·1	P	P	78	·827	2·4	3	1·00	+ 2·00	0·56	0·62	− 0·06	0·98	1·21	− 0·23	0·29	Cochin	Malabar.	33
2	2	13	4	2	...	...	...	5	15·7	P	P	79	·738	2·9	1	0·13	+ 0·87	0·18	0·22	− 0·04	0·18	0·30	− 0·12	0·10	Calicut.		
6	2	4	11	4	...	...	...	1	2·7	3·5	− 23	78	·764	0·9	0	0	0	0·04	0·01	+ 0·03	0·04	0·10	− 0·06	0·03	Mangalore.		
5	5	3	10	3	1	...	...	1	4·3	P	P	83	·770	4·0	3	P	P	1·19	0·51	+ 0·68	1·19	1·15	+ 0·04	0·40	Trivandrum.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·18	0·26	+0·89	...	...	...	...	XI.—South India.		
4	1	9	13	1	...	...	...	...	6·7	P	P	79	·836	2·6	3	0·50	+ 2·50	3·75	0·13	+3·62	3·95	1·93	+2·02	2·35	Pamban.	Madras (South).	57
...	6	3	1	...	1	...	3	14	3·3	P	P	80	·774	4·8	3	1·50	+ 1·50	2·49	P	P	2·66	P	P	1·81	Tinnevelly.		
3	12	3	...	1	1	...	...	8	2·4	5·0	− 52	78	·745	3·4	4	0·45	+ 3·55	3·15	0·31	+2·84	3·18	0·64	+ 2·54	1·65	Madura.		

Table

Abstract of Observations taken at 8 A.M. at 211 Stations

Number of Districts.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
34	Madras (South Central).	Salem	940	29·063	−·048	29·954	29·124	8th	28·973	16th	·151	76·9	94·3	+0·9	69·5	+4·7	81·9	+2·8	24·8	99·4	28th	63·9	3 days	35·5
		Coimbatore	1,348	28·632	−·036	29·939	28·687	8th	28·555	16th	·132	75·1	91·9	−0·1	68·3	+3·3	80·1	+1·6	23·6	95·9	27th	63·6	26th	32·3
35	Coorg	Mercara	3,781	26·277	?	?	26·326	22nd	26·190	16th	·136	68·8	81·6	+0·4	62·1	+4·8	71·9	+2·6	19·5	85·5	26th	57·7	11th	27·8
36	Mysore	Chitaldroog	2,405	27·575	?	29·903	27·633	8th	27·495	16th	·138	76·1	2·6	?	68·3	?	80·5	?	24·3	96·7	22nd	62·9	9th	33·8
		Bangalore	3,021	26·990	−·036	29·922	27·039	8th & 22nd	26·912	16th	·127	71·2	88·5	+3·3	64·7	+5·8	76·6	+4·6	23·8	92·3	21st & 28th.	58·9	7th	33·4
		Hassan	3,091	26·933	?	29·945	26·977	8th	26·891	17th	·086	71·1	88·7	?	61·3	?	75·0	?	27·4	91·9	22nd	53·0	9th	38·9
		Mysore	2,518	27·484	?	29·931	27·536	8th	27·390	16th	·146	73·5	90·8	?	66·6	?	78·7	?	24·2	92·9	24th & 25th.	60·9	7th & 9th.	32·0
56	Madras (East Coast, South).	Negapatam	31	29·949	−·043	29·909	30·002	6th	29·875	16th	·127	80·5	87·2	?	75·5	+4·0	81·4	?	11·7	90·7	24th & 28th.	70·0	3rd & 4th.	20·7
		Cuddalore	12	29·968	?	29·909	30·028	6th	29·889	16th	·139	77·4	86·6	?	72·0	?	79·3	?	14·6	88·3	4 days	68·2	4 days	20·1
		Trichinopoly	255	29·718	−·058	29·910	29·775	22nd	29·631	16th	·144	76·9	92·3	+0·3	71·4	+3·6	81·9	+2·0	20·9	98·6	28th	65·9	4th	32·7
		Madras	22	29·967	−·053	29·920	30·035	8th	29·889	28th	·146	79·2	88·5	+1·9	72·8	+4·8	80·7	+3·4	15·7	94·0	28th	67·5	10th	26·5
55	Madras (East Coast, Central).	Nellore	71	29·895	?	29·901	29·979	8th	29·797	28th	·182	78·1	92·7	?	73·8	?	83·3	?	18·9	99·8	28th	68·1	10th	31·7
		Masulipatam	15	29·971	−·041	29·921	30·048	7th	29·897	28th	·151	78·7	88·9	+2·1	73·1	+5·4	81·0	+3·8	15·8	98·7	28th	65·2	9th & 10th.	33·5
54	Madras (Central)	Cuddapah	433	29·525	−·053	29·900	29·606	8th	29·456	16th	·150	81·6	98·9	+4·5	74·9	+6·7	87·0	+5·6	24·0	105·2	28th	69·0	10th	36·2
		Kurnool	923	29·021	−·061	29·898	29·096	8th	28·946	28th	·150	76·9	98·0	+3·6	71·0	+7·3	84·5	+5·5	27·0	102·2	21st & 28th.	63·8	8th	38·4
		Bellary	1,475	28·481	−·035	29·908	28·550	8th	28·402	16th	·148	78·3	97·8	+3·7	71·9	+7·1	84·9	+5·4	25·9	102·7	22nd	64·2	10th	38·5
52	Madras (East Coast, North).	Rajahmundry	112			Not re	corded.					78·6	93·8	+2·0	73·9	+5·4	83·8	+3·7	19·9	100·0	28th	68·0	10th	32·0
		Cocanada	26	29·966	?	29·927	30·038	8th	29·882	20th & 27th.	·156	77·5	86·2	+2·4	74·8	+5·5	80·5	+4·0	11·4	93·1	28th	69·0	10th	24·1
		Vizagapatam	31	29·940	−·054	29·909	30·016	8th	29·862	27th	·154	79·0	88·8	+2·7	73·5	+4·5	81·2	+3·6	15·3	95·2	27th	66·4	9th	28·8
		Gopalpur	21	29·953	?	29·914	30·036	13th	29·865	20th	·171	77·5	86·1	?	72·2	?	79·2	?	13·9	88·7	27th	68·1	9th & 10th.	20·6
	XII.—Hill Stations.																							
28	Baluchistan	Sharigh	?	25·934 (b)	?	?	26·040	13th	25·690	24th	·350	45·3 (c)	60·8 (c)	?	36·3 (b)	?	48·5	?	24·5	74·0	23rd	25·0	25th	49·0
		Pishin	?			Not re	corded.					?	55·2	?	29·5	?	42·3	?	25·7	70·0	23rd	16·9	25th	53·1
		Quetta	5,502	24·631	−·030	?	24·740	9th	24·450	23rd.	·290	37·7	53·9	+1·7	32·4	+1·0	43·2	+1·4	21·5	69·2	20th & 23rd.	19·3	25th	49·9
		Kalat	?			Not re	corded.					35·6	54·7	?	25·1	?	39·9	?	29·6	71·9	21st	7·6	25th	64·3
		Chaman	4,311	25·692	?	?	25·836	9th	25·484	28th	·352	43·7	55·8	?	37·6	?	46·7	?	18·2	71·3	22nd	22·6	24th	48·7
30	Punjab	Leh	11,503	19·626	?	?	19·767	21st	19·358	25th	·409	7·2	25·4	?	3·8	?	14·6	?	21·6	36·6	25th	−3·0	16th & 18th.	39·6
		Srinagar	5,204	24·977	?	?	25·095	7th & 22nd.	24·673	24th	·422	28·7	37·9	?	24·8	?	31·4	?	13·1	46·0	27th & 28th.	16·6	17th	29·4
		Astor (Kashmir).	?	22·228	?	?	22·393	17th	21·893	24th	·500	22·6	38·3	?	18·4	?	28·4	?	19·9	51·4	12th & 13th.	4·5	17th	46·9
		Minimarg	?	21·314	?	?	21·457	12th	21·068	24th	·389	16·7	31·6	?	11·5	?	21·6	?	20·1	47·3	23rd	2·5	16th	44·8
		Skardu	?	22·964	?	?	23·162	17th	22·623	24th	·539	17·0	34·4	?	10·0	?	22·2	?	24·4	55·9	6th	−4·0	18th	59·9
		Dras	?	20·771	?	?	20·903	21st	20·614	12th	·289	...	...	...	...	...	...	...	...	...	...	...	...	...
		Gilgit	?	24·706	?	?	24·870	7th & 17th.	24·330	24th	·540	39·8	53·0*	?	37·2	?	44·9*	?	15·8	59·8	22nd	32·2	19th & 27th.	27·5
		Chitral	?			Not re	corded.					32·8	48·9	?	30·9	?	39·9	?	18·0	57·5	21st	22·4	2nd	35·1
		Cherat	?	25·713	?	?	25·831	7th	25·408	24th	·423	44·1	51·9	?	40·6	?	46·3	?	11·3	64·3	23rd	34·5	6th	29·8
		Murree	6,344	23·819	+·003	?	23·983	26th	23·581	24th	·402	40·3?	48·5?	+1·0?	33·7?	−0·2?	41·1?	+0·4?	14·8?	59·1?	21st & 22nd.	25·0?	7th	34·1?
		Poo	?			Not re	corded.					?	42·2	?	22·4	?	32·3	?	19·8	55·6	23rd	15·0	15th & 16th.	40·6
		Simla	7,224	23·072	−·008	...	23·156	22nd	22·965	27th	·191	41·0	48·0	+1·0	36·8	+0·8	42·4	+0·9	11·2	58·7	25th	29·7	12th	29·0
25	North-Western Provinces.	Chakrata	6,977	23·295	0	...	23·366	8th	23·197	27th	·169	40·3	52·2	+1·3	37·2	+1·5	44·7	+1·4	15·0	61·8	23rd	28·6	13th	33·2
		Mussooree	6,705	23·490	?	...	23·572	6th	23·385	27th	·187	42·9	51·3	?	38·6	?	45·0	?	12·7	60·2	24th & 25th.	30·5	13th	29·7
		Ranikhet	6,069	24·098	0	...	24·174	6th & 13th.	23·989	27th	·185	45·4	56·7	+1·5	42·0	+1·4	49·4	+1·5	14·7	65·6	25th	31·0	12th	34·6
13	Bengal	Yatung	10,480?			Not re	corded.					?	43·8	?	25·9	?	34·9	?	17·9	51·9	3 days	18·9	13th	33·0

(b) Aneroid uncorrected. (c) Uncorrected. * Mean of 24 days.

I—*continued.*

in India, Burma, etc., in February, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 Jan. to 28th Feb. 1897.	Normal rainfall for period from 1st Jan. to 28th Feb.	Variation from normal of period.	Heaviest rainfall during 24 hours of month.	Station.	Meteorological Province or District.	Number of Districts.
5	...	9	10	1	1	...	...	2	5·9	5·6	+ 5	76	·713	2·3	3	0·09	+ 2·91	1·41	0·30	+ 1·11	1·43	0·61	+ 0·82	0·85	Salem	Madras (South Central).	34
...	8	...	20	...	...	...	6	...	2·4	3·2	− 25	83	·731	5·1	4	0·30	+ 3·70	1·77	0·29	+ 1·48	1·77	0·48	+ 1·29	1·09	Coimbatore.		
20	1	3	4	...	...	...	...	...	4·7	4·0	+ 18	72	·512	3·2	2	0·30	+ 1·70	0·42	0·07	+ 0·35	0·42	0·11	+ 0·31	0·24	Mercara	Coorg.	35
...	2	...	1	3	1	6	9	6	6·3	?	?	53	·482	2·8	0	?	?	0·03	?	?	0·03	?	?	0·03	Chitaldroog	Mysore.	36
...	...	1	5	5	6	6	3	2	7·5	3·6	+108	68	·519	2·5	0	0·18	− 0·18	0·01	0·11	− 0·10	0·02	0·30	− 0·28	0·01	Bangalore.		
...	2	3	6	9	4	3	1	...	2·5	?	?	76	·573	3·5	1	?	?	0·21	?	?	0·22	?	?	0·13	Hassan.		
3	1	5	3	2	2	5	4	3	7·5	?	?	75	·616	2·3	3	?	?	1·04	?	?	1·04	?	?	0 52	Mysore.		
6	...	8	1	4	...	2	...	7	10·3	3·6	+186	82	·849	4·5	3	0·55	+ 2·45	3·24	0·53	+ 2·71	3·24	1·99	+ 1·25	1·40	Negapatam	Madras (East Coast, South).	56
...	3	...	...	...	4	3	8	10	1·1	?	?	90	·853	2·3	5	0·40	+ 4·60	3·49	?	?	3·49	?	?	2·23	Cuddalore.		
25	1	2	...	...	...	...	...	...	2·6	4·1	− 37	83	·769	3·7	3	0	+ 3·00	2·23	0·90	+ 1·33	2·28	1·16	+ 1·12	1·60	Trichinopoly.		
3	1	1	2	3	9	7	2	...	5·4	5·0	+ 8	84	·851	3·4	2	0·09	+ 1·91	0·53	0·28	+ 0·25	0·99	1·17	− 0·18	0·31	Madras.		
15	...	1	...	11	1	...	...	...	5·5	?	?	89	·853	4·2	2	0·20	+ 1·80	0·30	?	?	3·58	?	?	0·20	Nellore	Madras (East Coast, Central).	55
9	3	3	1	5	6	...	...	1	6·5	5·1	+ 27	86	·846	4·0	0	0·27	− 0·27	0·09	0·17	− 0·08	0·09	0·29	− 0·20	0·09	Masulipatam		
...	...	9	3	11	3	1	1	...	?	?	?	63	·681	1·8	0	0·10	− 0·10	0·02	0·06	− 0·04	0·09	0·08	+ 0·01	0·02	Cuddapah	Madras (Central)	54
21	...	...	5	1	...	1	...	...	?	?	?	60	·556	1·2	1	0	+ 1·00	0·12	0	+ 0·12	0·12	0·08	+ 0·04	0·12	Kurnool.		
12	...	...	...	3	3	2	2	6	4·0	4·0	0	49	·476	2·9	0	0·09	− 0·09	0	0·04	− 0·04	0	0·17	− 0·17	0	Bellary.		
9	8	2	7	1	1	...	...	...	?	?	?	74	·730	4·1	1	0·30	+ 0·70	0·75	0·17	+ 0·58	0·75	0·25	+ 0·50	0·75	Rajahmundry	Madras (East Coast, North).	52
...	5	4	1	1	3	1	2	11	8·1	?	?	76	·745	3·8	2	0·40	+ 1·60	1·59	0·43	+ 1·16	1·59	0·57	+ 1·02	1·38	Cocanada.		
22	...	...	...	1	...	...	3	2	1·9	2·0	− 5	79	·792	3·0	0	0·18	− 0·18	0	0·11	− 0·11	0·14	0·30	− 0·16	0	Vizagapatam.		
1	6	1	...	...	2	8	2	8	14·6	9·6	+ 52	78	·729	1·1	2	1·13	+ 0·87	0·55	0·57	− 0·02	0·55	0·73	− 0·18	0·38	Gopalpur.		
																									XII.—Hill Stations.		
11	9	...	...	2	...	...	...	6	3·9	?	?	60	·181	1·5	4	?	?	1·75	?	?	2·82	?	?	0·75	Sharigh	Baluchistan.	48
Not recorded.									?	?	?	?	?	?	0	?	?	0	?	?	(a) 0	?	?	0	Pishin.		
21	1	1	1	2	2	...	...	...	5·4	4·4	+ 23	72	·159	2·6	5	4·09	+ 0·91	1·60	2·21	− 0·61	4·28	4·32	− 0·04	0·63	Quetta.		
...	...	...	...	...	17	6	5	...	?	?	?	71	·148	2·6	3	?	?	1·19	?	?	2·81	?	?	0·47	Kalat.		
...	...	1	5	8	8	4	1	1	9·2	?	?	63	·174	3·1	6	?	?	1·97	?	?	4·57	?	?	0·75	Chaman.		
...	...	18	4	3	1	2	...	...	0·7	?	?	42	·026	5·5	1	?	?	0·27	?	?	1·18	?	?	0·13	Leh	Punjab.	39
11	2	1	...	6	6	...	...	2	5·5	?	?	94	·147	5·3	6	?	?	1·38	?	?	7·56	?	?	0·32	Srinagar.		
11	...	...	...	...	8	9	...	...	3·9	?	?	69	·088	4·6	6	?	?	1·47	?	?	4·28	?	?	0·46	Astor (Kashmir).		
10	2	3	7	6	...	...	...	...	6·3	?	?	96	·091	5·6	6	?	?	2·82	?	?	7·11	?	?	1·10	Minimarg.		
18	...	3	1	...	1	1	4	...	1·4	?	?	100	·099	5·6	3	?	?	0·48	?	?	2·96	?	?	0·16	Skardu.		
27	1	...	...	...	...	...	...	...	0·2	?	?	?	?	5·2	5	?	?	1·74	?	?	8·92	?	?	0·48	Dras.		
Not recorded.									?	?	?	53	·128	7·1	1	?	?	0·15	?	?	0·68	?	?	0·11	Gilgit.		
...	3	10	1	5	2	2	1	4	?	?	?	84	·158	5·1		?	?	2·94	?	?	7·82	?	?	2·00	Chitral.		
4	10	...	...	2	1	...	...	11	19·4	?	?	58	·163	3·3	4	?	?	2·47	?	?	5·04	?	?	0·91	Cherat.		
3	1	...	6	15	2	...	...	1	10·7	8·2	+ 30	52	·126	5·3	3	3·36	− 0·36	3·13	3·73	− 0·60	7·28	7·25	+ 0·03	2·26	Murree.		
6	2	1	4	3	2	3	6	1	?	?	?	?	?	3·7	?	?	?	2·10	?	?	6·03	?	?	0·40	Poo.		
8	2	5	1	4	5	2	...	...	5·2	2·5	+108	43	·105	2·6	4	4·36	− 0·36	1·69	2·68	− 0·99	6·88	5·03	+ 1·85	0·98	Simla.		
15	10	3	...	...	...	...	...	...	8·9	5·4	+ 65	55	·133	2·8	5	?	?	3·78	3·81	− 0·03	9·68	7·34	+ 2·34	2·20	Chakrata	North-Western Provinces.	25
...	4	...	14	2	...	...	...	8	?	?	?	55	·148	2·2	4	3·50	+ 0·50	2·10	?	?	6·78	?	?	1·13	Mussooree.		
9	2	6	3	2	3	1	1	1	2·8	2·0	+ 40	62	·187	2·8	2	4·09	− 2·09	2·33	1·95	+ 0·38	4·33	4·89	− 0·56	1·67	Ranikhet.		
Not recorded.									?	?	?	?	?	?	0	?	?	0	?	?	0·61	?	?	0	Yatung	Bengal.	13

(a) Only for February.

Table

Abstract of Observations taken at 8 A.M. at 211 Stations

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 of month.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
	Darjeeling	7,421	22·934	—·008	?	23·028	12th	22·842	20th	·186	41·1	48·8	+2·6	36·5	+2·4	42·7	+2·5	12·3	58·6	27th	33·0	20th	25·6
	Gantok	5,660?	24·439	P	?	24·587	11th	24·278	20th	·209	47·3	57·2	?	34·3	?	45·8	P	22·9	66·5	27th	29·8	2nd	36·7
Central India	Mount Abu	3,945	26·081	—·036	P	26·149	22nd	25·982	24th	·167	57·6	67·8	−1·1	51·8	−1·4	59·8	−1·3	16·0	76·1	22nd	45·1	25th	31·0
	Pachmarhi	3,528	26·496	—·033	P	26·566	22nd	26·437	28th	·129	62·8	77·4	+2·3	53·2	+2·5	65·3	+2·4	24·2	85·7	25th	44·8	26th	40·9
South India	Wellington*	6,200	24·285	—·027	P	24·345	22nd	24·229	16th	·116	58·6	72·6	+2·4	50·6	+4·2	61·6	+3·3	22·0	75·2	28th	40·7	8th	34·5
XIII.—Extra India.																								
Ceylon	Trincomalee	12	29·951	P	29·889	30·008	22nd	29·884	16th	·124	78·6	85·8	P	76·0	P	80·9	P	9·8	88·0	6 days	70·5	27th	17·5
	Colombo	40	29·919	—·035	29·885	29·973	22nd	29·848	14th	·125	79·6	88·7	P	75·0	P	81·9	P	13·7	94·5	11th	71·0	5th	23·5
Persia	Meshed	3,104			Not recorded.						32·3	P	P	27·6	P	P	P	P	P	P	1·5	24th	P
	Resht (*b*)				Not recorded.						38·6	50·0	P	33·4**	?	41·3**	?	16·6	60·4	16th	20·8	9th	39·6
	Teheran	P§	26·005 25·455	P	P	26·320 25·730	23rd 23rd	25·635 25·130	4th 4th	·685 ·600	35·5	50·2	?	30·7	?	40·4	?	19·5	60·2	13th	22·3	23rd	37·9
	Ispahan	P§	24·340 24·622	P	P	24·600 24·890	15th 15th	24·020 24·320	4th 4th	·580 ·570	34·5	52·2	P	27·5	?	39·8	?	24·7	63·1	12th	11·1	24th	52·0
	Bushire	14	30·105	+·030	30·078	30·359	23rd	29·831	3rd	·528	56·1	63·0	−3·0	51·5	−1·0	57·2	−2·0	11·5	72·6	13th	45·3	4 days	27·3
	Jask	P	30·062	P	30·014	30·212	24th	29·870	4th	·342	64·7	73·8	P	61·3†	P	67·6†	P	12·5	80·3	21st	53·8	24th	26·5
Arabia	Muscat	20	30·066	P	30·034	30·217	24th	29·891	4th	·326	68·9	71·8	P	66·8	P	69·3	P	5·0	77·4	21st	63·1	25th	14·3
	Baghdad	220?	29·966	+·003	30·179	30·337	23rd	29·485	3rd	·852	46·6	61·5	−4·1	42·5	+2·2	52·0	−1·0	19·0	69·6	12th	33·5	21st	36·1
	Aden	94	29·952	—·003	29·979	30·039	23rd	29·873	3rd	·166	76·5	81·7	−0·7	74·4	+1·4	78·1	+0·4	7·3	84·3	22nd	69·9	19th	14·4
	Perim	P	29·814	P	P	29·909	23rd	29·726	1st & 2nd.	·183	77·0	83·4	P	74·5†	P	78·9†	P	8·9	84·7	11, 12 & 25th	72·6	17th	12·1
Afghanistan	Kabul	P			Not recorded.						21·6	40·5	P	15·6	P	28·0	P	24·9	49·2	7th	6·4	13th	42·8
Central Asia	Kashgar	P	25·714‡	P	P	25·941	10th	25·538	28th	·403	24·2	36·1	P	21·0	P	28·6	P	15·1	50·5	22nd	12·3	1st	38·2
Africa	Zanzibar	23	29·927	P	29·927	30·060	24th	29·871	13th	·129	82·1	86·9	P	80·1	P	83·5	P	6·8	90·6	16th	75·8	15th	14·8

* Mean of 24 days.
§ Aneroid uncorrected.

† Mean of 27 days.
** Mean of 25 days.

‡ Barometer aneroid corrected.
(*b*) 9 A.M. observations.

I—*concluded.*

in India, Burma, etc., in February, 1897—concluded.

Wind Direction. Number of winds from									Wind Velocity.			Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.											
Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean velocity in miles per hour.	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 Jan. to 28th February 1897.	Normal rainfall for period from 1st Jan. to 28th February.	Variation from normal of period.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
2	1	2	10	5	1	3	2	2	5·9	5·1	+ 16	87	·225	2·6*	0	2·65	−2·65	0·04	0·95	−0·91	0·45	1·61	−1·16	0·03	Darjeeling.	
7	2	5	4	2	1	...	4	...	0·6*	?	?	81	·264	...	1	?	?	0·75	?	?	1·26	?	?	0·59	Gantok.	
4	2	8	2	2	...	4	2	4	7·2	5·6	+ 28	41	·192	1·6	0	0·36	−0·36	0	0·36	−0·36	0·37	0·78	−0·41	0	Mount Abu	Central India.
24	...	...	...	...	1	...	2	1	6·8	3·8	+ 79	65	·373	2·1	0	0·82	−0·82	0·04	0·45	− 0·41	4·45	0·96	+3·49	0·03	Pachmarhi.	
19	1	1	1	1	...	...	...	1	2·3	2·7	− 15	77	·388	3·8	7	0·50	+6·5	2·96	1·53	+ 1·43	3·02	2·57	+0·45	1·37	Wellington(c)	South India.
																									XIII.—Extra India.	
12	1	3	...	...	2	10	...	...	1·1	?	?	89	·866	3·2	3	?	?	4·62	2·10	+2·52	15·72	7·36	+8·36	4·12	Trincomalee	Ceylon.
...	2	3	12	9	1	...	...	1	6·1	6·2	− 2	83	·851	3·3	6	?	?	1·68	2·63	−0·95	5·52	5·55	−0·03	0·36	Colombo.	
?	?	?	?	?	?	?	?	?	?	?	?	85 (a)	·159 (a)	6·3	0	?	?	0·21	?	?	1·36	?	?	0·08	Meshed	Persia.
			Not	recorded.					?	?	?	91	·215	?	16	?	?	6·95	?	?	13·35		?	0·82	Resht.	
11	4	5	4	...	...	2	1	1	4·1	?	?	?	?	3·5	2	?	?	0·87	?	?	3·43	?	?	0·65	Teheran.	
4	1	2	1	1	1	2	8	8	5·3	?	?	90	·188	3·1	2	?	?	0·49	?	?	0·68	?	?	0·22	Ispahan.	
1	7	4	3	8	...	1	...	4	8·9	?	?	70	·321	2·6	3	?	?	1·21	?	?	5·62	?	?	0·53	Bushire.	
2	11	4	3	...	...	...	...	8	8·6	?	?	78	·485	1·7	2	?	?	1·14	?	?	1·67	?	?	1·04	Jask.	
..	1	1	...	3	2	3	11	7	3·7†	?	?	69	·486	2·9	2	?	?	0·63	?	?	1·13	?	?	0·38	Muscat.	Arabia.
5	7	1	1	3	3	...	2	6	4·7	?	?	79	·260	0·6	3	?	?	2·31	?	?	3·06	?	?	0·97	Baghdad.	
2	1	3	17	3	1	...	.	1	9·4†	12·9	−27	77	·701	7·0	0	?	?	0·03	0·33	−0·30	0·07	0·61	−0·54	0·01	Aden.	
3	..	2	19	2	...	...	...	2	12·8	?	?	78	·726	6·3	1	?	?	0·44	?	?	0·69	?	?	0·14	Perim.	
...	...	1	8	2	7	1	5	1	?	?	?	?	?	3·2	7	?	?	3·30	?	?	6·80	?	?	0·90	Kabul¶	Afghanistan.
19	...	...	...	...	...	...	...	...	0·3	?	?	?	?	7·2	1	?	?	0·26	?	?	0·58	?	?	0·17	Kashgar ‡‡.	Central Asia
...	16	5	...	...	2	2	2	1	5·0	?	?	82	·894	5·7	5	?	?	2·71	?	?	4·31	?	?	0·94	Zanzibar	Africa.

¶ Wind observations of 25 days.
‡‡ Do. of 19 ,,
(c) ,, ,, 24 ,,

(a) Mean of 23 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 84

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Burma Coast and Bay Islands.	Port Blair	...	29·929	29·820	·109	29·870	−·017	29·861	89·7	76·7†	13·0	92·0	71·3	20·7	85·2	87·8	82·2†	+ 2·3	73·5	77·9	79·0	76·8
	Rangoon	...	·961	·805	·156	·879	−·030	·857	94·5	68·6	25·9	99·3	61·8	37·5	81·3	91·4	79·1	+ 2·7	66·0	72·5	72·6	70·4
	Diamond Island	...	·960	·843	·117	·897	−·035	·873	85·1	75·8	9·3	87·3	72·3	15·0	83·0	82·4	79·3	+ 2·7	72·0	74·4	73·9	73·4
	Cocos Island	111	·868†	·769†	·099	·815	−·045	·858**	86·6**	76·1†	10·5	89·1	72·6	16·5	82·8‡	82·8‡	79·9**	+ 3·2	71·7†	75·0†	74·0†	73·9
	Akyab	...	·994	·872	·122	·925	−·029	·888	86·5	65·2	21·3	91·8	57·0	34·8	78·3	82·5	75·4	+ 3·1	62·6	71·1	73·5	69·2
Assam.	Silchar	...	·919	·777	·142	·844	−·042	·901	83·3	57·0	26·3	89·5	49·5	40·0	72·0	80·9	69·1	+ 2·1	55·6	61·7	65·3	67·9
	Sibsagar	...	·696	·554	·142	·623	−·039	·923	74·0	53·9	20·1	81·5	49·1	32·4	64·4	72·2	62·4	+ 1·0	53·8	60·6	63·2	59·2
	Dhubri	...	·906	·753	·153	·826	−·038	·898	79·7	55·1‡	24·6	87·2	49·0	38·2	67·8	78·7	65·8‡	+ 1·1	52·8	60·0	62·0	58·3
Bengal and Orissa.	Chittagong	...	·925	·808	·117	·860	−·043	·896	85·0	62·6	22·4	92·3	52·2	40·1	77·6	81·4	73·4	+ 3·3	61·0	69·4	69·8	66·7
	Narayangunge	...	·984	·856	·128	·913	−·037	·888	83·5	61·5	22·0	89·7	53·9	35·8	74·4	81·9	72·4	+ 2·5	58·5	66·1	65·3	63·3
	Calcutta (Alipore)	...	·993	·867	·131	·922	−·031	·888	82·6	63·8	18·8	91·6	53·2	38·4	74·1	81·2	72·4	+ 2·4	60·5	65·3	66·3	64·0
	Saugor Island	...	·980	·859	·121	·907	−·042	·876	82·0	70·0	12·0	84·8	56·7	28·1	77·1	79·9	75·0	+ 3·0	67·2	72·3	72·1	70·5
	Burdwan	...	·920	·782	·138	·838	−·041	·886	86·2	61·2	25·0	95·9	54·4	41·5	76·2	84·7	72·8	+ 2·7	56·1	62·5	65·4	61·3
	Berhampore	...	·916	·808	·138	·864	−·037	·880	84·2	56·8	27·4	93·2	50·5	42·7	74·4	83·6	69·8	+ 1·4	52·5	61·9	64·1	59·5
	False Point	...	·980	·865	·115	·920	−·054	·881	84·6	71·0	13·6	88·7	62·8	25·9	81·5	81·6‡	76·6	+ 4·5	68·7‡	74·3	74·3	72·4
	Cuttack	...	·913	·768	·145	·841	−·056	·863	92·4	70·4	22·0	98·3	64·7	34·6	79·8	90·0	80·0	+ 4·3	67·4	71·8	71·1	70·1
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·938	27·855	·113	27·908	−·031	·887	78·6	56·7	21·9	91·8	49·9	41·9	69·9	76·3	67·0	+ 1·4	51·0	57·3	60·7	56·3
	Patna	...	29·823	29·698	·125	29·755	−·045	·894	81·6	55·9	25·7	91·2	51·1	40·1	72·0	80·2	68·3	+ 3·1	50·4	59·5	61·6	57·2
	Darbhanga	...	·833	·702	·136	·764	−·049	·888	80·1	53·8	26·3	88·1	48·8	39·3	69·8	79·3	66·7	+ 1·8	51·4	59·2	61·7	57·4
	Allahabad	...	·714	·583	·131	·639	−·038	·908	83·0	54·3	28·7	95·6	47·4	48·2	72·4	82·1	67·9	+ 2·6	48·7	57·2	59·9	55·3
	Lucknow	...	·645	·524	·121	·578	−·036	·912	81·4	52·2	29·2	93·2	46·2	47·0	70·3	79·6	66·6	+ 1·4	47·9	56·8	59·2	54·6
Upper Sub-Himalayas.	Dehra Dun	...	27·728	27·636	·092	27·675	−·031	·928	70·7	46·2	24·5	82·6	40·1	42·5	60·6	66·9	56·9	− 0·5	43·0	51·7	53·5	49·4
	Roorkee	...	29·085	28·984	·101	29·027	−·041	·909	75·7	46·4	29·3	88·8	41·4	47·4	63·8	73·6	59·9	+ 0·1	44·7	53·9	56·2	51·6
	Meerut	...	·253	29·149	·104	·195	−·037	·921	77·5	49·7	27·8	90·7	44·3	46·4	65·6	75·2	62·6	+ 1·8	46·3	53·4	56·0	51·9
	Lahore	...	·301	·220	·081	·250	−·034	·954	70·0	48·3	21·7	82·8	44·1	38·7	59·4	69·8	58·5	+ 1·8	45·1	52·7	56·3	51·4
	Ludhiana	...	·185	·100	·085	·134	−·024	·949	71·0	48·3	22·7	83·7	42·5	41·2	61·5	69·0	58·6	+ 1·0	46·1	54·4	57·0	52·5
Indus Valley and N.-W. Rajputana.	Peshawar	...	28·930	28·847	·083	28·879	−·027	30·024	65·8	44·4	21·4	75·0	39·7	35·3	58·1	63·8	54·0	+ 1·5	41·8	50·5	52·7	48·3
	Mooltan	...	29·605	29·496	·109	29·541	−·043	29·947	75·9	48·6	27·3	87·5	43·4	44·1	62·4	74·1	61·2	+ 2·6	44·2	53·2	58·1	51·8
	Jacobabad	...	·875	·743	·132	·799	−·022	·950	77·8	47·9	30·0	91·5	35·1	56·4	66·1	76·4	61·8	0	43·4	53·7	57·8	51·6
	Kurrachee	...	30·070	·953	·117	30·003	−·014	·965	79·3	57·2	22·1	86·0	47·3	38·7	72·0	76·9	67·7	− 0·5	52·1	60·4	63·5	58·7
E. Rajputana, Central India, and Gujarat.	Jeypore	...	28·587	28·477	·110	28·522	−·020	·938	80·2	50·9	29·3	91·9	44·9	47·0	70·5	78·6	65·2	+ 1·9	44·7	55·9	59·8	53·5
	Ajmere	...	·398	·285	·113	·338	−·033	·944	78·8	49·2	29·6	89·6	40·9	48·7	66·7	77·7	64·0	+ 1·8	43·7	53·5	59·1	52·1
	Deesa	...	29·560	29·431	·129	29·486	−·020	·913	86·1	53·4	32·7	92·8	44·0	48·8	75·0	84·5	69·5	− 1·0	45·2	57·8	60·1	54·4
	Nowgong	...	·253	·135	·118	·186	−·039	·916	79·6	53·0	26·6	95·0	45·9	49·1	70·3	79·2	66·0	+ 1·1	48·1†	57·3	60·9	55·4
	Agra	...	·465	·346	·119	·397	−·039	·927	80·2	52·1	28·1	96·2	47·8	48·4	68·9	78·2	65·4	+ 1·1	46·1	56·5	59·9	54·2
Deccan.	Belgaum	...	27·456	27·327	·129	27·387	−·028	·791	91·7	61·1	30·6	96·3	53·8	42·5	81·4	87·6	74·8	+ 2·0	56·6	61·0	65·0	60·9
	Sholapur	...	28·378	28·221	·157	28·294	−·054	·800	97·3	65·6	31·7	101·1	57·5	43·6	84·7	95·8	81·8	+ 3·7	55·8	64·5	70·2	63·5
	Poona	...	·139	27·999	·140	·068	−·033	·824	94·5	58·8	35·7	100·4	53·1	47·3	80·7	91·9	76·1	+ 3·0	52·3	60·1	63·3	58·6
	Akola	...	29·033	28·885	·148	·953	−·060	·830	95·0	60·8	34·2	99·6	53·7	45·9	81·5	93·5	77·2	+ 4·1	50·9	61·1	65·9	59·3
	Buldana	2,132	27·845	27·718	·127	27·775	−·039	·833	89·2	64·6	24·6	95·0	59·5	35·5	78·4	87·9	76·2	+ 3·0	51·3	57·4	60·8	56·5
	Khandwa	...	28·938	28·800	·138	28·863	−·034	·860	91·3	59·2	32·1	98·7	50·6	48·1	79·5	90·8	74·9	+ 3·6	48·6	59·4	62·9	57·0

† Mean of 27 days. ‡ Mean of 19 days. ** Mean of 26 days.

II.

Stations in India, Burma, etc., for February, 1897.

Vapour Tension. From minimum.	Vapour Tension. Mean 10 hours.	Vapour Tension. Mean 16 hours.	Vapour Tension. Mean daily.	Vapour Tension. Variation from normal.	Humidity. From minimum.	Humidity. Mean 10 hours.	Humidity. Mean 16 hours.	Humidity. Mean daily.	Humidity. Variation from normal.	Cloud. Mean 10 hours.	Cloud. Mean 16 hours.	Cloud. Mean daily.	Cloud. Variation from normal.	Wind Direction. Number of winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Steadiness. Average percentage.	Steadiness. Normal percentage.	Velocity. Mean velocity in miles per diem.	Velocity. Normal.	Rainfall. Total rainfall for the month.	Rainfall. Heaviest rainfall during the month.	Station.	Meteorological Province.
																									%	%						
·786†	·859	·875	·840	+·030	86†	71	66	74	−2	3·1	3·4	3·3	+0·5	...	9	19	12	10	2	...	...	4	N. 61° E.	N. 45° E.	61	74	127	121	...	...	Port Blair	Burma Coast and Bay Islands.
·609	·683	·553	·615	+·041	37	64	38	63	0	1·3	2·1	1·7	−0·2	...	8	11	9	8	6	4	6	4	N. 68° E.	S. 45° W.	20	17	82	91	...	...	Rangoon	
·737	·737	·727	·734	+·056	82	65	65	71	−1	2·8	3·0	2·9	+0·7	...	7	8	1	2	...	1	7	30	N. 33° W.	N. 32° W.	68	85	312*	195	...	...	Diamond Island.	
·722†	·764†	·761†	·749	+·075	80†	68†	68†	72	+2	2·3†	1·9†	2·1	+0·1	...	27	4	3	3	...	...	1	16	N. 6° W.	N. 9° E.	67	89	?	377	0·02	0·02	Cocos Island	
·542	·663	·726	·644	+·121	86	67	65	73	+5	2·1	2·3	2·2	+1·1	...	4	18	10	...	...	1	9	13	N. 8° E.	N. 25° W.	46	47	83*	85	...	...	Akyab §	
·429	·515	·417	·454	+·010	92	66	41	66	−4	4·1	4·5	4·3	+1·0	36	1	...	...	1	3	9	4	2	S. 56° W.	S. 25° E.	25	24	53*	56	...	...	Silchar	Assam.
·418	·482	·462	·454	+·001	100	79	59	79	−2	5·4	4·5	5·0	−0·3	6	2	46	...	1	1	...	...	...	N. 46° E.	N. 56° E.	84	53	99*	52	...	...	Sibsagar	
·375†	·417	·336	·376	−·018	86†	62	36	61	−5	1·4	1·6	1·5	−0·4	4	2	11	10	1	1	21	6	...	N. 16° W.	S. 16° E.	16	14	113*	101	...	...	Dhubri	
·522	·614	·573	·570	+·061	91	65	55	70	0	3·6	2·7	3·2	+1·3	...	5	7	4	9	5	10	8	8	S. 62° W.	N. 43° W	11	29	79*	93	...	...	Chittagong	Bengal and Orissa.
·457	·536	·403	·465	+·016	82	64	39	62	−2	2·6	2·9	2·8	+0·7	...	4	4	5	6	5	7	14	11	N. 89° W.	S. 75° W.	27	36	86	67	...	...	Narayanganj.	
·492	·515	·454	·487	+·019	83	62	45	63	−2	3·6	2·4	3·0	+1·1	1	7	8	6	3	2	4	15	10	N. 41° W.	S. 89° W.	30	25	81	80	...	...	Calcutta (Alipore).	
·638	·735	·691	·688	+·075	86	79	68	78	+3	5·3	2·6	4·0	+1·8	...	13	5	1	5	13	10	3	6	S. 66° W.	S. 52° W.	12	18	235	206	...	...	Saugor Island.	
·390	·386	·376	·384	−·011	72	44	34	50	−6	3·4	2·2	2·8	+0·8	10	7	2	7	1	...	5	12	12	N. 50° W.	N. 54° W.	36	41	41*	51	...	...	Burdwan.	
·346	·390	·343	·360	−·037	74	47	32	51	−12	2·2	2·4	2·3	+0·3	21	4	1	2	...	3	9	9	7	N. 89° W.	N. 76° W	32	48	42*	56	...	...	Berhampore	
·678†	·757	·754	·730	+·102	89†	70	70	76	−2	4·7	3·6	4·2	+1·5	...	4	4	8	7	19	7	3	4	S. 15° E.	S. 12° E.	36	17	228*	191	...	...	False Point	
·641	·676	·514	·610	+·094	85	66	33	63	+2	3·0	2·6	2·8	+0·9	2	7	6	9	7	7	12	4	2	S. 28° E.	S. 7° W.	16	7	62	51	...	...	Cuttack	
·309	·319	·341	·323	+·070	66	45	39	50	+8	2·8	4·0	3·4	+1·1	2	9	1	9	1	2	2	11	19	N. 40° W.	N. 62° W	43	55	188	172	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·299	·347	·303	·316	−·037	65	45	31	47	−10	1·5	1·9	1·7	−0·8	4	...	...	3	4	2	2	31	10	N. 89° W.	N. 80° W.	61	51	51*	78	...	...	Patna	
·354	·365	·319	·346	−·036	85	50	34	56	−7	1·0	1·3	1·2	−0·4	1	3	1	5	4	1	8	23	10	N. 87° W.	S. 78° W.	48	47	95	90	...	...	Darbhanga	
·275	·273	·224	·257	−·073	64	35	22	40	−16	1·8	2·2	2·0	−0·2	2	7	6	6	3	1	1	17	13	N. 41° W.	N. 63° W.	39	34	85	78	...	...	Allahabad	
·283	·288	·237	·269	−·034	72	39	24	45	−7	1·6	1·9	1·8	−1·2	6	3	2	3	...	2	...	33	7	N. 78° W.	N. 42° W.	61	44	61*	75	...	...	Lucknow	
·239	·278	·217	·255	−·028	77	54	39	57	−5	2·7	3·0	2·9	−1·4	12	2	2	1	1	4	12	16	6	S. 78° W.	S. 88° W.	46	28	28	43	...	...	Dehra Dun	Upper Sub-Himalayas.
·277	·288	·224	·263	−·028	88	49	29	55	−6	1·8	2·5	2·2	−1·2	20	1	1	1	2	...	2	...	29	N. 44° W.	N. 61° W.	48	31	42	68	...	...	Roorkee	
·273	·250	·197	·240	−·054	76	41	24	47	−11	2·8	2·2	2·5	−0·4	13	1	...	1	3	1	2	23	12	N. 81° W.	N. 59° W.	53	50	65*	61	...	...	Meerut	
·261	·312	·275	·283	+·001	78	63	40	60	+2	2·2	2·3	2·3	−1·4	5	11	2	6	3	4	...	14	11	N. 41° W.	N. 31° W.	34	31	59	54	...	...	Lahore	
·284	·333	·309	·309	+·006	84	62	45	61	0	2·2	3·1	2·7	−1·6	23	5	7	...	...	1	2	2	16	N. 28° W.	N. 50° W.	37	40	28	44	...	...	Ludhiana	
·234	·271	·267	·258	+·025	80	58	48	62	+4	4·1	4·8	4·5	+0·1	19	3	5	7	3	3	4	5	7	N. 2° W.	N. W.	5	9	74*	82	...	...	Peshawar	
·236	·286	·273	·265	−·009	70	53	34	52	−2	1·9	2·1	2·0	−0·9	15	1	12	...	11	3	8	2	4	S. 54° E.	N. 2° E.	12	16	29*	44	...	...	Mooltan	Indus Valley and N.-W. Rajputana.
·231	·254	·236	·240	+·009	68	42	28	46	+4	2·3	2·8	2·6	−0·8	12	4	9	10	2	4	2	4	9	N. 19° E.	N. 21° E.	38	24	88*	71	...	...	Jacobabad	
·337	·382	·421	·380	−·029	69	48	46	54	−4	1·0	1·4	1·2	−1·6	2	3	9	6	2	3	14	13	4	S. 80° W.	N. 69° W.	22	20	208*	249	...	...	Kurrachee	
·222	·271	·288	·260	+·004	58	36	29	41	−2	1·8	2·6	2·2	−0·8	1	4	8	4	4	4	7	12	12	N. 64° W.	N. 18° W.	25	34	79	93	...	...	Jeypore	East Rajputana, Central India and Gujarat.
·222	·249	·275	·249	−·019	62	38	29	43	−3	1·5	1·7	1·6	−0·7	8	1	15	1	3	5	5	6	12	N. 25° W.	N. 82° W.	18	10	66	69	...	...	Ajmere	
·198	·254	·198	·217	−·012	48	29	17	31	+1	0·4	0·8	0·6	−1·8	...	8	20	7	...	1	1	7	12	N. 10° E.	N. 2° W.	52	30	223	211	...	...	Deesa	
·283†	·303	·295	·294	+·003	71†	41	30	47	−3	1·5	2·2	1·9	−1·1	1	6	7	17	...	2	3	11	9	N. 10° E.	N. 59° W.	25	37	52*	44	...	...	Nowgong	
·236	·294	·277	·269	−·018	61	42	29	44	−5	1·2	2·4	1·8	−0·7	...	...	7	...	5	...	11	...	33	N. 53° W.	N. 67° W.	50	41	139*	99	...	...	Agra	
·406	·285	·339	·343	+·015	75	27	26	43	+4	0·9	0·9	0·9	−0·3	...	5	6	6	6	6	5	13	9	N. 78° W.	S. 62° E.	15	14	253	237	...	...	Belgaum	
·328	·361	·420	·370	+·050	52	30	25	36	+1	0·4	1·5	1·0	−0·5	4	9	8	2	4	3	12	2	12	N. 44° W.	S. 43° E.	22	24	182*	174	...	...	Sholapur	Deccan.
·313	·288	·227	·269	−·015	64	26	15	35	+1	0·7	0·9	0·8	−0·7	1	...	...	...	7	...	13	23	12	S. 81° W.	N. 67° W.	65	27	259*	149	...	...	Poona	
·247	·271	·270	·263	−·029	46	25	17	29	−8	1·0	1·4	1·2	−0·3	3	10	2	5	4	...	3	7	22	N. 26° W.	N. 14° W.	63	23	123	98	...	...	Akola	
·217	·217	·198	·211	−·066	36	22	15	25	−9	1·0	1·9	1·5	−0·3	1	5	4	1	3	2	3	4	33	N. 43° W.	N. 17° W.	61	27	146	147	Nil	Nil	Buldana	
·215	·261	·229	·235	−·072	42	26	16	28	−12	0·6	0·8	0·7	−0·7	1	7	14	1	3	...	2	4	24	N. 17° W.	N. 14° W.	57	31	122	93	...	...	Khandwa	

* Corrected.

Wind obs. of 55 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 84

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° l.at.	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.
Deccan—*concld.*	Hoshangabad	...	28·986	28·836	·150	28·905	−·042	29·875	87·9	58·8	29·1	95·8	50·8	45·0	74·2	87·6	73·1	+ 2·8	50·5	59·3	64·9	58·2
	Nagpur	...	·938	·789	·149	·858	−·053	·832	93·8	64·9	28·9	100·1	59·0	41·1	80·4	92·0	78·6	+ 4·9	57·9	68·4	74·3	66·9
	Nagpur (Sanitary Commissioner's Office).	...	·965	·814	·151	·884	?	·849	94·8	64·5	30·3	100·5	59·9	40·6	80·9	93·2	79·3	?	56·1	64·0	68·2	62·8
	Jubbulpore	...	28·654	·528	·126	·585	−·043		83·9	55·4	28·5	95·2	46·1	49·1	72·4	82·5	69·1	+2·8	52·4	59·7	63·6	58·6
	Saugor	...	·179	·055	·124	·111	−·030	·881	82·9	59·0	23·9	94·3	51·5	42·8	72·7	81·3	70·4	+2·9	48·7	56·0	60·4	55·0
	Sutna	...	·951	·832†	·119	·884	−·011	·900†	81·2	55·5	25·7	94·5	48·1	46·4	72·8	80·4	67·7	+3·2	49·1	57·0	60·4	55·5
	Raipur	...	29·002	·863	·139	·927	−·058	·834	89·7	64·6	25·1	97·2	59·1	38·1	78·7	88·5	76·6	+4·5	57·8	63·6	66·7	62·7
	Hyderabad (Deccan).	...	28·285	·146	·139	·210	−·046	·817	94·4	69·4	25·0	99·0	62·2	36·8	84·4	92·3	81·4	+5·3	64·1	69·9	70·9	68·3
West Coast.	Bombay	...	29·981	29·863	·118	29·913	−·012	·891	81·4	68·1	13·3	83·6	63·3	20·3	75·6	78·5	74·3	−0·8	62·5	66·8	69·4	66·2
	Ratnagiri	...	·887	·775	·112	·822	−·012	·870	84·4	68·6	15·8	87·7	64·3	23·4	80·5	81·9	76·2	0	64·1	70·2	72·1	68·8
	Karwar	...	·964	·841	·123	·893	−·011	·869	85·4	69·4	16·0	89·2	64·6	24·6	79·8	83·7	77·3	+0·8	67·7	71·7	74·2	71·2
	Cochin	...	·971	·855	·116	·904	−·013	·841	91·8	76·5	15·3	94·0	72·4	21·6	85·7	89·0	83·7	+2·9	74·0	77·5	78·8	76·8
South India.	Salem	...	·076	28·918	·158	·001	−·035	·870	94·3	69·5	24·8	99·2	63·9	35·3	83·8	91·2	80·2	+2·6	68·1	73·7	74·0	71·9
	Mercara	...	26·298	26·187	·111	26·247	−·006	?	81·8	62·1	19·7	85·6	57·7	27·9	74·9	77·3	70·8	+2·0	59·2	64·6	67·3	63·7
	Chitaldroog	...	27·588	27·450	·138	27·514	−·035	·798	92·8	68·3	24·5	96·5	63·1	33·4	83·1	91·2	80·2	+3·2	60·4	65·9	66·7	64·3
	Bangalore	...	·012	26·877	·135	26·944	−·040	·816	88·8	64·7	24·1	92·6	59·0	33·6	78·7	86·8	76·3	+4·4	61·1	65·5	65·3	64·0
	Hassan	...	26·950	·815	·135	·882	−·026	·817	88·8	61·3	27·5	91·9	53·0	38·9	79·8	86·3	74·5	+3·5	60·1	66·3	65·9	64·1
	Mysore	...	27·499	27·349	·150	27·424	−·033	·821	90·9	66·6	24·3	93·1	60·7	32·4	80·4	89·4	78·4	+3·6	63·1	69·4	68·3	66·9
	Trichinopoly	...	29·724	29·597	·127	29·665	−·040	·851	92·5	71·4	21·1	98·4	66·1	32·3	83·5	90·8	80·5	+2·2	69·5	73·8	74·1	72·5
	Madras	...	·993	·869	·124	·926	−·042	·878	88·9	72·9	16·0	94·0	67·3	26·7	84·6	84·6	80·3	+3·2	?	76·6	76·2	74·9
	Bellary	...	28·497	28·338	·159	28·413	−·034	·804	97·9	71·8	26·1	102·7	64·2	38·5	86·3	95·5	85·0	+5·3	63·0	67·5	69·8	66·8
	Cocanada	...	29·993	29·854	·139	29·914	−·052	·876	86·3	74·8	11·5	92·9	69·1	23·8	81·3	85·4	80·3	+3·2	70·9	74·1	75·4	73·5
	Vizagapatam	...	·963	·835	·128	·889	−·061	·858	88·9	73·5	15·4	95·1	66·5	28·6	85·6	85·7	81·7	+2·8	71·6	75·5	76·1	74·4
Hill Stations, Baluchistan.	Quetta	...	24·647	24·570	·077	24·601	−·041	?	54·6	32·3	22·3	69·0	19·2	49·8	46·8	51·5	42·7	+1·6	29·1	38·7	41·6	36·5
Hill Stations, Punjab.	Leh	...	19·640	19·582	·058	19·617	+·025	?	25·7	3·8	21·9	36·6	−3·0	39·6	15·4	23·4	15·5	−5·9	2·9‡	10·6	17·7	10·4
	Srinagar	...	25·061	24·931	·070	24·959	+·024	?	38·5	24·8	13·7	47·5	16·6	30·9	31·8	36·7	31·2	−2·0	24·3	30·3	34·9	29·8
	Murree	...	23·822	23·803	·019	23·805	−·025	?	48·1?	33·8?	14·3?	59·1	25·0	34·1	44·9	43·5	39·2?	−0·1	29·0?	36·7?	37·8?	34·5?
	Kailang	10,087	20·715	20·681	·064	20·719	−·022	?	34·8	11·6	23·2	42·2	1·0	41·2	22·8	28·6	20·2	−0·2	10·6	20·1	24·2	18·3
	Simla (Ridge)	...	23·100	23·057	·043	23·072	−·005	?	48·3	36·4	11·9	58·7	29·7	29·0	44·2	44·9	4·09	−0·1	31·0	35·6	37·8	34·8
Hill Station N.W.P.	Chakrata	...	·324	·271	·053	·290	−·012	?	52·5	37·2	15·3	61·6	28·7	32·9	44·4	47·5	43·0	+0·7	33·2	37·0	39·4	36·5
	Ranikhet	...	24·131	24·065	·066	24·086	−·001	?	56·9	42·0	14·9	65·5	31·1	34·4	51·0	54·1	48·1	+1·0	37·7†	43·6	45·3	42·2
Hill Station, Nepal.	Katmandu	4,388	25·641	25·568	·073	25·600	−·048	?	72·3	39·1	33·2	80·9	34·8	46·1	59·4	66·9	54·4	+1·7	37·8	50·4	52·6	46·9
Hill Station, Bengal.	Darjeeling	...	22·966	22·874†	·092	22·915†	−·019	?	49·3	36·5	12·8	59·0	33·0	26·0	44·3	48·6†	42·2†	+1·5	35·6	41·6	43·0†	40·1
Hill Stations, Central India.	Mount Abu	...	26·107	26·030	·077	26·059	−·045	29·980	67·8	51·7	16·1	76·1	45·1	31·0	63·4	65·7	59·3	−1·0	42·6	48·8	49·7	47·0
	Pachmarhi	...	·525	·435	·090	·474	−·028	?	77·5	53·2	24·3	85·7	44·6	41·1	71·4	75·8	64·7	+2·3	49·6	58·6	62·1	56·8
	Chikalda	3,642	·416	·316	·100	·360	−·028	932	80·8	61·7	19·1	87·1	50·2	36·9	72·9	79·3	70·7	+3·0	50·6	55·2	58·3	54·7

† Means for 27 days. ‡ Mean of 26 days.

II—*continued.*

Stations in India, Burma, etc., for February, 1897—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Directions.											Wind Steadiness.		Wind Velocity.		Rainfall.			
														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.	Station.	Meteorological Province.
																									%	%						
·272	·325	·336	·311	−·005	54	39	26	40	− 5	2·0	1·8	1·9	+0·3	21	...	17	7	...	1	7	2	1	N. 60° E.	N. 61° E.	23	19	75	71	...	...	Hoshangabad.	Deccan—*concld.*
·401?	·550?	·633?	·528?	+·191?	64?	53?	42?	53?	+11?	1·5	2·7	2·1	+0·2	2	7	7	8	5	7	7	4	9	N. 23° E	N. 42° E.	5	22	128	102	...	...	Nagpur.	
·356	·392	·379	·376	?	57	37	24	39	?	1·4	2·0	1·7	?	7	7	9	10	3	6	5	6	3	N. 60° E.	?	14	?	47*	?	...	...	Nagpur (Sanitary Commissioner's Office).	
·366	·362	·359	·362	+·040	81	46	33	53	+ 1	1·8	2·1	2·0	−0·1	2	12	20	2	4	5	2	5	4	N. 26° E.	N. 17° W.	39	18	67	57	...	...	Jubbulpore.	
·220	·246	·270	·245	−·019	44	31	25	33	− 8	1·7	1·4	1·6	0	16	9	13	4	...	1	5	2	6	N. 11° E.	N. 5° W.	32	14	122	73	...	...	Saugor.	
·274	·275	·282	·277	+·028	61	34	28	41	− 2	1·5	1·6	1·6	−0·3	...	8	8	16	1	2	...	5	16	N. 16° E.	N. 41° W	41	40	102*	117	...	...	Sutna.	
·394	·393	·369	·385	+·042	64	41	29	45	+ 1	1·4	1·9	1·7	+0·1	16	4	7	5	2	...	7	7	8	N. 38° W.	N. 46° W.	18	18	121*	95	...	...	Raipur.	
·541	·559	·490	·530	+·093	74	48	33	52	+ 2	1·4	1·4	1·4	−0·9	11	4	2	4	18	6	4	6	1	S. 29° E.	S. 50° E.	32	29	99*	97	...	...	Hyderabad (Deccan).	
·496	·544	·600	·547	−·054	71	62	62	65	− 3	1·0	1·0	1·0	−0·2	...	7	5	6	1	2	...	6	29	N. 30° W.	N. 3° W.	59	58	246	254	...	...	Bombay.	West Coast.
·540	·604	·658	·601	+·014	71	51	60	61	− 1	0·3	0·5	0·4	−0·1	...	7	...	...	...	...	6	12	31	N. 58° W.	N. 47° W.	81	53	233	215	...	...	Ratnagiri.	
·660	·671	·719	·683	+·034	91	66	62	73	+ 1	1·1	0·3	0·7	+0·2	...	3	3	...	...	...	1	11	38	N. 49° W.	N 53° W.	86	69	133	86	...	...	Karwar.	
·808	·834	·849	·830	+·088	88	68	62	73	+ 2	2·8	3·2	3·0	+1·2	2	15	3	...	...	...	1	18	17	N. 45° W.	N. 76° W.	71	33	149	132	...	...	Cochin.	
·676	·701	·612	·663	+·100	92	61	43	66	+ 8	2·7	4·0	3·4	+1·4	2	1	10	16	9	6	6	4	2	S. 70° E.	E.	37	51	142	128	...	...	Salem.	South India.
·476	·496	·555	·509	+·094	84	58	60	67	+ 7	3·7	4·9	4·3	+1·4	24	5	3	4	1	1	2	5	11	N. 32° W.	N. 58° E.	25	38	112	99	...	...	Mercara.	
·435	·429	·353	·406	+·074	62	38	24	41	+ 4	2·2	3·6	2·9	+1·4	...	4	8	13	8	...	6	10	7	N. 48° E.	N. 89° E.	12	48	130*	170	...	...	Chitaldroog.	
·502	·482	·378	·454	+·058	82	49	30	54	+ 2	2·2	2·4	2·3	+0·4	1	1	7	19	12	4	5	4	3	S. 71° E.	S. 69° E.	43	65	178*	105	...	...	Bangalore.	
·511	·492	·400	·468	+·087	93	48	33	58	+ 6	3·3	4·9	4·1	+1·3	...	...	12	13	13	4	9	3	2	S. 64° E.	S. 85° E.	39	67	61*	77	...	...	Hassan.	
·543	·586	·436	·522	+·102	82	57	31	57	+ 6	3·3	3·9	3·6	+2·2	5	3	13	17	9	3	3	1	2	N. 36° E.	N. 87° E.	50	67	179*	201	...	...	Mysore.	
·702	·709	·623	·678	+·074	91	62	44	66	+ 5	3·2	4·0	3·6	+0·8	28	4	16	5	2	...	1	...	...	N. 52° E.	N. 62° E.	39	71	64	97	...	...	Trichinopoly	
?	·813	·794	·796	+·117	?	68	66	77	+ 3	4·3	2·7	3·5	+0·7	...	...	1	7	22	16	9	1	...	S. 23° E.	S. 85° E.	71	69	132	119	...	...	Madras.	
·472	·443	·409	·441	+·052	60	35	24	40	0	2·8	4·2	3·5	+2·1	12	6	1	4	4	8	4	8	9	S. 86° W.	S. 57° E.	18	47	96	92	...	...	Bellary.	
·710	·753	·748	·737	+·078	82	70	62	71	+ 1	3·6	2·5	3·1	+1·9	...	...	4	4	17	14	11	5	1	S. 10° E.	S. 49° E.	55	46	185*	164	...	...	Cocanada.	
·755	·749	·773	·759	+·116	91	61	63	72	+ 7	3·1	2·5	2·8	+1·3	2	2	3	1	6	11	18	8	5	S. 40° W.	S. 18° W.	47	45	43	47	...	...	Vizagapatam	
·131	·155	·164	·158	−·008	72	52	48	57	− 9	2·6	5·1	3·9	−0·3	36	2	...	1	...	4	7	4	2	S. 59° W.	N. 83° W.	20	31	124*	88	...	...	Quetta.	Hill Station, Baluchistan.
·041‡	·035	·056	·044	−·032	75‡	40	44	53	−15	5·2	5·6	5·4	−1·4	2	2	13	4	4	20	10	1	...	S. 22° E.	S.	36	23	17	29	...	...	Leh.	Hill Stations, Punjab.
·128	·154	·184	·155	−·001	95	86	84	88	+ 8	6·0	6·9	6·5	−0·3	5	5	2	2	14	11	3	3	11	S. 3° E.	S. 24° E.	16	13	96*	74	...	...	Srinagar.	
·114?	·135?	·171?	·140?	−·015	60?	50?	63?	53	− 7?	5·6	6·2	5·9	+0·2	...	3	1	6	23	18	1	1	3	S. 33° E.	S. 43° E.	62	40	266*	218	...	...	Murree.	
·067	·090	·097	·085	−·007	87	73	63	74	+ 1	4·9	5·4	5·2	−1·3	...	1	1	...	2	17	16	11	8	S. 49° W.	S. 72° W.	61	66	31	27	1·17	0·39	Kailang.	
·123	·122	·156	·134	−·018	59	43	55	52	− 6	2·8	4·9	3·9	−1·8	9	6	3	1	1	20	12	...	...	S. 12° W.	S. 5° W.	39	31	127	131	...	...	Simla (Ridge).	Hill Stations, N.-W. P.
·152	·148	·161	·154	−·009	69	52	51	57	− 6	3·1	3·7	3·4	−1·3	12	13	6	...	1	24	...	...	...	S. 33° E.	S. 20° W.	16	2	214	134	...	...	Chakrata.	
·186†	·210	·215	·204	+·008	71†	58	53	61	− 1	2·5	3·9	3·2	−1·3	5	5	15	2	1	1	5	16	6	N. 36° W.	S. 51° W.	32	20	79*	57	...	...	Ranikhet.	
·215	·265	·234	·238	−·011	90	53	36	60	− 6	2·4	2·6	2·5	−1·0	...	1	3	8	4	...	2	32	6	N. 83° W.	N. 86° W.	45	48	31	29	*Nil*	*Nil*	Katmandu.	Hill Station, Nepal.
201	·235	·242†	·226	+·015	93	81	76†	83	+ 3	5·3	6·4†	5·9	0	3	2	6	7	2	...	7	21	7	N. 75° W.	S. 79° W.	34	31	147	137	...	...	Darjeeling.§	Hill Station, Bengal.
·173	·180	·175	·176	−·012	44	31	28	35	− 1	1·0	1·0	1·0	−1·6	...	5	11	2	2	3	13	11	9	N. 70° W.	N. 63° W.	29	27	174*	140	...	...	Mount Abu	Hill Stations, C. India.
·322?	·352?	·404?	·359?	+·112?	77?	46?	46?	56?	+11?	2·1	2·7	2·4	+0·3	12	4	1	2	3	5	7	11	11	N. 89° W.	N. 64° W.	34	25	137*	98	...	...	Pachmarhi.	
·246	·239	·249	·245	−·035	45	30	25	33	− 8	1·5	2·4	2·0	+0·2	19	16	1	...	1	5	3	1	10	N. 29° W.	N. 83° W.	32	24	203*	148	*Nil*	*Nil*	Chikalda.	

§ Wind observations of 55 days.

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 84

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L., and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Hill Station, S. India.	Wellington	...	24·302†	24·225¶	·077	24·262¶	—·018	?	72·6¶	50·3†	22·3	75·2	40·8	34·4	67·9†	69·1¶	60·5¶	+2·6	48·2‡	57·0†	58·8¶	54·7
Extra India.	Muscat	...	30·082	29·994	·088	30·038	+·004	30·006	71·9	66·8	5·1	77·4	63·1	14·3	70·3	71·7	69·3	—0·9	59·9	64·0	65·1	63·6
	Aden	...	29·980	·865	·115	29·915	+·010	29·941	81·8	74·5	7·3	84·1	69·9	14·2	78·1	80·0	77·7	+0·8	69·4	71·6	71·1	70·7
	Perim	...	·832	·721	·111	·769	+·028	?	83·4	74·5‡	8·9	85·3	72·6	12·7	79·4	80·6	78·2‡	0	70·2	73·0	73·1	72·1
	Zanzibar	...	·926§	·796	·130	·861	+·016	·856§	86·9	80·1	6·8	90·6	75·8	14·8	83·6§	86·2	83·3	—0·1	76·6	78·0§	78·4	77·7
	Port Victoria (Seychelles).	15	·952	·863	·089	·908	?	·847	84·1	78·0	6·1	86·6	74·2	12·4	82·5	83·7	81·0	?	73·9	77·0	77·4	76·1
	Mauritius	181	?	?	?	·732	—·025	·858	?	?	?	90·5	66·6	23·9	?	?	79·6	+1·1	?	?	?	?

¶Means of 24 days. † Mean 25 days. ‡ Mean of 27 days. § Mean of 18 days. ‖ Mean of 26 days.

II—*concluded.*

Stations in India, Burma, etc., for February 1897—concluded.

Vapour tension.					Humidity.					Cloud.				Wind direction.											Wind steadiness.		Wind velocity.		Rainfall.		Station.	Meteorological Provinces.
														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.		
																									%	%						
·327†	·357†	·395¶	·360	+·070	86†	53†	57¶	65	+ 6	3·5†	3·8¶	3·7†	+1·1	5	1	6	8	18	10	...	...	...	S. 55° E.	S. 39° E.	55	65	53¶	60	...	...	Wellington, (a)	Hill Station, S. India.
·429	·515	·533	·492	−·046	66	69	68	68	− 4	1·7	0·9	1·3	−1·1	...	1	6	11	4	3	3	6	22	N. 24° W.	N. 7° W.	25	31	121‖	99	...	...	Muscat.	Extra India.
·654	·688	·644	·662	+·010	77	72	63	71	0	6·0	1·7	3·9	0	...	2	3	35	9	4	3	...	...	S. 78° E.	N. 87° E.	75	73	353‡	356	..	...	Aden.	
·681‡	·729	·716	·709	+·015	80‡	73	69	74	+ 2	4·8	2·0	3·4	+1·0	5	...	1	27	16	...	1	3	3	S. 74° E.	S. 64° E.	61	73	418	430	...	...	Perim.	
·871	·884§	·866	·874	+·020	85	77§	69	77	+ 2	3·3§	4·4	4·1	+0·1	...	14	16	5	2	4	1	...	4	N. 33° E.	N. 34° E.	56	63	156†	159	...	...	Zanzibar.	
·785	·855	·857	·832	?	82	77	74	78	?	6·2	6·6	6·4	?	3	12	4	1	4	2	...	3	27	N. 28° W.	N. 27° W.	59	56	150	?	14·03	3·20	Port Victoria (Seychelles).	
?	?	?	·756	?	?	?	?	77	0	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	386	276	3·14	0·64	Mauritius .	

* Corrected. (a) Wind observations of 48 days.

G. I. C. P. O.—No. 9 Meteor—15-6-1897.—385.

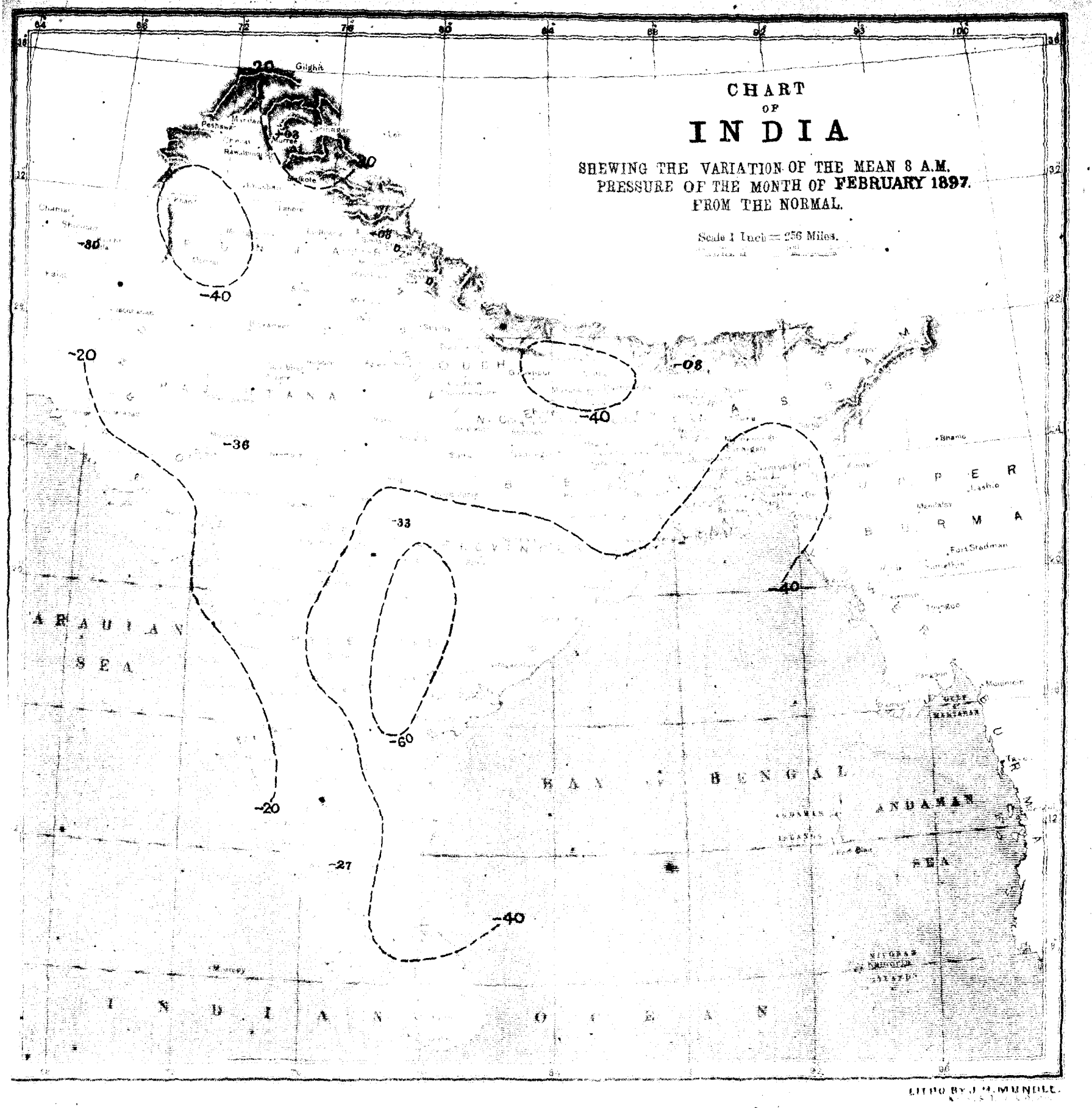
LITHO. BY J. N. MUNDLE.

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 shown 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.

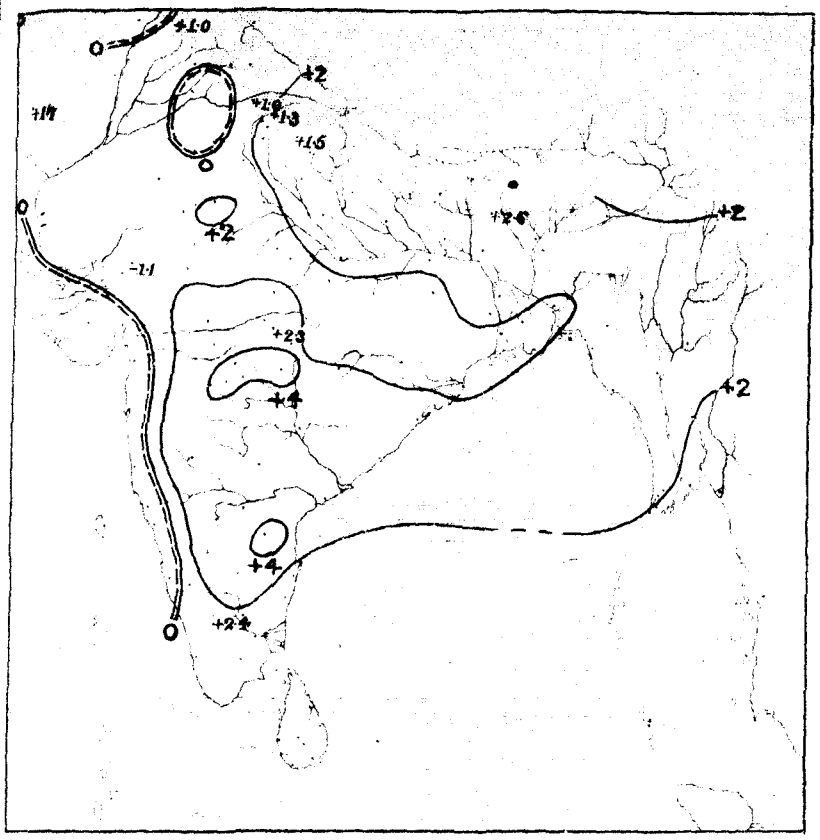
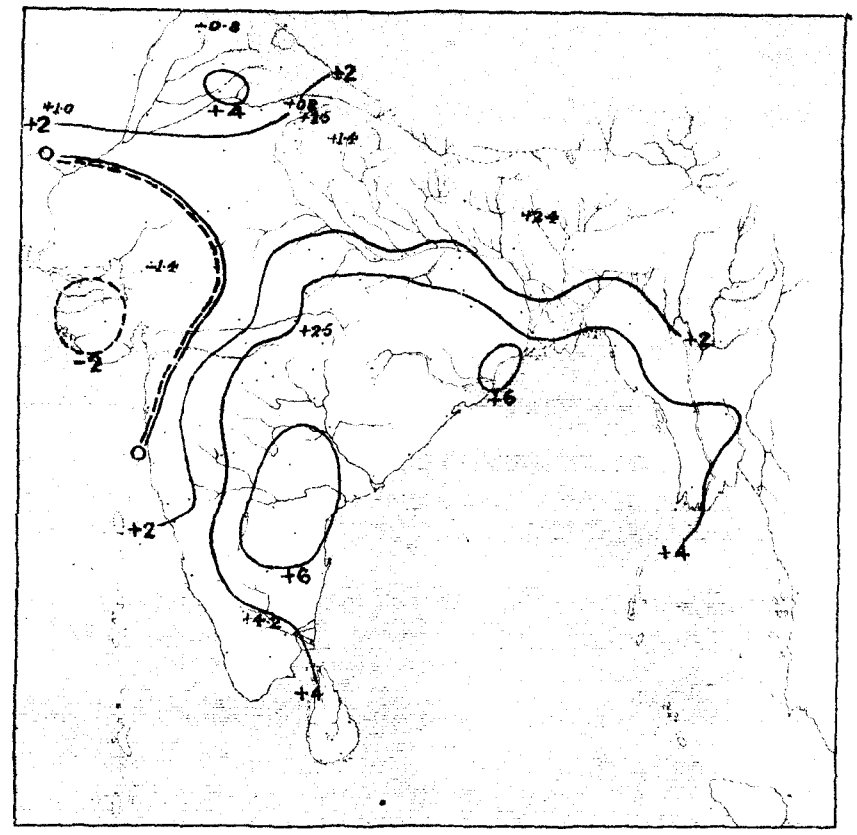


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

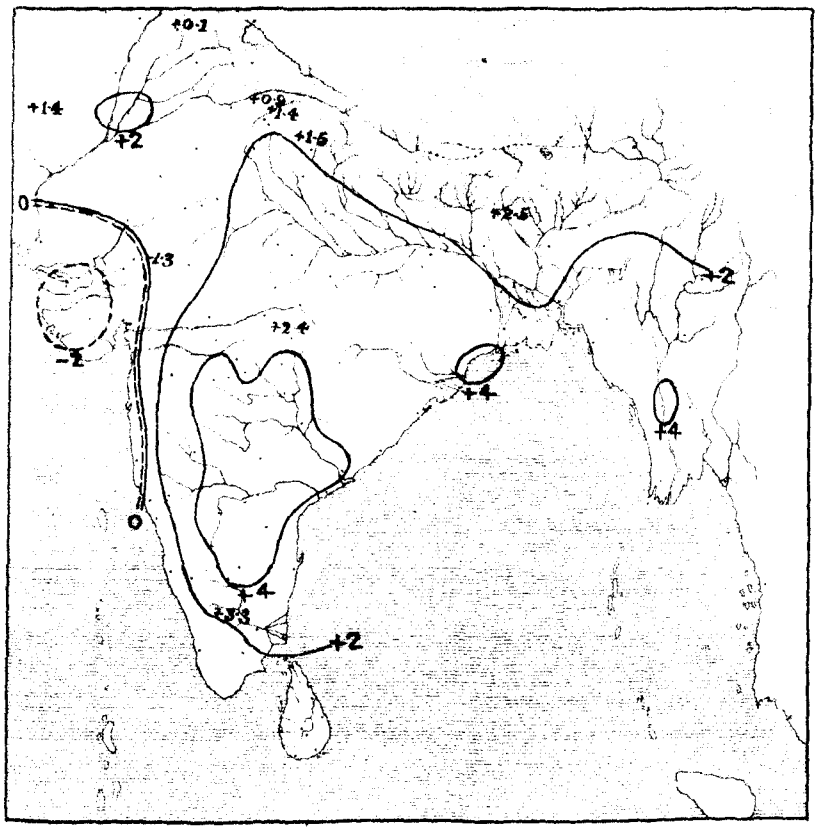
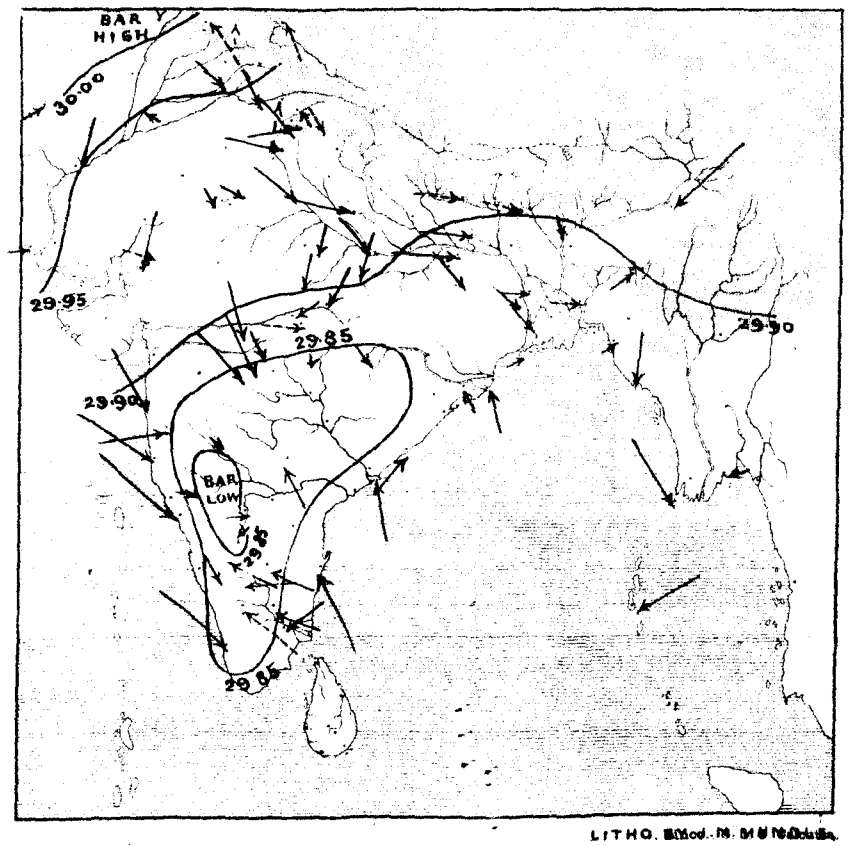


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF FEBRUARY 1897.



Reg. No. 24, Wr., I.—Jan. 96—5,

LITHO. Mod. M. M. Calcutta.

Explanation.

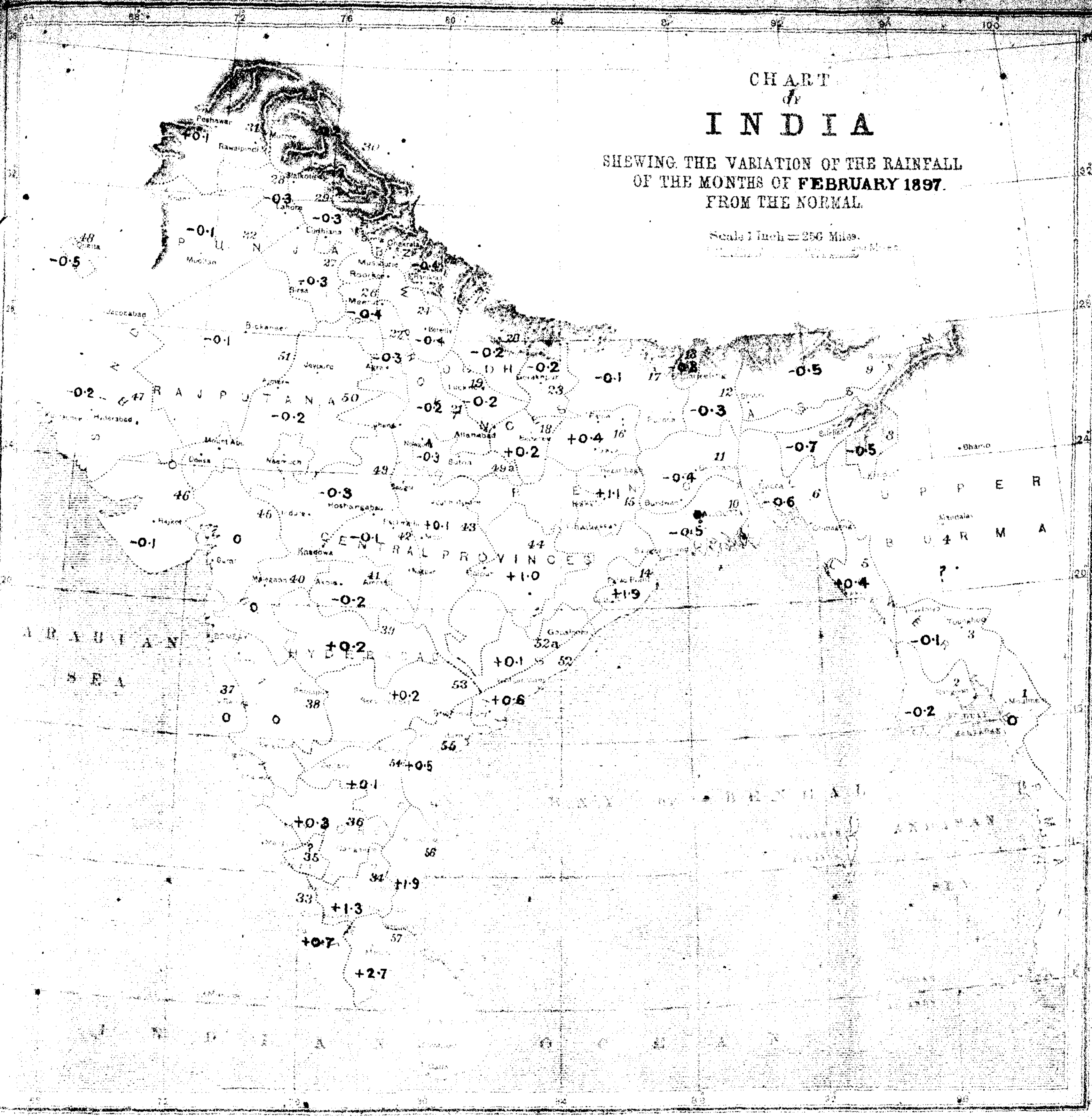
Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of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

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of ⅝th 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 (182 in number), except those at the Hill Stations over 3,500 feet in Elevation. The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.



LITHO. BY J. N. MANDLE.

Explanation.

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

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

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, MARCH 1897.

INTRODUCTION.

THIS review of the weather in India during the month of March 1897 is based on observations taken daily at 8 A.M. at 211 stations, and on additional observations taken at 8 A.M. and 4 P.M. at 84 stations. In the rainfall summary the rainfall data of the meteorological observatories and the weekly rainfall telegrams received during the month from District Officers throughout India, 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 given.

Summary of the chief features of the weather in India during the month of March 1897.

The month of March is usually the commencement of the hot weather in Northern and Central India. The hottest area in February in India is defined by the isotherm of 80°, and includes the South Deccan and the Tinnevelly, Madura, Trichinopoly and Coimbatore districts of South Madras. The North Punjab is the coolest area at this time. The mean temperature of Peshawar and Rawalpindi, allowance being made for elevation above the sea, is slightly below 60°. Temperature during the next month increases least rapidly in Southern India, and most rapidly in Central and Northern India, the rise of temperature varying from 3° in Southern India to about 10° in Northern India. The area of highest mean temperature for the month of March includes the whole of the Deccan, Berar, and the greater part of the Central Provinces. In that area the mean daily temperature of the month slightly exceeds 85°, the highest mean temperatures being those at Cuddapah (87°·7), Kurnool (86°·9), Sironcha (85°·4) and Bellary (85°·6). When allowance is made for elevation above the sea, the temperature in the South and Central Deccan ranges from 87° to 89°. The lowest temperatures obtain in March, as in February, in the North Punjab, where the mean daily temperature averages 65° during the month.

The slow change from the cold weather distribution of pressure to the hot weather and south-west monsoon distribution commences in March. Pressure continues highest in Upper India, but the difference of pressure between Upper and Southern India usually diminishes from a mean of ·2″ in February to a mean of ·1″ in March. An important change in the distribution of pressure occurs during this month, accompanying the setting in of southerly winds on the Bengal coast. The combination of these winds with the westerly winds of the Gangetic Plain and the easterly winds down the Assam Valley tends to give a permanent cyclonic circulation in North-Eastern India and to develop a shallow depression, the central area of

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which usually lies over Chota Nagpur and the Bilaspur and Sambalpur districts of the Central Provinces.

The following gives a brief statement of the more important meteorological features and changes of conditions during the month of March 1897.

At the end of the previous month a shallow depression lay over Upper Sind. It advanced eastwards across the South Punjab and North Rajputana on the 1st and filled up during the next twenty-four hours. A very rapid increase of pressure in North-Western India on the 1st re-established high pressure or anti-cyclonic conditions in Upper India. The disturbance gave some local duststorms in the Punjab plains and a few showers in the Kashmir Hills. Temperature on the 2nd was normal or in slight defect in Upper India. It increased rapidly on the 3rd and 4th and was on the 5th in considerable excess in Central India (+5°) and in Bengal, the North-Western Provinces and the Central Provinces (each +3°·0).

Assam and some parts of Bengal received light to moderate thundershowers on the 6th and 7th.

A depression appeared in Upper Sind on the 6th. It was very similar in character to that of the 1st. It advanced across the South Punjab and North Rajputana on the 7th and filled up during the next twenty-four hours. This disturbance gave light snow in the Kashmir mountains but no rain in the Punjab plains.

Whilst it was filling up on the 8th, another depression appeared in Sind. This depression, unlike the two previous, advanced across Northern India into Bengal and Burma and also gave rise to a short lived and deep secondary depression in the Punjab.

The secondary depression formed rapidly during the twenty-four hours preceding 8 A.M. of the 9th and filled up even more rapidly during the succeeding twenty-four hours. Showers fell on the 8th and 9th in Baluchistan and the North Punjab and moderately heavy snow on the Kashmir and Punjab Himalayas. The storm was accompanied by very strong winds and gales in the Punjab hill districts. The greatest velocity at Simla was 50 miles per hour and at Murree it was reported by the observer to be 94 miles per hour.

The primary depression passed through Rajputana on the 9th, Baghelkhand and the eastern districts of the North-Western Provinces on the 10th, Bihar and West Bengal on the 11th, and East Bengal, Assam and Upper Burma on the 12th. The disturbance gave local nor'-westers and thunderstorms in Bihar, Assam and Bengal on the 11th and 12th. Temperature was in general excess during the period from the 7th to the 9th, the excess being large and marked in Bengal and the Central Provinces. A cool wave of considerable intensity followed in the rear of the latter depression. It passed through Baluchistan on the 10th, the Punjab and Rajputana on the 11th, the North-Western Provinces, Central India and the Central Provinces on the 12th, and Bihar and Bengal on the 13th. The following variation data illustrate the progress of the cool wave:—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	10th March.	11th March.	12th March.	13th March.
	°	°	°	°
Baluchistan (Quetta)	−14·6	−10·5	−5·7	+4·3
Punjab	−2·5	−4·8	−6·0	−3·8
Sind	−6·3	−11·0	−7·0	−3·8
Rajputana	−3·4	−7·1	−9·4	−6·0
North-Western Provinces and Oudh.	+6·8	+2·4	−4·9	−5·1
Central India	+1·8	−3·1	−8·2	−7·3
Bihar	+6·8	+7·7	0	−4·5
Chota Nagpur	+9·1	+4·6	+2·5	−4·1
Central Provinces and Berar.	+5·0	+1·9	−4·4	−6·2
Bengal	+5·9	+6·1	+3·6	−2·8
Assam	+4·1	+4·5	+1·9	+0·5

The advance of the cool wave hence temporarily reduced temperature by amounts ranging from 20° in Baluchistan to 9° in Bengal. It was also accompanied by a large reduction in the amount of aqueous vapour in the air, and the air was hence unusually dry during this period in Northern and Central India. The lowest humidities of the month were recorded at many stations in that area during this period. The most noteworthy were :—

STATION.	DATE.	Humidity at 4 P.M.
		%
Jacobabad	9th.	3
Poona	13th.	3
Khandwa	4th and 16th.	4
Buldana	13th.	4
Deesa	12th.	5
Sholapur	9th.	6
Chilkalda	11th.	8

A shallow depression lay over Sind from the 13th to the 15th. Its origin was apparently due to high temperature. It moved eastwards on the 16th and 17th and filled up in the South-East Punjab on the 18th. During this period from the 13th to the 16th, temperature increased steadily over nearly the whole of India and was on the 17th again

in general excess. The following variation data for the 12th and 17th illustrate this change :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		Abnormal change.
	12th March.	17th March.	
	°	°	°
Punjab	—6·0	+7·1	+13·1
Sind and Rajputana	—8·3	+5·4	+13·7
North-Western Provinces and Oudh	—4·9	+3·6	+ 8·5
Central India and Gujarat	—8·9	+1·2	+10·1
Bengal and Assam	+2·7	+1·8	— 0·9
Central Provinces and Berar	—4·4	+2·5	+ 6·9
Burma	+1·8	+1·0	— 0·8
Bombay	—2·1	+1·2	+ 3·3
Madras	+2·3	+1·0	— 1·3

Fine weather with much higher temperature than usual obtained on the 18th and 19th. A depression formed in Persia during this period. The disturbance passed through Baluchistan on the 20th and gave rise to a subsidiary depression of slight intensity in the Punjab on the 21st. It filled up rapidly during the next twenty-four hours, and the primary depression advanced into the eastern districts of the North-Western Provinces on the 22nd and into Central Bihar on the 23rd. The disturbance gave light to moderate showers in Baluchistan and the North and Central Punjab on the 20th and 21st and moderate to heavy snow in the Himalayas from Nepal westwards. Weather was more or less disturbed in North-Eastern India from the 21st to the 25th, series of thunderstorms occurring daily which gave fairly general rain, more especially in Assam and Bengal. The following is a brief statement of the rainfall of this period :—

PROVINCE.	AVERAGE ACTUAL RAINFALL IN 24 HOURS PRECEDING 8 A.M. OF						Total rainfall of period.
	20th March.	21st March.	22nd March.	23rd March.	24th March.	25th March.	
	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inches.
Punjab	0·02	0·22	0·20	0·01	0·02	0·01	0·48
N.-W. Provinces and Oudh.	0·01	0·04	0·07	0·04	0·17	0	0·33
Bihar	0	0	0·09	0·25	0·52	0·01	0·87
Chota Nagpur	0	0·17	0·34	0·50	0·19	0	1·20
Bengal	0	0·01	0·26	0·35	0·50	0·21	1·33
Assam	0·31	0·29	0·65	0·62	0·83	0·60	3·30

A cool wave followed this storm across Baluchistan and Northern India. The rainfall in North-Eastern India caused an unusually large reduction of temperature in that area, and hence temperature was in very large defect over the whole of Northern and Central India, and more especially in North-Eastern India, on the 24th and 25th. The following variation data show the effect of this disturbance in reducing temperature :—

AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	20th March.	21st March.	22nd March.	23rd March.	24th March.	25th March.
	°	°	°	°	°	°
Baluchistan (Quetta)	—1·9	—14·5	—16·7	—10·4	— 2·6	+6·2
Punjab	+2·1	— 2·0	— 9·5	— 6·7	— 7·4	—4·6
Sind	+3·3	— 1·0	— 8·8	— 4·1	— 7·2	+0·9
Rajputana	+5·1	+ 0·1	— 5·4	— 6·4	— 7·8	—6·8
North-Western Provinces and Oudh.	+3·2	+ 3·5	— 3·1	— 3·4	—11·2	—9·1
Central India	+2·7	+ 3·7	+ 1·3	— 1·6	— 6·4	—6·2
Bihar	+4·6	+ 7·2	— 1·4	— 7·9	—11·2	—9·4
Central Provinces	+5·2	+ 3·7	+ 0·7	— 0·7	— 6·4	—5·3
Chota Nagpur	+4·1	+ 4·1	— 3·1	— 5·9	—15·6	—7·9
Bengal	+3·9	+ 3·8	— 1·2	— 4·6	— 8·1	—7·1
Assam	+2·7	+ 1·2	— 1·9	— 5·2	— 6·0	—9·4
Berar	+3·8	+ 4·3	+ 2·1	+ 1·9	— 3·6	—5·2
Burma	+1·1	+ 2·3	+ 1·9	+ 0·6	+ 2·2	—0·7

The following variation data for the 24th show that the reduction of temperature in North-Eastern India was chiefly in the day temperature :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+ 1·4	+3·0	+ 2·2
Bengal and Assam	—14·7	—4·0	— 9·4
N.-W. Provinces and Oudh	—15·1	—7·2	—11·2
Punjab	— 8·2	—6·5	— 7·4
Sind and Rajputana	— 7·1	—7·7	— 7·4
Central India and Gujarat	— 8·6	—3·1	— 5·9
Central Provinces and Berar	—10·0	—1·7	— 5·9
Bombay	— 2·9	—2·0	— 2·5
Madras	+ 0·1	+3·2	+ 1·7

Fine dry weather set in again for a brief period in North-Eastern India on the 25th. Meanwhile another depression had formed in Persia. This depression passed through West Persia on the 24th and East Persia on the 25th, and lay over Baluchistan on the 26th and Upper Sind on the 27th. A slight tendency was shown to the formation of a secondary depression in the North Punjab on the 28th. The primary depression passed eastwards further north than usual across the South Punjab and North Rajputana on the 27th into the South-East Punjab on the 28th where it filled up during the day. Baluchistan received showers on the 25th and 26th, the north, west, submontane and central districts of the Punjab on the 26th, 27th and 28th and the Kashmir, Punjab and the North-Western Provinces Himalayas moderate snow during the period from the 26th to the 29th. A rapid rise of pressure occurred on the 28th in Upper India and was, as in the case of the previous storm, accompanied and followed by a short period of disturbed weather in North-Eastern India. Bihar, Chota Nagpur, Orissa and Bengal received light to moderate rain, chiefly from thunderstorms, on the 29th and 30th and Assam from the 29th to the end of the month.

Temperature was, during the period from the 26th to the 31st, more or less below the normal over the whole of Northern and Central India. The following gives variation data in illustration :—

AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	26th March.	27th March.	28th March.	29th March.	30th March.	31st March.
	°	°	°	°	°	°
Baluchistan (Quetta)	−2·8	−0·8	−3·1	−9·2	+2·3	+3·8
Punjab	−2·8	−2·5	−4·3	−11·9	−8·6	−5·0
Sind	−2·6	−0·3	−5·9	−6·0	−5·2	−2·1
Rajputana	−1·6	+2·5	−1·4	−8·6	−6·1	−2·6
North-Western Provinces and Oudh.	−2·6	−0·2	−0·7	−5·0	−7·7	−6·4
Central India	−2·8	+2·6	−0·8	−5·8	−7·0	−4·9
Bihar	−7·1	−4·7	−2·2	−9·7	−6·4	−6·7
Central Provinces and Berar.	−5·0	−0·9	+0·6	−4·5	−5·5	−5·3
Chota Nagpur	−8·4	−4·6	−3·4	−7·0	−5·6	−8·3
Bengal	−7·3	−3·7	−1·1	−4·9	−2·8	−3·4

Temperature was during this period in slight to moderate excess in Madras, as is shown by the following data :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	26th March.	27th March.	28th March.	29th March.	30th March.	31st March.
	°	°	°	°	°	°
Madras	+1·6	+1·8	+0·8	+0·8	+0·9	+1·6

Pressure.—The mean pressure of the Indian land area for the month was ·020″ below the normal. Relatively to this general condition, pressure was in slight to moderate defect in the Gangetic Plain, the Punjab, Baluchistan, Upper Sind, Rajputana and the eastern half of the Peninsula. The deficiency was largest in amount in the Punjab and exceeded ·025″ at Mooltan (—·038″) and Lahore and Dera Ismail Khan (each—·028″).

An important effect of these conditions was to displace the hot weather depression from its normal position in Chota Nagpur into North Bihar and the submontane districts of the North-Western Provinces. Pressure was locally in excess in the remainder of India. The positive anomalies were small except in a small area including Goa, Karwar and Mercara, where they ranged between ·020″ and ·024″. Pressure was in slight to moderate defect at the hill stations in Northern India relatively to the neighbouring plains.

The following table gives mean pressure variation and anomaly data of the month for the eleven meteorological provinces :—

METEOROLOGICAL PROVINCE.	Variation of mean 8 A.M. pressure of March 1897 from normal.	Pressure anomaly, March 1897.
	″	″
Burma Coast and Bay Islands	—·011	+·009
Assam	—·010	+·010
Bengal and Orissa	—·016	+·004
Gangetic Plain and Chota Nagpur	—·026	—·006
Upper Sub-Himalayas	—·036	—·016
Indus Valley and North-West Rajputana	—·032	—·012
East Rajputana, Central India and Gujarat	—·018	+·002
Deccan	—·016	+·004
West Coast	—·006	+·014
South India	—·022	—·002

Temperature.—The temperature conditions of the month of March 1897 differed considerably from those of the preceding two months. Temperature was more or less below the normal over the whole of Northern and Central India and was generally above it in the Peninsula and Burma.

The mean maximum or day temperature of the month was above the normal over Burma, Upper Assam and the Peninsula south of Lat. 21° N. excepting the Konkan. The variations were generally small, but slightly exceeded 2° in the area defined by the stations of Poona, Belgaum, Bangalore, Cuddapah, and Bellary. The excess was absolutely greatest at Bangalore (+2°·8). The mean

day temperature was below the normal in the Konkan and over the whole of Northern and Central India. Over the greater part of the area, the variations were less than 2°, but they ranged between 1° and 4½° in the Punjab where they were greatest. The deficiency was absolutely greatest at Peshawar (—4°·4) and Rawalpindi (—4°·1). The deficiency was as large at the hill stations in Upper India as on the neighbouring plains. It was greatest at Murree (—4°·7) and probably Leh.

The mean night temperature was above the normal in Burma, South Bengal and the greater part of the Peninsula. The excess ranged between 2° and 3° in amount over the greater part of the Madras Presidency, Mysore and Hyderabad, and was greatest at Secunderabad (+3°·2) and Bangalore and Salem (each + 3°·1). It was lower than usual over the remainder of India, generally by small amounts. The deficiency was more than 2° in amount in Cutch, Kathiawar, Gujarat and the Konkan, and also locally at Poona and Bombay. It was largest in amount at Poona (—3°·2) and Deesa (—2°·5).

The variations of the night and day temperatures and hence also of the mean temperature were similar in character over nearly the whole of India. The mean temperature of the month was higher than usual in Burma, South Bengal and the Peninsula south of Lat. 20° N. (with the exception of the Konkan). The excess was most marked in the area including the stations of Bangalore (+3°·0), Bellary and Cuddapah (each +2°·5), Kurnool (+2°·4), Secunderabad (+2°·3) and Madras and Salem (each +2°·2). The mean temperature of the month was below the normal over the remainder of India, including Northern and Central India, the Central Provinces, Berar and the Konkan. The variations were generally small in amount but exceeded 2° locally at Peshawar (—3°·0) and in the area defined by the stations of Rajkot (—2°·5) and Bhuj and Deesa (each —2°·1).

The mean temperature of the month was in large defect at Leh (—4°·9) and perhaps Murree (—5°·0) and in slight to moderate defect at the remaining hill stations in Upper India.

The following table gives temperature variation data of the month of March 1897 for the eleven meteorological provinces of India :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, March 1897.	Mean minimum temperature, March 1897.	Mean daily temperature, March 1897.
	°	°	°
Burma Coast and Bay Islands	0	+1·3	+0·7
Burma Inland	+1·3	+1·0	+1·2
Assam	+0·2	—1·0	—0·4
Bengal and Orissa	—0·4	+0·6	+0·1
Gangetic Plain and Chota Nagpur.	—1·0	—0·6	—0·9
Upper Sub-Himalayas	—1·9	—0·2	—1·1
Indus Valley and North-West Rajputana.	—2·3	—1·9	—2·1
East Rajputana, Central India and Gujarat.	—1·3	—1·1	—1·2
Deccan	+0·2	—0·4	—0·1
West Coast	—0·1	—0·5	—0·3
South India	+0·9	+2·3	+1·6

Winds were on the average of the month weaker and less steady at Port Blair and the Burma coast stations. They were stronger than usual in the interior of Bengal and remarkably steady. Winds were very unsteady in Bihar, Chota Nagpur and the eastern districts of the North Western Provinces, chiefly due to the abnormal prevalence of easterly winds during the last fortnight of the month. Winds in Rajputana and Central India were more westerly than the normal. They were very unsteady in the Punjab, Upper Sind, the Central Provinces and Berar and varied in mean direction irregularly from the normal. Winds were stronger and steadier than usual in the Deccan. They were very steady and more northerly than usual at the west coast stations.

Humidity.—The mean humidity conditions of the month were normal in Lower Burma and at Port Blair. The air was slightly damper than usual in Arakan and East Bengal. It was unusually dry in West Bengal, the Gangetic Plain, Sind, Baluchistan, the Punjab, Rajputana and Central India. The mean humidity of the month was more than 10 below the normal at the following stations in this area : Quetta (—15), Mooltan and Nowgong (each —12) and Jacobabad (—11). The humidity was almost as largely in defect in the Central Provinces, Berar, the Deccan and Mysore as in the interior of Northern India. Conditions were normal in the Madras and west coast districts. The air was very dry at the hill stations in Upper India, and the mean humidity of the month was 8 in defect at Leh and 6 at Darjeeling. A marked feature of the month was the great dryness of the air over the whole of the interior of India, most marked in Upper India and also at the most elevated hill stations.

Cloud was, on the mean of the month, in slight excess in Burma, Bengal, the Gangetic Plain, Chota Nagpur, the Punjab and Rajputana and was largely above the mean of the month at the hill stations in Upper India. There was practically the normal amount of cloud in Sind and Baluchistan. Cloud was small in amount and in defect

over the whole of Central India and the Peninsula with the exception of the east coast districts, in which it was in moderate excess. The deficiency in this area was greatest iu Coorg, Berar and Mysore. Skies were most free from cloud during the month in the Konkan, the West Deccan and Berar.

The following table gives variation data of the mean aqueous vapour pressure, mean humidity and mean cloud amount of ten meteorological provinces for the month of March 1897:—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean aqueous vapour pressure.	Mean humidity.	Mean cloud amount.
	"		
Burma Coast and Bay Islands .	+·016	+1	+0·7
Assam	—·018	—2	—0·4
Bengal and Orissa . . .	—·005	—2	+0·5
Gangetic Plain and Chota Nagpur.	—·014	—1	+0·1
Upper Sub-Himalayas . .	—·036	—5	+0·4
Indus Valley and North-West Rajputana.	—·072	—7	+0·3
East Rajputana, Central India and Gujarat.	—·047	—5	0
Deccan	—·026	—3	—0·9
West Coast	—·034	—2	—0·6
South India	+·006	—1	—0·2

Rainfall.—The normal rainfall of the month is small in amount over the whole of India except Assam and East and Deltaic Bengal, which usually receive moderate rain from thunderstorms during the month. Baluchistan, the North Punjab and Kashmir received light rain from feeble storms on the 5th and 6th and again on the 10th and 11th. A cold weather storm of moderate intensity gave moderate rain in Baluchistan on the 20th, the Punjab and western districts of the North-Western Provinces on the 21st and 22nd, and moderately heavy snow on the Punjab and Kashmir Himalayas. It was followed by moderate daily rain in North-Eastern India accompanying thunderstorms from the 22nd to the 25th and in Burma on the 25th and 26th. A storm of feeble intensity gave rain in the same districts as the previous storm between the 26th and 29th. The rainfall of the month hence occurred chiefly in the Punjab, Kashmir, Bihar, Bengal, Orissa, Assam and Burma, and was in excess to a moderate extent in these areas. It was below the small normal of the period over nearly the whole of the remainder of India. The following table gives comparative rainfall data for the eleven meteorological provinces of India, based on the rainfall data of 164 meteorological stations:—

METEOROLOGICAL PROVINCE.	RAINFALL.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.*
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands . .	1.37	0·52	+1·02
Burma Inland	0·46	0·66	—0·43
Assam	6·83	5·24	+2·11
Bengal and Orissa	2·65	1·54	+1·03
Gangetic Plain and Chota Nagpur .	1·05	0·49	+0·55
Upper Sub-Himalayas . . .	0·70	0·89	—0·16
Indus Valley and North-West Rajputana.	0·61	0·44	—0·02
East Rajputana, Central India and Gujarat.	0·02	0·18	—0·16
Deccan	0·21	0·47	—0·21
West Coast	0·15	0·58	—0·41
South India	0·48	0·52	+0·10

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

Atmospheric Pressure.

The mean pressure of the Indian land area, as determined from the 8 A.M. observations, was ·020" below the normal, and hence almost exactly the same amount in defect as in the corresponding months of 1894, 1895 and 1896. In March 1894 it was ·017" in defect, in March 1895 ·018" in defect and in March 1896 ·022" in defect. The deficiency in each of these three years accompanied, and was partly at least due to the prevalence of higher temperature than usual (more especially in Northern India), whereas in March 1897 it accompanied lower temperature than usual on the mean of the month over the whole of Northern and Central India. The deficient pressure in March 1897 was hence not a direct temperature effect but was probably mainly a result of the unusually disturbed conditions of the month. Relatively to the general condition, pressure was in local defect in North-Western India

and the eastern half of the Peninsula. The deficiency was most pronounced in the Punjab, and was more than ·020″ at stations for which data are given below :—

STATION.	Variation of mean 8 A.M. pressure of March 1897 from normal.	Pressure anomaly, March 1897.
	″	″
Quetta	—·028	—·008
Mooltan	—·058	—·038
D. I. Khan	—·048	—·028
Lahore	—·048	—·028
Ludhiana	—·042	—·022

Pressure was locally in excess over the remainder of India, but the positive anomalies were small for all stations in that area, except at Karwar (+·024″) and Mercara and Goa (each +·020″).

Pressure was in somewhat larger defect at the hill stations in Northern India than at the neighbouring plains stations, and the vertical pressure anomalies were negative and small in amount. The following gives data for nine pairs of stations :—

HILL STATION.	Variation of pressure from normal. (a)	NEIGHBOURING PLAIN STATION.	Variation of pressure from normal. (b)	Vertical pressure anomaly (a)—(b).
	″		″	″
Quetta	—·028	Jacobabad	—·025	—·003
Leh	—·059	Lahore	—·042	—·017
Kailang	—·074	Do.	—·042	—·032
Murree	—·054	Peshawar	—·036	—·018
Simla	—·040	Ludhiana	—·042	+·002
Chakrata	—·033	Roorkee	—·031	—·002
Ranikhet	—·016	Bareilly	—·022	+·006
Darjeeling	—·004	Dhubri	—·005	+·001
Mount Abu	—·039	Deesa	—·017	—·022

The chief features of the mean pressure distribution of the month were :—

(1) Moderate general deficiency of pressure.

(2) Local deficiency of pressure in North-Western India and the east of the Peninsula. The deficiency was most marked in the Punjab.

(3) Local excess of pressure over the remainder of India, small in amount except, in the South Konkan, where it was slightly above ·02″.

(4) Slight to moderate deficiency of pressure at the hill stations as compared with the neighbouring plains.

Barometric depressions and cyclonic storms of the month.

It was stated in last month's review that a depression formed over Baluchistan and Sind on the 27th and 28th of that month. It marched eastwards during the twenty-four hours preceding 8 A.M. of the 1st into the South Punjab and North Rajputana, and was central about midway between Mooltan and Bickaneer. Skies had cleared in Baluchistan, but were more or less clouded in the Punjab, and light showers were falling in Kashmir. A rapid increase of pressure occurred over the whole of North-West India during the next twenty-four hours and established well-marked anticyclonic conditions and fine clear weather over that area. The shallow depression hence filled up and disappeared during the evening and night of the 1st.

The barometric changes from the 2nd to the 6th were unusually large over the whole of Northern and Central India. The following gives mean variation data which indicate the amount and extent of these changes :—

PROVINCE.	PRESSURE CHANGE IN 24 HOURS PRECEDING 8 A.M. OF				
	2nd March.	3rd March.	4th March.	5th March.	6th March.
	″	″	″	″	″
Punjab	+·192	—·128	—·208	+·087	+·028
North-Western Provinces and Oudh.	+·007	—·045	—·157	+·019	+·073
Rajputana	+·167	—·037	—·249	+·091	+·029
Central India	+·069	—·016	—·178	—·003	+·069
Bihar	—·022	—·018	—·152	—·035	+·102
Chota Nagpur	+·005	—·024	—·127	—·077	+·119
Bengal	—·011	—·041	—·127	+·026	+·022
Central Provinces	+·050	—·012	—·137	—·040	+·099
Burma	+·007	—·028	—·065	+·077	+·010
Bombay	+·040	—·024	—·076	—·011	+·046
Madras	+·057	—·036	—·073	—·016	+·030

A shallow depression was shown in Bihar and Chota Nagpur on the 5th. Local thundershowers occurred during the afternoon and evening of that day in Central and East Bengal. The depression filled up during the day.

Feeble cold-weather storm of the 5th to 7th March.—Pressure had fallen rapidly in West Persia and at Baghdad on the 4th, and a shallow depression lay over that area on the morning of the 5th. It was transferred eastwards during the next twenty-four hours into East Persia and Baluchistan. The following data show its position at 8 A.M. of the 6th:—

Station.	Pressure.			Wind.		Cloud.	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.		
	"	"	"				
Jask	?	—·040	?	W	4	0	Clear.
Quetta	?	—·101	—·073	Calm	2	0	Dust haze.
Chaman	?	—·102	?	SE	4	0	Clear.
Jacobabad	29·815	—·066	—·142	Calm	2	5	Fine.
Kurrachee	·872	—·026	—·094	WSW	5	1	?

Winds were light and irregular in the area of disturbance and skies were clear at Jask and over Baluchistan.

7th March.—Pressure had given way rapidly in the South Punjab and Rajputana, to which area the depression was now transferred. The following gives 8 A.M. data of the weather in the area of depression:—

Station.	Pressure.			Wind.		Cloud.	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.		
	"	"	"				
Quetta	?	—·004	—·076	Calm	5	0	Dust haze.
Mooltan	29·791	—·076	—·204	NE	2	2	Fine.
Jacobabad	·777	—·038	—·175	S	3	0	Clear.
Jodhpur	·805	—·119	—·140	WSW	3	0	"
Bickaneer	·755	—·151	—·200	SSW	8	0	Dust haze.
Sirsa	·781	—·132	—·172	ESE	4	0	Clear.
Montgomery	·744	—·145	?	NE	8	4	Fine.

Skies had partially clouded over in the Punjab, but were, as on the 6th, clear in Baluchistan. Some light showers had fallen in Kashmir.

8th March.—The depression had advanced eastwards into Bundelkhand, Baghelkhand, and the south-eastern districts of the North-Western Provinces, but was now filling up fast and was of little importance, and skies were generally clear in the Gangetic Plain and Central India.

The disturbance was hence very feeble throughout, and gave practically no rain in India.

Whilst this depression was filling up on the 8th, another depression was forming in Baluchistan. Pressure was high and considerably above the normal at Baghdad, Bushire, Teheran and Ispahan from the 6th to the 10th, and it is hence certain that the depression under discussion did not originate in that area. Weather was gusty with fresh to strong north-west winds in the Persian Gulf on the 7th and 8th.

Cold-weather storm of the 8th to the 12th March.—This depression apparently originated over the Baluchistan plateau on the 7th, when pressure gave way rapidly and skies clouded over. A shallow depression lay over that area and Sind on the morning of the 8th. Skies were practically clear over the whole of India, except the Upper India hill districts, where they were more or less clouded.

9th March.—The pressure changes in North-Western India were large, and mainly due to the formation of a deep secondary depression in the North Punjab. The following gives 8 A.M. meteorological data of stations in the secondary depression area:—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M., reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
D. I. Khan	29·602	—·188	—·390	NW	6	5	0·06	
Khushab	·562	—·197	?	WSW	7	10	...	
Sialkot	·604	—·154	—·318	SSE	9	0	...	Duststorm.
Rawalpindi	·566	—·237	—·356	S	4	10	0·01	Duststorm, with rain.
Peshawar	·544	—·281	—·440	W	4	10	0·15	Raining.
Sharigh	...	—·100	?	NW	23	1	...	Windy.
Cherat	...	—·270	?	SE	14	10	0·17	
Murree	...	—·199	—·324	SE	28	10	0·20	Thunderstorm, with hail.
Astor	...	—·129	?	Calm	1	10	0·92	Snowing.
Minimarg	...	—·096	?	Calm	1	10	0·11	"
Dras	...	—·089	?	Calm	1	10	0·64	"
Kailang*	...	—·042	?	N	3	10	0·39	"
Leh	...	—·036	?	SE	1	10	0·01	Dull.

* 10 A.M. observations.

The barometric fall was hence as large at Cherat as at Peshawar. The fall was small in amount at Kailang, Dras and Leh, and hence the larger actions producing the secondary depression were practically restricted to the confined triangular area of the North Punjab. Skies were now overcast in the North and Central Punjab. Light showers had fallen in the North Punjab and moderately heavy snow on the Kashmir and Punjab Himalayas. Winds were cyclonic in direction and were moderate in force at the plains stations, but were unusually vigorous in the hill districts. Thus the reported velocity of the wind at 8 A.M. at Murree was 94 miles per hour, and at Simla 50 miles per hour. The primary depression had advanced into Rajputana, but was filling up and was almost completely obscured by the secondary depression in Upper India.

10th March.—A very rapid increase of pressure had occurred in Upper India during the preceding twenty-four hours, which had completely filled up the secondary depression in that area on the 9th. The following gives data for stations in the Punjab and Kashmir:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M., reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Dera Ismail Khan.	29·957	+·355	—·027	N	5	5	...	
Khushab .	·899	+·337	?	NNE	10	6	0·07	Showery.
Sialkot .	·888	+·284	—·054	ESE	6	0	...	Duststorm.
Rawalpindi	·948	+·382	—·026	W	4	10	1·10	Thunder-storm.
Peshawar	30·049	+·505	+·038	N	8	10	0·83	Thunder-storm with hail.
Sharigh .	...	+·220	?	NW	14	0	...	Windy.
Cherat .	...	+·364	?	NNW	21	8	0·38	
Murree .	...	+·243	—·084	E	16	10	1·35	Snowstorm.
Astor .	...	+·149	?	S	2	3	1.02	Snowstorm.
Minimarg.	...	+·114	?	Calm	8	5	1·80	Snowstorm.
Dras .	...	+·039	?	NNW	2	10	0·29	Snowstorm.
Kailang* .	...	—·074	?	NE	4	10		
Leh .	...	—·052	?	W	1	9	...	Cloudy.

* 10 A.M. observations.

Skies were commencing to clear in the Punjab, but were at 8 A.M. heavily clouded at the majority of stations. Light to moderate rain had fallen in the North Punjab and Kashmir Valley, and moderately heavy snow on the Punjab and Kashmir Himalayas.

The primary depression apparently continued to be transferred eastwards, and gave a local fall of pressure in the eastern districts of the North-Western Provinces and Bihar on the 10th, in Bengal and Bihar on the 11th, and in Upper Assam and Upper Burma on the 12th. Some local thundershowers were received in Bengal and Assam during this period, chiefly on the 11th.

The primary depression was hence feeble and of little importance throughout. It gave practically no rain, with the exception of some local showers in Bengal and Assam. The chief feature of the disturbance was the secondary depression to which it gave rise in the Punjab. It formed in twenty-four hours, and filled up even more rapidly on the 10th than it formed on the 9th. The secondary disturbance gave moderate to heavy snow on the Punjab and Kashmir Himalayas and moderate showers in the North Punjab, and was chiefly remarkable for the violent winds which it occasioned in the hill districts of Upper India.

The passage of this depression across Northern India was followed by a well-marked cool wave, a brief account of which is given in the temperature section.

The changes of pressure were larger and more irregular than usual from the 12th to the 15th. A shallow depression lay over the Sind hot area on the 13th, 14th and 15th. It moved eastwards during the next thirty-six hours and filled up in the East Punjab. Light snow showers were received in the Kashmir Himalayas on the 14th, 15th and 16th. Fine dry weather with large irregular pressure changes and increasing temperature obtained generally during the next four days.

Pressure gave way rapidly, and skies clouded over at Bushire on the 18th and at Jask on the 19th. Anticyclonic or high pressure conditions held steadily at this time in South-Eastern and Eastern Europe. The following table gives the pressure changes in the Persian area and Upper India during the period from the 17th to the 20th:—

STATION OR AREA.	PRESSURE CHANGE IN 24 HOURS PRECEDING 8 A.M. OF			
	17th March.	18th March.	19th March.	20th March.
	"	"	"	"
Baghdad . . .	—·321	+·043	+·131	—·043
Bushire . . .	—·155	—·136	+·026	+·023
Ispahan . . .	+·030	—·080	—·100	+·190
Teheran . . .	—·040	—·060	—·090	...
Jask	—·024	—·054	—·122	—·024
Quetta	—·014	+·022	—·109	—·070
Punjab	—·057	+·110	—·094	—·069
Sind	—·042	+·032	—·058	—·116
Rajputana . . .	—·075	+·026	—·049	—·095

The preceding data establish that a low pressure wave passed eastwards across Persia on the 17th and 18th and began to affect Baluchistan on the 19th. Rain fell at the majority of the Persian stations on the 18th and 19th. The following gives a history of the disturbance which accompanied the advance of this low pressure wave :—

Disturbance of the 20th to the 25th March.—As already stated above, this depression formed in Persia on the 16th and 17th, and advanced eastwards on the 17th and 18th through Persia. Skies were clear or lightly clouded in Baluchistan and Upper India on the 18th, but clouded over during the next twenty-four hours and showery weather set in over Baluchistan on the 19th. Pressure fell briskly to rapidly in Baluchistan and Upper Sind on the 19th, and the depression lay over these areas on the morning of the 20th. The following gives 8 A.M. data for the depression area :—

STATION.	PRESSURE.			WIND.				WEATHER.
	8 A.M., reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	
	"	"	"				Inch.	
Kurrachee	29·795	—·079	—·114	WSW	9	10	...	
Jodhpur .	·757	—·094	?	WSW	2	7	...	Fine.
Bickaneer	·746	—·119	?	E	6	10	...	
Mooltan .	·771	—·118	—·143	NNE	3	8	...	
Jacobabad	·704	—·177	—·176	WNW	6	0	...	
Quetta .	...	—·070	—·119	Calm	3	10	0·36	Raining.

The pressure distribution was abnormal, the chief feature being its great uniformity over the Gangetic Plain, Central India and the North Deccan.

21st March.—The pressure changes were unusually irregular in Northern India. Pressure had given way rapidly in Upper India and a shallow secondary depression lay over the Punjab. The following gives 8 A.M. data of stations in the central area :—

STATION.	PRESSURE.			WIND.				WEATHER.
	8 A.M., reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud	Rainfall.	
	"	"	"				Inches	
Peshawar	29·694	—·157	—·260	Calm	4	10	0·40	Showery.
Dera Ismail Khan.	·696	—·127	—·233	N	4	0	0·30	Showery.
Montgomery.	·678	—·120	?	N	11	4	...	Duststorm.
Ludhiana .	·678	—·095	—·189	S E	5	0	...	Duststorm.
Lahore .	·655	—·136	—·231	Calm	5	2	...	Fine.
Sialkot .	·661	—·146	—·215	SSW	7	5	...	
Murree .	...	—·265	—·337	E	36	10	0·77	Continuous rain for upwards of 12 hours.
Cherat .	...	—·217	?	Calm	11	9	1·10	Drizzling.
Skardu .	...	—·244	?	Calm	2	10	...	
Dras .	...	—·166	?	Calm	0	10	0·34	
Leh .	...	—·110	?	S	1	10	0·01	Dull.

It will be noticed that the decrease of pressure was greater at the hill stations in Upper India and Kashmir than at the level of the Punjab plains.

Weather was very disturbed in Upper India and the adjacent hills. Light to moderate showers had fallen in the North and South-West Punjab and moderate to heavy snow on the Kashmir and Punjab Himalayas and in Garhwal.

A rapid local rise of pressure exceeding a tenth of an inch had occurred at Dehra, Roorkee, Meerut and Delhi. This was a very temporary increase following a series of duststorms and thunderstorms at these stations and in the Mussooree hills.

The primary depression was obscured by the secondary depression in the Punjab and the very local high pressure conditions in the north-western districts of the North-Western Provinces. The chart showing the pressure variations from the normal for the day indicates that it was passing through Rajputana.

22nd March.—Pressure had increased rapidly in the Punjab, and the secondary depression had filled up and

disappeared. The following gives 8 A.M. meteorological data for that 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.	
Peshawar .	29·900	+·206	—·046	Calm	3	0	0·25	Showery.
D. I. Khan	·874	+·178	—·051	N	3	0	...	Clear.
Montgomery.	·825	+·147	?	N	4	2	...	Fine.
Ludhiana .	·761	+·083	—·113	NE	5	4	0·10	Duststorm, with rain.
Lahore .	·814	+·159	—·075	N	4	0	...	Clear.
Sialkot .	·825	+·164	—·061	Calm	3	0	0·10	"
Murree .	...	+·203	—·142	N	16	0	0·45	Continuous rain.
Cherat .	...	+·171	?	NNW	17	0	0·37	Thunderstorm with hail.
Skardu .	...	+·180	?	S	11	0	...	
Dras . .	...	+·097	?	Calm	2	0	0·14	
Leh . .	...	+·005	?	SE	3	5	0·10	Cloudy.

Skies had cleared generally in the Punjab. Light to moderate showers had fallen in the Submontane districts of the Punjab, and moderate to heavy snow had been received in the Kashmir and Punjab Himalayas.

Pressure had decreased rapidly at Roorkee, Meerut and Delhi, and the local high pressure conditions had hence passed away. The primary depression was now in the eastern districts of the North-Western Provinces. The following gives data for that 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.	
Sutna .	297·24	—·019	—·140	N	3	0	...	Clear.
Allahabad.	·649	—·097	—·198	SE	4	9	0·01	Thunderstorm.
Lucknow .	·662	—·060	—·177	E	4	4	...	Fine.
Agra .	·716	—·077	—·149	NE	8	6	...	"
Jhansi .	·732	—·021	—·149	NW	3	3	...	"
Nowgong.	·701	—·045	—·164	W	4	7	...	"

Easterly winds were now blowing in Bengal, Bihar and Chota Nagpur. Winds were irregular and light in the depression area. Weather was feebly unsettled in the Gangetic Plain and Bihar, and numerous thundershowers had given light scattered rain in the North-Western Provinces, Bihar, Chota Nagpur and Bengal.

23rd March.—Pressure had risen rapidly in the Gangetic Plain and briskly in Bengal. The depression had almost completely filled up, but a small residual depression was shown in Central Bihar. Series of thunderstorms had given fairly general rain in Bengal, South Bihar and Chota Nagpur.

24th March.—The residual depression lay over West Bengal and Chota Nagpur. The pressure changes in Bengal were very irregular, indicating unsettled conditions. Series of thunderstorms had given moderate to heavy rain over the whole of North-Eastern India.

25th March.—The residual depression disappeared during the day, but weather continued feebly unsettled during the next twenty-four hours in Bengal, Assam and Upper Burma, and these areas received numerous thundershowers.

The preceding disturbance was complex in its character. It originated as a primary depression in Persia and travelled eastwards along the normal track. It gave light rain in Persia and Baluchistan. It advanced across the frontier on the 20th, and a secondary depression of moderate intensity formed in the Punjab during the next 24 hours and disappeared during the following day. This depression was accompanied by moderate to heavy snow on the Kashmir and Punjab Himalayas, and by light to moderate rain in the North Punjab.

The primary depression drifted eastwards across Northern India, and when it entered Bihar and Chota Nagpur, it gave rise to disturbed weather of the hot weather type. Series of thunderstorms occurred over the whole of North-Eastern India from the 22nd to the 25th, and gave a much-needed supply of rain to that area.

The following is a statement of the rainfall due to the storm:—

DIVISION.	AVERAGE ACTUAL RAINFALL IN 24 HOURS PRECEDING 8 A.M. OF							Total rainfall of period.
	20th Mar.	21st Mar.	22nd Mar.	23rd Mar.	24th Mar.	25th Mar.	26th Mar.	
	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inches
Punjab, South . .	0	0	0·06	0	0	0	0	0·06
" Central . .	0	0·10	0·04	0	0	0	0·01	0·15
" Submontane .	0	0·08	0·26	0	0	0·01	0·05	0·40
" Hill Districts .	0·05	0·55	0·73	0·02	0·09	0	0·30	1·74
" North-West .	0·03	0·50	0·09	0·01	0·01	0·06	0·21	0·91
" West . .	0·04	0·10	0·01	0	0	0·01	0·07	0·23
Oudh (North) . .	0·03	0·02	0·01	0·14	0·33	0	0	0·55

Division.	Average actual rainfall in 24 hours preceding 8 A.M. of							Total rainfall of period.
	20th Mar.	21st Mar.	22nd Mar.	23rd Mar.	24th Mar.	25th Mar.	26th Mar.	
	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inches
Oudh (South)	0	0	0·01	0·01	0·09	0	0	0·11
N.-W.-P. (South-east)	0	0·01	0·04	0·02	0·25	0	0	0·32
„ (Central)	0	0·01	0	0	0	0	0	0·01
„ (West)	0	0·08	0·06	0	0	0	0	0·14
„ (Submontane)	0	0·13	0·33	0·05	0·17	0	0·02	0·70
„ (North-east)	0·03	0·01	0·06	0·05	0·36	0	0	0·51
Bihar (Norh)	0	0	0·18	0·29	0·64	0·02	0	1·13
„ (South)	0	0	0	0·21	0·39	0	0	0·60
Chota Nagpur	0	0·17	0·34	0·50	0·19	0	0	1·20
South-West Bengal	0	0·02	0·10	0·58	0·30	0·10	0·02	1·12
North „	0	0·01	0·32	0·38	0·89	0·20	0·09	1·89
East „	0	0	0·37	0·08	0·30	0·34	0·23	1·32
Orissa	0	0	0	0·41	1·44	0·06	0	1·91
Assam	0·31	0·29	0·65	0·62	0·83	0·60	0·10	3·40

Pressure gave way largely in Persia between the 20th and 24th, and was about a third of an inch below the normal at Bushire on the morning of the 24th. A moderately deep depression had formed in West Persia during this period, and the weather was stormy and rainy on the 23rd and 24th. This depression passed through East Persia and Baluchistan on the 25th. Skies were clear in Baluchistan and Upper India on the 24th, but clouded over on the 25th, and rain commenced to fall in Beluchistan. The following gives the history of this storm in its passage across Northern India:—

Cold-weather storm of the 25th to the 29th of March.—The depression, the origin of which has been described above, began to affect the weather in North-Western India on the 25th. Pressure gave way briskly to rapidly in Baluchistan and Upper India during the next 24 hours, and a shallow depression, in which pressure was a tenth of an inch below the normal, covered the area defined by the stations of Quetta, Mooltan and Jacobabad. Showers had fallen in Baluchistan and the North Punjab, and snow in the Kashmir Himalayas.

27th March.—Pressure had continued to give way in Upper India, and the depression had extended eastwards and now covered the South Punjab and the adjacent districts of Rajputana. The following data show its position at 8 A.M.:—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M., reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
Bickaneer	29·664	—·072	?	WSW	12	0	...	Duststorm.
Jeypore	·724	—·077	—·115	SW	6	0	...	Clear.
Sirsa	·640	—·113	—·172	SW	6	0	...	„
Ludhiana	·652	—·106	—·158	SSE	4	7	...	Gale.
Lahore	·655	—·161	—·172	E	5	10	0·10	...
Montgomery.	·636	—·092	?	NE	10	2	...	Duststorm.
Mooltan	·667	—·090	—·182	NE	4	0	...	Clear.
Jacobabad	·605	—·118	—·203	ESE	7	0	...	Strong wind.
Quetta	...	—·095	—·199	NNW	4	0	...	Dust haze.
Cherat	...	—·092	?	NNW	12	8	0·03	...
Murree	...	—·072	—·176	ENE	13	10	0·53	Raining.
Minimarg	...	—·070	?	Calm	3	10	0·24	Snowstorm.
Dras	...	—·075	?	Calm	1	10	0·14	...

The depression was deepest at Quetta and Jacobabad, where pressure was two-tenths of an inch below the normal. Winds were cyclonic in direction and of moderate intensity in the low pressure area, and were increasing at the hill stations in Upper India, and were moderate to fresh in force. Skies were less clouded in the Punjab than on the 26th, and had cleared in Baluchistan, but were overcast in the Punjab hills and Kashmir. Light local showers had fallen in the North and East Punjab, and moderate showers in the hills.

28th March.—Pressure had increased rapidly in Baluchistan and Upper Sind, and had fallen in the North and East Punjab. The depression was now in the East Punjab, in the area for which data are given below:—

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	
Jeypore	29·725	+·001	—·130	WSW	7	0	...	
Delhi	·673	—·024	—·135	SE	9	10	...	
Ludhiana	·675	+·023	—·144	Calm	6	10	0·01	Duststorm.
Lahore	·652	—·003	—·173	NNE	6	10	0·16	
Montgomery.	·668	+·032	?	Calm	10	5	...	Duststorm.
Sirsa	·639	—·001	—·173	NNE	9	9	...	Dust haze.

Pressure had given way briskly in the North Punjab, and was in larger defect than in the area of depression. It

was very uniform over the province. Skies were overcast in the hill and submontane districts. Moderate showers had fallen in the north and east of the province, and moderate to heavy rain or snow in the hill districts. The following gives the largest falls during the previous twenty-four hours :—

DATE.	DISTRICT.	STATION.	Rainfall in 24 hours preceding 8 A.M. of date.
			Inches.
28th	Kashmir	Domel	2·00
,,	,,	Pattan	1·70
,,	,,	Punch	1·69
,,	,,	Srinagar	1·54
,,	Simla	Kot Khai	2·41
,,	Hazara	Abbotabad	1·52
29th	Kangra	Dharmsala	2·15
,,	Dehra Dun	Chakrata	1·62
,,	,,	Kalsi Chakrata	1·57
,,	Garhwal	Joshimath	1·53

Weather was more or less disturbed in Rajputana and the North-Western Provinces, and numerous duststorms had occurred in these two areas, giving in some cases very light rain. Easterly winds prevailed in the Gangetic Plain. Winds were blowing strongly at Simla, but were light at the North Punjab and Kashmir hill stations.

29th March.—A very rapid rise of pressure had taken place over the whole of North-Western India. The rise averaged nearly four-tenths of an inch in the Punjab, a quarter of an inch in Rajputana, and two-tenths in the North-Western Provinces. The following data show that the increase of pressure was almost as large in actual amount at the most elevated stations on the Kashmir and Punjab Himalayas as in the Punjab plains:—

STATION.	PRESSURE.	
	Change in 24 hours preceding 8 A.M. of 29th March 1897.	Variation from normal.
	"	"
Peshawar	+·439	+·188
Rawalpindi	+·427	+·234
Dera Ismail Khan	+·416	+·203
Khushab	+·396	?
Sialkot	+·373	+·187
Srinagar	+·411	?
Minimarg	+·334	?
Dras	+·356	?
Leh	+·236	?
Kailang*	+·286	?
Gilgit	+·360	?

* 10 A.M. observations.

The effect of these changes was to give high pressure and anti-cyclonic conditions over the whole of North-Western India. Skies had cleared over the Punjab. Light to moderate rain or snow had been received in the Upper India hill districts.

The storm was of the cold-weather type. It formed in Persia and advanced across Baluchistan and Upper India to the foot of the Simla Hills. There was a very slight tendency shown to the formation of a secondary depression in the North Punjab on the 28th, but it failed to develop beyond the initial stage. The following gives a statement of the rainfall in the Punjab due to the storm :—

DIVISION.	AVERAGE ACTUAL RAINFALL IN 24 HOURS PRECEDING 8 A.M. OF			Total rainfall of period.
	27th March, 1897.	28th March, 1897.	29th March, 1897.	
	Inch.	Inch.	Inch.	Inches.
Punjab, South	0	0·01	0	0·01
,, Central	0·01	0·03	0·01	0·05
,, Submontane	0·15	0·09	0·05	0·29
,, Hill districts	0·53	0·94	0·65	2·12
,, North-West	0·25	0·31	0·06	0·62
,, West	0·25	0·11	0·01	0·37

The rapid rise of pressure in North-Western India on the 29th transferred the area of minimum pressure in Northern India rapidly eastwards to Bihar on the 29th and Bengal on the 30th and 31st. Series of thunderstorms visited Assam and Bengal on the 29th and 30th. The weather conditions were again slightly unsettled at the end of the month, as a low pressure area began to form in the Sind hot area.

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

The following is a statement of the information relating to the snowfall of the month of March 1897 in the Himalayan and Afghan mountain areas, received up to date:—

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Hills bordering the Dera Ismail Khan District.*—The Political Officer, Wano, has sent the following account of the snowfall of the month on the mountain ranges in Waziristan:—

"Snow fell slightly during the month on the Marwatti Hills (10,000 feet) on the following dates—8th, 20th, 25th, 26th and 31st. It melted soon after falling except in ravines and on the north side.

"On each occasion the snow on the hills was accompanied by rain on the Wano plain, but in some cases this was only a slight storm or shower.

"On 31st March a few inches of snow only were remaining on the hills from 8,000 feet upwards on the northern slopes and in ravines.

"The snowfall of the present year was much heavier than that of the past year."

(2) *Kulachi Border.*—The snowfall during the month of March 1897 on the following peaks was as follows:—

24th . . .	Kat Peak . .	6 inches.
	Mirzagar . .	4 "
26th . . .	Kat Peak . .	1 foot.
	Marmaz . .	6 inches.
	Nawa Tiza . .	9 "
	Ubshata . .	9 "

"At the end of March 1897 the snow was melting rapidly. In the clefts of the Kat Peak where the sun rays do not fall it has not melted as yet, and is between 7 and 10 feet deep. On the peaks of Marmaz and Nawa Tiza it is less than this."

(3) *Kurram.*—"Only one inch of snow has fallen this month, on the 8th March. Heavy snow remains on the higher passes, but is gradually melting on the ranges below 8,000 feet."

(4) *Khyber District.*—Light snow fell in the last week of March, but it melted away in the next few days.

"The weather was colder than usual in March. The natives of this district say that the snowfall has been greater than usual this year.

(5) *Kabul.*—The following statement of the snowfall during the month of March at Kabul and in the neighbouring districts has been received from the British Agent:—

March 1st	2 inches.
" 9th and 10th . . .	12 "

"It is said that 5 feet depth of snow fell on the 9th and 10th instant on Koh Chakrai.

"March 26th.—Rain fell in Kabul, but 18 inches snow fell on Sher Darwaza (near the Bala Hissar Fort)

"The total snowfall during the winter in the city was 87 inches, and on Koh Chakrai 150 inches, but at present there is no snow lying on the plain around the city. The nearest hills are also without snow since the 9th March."

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Hills adjacent to Murree.*—Light snow fell at Murree on the 9th and 28th, totalling 9½ inches in amount. No snow fell at Kahuta.

(2) *Lahoul.*—The following interesting account of the snowfall during the past winter in this district has been received from the Revd. A. W. Heyde, Superintendent of the Meteorological Observatory, Kailang:—

"Only one real storm occurred during this winter, *viz.*, on the night of the 24th and 25th of February, when the wind blew with great force, but it brought only 3½ inches of snow mixed very much with *reddish dust.* All the other falls of snow were accompanied by but little wind.

Total snowfall during	December 1896	1 foot	9 inches.
" "	January 1897	5 feet	8 "
" "	February "	1 foot	2 "
" "	to the 28th March "	6 feet	10 "
	TOTAL	15 feet	5 inches.

"According to the natives two or three times as much snow falls on the high ranges and passes as in the Lahoul Valley. If this be correct, and probably it is nearly so, from 25 to 30 feet of snow have fallen on the Rotang Pass and all the high hills of Lahoul.

"All through the winter the Lahoul Valley of course is entirely covered with snow down to its bottom, the height of which above sea is 10,000 feet.

"The snowfalls during this winter were with one exception accompanied by but little wind. But in the higher regions frequent storms appeared to rage, much more so than in the two preceding winters, especially after fresh falls of snow, when the snow on the ridges and peaks could be seen carried by the wind high into the air, forming sometimes large clouds of snow which the natives call "glacier steam."

"In the intervals between the snowfalls the weather was nearly always cloudy, the sky being seldom quite clear.

"During the falls of the 26th, 27th and 28th of March there was no wind, excepting half an hour before the snow ceased falling on the 28th, when a strong wind arose, blowing for a quarter of an hour with great force. On the night of the 27th and 28th there was thunder and lightning for about two hours, a smart shock of earthquake occurring at the same time.

"On the flat fields around Kailang, the snow to-day (24th March) lies about 3 feet deep. On the southern slopes up to about 11,000 feet it has only partly melted away. It is disappearing unusually slowly on account of much cloud and little sunshine. From the 1st of March to the 24th there were only two clear days. No travellers having crossed the Rotang (13,000 feet) as yet, nothing reliable can be said as to the accumulation of snow in that direction.

"The temperature during the winter was about normal, but more constant than is generally the case in Lahoul winters, the cause being no doubt the cloudy weather which prevailed. Out of 114 days from 1st December to 24th March), only 18 days were cloudless.

"The following gives a comparison of the snowfall of this winter at Kailang with that of the two preceding winters:—

	feet.	inches.
Snowfall from 1st December 1894 to 31st March 1895	11	8
Snowfall in the same period 1895-96 . . .	8	8
" " " 1896-97 . . .	15	5

"Observing natives who can speak of what has happened through a space of 40 years, say that the snowfall in these parts is decreasing."

(3) *Chamba.*—The following is a statement of the snowfall during the month of March at the selected forest stations in the Chamba State:—

Date.	Depth of snowfall at					
	Thanela 7,000 feet.	Chanan 6,500 feet.	Bhandal 6,000 feet.	Kalatop 8,000 feet.	Chitrari 6,500 feet.	Barmaur 7,000 feet.
	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
10th March 1897 . .	0 1	0 ½	...	...	...	...
21st " . .	0 5	0 1½	0 1	0 3	*Nil*	0 3
22nd " . .	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	1 2
23rd " . .	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	0 3
28th " . .	0 8	0 4½	0 3	1 7	0 6	2 7
TOTAL .	1 2	0 6½	0 4	1 10	0 6	4 3

The snowfall of the 21st March descended to 5,500 feet and that of the 28th March to 4,500 feet.

The storms were generally preceded by high winds, rain and hailstorms. Between the storms the weather was generally cloudy, windy and cold.

On the 15th April the accumulation on the Padri Pass was said to be 3 feet. The snowfall of the month of March was unusual and descended to much lower altitudes than usual.

At Kalatop the accumulation was 1 foot 7 inches on 15th March; at 7,000 feet in the Chamba Range it was about a foot, and in the Bhandal Range at the same elevation, 6 inches. Its depth on the higher passes has not yet been ascertained.

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

"There were falls of snow on the 5th, 10th, 20th, 21st, 22nd, 26th and 27th March 1897 in the Kulu and Plach Tahsils. The falls were only on the higher passes, but the falls on the 20th and 21st descended to an elevation of 8,000 feet."

The following table gives the reported depth of snow on the higher passes of the Kulu sub-division at the end of the month and at the corresponding periods of the past five years for comparison:—

District.	Name of Pass.	Height above sea level.	Depth of snow on 25th of					
			March 1897.	March 1896.	March 1895.	March 1894.	March 1893.	March 1892.
		Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
Kulu.	Rotang . .	13,000	12	15	17	16	27	5
	Hamta . .	14,500	14½	12	10	15	25	4
	Barsai . .	?	4	4	6	11	14	3
	Chander Khani .	?	8	4	5	11	26	4
	Bujadhar . .	?	7	3½	5	10	15½	1
	Lohri Achri . .	?	11	8	6	10	12	1
	Bhubbu . .	10,000	5	3	5	6	12	1
	Pastari . .	?	...	...	5	4	10	2
	Majhang . .	?	1	...	...	1½	6	?
Plach.	Srikhand . .	15,000	18	10	20	20	40	10
	Chul . . .	?	4	2	6	6	20	1
	Maghin . .	?	4	2	5	8	19	1
	Tikar . .	?	4	2	5	8	14	1
	Dundku . .	?	6	4	6	9	15	2
	Nohnu . .	?	2	...	2	3	6	1
	Ramgarh . .	?	½	...	...	½	?	?
	Jalori . .	10,500	4	3	6	8	14	1
	Raghopur . .	?	4	3	7	10	14	1
	Lambri . .	?	3	3	5	7	15	1
	Sakiran . .	?	4	3	5	8	15	2
	Supakun . .	?	6	2	6	10	15	2
	Basleo . .	11,000	4	3	6	8	15	1
	Plach . .	?	6	3	8	9	20	2
	Tirath . .	?	8	4	11	12	25	3
	Gargarasan . .	...	8	4	12	...	...	...

"The weather was generally cold during the month under report. The Bhubbu, Jalori and Basleo Passes were open for foot passengers during the month. Some Lahulis succeeded in crossing the Rotang Pass before the falls of the 20th and 21st March, but it was after that again closed for foot passengers. After that storm all the passes in the sub-division were closed for laden animals."

"The snowfall in the month under report was a little greater than in the corresponding month of 1896."

(4) *Upper Sutlej Valley and neighbouring mountain ranges.*—The Deputy Conservator of Forests, Bushahr Division, reports as follows:—

"Snow storms occurred during the period on the 4th, 10th, 18th, 20th, 21st, 27th, 28th and 29th of March. The last was an unusually heavy fall for this season, and descended to 5,700 feet. The depth of snow at Kilba at the end of the month was 6 inches, and on the Rupin and Bulder passes it was estimated to be 15 to 20 feet in depth.

"The snowstorms of the 18th, 20th, 21st, 27th and 28th appeared to be local, while that of the 29th was general all over the hills of

Bushahr as far as could be seen. Up to the 15th of April none of the passes over the higher ranges are open. On the Bulder Pass (16,000 feet) on the Trans-Sutlej range, and on the Rupin (15,000 feet), the accumulation of snow is said to be large and probably from 15 to 20 feet in depth.

"People say that the snowstorms have been more numerous than usual during the season, and the winter more rigorous and longer than for many years past.

"The snow has rapidly disappeared from the lower slopes, the lower limit being 10,000 feet on the southern slopes and 8,000 to 9,000 feet on the northern. The snowfall of the year was much heavier than last year, but very few avalanches or snow slips have occurred."

III.—SIKKIM HIMALAYAS.

Sikkim.—The following notes on the snowfall in the northern parts of Sikkim, as observed during a tour in these hills during the months of November and December 1896, have been received from Dr. Pearce, Medical Officer, Gnatong :—

"On the 3rd November there was snow on the Thanka La Pass road above 11,200 feet. At 13,000 to 14,000 feet, it was about 3 to 4 inches deep. It had apparently fallen the previous day, and was melting rapidly where exposed to the sun's rays. On 6th November I visited the Thanka La Pass (16,400 feet). Above 14,000 feet the snow was deep, being as much as 2 to 3 feet in depth in some places. On the Thibetan side of the pass there was comparatively little snow, though all the mountain tops were covered with snow. This snow had probably fallen during the latter part of October, when there had been considerable rain in the lower valleys. Snow fell on the 8th November above 11,000 feet up the Thanka La Valley.

"At Tukpoo (13,800 feet) from the 12th to the 16th November there were slight falls of snow amounting in all to about 6 inches, each fall of snow being succeeded by very strong winds from south-east to south-west.

"On the 14th November I visited the Ghora La Pass (17,900 feet). There was less snow on this pass than on the Thanka La which is some 30 miles further south and not so high. Though snow had fallen about 8 miles distant (Tukpoo), there was practically none here except for the last 500 feet before the glacier at the summit of the pass was reached. On the glacier the snow was about 8 inches in depth. Many of the peaks in the immediate neighbourhood were entirely free from snow, and there was very little on the Thibetan side of the pass.

"On the 22nd November there was some rain at Laching (8,900 feet) and snow above 11,000 feet.

"At Tangu (13,200 feet) snow fell on the afternoon of the 2nd December, but rapidly melted. Throughout the 3rd snow was falling, towards evening it began to fall more heavily; during the night about 14 inches of snow fell. This continued until about 9 P.M. on the 4th, when a very strong northerly wind set in, blowing in tremendous gusts throughout the night of the 4th and forenoon of the 5th. In all about 22 inches of snow fell during this storm. The flakes were very large. Strong winds after a snowstorm appear to be constant at this period of the winter in these regions.

"Traders who were on the march from Thibet in this storm reported that the snow was up to their waists at an elevation of 14,500 feet to 15,500 feet, and also that there was more snow on the Thibetan than on the Sikkim side of the frontier. On 13th December I visited Giagong (15,600 feet) which is on the frontier, and the road by which the traders above mentioned had come. After going a few hundred yards across the border, there was practically no snow, though on the Sikkim side there was still about 6 inches and further down the valley it was a foot or more in depth. Apparently most of the snow of the storms of the 3rd, 4th and 5th December had been arrested by the peaks (elevation 22,000 feet to 26,000 feet) along this frontier.

"On the 24th at Chunentek (15,700 feet), snow began to fall about 2 P.M. and continued to do so more or less heavily till about 10 P.M., when it ceased. On the 25th it commenced again about 7 A.M., and fell heavily till about 8 P.M. Throughout the day there was an exceedingly strong wind blowing in gusts from south-west or west-south-west. The snowflakes were very small and fine. During these two days about 6 inches of snow fell. The natives of the Upper Teesta Valley stated that the snowfall during the latter months of last year was rather less than usual. There was certainly more snow lying on the mountains near Tangu (13,200 feet) at the beginning of November 1895 than at the beginning of December 1896. There was no snow on the ground at Tangu on 28th December 1896 and very little on the surrounding mountains. The snowstorm of the 4th and 5th December was practically the first fall of the season."

IV.—ASSAM HIMALAYAS.

Sadiya.—The following report has been received from F. J. Needham, Esq., Assistant Political Officer, Sadiya :—

"The snowfall upon the Himalayas bordering on Sadiya was heavier than we have had for some years past.

"There were two heavy falls, one early in the cold season, and the second as late as the middle of last March."

Summary of special storm reports.

The following gives a statement of the more important thunderstorms or hailstorms in the various provinces of India and more especially in Kashmir, Assam, Rajputana and Central India, during the month. The accounts of the hailstorms are derived from reports received from the Political Agents or other local authorities :—

4th March.—Thunderstorm with hail at Simla from 6-30 P.M. to 7-30 P.M.

20th—Severe thunderstorm at Raipur.

Duststorm at Saugor from 4-15 P.M to 5-30 P.M.

Severe duststorm (with thunder, lightning and rain) at Nagpur from 9-30 P.M. to 10-30 P.M.

21st.—Thunderstorm and hailstorm at Jubbulpore at 2 P.M.

Thunderstorm and hailstorm at Simla during the afternoon (1-30 P.M. to 4-30 P.M.)

Thunderstorm at Allahabad from 2-30 P.M. to 3-30 P.M. It is noted in the report that although numerous thunder peals were heard no lightning was observed.

22nd.—Severe thunderstorm at Delhi at 6 P.M. Storm came from north-west.

23rd.—Thunderstorm at Bahraich at 2 P.M. to 4·30 P.M. Total rain during storm, 1·62 inches. Severe thunderstorm at False Point followed by heavy rain. The storm lasted from 5 P.M. to 7 P.M.

27th.—Duststorm at Raipur from 2·50 P.M. to 3·20 P.M.

Thunderstorm with hail at Simla from 10·20 A.M. to 11 A.M. Thunderstorm at Allahabad from 10·25 P.M. to 11·30 P.M.

28th.—Severe thunderstorm with hail at Mussoorie from 3·30 P.M. to 4·30 P.M. Storm came from south-east. Thunderstorm at Simla.

The following reports of hailstorms have been received from Political Agents and District Officers:—

5th.—Hailstorm at Silchar and the neighbouring villages in the Cachar district.

20th.—Hailstorm in the Saughar town and within 16 miles from it in the Saughar Taluka of the Thar and Parkar district, Sind. The storm began at 5 P.M. and lasted 20 minutes. The rainfall during the period was ·77 inch. The largest hailstones weighed 15 tolas. Hailstorm at Bijni in the Goalpara district of Assam.

21st.—Hailstorm at Katigora in the Cachar district. Slight damage was inflicted upon the chilli crop. Severe hailstorm in the town of Pahari (north of Deeg) and the neighbouring villages. The stones were about the size of a garden plum, and covered the ground to a depth of about two inches. The crops were much injured.

23rd.—Hailstorm in the Sibsagar Sadar Tahsil. The stones were said to be about the size of plums.

25th.—Hailstorm at Cherra Poonjee.

27th.—Hailstorm in the town of Comilla. The largest stones weighed ½ tola.

28th.—Severe hailstorm at Lucknow. In some parts of Mohanlalganj the stones were as large as limes and in other parts they were of the size of marbles. The storm lasted 15 minutes and caused great damage to the crops (from 4 to 16 annas loss).

29th.—Severe hailstorm at Gauhati.

30th.—Severe hailstorm between Gumma and Gaiba in the Ganjam district. The Deputy Tahsildar, Parlakimidi, who was on tour in the district and passed through the storm, reports that the hailstones were "three times as large as the large sized metal spread on a new road." The inhabitants of the district say that the fall was quite unprecedented.

The following brief account of a severe hailstorm in January 1897 was received too late for inclusion in the storm section of the January 1897 Monthly Review:—

26th January.—Hailstorm in 71 villages of the Sumepur Pargana of the Hamirpur District of the North-Western Provinces. In some parts of the area affected the stones were very large and caused the total destruction of the cold weather crops.

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

Arabian Sea.—Moderate to strong westerly winds obtained during the greater part of the month off the Mekran, Sind and Kathiawar Coasts. They were strongest in force on the 27th, at 8 A.M. of which day the S. S. *Pachumba* off the Cutch coast experienced winds of force 7 and a high sea. Over the remainder of the Arabian Sea ordinary northerly winds of the north-east monsoon obtained during the greater part of the month. Winds were above their normal strength to a moderate extent during three periods, *viz.*, the 1st to the 5th, the 9th to the 11th and the 16th to the 18th. They were strongest on the 10th (when they averaged 4·1 in force) and feeblest on the 7th (1·9). The mean force of the winds for the whole of the month was normal (2·7). Weather was generally fine, although some showers were experienced in the south-east on the 9th.

Westerly winds with fine settled weather prevailed with even greater steadiness than usual in the Persian Gulf, except on the 23rd and 24th, when south-easterly winds were experienced.

The data for the equatorial region show that the eastern half of this area was occupied by a belt of calms and light variable airs during nearly the whole of the month. In the western half northerly winds obtained during the first nine days, and again from the 18th to the end of the month, and very irregular airs during the intervening period. There were but few instances of south-east winds.

Bay of Bengal.—Abnormal northerly winds prevailed off the Bengal and Orissa coasts from the 12th to the 15th and the 22nd to the 26th instead of the normal southerly sea breezes. During the remainder of the month the air movement over the Bay did not differ to any important extent from that which usually obtains in that area in March. Weather was feebly unsettled with occasional showers and squalls to the east and south of Ceylon on the 10th and 30th and over the greater part of the Bay from the 22nd to the 26th.

The mean strength of the air movement for the whole of the month was 2·5, or 0·1 above the normal.

Temperature of the Air.

March was more disturbed than usual. A succession of three cold weather disturbances passed across Northern India, of which two were followed by well marked cool waves which reduced temperature for some days largely below the normal. Hence the month was cooler than usual over the whole of Northern and Central India, but was, as is almost invariably the rule under these conditions, warmer than usual in the centre and south of the Peninsula and also in Burma.

The mean day or maximum temperature of the month was below the normal over the whole of India except Arakan, Upper Assam, Burma and the Peninsula south of Lat. 21°N., with the exception of the west coast districts to the north of Mangalore. The excess in these areas was generally small, but exceeded 2° at the following stations, for which data are given below :—

Station.	Mean maximum temperature.		
	Actual, March 1897.	Normal, March.	Variation of actual from normal.
	°	°	°
Bangalore	93·1	90·3	+2·8
Bellary	102·6	100·3	+2·3
Belgaum	96·0	93·8	+2·2
Poona	99·3	97·1	+2·2
Cuddapah	103·4	101·2	+2·2

The mean day or maximum temperature was more than 2° in defect over the greater part of the Punjab and North Rajputana. The following gives comparative data for the stations in this area of greatest deficiency in the day temperature :—

Province.	Station.	Mean maximum temperature.		
		Actual, March 1897.	Normal, March.	Variation of actual from normal.
		°	°	°
Punjab	Peshawar	72·3	76·7	—4·4
	Rawalpindi	72·6	76·7	—4·1
	Lahore	80·6	83·7	—3·1
	Ludhiana	82·4	85·1	—2·7
	Sirsa	86·3	88·7	—2·4
	Sialkot	79·9	81·8	—1·9
Rajputana	Bickaneer	87·1	89·4	—2·3

The highest maximum temperatures of the month were recorded over nearly the whole of Northern and Central India during the period from the 17th to the 20th.

The mean night or minimum temperature of the month was below the normal over the whole of India with the exception of Burma, South Bengal and the east and south of the Peninsula, where it was above the normal. The excess was more than 2° in amount over nearly the whole of the Madras Presidency (except the northern districts) and Hyderabad. The excess was 2°·5 or above at the following stations in that area :—

Station.	Mean minimum temperature.		
	Actual, March 1897.	Normal, March.	Variation of actual from normal.
	°	°	°
Hyderabad (Deccan)	72·7	69·5	+3·2
Bangalore	67·4	64·3	+3·1
Salem	73·7	70·6	+3·1
Kurnool	74·9	72·0	+2·9
Cuddapah	77·8	75·0	+2·8
Bellary	74·6	71·9	+2·7
Madras	74·6	72·0	+2·6

The deficiency in Northern, Central and Western India was generally small in amount, but was more than 2° in the area defined by the stations for which data are given below :—

Station.	Mean minimum temperature.		
	Actual, March 1897.	Normal, March.	Variation of actual from normal.
	°	°	°
Poona	61·1	64·3	—3·2
Deesa	61·4	63·9	—2·5
Bhuj	63·5	65·8	—2·3
Bombay	71·2	73·5	—2·3
Rajkot	60·4	62·6	—2·2

The lowest night temperatures of the month were generally registered in the Deccan, the Central Provinces, Berar, the Punjab and the Gangetic Plain on the 1st and the 12th, 13th and 14th.

The mean temperature of the month was above the normal in Burma, South Bengal, the Madras Presidency and the Deccan, and below in it the remainder of India. It was more than 2° above the normal in the area defined

by the stations for which temperature data are given below :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, March 1897.	Normal, March.	Variation of actual from normal.
	°	°	°
Bangalore	80·3	77·3	+3·0
Bellary	88·7	86·2	+2·5
Cuddapah	90·6	88·1	+2·5
Kurnool	88·7	86·3	+2·4
Hyderabad (Deccan)	85·9	83·6	+2·3
Madras	82·8	80·6	+2·2
Salem	86·7	84·5	+2·2

The mean temperature of the month was in defect over nearly the whole of Northern and Central India and the north of the Peninsula. The variations were generally small in amount, but exceeded 2° at stations for which data are given below :—

AREA.	STATION.	MEAN DAILY TEMPERATURE.		
		Actual, March 1897.	Normal, March.	Variation of actual from normal.
		°	°	°
North Punjab	Peshawar	61·3	64·3	—3·0
Kathiawar	Rajkot	77·1	79·6	—2·5
Cutch	Bhuj	77·7	79·8	—2·1
South-West Rajputana.	Deesa	77·9	80·0	—2·1
	Mount Abu	66·9	70·2	—3·3

Temperature was more or less below the normal at the hill stations in North-Western India and also in Baluchistan. The reduction of temperature was more marked in the day than the night temperature. The following gives comparative data for six stations :—

STATION.	MEAN TEMPERATURE.		
	Actual, March 1897.	Normal, March.	Variation of actual from normal.
	°	°	°
Leh	27·0	31·9	—4·9
Kailang	28·5	29·1	—0·6
Simla	48·9	50·7	—1·8
Chakrata	50·1	53·0	—2·9
Ranikhet	55·3	57·0	—1·7
Quetta	50·4	52·1	—1·7

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

(1) The day and night temperatures and hence also the mean temperature on the mean of the month were above the normal in Burma, South Bengal, Madras and the Deccan.

(2) The day and night temperatures and hence also the mean temperature were more or less in defect over the remainder of India. Temperature was most largely in defect in the North Punjab, South-West Rajputana, Cutch and Kathiawar over which the mean temperature of the month was slightly more than 2° below the normal.

The following table gives comparative data of the month for the 56 meteorological divisions of India :—

PROVINCE.	DIVISION.	ACTUAL TEMPERATURE.					VARIATION FROM NORMAL OF MONTH OF		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
BURMA	Tenasserim	93·2	72·5	82·9	20·7	30·4	—0·1	+1·9	—2·0
	Lower Burma (Deltaic)	92·1	73·0	82·6	19·1	28·8	0	+1·1	—1·1
	Central do.	99·0	69·2	84·1	29·9	40·7	+0·5	+1·8	—1·3
	Upper do.	95·6	66·4	81·0	29·1	44·6	+2·0	+0·1	+1·9
	Arakan	87·4	70·0	78·7	17·4	29·5	?	?	?
BENGAL AND ASSAM	Eastern Bengal	86·4	66·9	76·7	19·5	35·7	+0·2	+1·0	—0·8
	Assam (Surma)	86·6	61·3	74·0	25·4	43·1	+1·2	+0·6	+0·6
	Do. (Brahmaputra)	82·6	60·5	71·3	22·1	41·1	—0·3	—1·8	+1·5
	Deltaic Bengal	91·3	70·1	80·7	21·1	37·6	—0·4	+1·0	—1·4
	Central do.	91·7	65·5	78·6	26·2	45·6	—0·5	—0·1	—0·4
	North do.	85·4	60·1	72·7	25·3	46·4	—1·2	—0·9	—0·3
	Bengal Hills	57·1	38·0	47·5	19·1	32·5	+0·1	—1·2	+1·3
	Orissa	89·7	74·4	82·1	15·3	25·6	—0·3	+1·6	—1·9
	Chota Nagpur	86·8	63·6	75·2	23·2	39·5	—0·9	—0·9	0
	(South) Bihar	91·0	63·6	77·3	27·4	47·3	—1·7	—0·6	—1·1
	(North) Do.	89·0	60·7	74·9	28·3	50·5	—1·0	—0·9	—0·1

Province.	Division.	Actual temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of month of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
North-Western Provinces and Oudh.	North-Western Provinces (East)	91·9	62·0	77·0	30·0	51·9	−0·8	+0·6	−1·4
	Oudh (South)	90·6	60·0	75·3	30·6	52·1	−0·7	−0·6	−0·1
	Do. (North)	89·3	59·7	74·5	29·6	50·9	?	?	?
	North-Western Provinces (Central)	91·7	62·1	76·9	29·6	49·3	−0·2	+1·2	−1·4
	Do. do. (West)	88·0	60·0	74·0	28·0	45·0	−1·3	−0·4	−0·9
	Do. do. (East Sub-montane)	89·8	61·6	75·7	28·2	49·0	−1·0	−0·9	−0·1
	Do. do. (West do.)	83·6	56·3	70·0	27·3	44·6	−0·7	−0·6	−0·1
	Do. do. (Hills)	59·9	44·9	52·4	15·0	32·8	−3·1	−1·5	−1·6
Punjab	Punjab (South-East)	85·6	61·5	73·6	24·1	42·3	−2·6	−0·6	−2·0
	Do. (South)	84·9	57·5	71·3	27·4	47·6	−2·4	−0·5	−1·9
	Do. (Central)	80·6	56·8	68·7	23·8	41·4	?	?	?
	Do. (Submontane)	82·3	56·1	69·2	26·3	47·6	−2·3	−0·8	−1·5
	Do. (Hill Districts)	49·2	33·2	41·2	16·0	37·0	−3·5	−3·4	−0·1
	Do. (North)	72·2	48·2	60·2	23·9	40·1	−4·3	−0·6	−3·7
	Do. (West)	82·5	54·9	68·7	27·6	46·7	−1·0	−1·4	+0·4
Bombay and Malabar Coast Districts (Madras).	Malabar Coast	90·2	77·2	83·8	13·1	18·1	+1·1	+1·1	0
	Madras (South Central)	97·9	72·4	85·1	25·5	37·2	+0·5	+2·2	−1·7
	Coorg	84·5	63·0	73·8	21·5	27·8	0	+1·8	−1·8
	Mysore	94·2	67·4	80·8	26·8	35·4	+2·8	+3·1	−0·3
	Konkan	85·4	72·3	78·9	13·1	23·4	−1·3	−2·1	+0·8
	Bombay Deccan	99·3	66·1	82·7	33·2	41·8	+1·9	−1·2	+3·1
	Hyderabad (North)	98·5	68·4	83·5	30·1	39·9	?	?	?
	Khandesh	96·8	61·1	79·0	35·7	48·3	−0·1	−2·0	+1·9
Central Provinces and Berar.	Berar	99·4	66·7	83·1	32·8	47·1	+0·9	−0·6	+1·5
	Central Provinces (West)	97·1	65·1	81·1	32·0	47·2	−0·3	−0·6	+0·3
	Do. (Central)	94·2	63·5	78·9	30·8	48·0	−0·6	−0·6	0
	Do. (East)	95·4	67·6	81·5	27·9	42·3	−1·4	−0·4	−1·0
Bombay (North)	Gujarat	85·5	66·0	80·8	29·5	45·1	?	?	?
	Kathiawar and Cutch	90·6	62·9	76·8	27·7	45·4	−1·8	−2·3	+0·5
	Sind	88·4	62·4	75·4	26·0	46·2	−1·9	−1·5	−0·4
	Baluchistan Hills	65·9	38·5	52·2	27·4	52·9	−1·7	−1·7	0
Rajputana and Central India.	Central India (East)	90·9	60·7	75·9	30·2	48·2	−1·0	−0·4	−0.6
	Rajputana (East), Central India (West)	89·6	59·5	74·6	30·1	49·5	−1·2	−1·3	+0·1
	Do. (West)	90·2	60·4	75·3	29·8	51·5	−2·3	−3·8	+1·5
Madras	East Coast (North)	90·6	75·7	83·2	14·9	22·6	−0·2	+1·8	−2·0
	Hyderabad (South)	100·2	73·7	87·0	26·5	36·1	+1·4	+3·2	−1·8
	Madras (Central)	102·8	75·8	89·3	27·1	38·1	+2·1	+2·8	−0·7
	East Coast (Central)	93·6	74·6	84·1	19·0	31·6	−0·2?	+1·5	−1·7
	Do. (South)	92·5	75·4	84·0	17·1	29·8	+1·4	+2·4	−1·0
	Madras (South)	94·7	77·1	85·9	17·6	25·2	−0·5?	+2·7	−3·2

The following is a brief summary of the more important changes of temperature conditions in India during the month.

Temperature was at the commencement of the month in slight excess in Southern India and in moderate defect in Northern and Central India and the north-west of the Peninsula. The following variation data for the 24 hours preceding 8 A.M. of the 1st indicate that the night and day temperatures were both in defect, the latter to a greater extent than the former (as is usual in the hot weather):—

Political Province.	Variation from normal of Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+0·6	+0·4	+0·5
Bengal and Assam	+0·4	−2·4	−1·0
North-Western Provinces and Oudh	−1·7	−5·3	−3·5
Punjab	−0·3	−0·3	−0·3
Sind and Rajputana	−3·1	−1·2	−2·2
Central India and Gujarat	−4·0	−2·0	−3·0
Central Provinces and Berar	+0·5	−3·9	−1·7
Bombay	+0·5	−2·8	−1·2
Madras	+1·8	+3·1	+2·5

Temperature increased somewhat more rapidly than usual during the next four days and was on the 6th above the normal over the whole of India excepting Rajputana. The excess was large in Bengal and Madras. The following gives comparative data for the 24 hours preceding 8 A.M. of the 6th :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+0·7	+1·4	+1·1
Bengal and Assam	+3·1	+4·9	+4·0
North-Western Provinces and Oudh	+1·9	+0·5	+1·2
Punjab	+3·3	−0·4	+1·5
Sind and Rajputana	+1·7	−2·5	−0·4
Central India and Gujarat	+1·2	−1·1	+0·1
Central Provinces and Berar	+1·5	−1·1	+0·2
Bombay	+2·1	0	+1·1
Madras	+3·3	+3·7	+3·5

Temperature continued to increase somewhat more rapidly than usual during the next three days, and was in large excess in Bengal, the North-Western Provinces, the Punjab and Central Provinces on the 9th. The following gives variation data of the mean temperature from the normal on the 1st, 6th and 9th of the larger provinces for comparison :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	1st March.	6th March.	9th March.
	°	°	°
Burma	+0·5	+1·1	+2·4
Bengal and Assam	−1·0	+4·0	+5·0
North-Western Provinces and Oudh	−3·5	+1·2	+6·9
Punjab	−0·3	+1·5	+5·9
Sind and Rajputana	−2·2	−0·4	+3·8
Central India and Gujarat	−3·0	+0·1	+2·3
Central Provinces and Berar	−1·7	+0·2	+5·6
Bombay	−1·2	+1·1	+1·1
Madras	+2·5	+3·5	+1·4

The cold weather storm of the second week of the month was followed by a cool wave of moderate intensity which advanced across Northern India during the period from the 10th to the 15th. The reduction of temperature due to this cool wave was greatest on the 10th in Baluchistan, on the 11th in Sind, Cutch and Kathiawar, on the 12th and 13th in Rajputana and Central India and on the 14th in the eastern districts of the North-Western Provinces and Baghelkhund. The following data show roughly the easterly movement of the cool wave :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	10th March.	11th March.	12th March.	13th March.	14th March.	15th March.
	°	°	°	°	°	°
Baluchistan (Quetta)	−14·6	−10·5	−5·7	+4·3	+12·1	+6·7
Punjab	−2·5	−4·8	−6·0	−3·8	+0·7	−0·1
Sind	−6·3	−11·0	−7·0	−3·8	+0·9	−1·6
Rajputana	−3·4	−7·1	−9·4	−6·0	−2·5	+1·8
North-Western Provinces and Oudh.	+6·8	+2·4	−4·9	−5·1	−3·7	−1·0
Central India	+1·8	−3·1	−8·2	−7·3	−5·3	−2·6
Bihar	+6·8	+7·7	0	−4·5	−4·1	−2·7
Central Provinces and Berar.	+5·0	+1·9	−4·4	−6·2	−5·2	−2·7
Chota Nagpur	+9·1	+4·6	+2·5	−4·1	−5·2	−1·2
Bengal	+5·9	+6·1	+3·6	−2·8	−2·6	−2·7
Assam	+4·1	+4·5	+1·9	+0·5	−1·7	−1·1

Temperature was throughout this period steadily in excess in Madras, as is shown by the following data :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	10th March.	11th March.	12th March.	13th March.	14th March.	15th March.
	°	°	°	°	°	°
Madras	−0·2	+0·9	+2·3	+2·8	+3·1	+2·0

The preceding data show that temperature was more or less below the normal on the 14th over the whole of Northern and Central India and the north of the Peninsula. It increased rapidly during the next three days and was in general excess on the 17th. The following data

illustrate the rapid increase of temperature during the period :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		Abnormal change.
	14th March.	17th March.	
	°	°	°
Burma	+2·8	+1·0	—1·8
Bengal and Assam	—2·5	+1·8	+4·3
North-Western Provinces and Oudh	—3·7	+3·6	+7·3
Punjab	+0·7	+7·1	+6·4
Sind and Rajputana	—1·3	+5·4	+6·7
Central India and Gujarat	—4·9	+1·2	+6·1
Central Provinces and Berar	—5·2	+2·5	+7·7
Bombay	—1·3	+1·2	+2·5
Madras	+3·1	+1·0	—2·1

Temperature continued in general excess during the next three days, as is shown by the following data :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	17th March.	18th March.	19th March.	20th March.
	°	°	°	°
Burma	+1·0	+0·3	+1·5	+1·1
Bengal and Assam	+1·8	+3·9	+4·4	+4·0
North-Western Provinces and Oudh.	+3·6	+3·6	+3·3	+3·2
Punjab	+7·1	+1·0	+0·9	+2·1
Sind and Rajputana	+5·4	+2·5	+3·1	+4·4
Central India and Gujarat	+1·2	+1·8	+1·1	+1·9
Central Provinces and Berar	+2·5	+3·0	+3·4	+4·9
Bombay	+1·2	+1·0	+1·8	+1·0
Madras	+1·0	+1·6	+1·7	+0·9

A cold weather storm passed across Northern India on the 20th, 21st and 22nd, and was followed by a period of showery weather in North-Eastern India during the next three days. Numerous thunderstorms and hailstorms occurred during the period, and the local changes of temperature were hence very irregular during the period.

The disturbance was followed by a cool wave, the most noteworthy of the month. The following variation data illustrate the changes effected by the progress of this wave :—

AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	20th March.	21st March.	22nd March.	23rd March.	24th March.	25th March.
	°	°	°	°	°	°
Baluchistan (Quetta)	—1·9	—14·5	—16·7	—10·4	— 2·6	+6·2
Punjab	+2·1	— 2·0	— 9·5	— 6·7	— 7·4	—4·6
Sind	+3·3	— 1·0	— 8·8	— 4·1	— 7·2	+0·9
Rajputana	+5·1	+ 0·1	— 5·4	— 6·4	— 7·8	—6·8
North-Western Provinces and Oudh.	+3·2	+ 3·5	— 3·1	— 3·4	—11·2	—9·1
Central India	+2·7	+ 3·7	+ 1·3	— 1·6	— 6·4	—6·2
Bihar	+4·6	+ 7·2	— 1·4	— 7·9	—11·2	—9·4
Central Provinces	+5·2	+ 3·7	+ 0·7	— 0·7	— 6·4	—5·3
Chota Nagpur	+4·1	+ 4·1	— 3·1	— 5·9	—15·6	—7·9
Bengal	+3·9	— 3·8	— 1·2	— 4·6	— 8·1	—7·1
Assam	+2·7	+ 1·2	— 1·9	— 5·2	— 6·0	—9·4
Berar	+3·8	+ 4·3	+ 2·1	+ 1·9	— 3·6	—5·2

Temperature was hence in large defect over nearly the whole of Northern and Central India on the 24th and 25th, at the end of this period. Temperature increased during the next 48hours in North-W estern and Central India, but showery weather continued in Bengal and Burma. The temperature conditions on the 27th are shown by the following variation data :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	—5·1	—1·4	—3·3
Bengal and Assam	—5·2	—1·5	—3·4
North-Western Provinces and Oudh	—2·4	+2·0	—0·2
Punjab	—5·2	+0·3	—2·5
Sind and Rajputana	+0·4	+4·0	+2·2
Central India and Gujarat	—1·2	+4·3	+1·6
Central Provinces and Berar	—1·8	0	—0·9
Bombay	+0·8	—0·3	+0·3
Madras	—0·3	+3·8	+1·8

A disturbance, the fourth of the month, affected North-Western India from the 27th to the 30th. It advanced from Baluchistan to the foot of the Simla hills and gave showery weather in Upper India on the 28th and 29th. Series of thunderstorms occurred daily in Bengal and

Assam from the 28th to the end of the month. A cool wave advanced across Northern India during this period and hence temperature was throughout the period in moderate to large defect over the whole of Northern and Central India. The following variation data illustrate the conditions during this period :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	27th March.	28th March.	29th March.	30th March.	31st March.
	°	°	°	°	°
Burma	−3·3	−2·6	−0·1	+0·9	0
Bengal and Assam	−3·4	−1·5	−5·4	−3·9	−4·0
North-Western Provinces and Oudh.	−0·2	−0·7	−5·0	−7·7	−6·4
Punjab	−2·5	−4·3	−11·9	−8·6	−5·0
Sind and Rajputana	+2·2	−2·4	−7·3	−5·3	−1·7
Central India and Gujarat	+1·6	−1·8	−4·9	−6·5	−3·9
Central Provinces and Berar	−0·9	+0·6	−4·5	−5·5	−5·3
Bombay	+0·3	−1·3	−2·5	−2·3	−1·1
Madras	+1·8	+0·8	+0·8	+0·9	+1·6

The following gives the variations of the mean daily temperature from the normal, week by week, during the month in nine of the larger provinces or political divisions of the empire :—

POLITICAL AREA OR PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF WEEK ENDING					
	6th March.	13th March.	20th March.	27th March.	3rd April.	For whole month.
	°	°	°	°	°	°
Burma	+1·1	+2·2	+1·2	−0·2	−0·6	+0·8
Bengal and Assam	+1·2	+3·2	+1·4	−4·1	−3·1	−0·2
North-Western Provinces and Oudh.	+0·1	+1·3	+1·5	−3·8	−3·8	−0·5
Punjab	+0·3	−0·6	+2·2	−5·1	−5·2	−1·6
Sind and Rajputana	−1·2	−2·2	+2·4	−2·9	−2·9	−1·0
Central India and Gujarat.	−0·6	−2·3	−0·2	−1·5	−2·8	−1·3
Central Provinces and Berar.	+0·2	+0·5	+0·8	−1·8	−2·6	−0·5
Bombay	+0·6	−0·3	+0·6	−1·1	−1·1	−0·2
Madras	+2·2	+2·1	+1·7	+1·7	+1·8	+1·7

Winds.

Winds were not so strong or steady as usual in March at Port Blair and Rangoon. They were much more easterly (or less westerly) than usual at both stations.

Winds were practically normal in strength and mean direction in Bengal. The following gives data for three stations :—

STATION.	WIND DIRECTION.			VELOCITY IN MILES PER DIEM.		
	Mean actual, March 1897.	Mean normal, March.	Decreased westing.	Mean actual, March 1897.	Mean normal, March.	Variation from normal.
	°	°	°			
Calcutta	S 33 W	S 36 W	3	126	118	+ 8
Narayanganj	S 19 W	S 27 W	8	146	117	+29
Burdwan	S 82 W	S 82 W	0	75	76	− 1

Winds were also less westerly than usual at False Point :—

STATION.	WIND DIRECTION.		
	Mean actual, March 1897.	Mean normal, March.	Decreased westing.
	°	°	°
False Point	S 1 W	S 50 W	49

Very unsteady westerly winds prevailed in Bihar, Chota Nagpur and the eastern districts of the North-Western Provinces. The following gives mean data for three representative stations :—

STATION.	WIND DIRECTION.			STEADINESS.		
	Mean actual, March 1897.	Mean normal, March.	Westerly deflection.	Mean actual, March 1897.	Mean normal, March.	Variation from normal.
	°	°	°			
Hazaribagh	N 54 W	N 74 W	−20	42	54	−12
Patna	N 81 W	N 73 W	+ 8	29	52	−23
Allahabad	N 62 W	N 62 W	0	12	40	−28

Winds were practically normal in direction in the Punjab and Sind. They were more westerly than usual in Central India, and were slightly stronger and steadier than usual in Rajputana and Central India.

The following gives comparative data of the mean air

movement of the month in different provinces of Northern and Central India :—

PROVINCE.	VELOCITY IN MILES PER DIEM.		
	Mean actual, March 1897.	Mean normal, March.	Variation from normal.
Punjab	73	64	+ 9
North-Western Provinces and Oudh	94	80	+14
Bihar	101	102	— 1
Chota Nagpur	203	194	+ 9
Bengal	154	139	+15
Rajputana	146	139	+ 7
Central India	109	95	+14

Winds were very variable in character in the Central Provinces and Berar. They were, on the whole, slightly more westerly than usual. Winds were steadier and stronger than usual in the Deccan, as is shown by the data of the following stations :—

STATION.	VELOCITY IN MILES PER DIEM.			STEADINESS.		
	Mean actual, March 1897.	Mean normal, March.	Variation from normal.	Mean actual, March 1897.	Mean normal, March.	Variation from normal.
Poona	288	190	+98	74	43	+31
Belgaum	289	272	+17	29	17	+12
Sholapur	195	190	+ 5	23	5	+18
Bellary	87	109	—22	26	19	+ 7

Winds were slightly weaker than the normal at the west coast stations. They were less westerly and more northerly than usual. They were remarkably steady. Winds were abnormally strong in Mysore and Coorg and more steady than usual and were approximately normal in direction in the Madras coast districts.

The following gives a comparative statement of the mean daily air movement in different parts of the Peninsula :—

DIVISION.	VELOCITY IN MILES PER DIEM.			STEADINESS.		
	Mean actual, March 1897.	Mean normal, March.	Variation from normal.	Mean actual, March 1897.	Mean normal, March.	Variation from normal.
Bombay Deccan	257	217	+40	42	22	+20
Konkan	193	198	— 5	80	63	+17
Mysore	147	128	+19	23	40	—17
Coorg	121	83	+38	39	22	+17
Madras Coast	106	107	— 1	78	71	+ 7
South Madras	114	109	+ 5	43	44	— 1
Central Provinces	130	100	+30	28	24	+ 4
Berar	141	145	— 4	60	45	+15

It is noteworthy that the Zanzibar data show that south-east winds set in at that station earlier than usual. The change had not extended to the Seychelles during the month.

The following is a brief summary of the chief abnormal features of the air movement of the month in India :—

(1) Winds were not so strong or steady as usual at Port Blair and in Lower Burma.

(2) Winds were remarkably unsteady in Bihar, Chota Nagpur and the eastern districts of the North-Western Provinces.

(3) They were slightly steadier and stronger in Rajputana and Central India.

(4) They were very unsteady but stronger than usual in the Central Provinces.

(5) They were steadier and stronger than usual over the Deccan.

(6) They were steadier and more northerly than usual over the west coast districts.

Humidity and cloud.

Ths mean humidity conditions of Port Blair and the Burma coast stations were practically normal. There was a slight to moderate excess of aqueous vapour locally at Akyab, Chittagong and Silchar. The following gives data for these three stations :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1897.	Normal, March.	Variation from normal.	Actual, March 1897.	Normal, March.	Variation from normal.
	"	"	"	%	%	
Akyab	·772	·678	+·094	78	71	+7
Chittagong	·712	·683	+·029	75	74	+1
Silchar	·589	·579	+·010	72	72	0

The air was also somewhat damper than usual on the mean of the month in Chota Nagpur, chiefly due to the unusual prevalence of easterly winds, and was slightly drier in Bihar. The following gives comparative data for that area :—

DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.	Average actual, March 1897.	Average normal, March.	Variation from normal.
	"	"	"	%	%	
Bihar North	·398	·447	—·049	50	54	—4
Bihar South	·409	·391	+·018	45	45	0
Chota Nagpur	·317	·284	+·033	39	34	+5

The air was abnormally dry over nearly the whole of Northern and Central India. The following gives comparative data for that large area of decreased humidity in March, including the greater part of Bengal, the North-Western Provinces, the Punjab, Sind, Rajputana, Central India and North Bombay :—

PROVINCE.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.	Average actual, March 1897.	Average normal, March.	Variation from normal.
	"	"	"	%	%	
Bengal	·611	·628	—·017	63	66	—3
North-Western Provinces and Oudh.	·293	·337	—·044	40	45	—5
Punjab	·320	·359	—·039	50	53	—3
Sind	·363	·447	—·084	43	51	—8
Rajputana	·286	·316	—·030	34	36	—2
Central India	·241	·299	—·058	27	36	—9
North Bombay	·661	·712	·051	71	72	—1

The increased dryness of the air was most marked in Sind, Central India and the North-Western Provinces. The following gives the mean humidity data for stations in that area at which the mean humidity of the month was 10 or more in defect :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1897.	Normal, March.	Variation from normal.	Actual, March 1897.	Normal, March.	Variation from normal.
	"	"	"	%	%	
Quetta	·146	·214	—·068	42	57	—15
Mooltan	·279	·389	—·110	40	52	—12
Jacobabad	·202	·301	—·099	26	37	—11
Nowgong	·235	·335	—·100	28	40	—12

The mean humidity of the month was more or less considerably below the normal in Berar, the Central Provinces, the Deccan, Mysore and Coorg. Comparative data are given below :—

PROVINCE.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.	Average actual, March 1897.	Average normal, March.	Variation from normal.
	%	%	%	%	%	
Berar	·220	·292	—·072	21	29	—8
Central Provinces.	·270	·331	—·061	31	36	—5
Deccan	·311	·370	—·059	30	34	—4
Mysore	·415	·440	—·025	44	49	—5
Coorg	·451	·484	—·033	56	63	—7

Humidity was 10 in defect in this area at Khandwa. The variations of the mean humidity conditions from the normal were small in amount at the Bombay and Madras coast stations.

The decreased humidity was hence most pronounced in Baluchistan and the South-West Punjab. The mean amount of aqueous vapour pressure in the air was 32 per cent. less than the normal at Quetta and 30 per cent. at Mooltan.

The air was very dry at the hill stations in Sikkim, Kashmir, North-Western India and the Central Provinces. The following gives data for five representative stations:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1897.	Normal, March.	Variation from normal.	Actual, March 1897.	Normal, March.	Variation from normal.
	"	"	"	%	%	
Leh	·071	·102	—·031	50	58	—8
Simla	·151	·185	—·034	47	50	—3
Ranikhet	·212	·232	—·020	52	53	—1
Darjeeling	·233	·252	—·019	67	73	—6
Chikalda	·203	·287	—·084	24	33	—9

The month was hence characterized throughout by deficient aqueous vapour pressure and decreased humidity over nearly the whole of the interior of India and probably up to the elevation of 11,000 feet at least. These features were most marked during the first fortnight of the month. The following table gives the lowest humidities recorded at the driest stations in India during the month :—

STATION.	Date.	Humidity at 4 P.M.
		%
Jacobabad	9th	3
Poona	13th	3
Khandwa	4th and 16th	4
Buldana	13th	4
Deesa	12th	5
Sholapur	9th	6
Nowgong	29th and 30th	6
Chikalda	11th	8

The mean humidity of the month was 4 below the normal at Mauritius and 2 above it at Zanzibar.

The driest stations in India during the month (at which the mean humidity percentages of the month were less than 25) are given below :—

STATION.	RELATIVE HUMIDITY.		
	Actual, March 1897.	Normal, March.	Variation from normal.
	%	%	
Khandwa . . .	21	31	—10
Buldana . . .	19	28	—9
Chikalda . . .	24	33	—9
Akola	23	29	—6
Sholapur . . .	24	31	—7

This list of stations indicates that Berar, the Bombay, Deccan and the western districts of the Central Provinces were, on the mean of the month, marked by the greatest dryness of the air.

The following gives the chief features of the mean humidity conditions of the month :—

(1) Conditions were normal at Port Blair and in Lower Burma.

(2) The air was slightly damper in East Bengal and Arakan.

(3) The air was very dry in West Bengal, the Gangetic Plain, the Punjab, Sind, Baluchistan, Rajputana and Central India. The deficiency was most marked in Baluchistan, Upper Sind and the South-West Punjab.

(4) It was also much drier than usual in Berar, the Central Provinces, the Deccan, Mysore and Coorg.

(5) Conditions were practically normal at the Madras and Bombay coast stations.

The variations of the mean distribution of cloud during the month from the normal differed very largely in general character from the variations of the humidity conditions of the lower air strata.

Cloud was in excess in Burma and nearly the whole of Northern and Central India, including Bengal, Chota Nagpur, the North-Western Provinces, the Punjab and Rajputana. The following gives comparative data for that area of increased cloud in March and also for Assam and Bihar :—

AREA.	MEAN CLOUD AMOUNT.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.
Burma	3·2	2·2	+1·0
Assam	3·9	4·3	—0·4
Bengal	3·4	3·0	+0·4
Bihar	2·0	2·0	0
Chota Nagpur . .	3·0	2·7	+0·3
North-Western Provinces and Oudh.	2·9	2·6	+0·3
Punjab	4·2	3·7	+0·5
Rajputana . . .	2·8	2·6	+0·2

Cloud was in considerable to large excess in the hill districts of Upper India. The following gives comparative data for six representative stations :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, March 1897.	Normal, March.	Variation from normal.
Leh	7·8	6·3	+1·5
Srinagar . . .	6·3	5·6	+0·7
Simla	6·3	4·8	+1·5
Kailang	7·2	6·2	+1·0
Chakrata . . .	5·7	3·9	+1·8
Ranikhet . . .	4·4	3·7	+0·7

Cloud was, on the other hand, below the normal at Mount Abu, Darjeeling and Katmandu, as is shown below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, March 1897.	Normal, March.	Variation from normal.
Mount Abu . . .	2·0	2·5	—0·5
Darjeeling . . .	3·9	5·2	—1·3
Katmandu . . .	3·4	3·6	—0·2

The mean amount of cloud of the month was practically normal in Baluchistan and Sind, as is shown by the following data :—

STATION.	MEAN CLOUD AMOUNT.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.
Baluchistan (Quetta) .	4·1	4·1	0
Sind	2·7	2·9	—0·2

Cloud was more or less considerably in defect in Central India, Berar, the Central Provinces, the Bombay Deccan, Mysore, Coorg and the west coast districts. Comparative data for these areas are given below:—

AREA.	MEAN CLOUD AMOUNT.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.
Central India	1·7	2·4	—0·7
Berar	0·8	2·0	—1·2
Central Provinces	1·4	2·0	—0·6
Deccan	1·4	2·1	—0·7
Mysore	1·8	2·8	—1·0
Coorg	2·3	4·0	—1·7
West Coast	1·1	1·7	—0·6

The mean cloud amount of the month was above the normal in the Madras coast districts, as is shown by the following data for three representative stations :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, March 1897.	Normal, March.	Variation from normal.
Madras	3·3	2·4	+0·9
Coconada	2·0	1·0	+1·0
Vizagapatam	3·5	2·0	+1·5

The mean cloud amount was less than 1·0 at the stations for which data are given below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, March 1897.	Normal, March.	Variation from normal.
Karwar	0·3	1·4	—1·1
Belgaum	0·5	1·9	—1·4
Ratnagiri	0·6	0·7	—0·1
Poona	0·7	2·1	—1·4
Akola	0·7	1·7	—1·0
Khandwa	0·7	1·7	—1·0
Buldana	0·8	2·2	—1·4
Bangalore	0·9	2·3	—1·4

It is noteworthy that the skies were as free from cloud in the Konkan as at the driest stations in the interior of India.

The chief abnormal features of the cloud distribution of the month were :—

1st.—Moderate to considerable excess in Burma, Bengal, Chota Nagpur, the North-Western Provinces, the Punjab and Rajputana and also in the Upper India hill districts. Cloud was in moderate defect over the Eastern and Central Himalayas.

2nd.—Slight defect in Sind and Central India, and normal in Baluchistan.

3rd.—Moderate to considerable deficiency in the Peninsula, (except the Madras coast districts) most pronounced in the Central Provinces, Mysore and Coorg.

4th.—Moderate excess in the Madras Coast districts.

Rainfall.

The normal rainfall of the month of March is small in amount over by far the greater part of India, ranging between an average of a hundredth of an inch and an inch in amount over the whole of India, except the following districts :—

1st.—South Madras, where it slightly exceeds an inch.

2nd.—Bengal, Orissa and Assam, in which it ranges from an inch in Orissa and Central Bengal, to 3 inches in East Bengal, 4 inches in the Assam Valley and 9 inches in Cachar.

3rd.—The hill districts of the North-Western Provinces and the hill, submontane and the north-west divisions of the Punjab, in which it ranges between 1 inch in the submontane districts and 3 inches in the Punjab hills.

The chief periods of rainfall were as follows :—

1st.—The 6th and 7th, when Kashmir received light showers of little importance.

2nd.—The 8th, 9th, 10th and 11th, when Baluchistan, the North Punjab and Kashmir obtained light to moderate showers and the Kashmir and Punjab Himalayas moderate snow. Bihar and North Bengal had light local thundershowers on the 11th.

3rd.—The 20th to the 25th. The rainfall during this period was initiated by a cold weather storm of moderate intensity. Baluchistan received moderate rain on the 20th and 21st, the Punjab and western districts of the North-Western Provinces on the 21st and 22nd. Bihar, Bengal and Assam obtained moderate general rain from series of thunderstorms during the period from the 22nd to the 26th, and Burma light and fairly general rain on the 25th and 26th.

4th.—From the 26th to the 30th. The rainfall of this period was due to a cold weather storm of slight intensity. Baluchistan obtained showers on the 26th, the Punjab (chiefly the northern districts) and Kashmir from the 26th to the 29th, Bihar and Bengal light to heavy local thunder showers on the 29th and 30th and Assam moderate rain from the 28th to 31st.

5th.—On the 31st when Baluchistan received light showers.

The following table gives comparative data of the month for 58 meteorological or rainfall divisions :—

Province.	Division.	Number of rainy days. Average actual, March 1897.	Number of rainy days. Average normal, March.	Rainfall. Average actual, March 1897.	Rainfall. Average normal, March.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	0·39	0·22	+0·17
	Lower Burma (Deltaic)*	?	?	0·11	0·08	+0·03
	Central do.*	?	?	0·33	0·02	+0·31
	Upper do.*	?	?	0·42	?	?
	Arakan*	?	?	1·95	0·34	+1·61
Bengal and Assam	Eastern Bengal	4·4	3·3	2·77	2·61	+0·16
	Assam (Surma)	12·0	8·7	10·09	8·46	+1·63
	Do. (Hill Tracts)	9·4	6·0	6·10	3·70	+2·40
	Do. (Brahmaputra)	8·9	7·6	5·52	4·13	+1·39
	Deltaic Bengal	3·5	2·6	2·13	1·78	+0·35
	Central do.	3·2	1·8	1·75	1·03	+0·72
	North do.	5·0	1·8	3·01	1·23	+1·78
	Bengal Hills	5·0	3·2	2·64	1·84	+0·80
	Orissa	3·0	2·1	3·47	1·21	+2·26
	Chota Nagpur	3·9	1·9	1·78	0·99	+0·79
	Bihar (South)	2·6	0·9	0·95	0·44	+0·51
	Do. (North)	2·7	0·9	1·37	0·46	+0·91
North-Western Provinces and Oudh.	North-Western Provinces (East)	1·5	0·7	0·51	0·26	+0·25
	Oudh (South)	0·5	0·7	0·19	0·30	—0·11
	Do. (North)	1·2	0·9	0·82	0·43	+0·39
	North-Western Provinces (Central)	0·1	0·7	0·02	0·30	—0·28
	Do. do. (West)	0·8	1·1	0·18	0·39	—0·21
	Do. do. (Submontane East)	1·3	0·7	0·55	0·29	+0·26
	Do. do. (do. West)	1·7	1·8	0·66	0·88	—0·22
	Do. do. (Hills)	4·0	3·6	2·20	2·04	+0·16
Punjab	Punjab (South-East)	0·9	1·0	0·21	0·47	—0·26
	Do. (South)	0·6	0·9	0·18	0·49	—0·31
	Do. (Central)	2·8	1·5	0·91	0·89	+0·02
	Do. (Submontane)	2·0	1·7	0·75	1·15	—0·40
	Do. (Hill Districts)	5·7	4·4	4·24	3·45	+0·79
	Do. (North)	4·8	3·2	2·59	1·98	+0·61
	Do. (West)	1·8	1·0	0·68	0·54	+0·14
Bombay and Malabar Coast Districts (Madras).	Malabar Coast	0·1	0·8	0·06	0·44	—0·38
	Travancore	1·6	?	0·99	?	?
	Madras (South Central)	0·7	0·8	0·36	0·54	—0·18
	Coorg	0	?	0	?	?
	Mysore*	?	?	0·02	0·29	—0·27
	Konkan	0	0·2	0	0·07	—0·07
	Bombay Deccan	0	0·4	0	0·19	—0·19
	Khandesh	0	0·1	0	0·03	—0·03
Central Provinces and Berar.	Berar*	?	?	0·03	0·18	—0·15
	Central Provinces (West)	0·1	0·7	0·07	0·28	—0·21
	Do. (Central)	0·6	0·8	0·21	0·40	—0·19
	Do. (East)	2·7	1·1	1·64	0·51	+1·13

* NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

Province.	Division.	Number of rainy days. Average actual, March 1897.	Number of rainy days. Average normal, March.	Rainfall. Average actual, March 1897.	Rainfall. Average normal, March.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
Bombay (North)	Gujarat	0	0	0	0·01	—0·01
	Kathiawar	0	0·1	0	0·05	—0·05
	Sind	0	?	0	0·28	—0·28
	Baluchistan Hills	2·0	?	0·70	1·09	—0·39
Rajputana and Central India.	Central India (East)	0·2	?	0·06	0·26	—0·20
	Rajputana (East) and Central India (West)	0·1	?	0·02	0·20	—0·18
	Rajputana (West)	0·1	?	0·02	0·14	—0·12
Madras	East Coast (North)	2·4	0·8	1·65	0·51	+1·14
	Do. (do.) (a)	3·0	2·0	1·50	1·01	+0·49
	Hyderabad (South)*	?	?	0·02	0·51	—0·49
	Madras (Central)	0·2	0·3	0·08	0·14	—0·06
	East Coast (Central)	0·3	0·3	0·13	0·21	—0·08
	Do. (South)	0·6	0·5	0·31	0·36	—0·05
	Madras (South)	0·7	1·5	0·43	1·06	—0·63

* NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

The rainfall of the month was actually or practically *nil*, (*i.e.*, less than a tenth of an inch) in Sind, Cutch, Gujarat, Kathiawar, the central division of the North-Western Provinces, the western division of the Central Provinces, Berar, Rajputana, Central India, Bombay, Mysore, the Bombay and Madras Deccan, Hyderabad and the central division of Madras. It was less than an inch in total amount over the whole of the remainder of India with the exception of three areas, *viz* :—

(1) The North Punjab and the Upper India hill districts.

(2) Arrakan, Assam, Bengal, North Bihar, Chota-Nagpur, Orissa, the eastern districts of the Central Provinces and North Madras.

Baluchistan received more frequent rain than usual, due to four feeble disturbances, three at least of which advanced from Persia. The periods of rain were the 8th and 9th, the 19th to the 21st, the 25th and 26th and the 31st. The rainfall was heaviest as usual on the plateau.

The rainfall of the month was in slight defect of the normal. The following gives comparative data for the whole area :—

Province.	Rainfall. Average actual, March 1897.	Rainfall. Average normal, March.	Rainfall. Variation from normal.
	Inch.	Inches.	Inch.
Baluchistan Hills	0·70	1·09	—0·39

Kashmir received unusually frequent rain. Thus at Dras there were fifteen rainy days (on which the fall exceeded a tenth of an inch) and at Srinagar nine rainy days. The falls were generally light to moderate in amount, the heaviest being 2·5 inches at Pattan and 2·32 inches at Vantipore on the 27th. The precipitation of the month was in more or less considerable excess. The only station for which normal data are as yet available is Leh. It received a total amount of 0·95 inch, very nearly four times the average fall of the month (0·24 inch).

A few showers of no importance fell in the Jeypore state of Rajputana on the 20th, 21st and 22nd and in the Bundelkhand and Baghelkhund divisions of Central India on the 23rd and 28th.

The following is a brief statement of the periods of rainfall of the month in the Punjab :—

(1) *The 9th and 10th.*—The north and west divisions and the hill districts obtained light to moderate rain during this period.

(2) *The 20th to the 22nd.*—The rainfall of this period was, on the whole, the most general during the month in the Punjab. Moderately heavy rain fell in the hill, submontane and north divisions, light rain in the western division and light local showers in the central and south-east divisions.

(3) *The 26th to the 29th*—Moderate to heavy rain fell during this period in the north-west, west submontane and hill divisions. Practically no rain fell in the central or south divisions.

The following gives the heaviest falls:—

DATE.	DISTRICT.	Station.	Rainfall in 24 hours preceding 8 A.M. of date.
			Inches.
27th March 1897	Kangra . . .	Dharmsala . .	1·59
28th ,,	Simla . . .	Kot Khai . .	2·41
,, ,,	Hazara . . .	Abbottabad . .	1·52
29th ,,	Kangra . . .	Dharmsala . .	2·15

The following gives a comparative statement of the rainfall of the seven divisions of the province:—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.	Average actual, March 1897.	Average normal, March.	Variation from normal.
				Inches.	Inches.	Inch.
South-East Punjab .	0·9	1·0	—0·1	0·21	0·47	—0·26
South Punjab . .	0·6	0·9	—0·3	0·18	0·49	—0·31
Central Punjab . .	2·8	1·5	+1·3	0·91	0·89	+0·02
Punjab Submontane .	2·0	1·7	+0·3	0·75	1·15	—0·40
,, Hills . .	5·7	4·4	+1·3	4·24	3·45	+0·79
North Punjab . .	4·8	3·2	+1·6	2·59	1·98	+0·61
West Punjab . .	1·8	1·0	+0·8	0·68	0·54	+0·14

The comparative data show that the hill districts and the northern division received an average total rainfall in moderate excess of the normal. The rainfall of the month was practically normal in the western and central divisions. It was in moderate to large defect in the remaining divisions, *viz.*, the south-east, south and submontane. The following gives comparative data for the districts in which the deficiency was most marked:—

DISTRICT.	RAINFALL.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.
	Inch.	Inch.	Inch.
Hissar	0·18	0·49	—0·31
Ferozepore	0·10	0·49	—0·39
Montgomery	0·09	0·32	—0·23
Gurgaon	0·20	0·30	—0·10
Rohtak	0·27	0·49	—0·22
Delhi	0·26	0·53	—0·27
Karnal	0·16	0·67	—0·51
Umballa	0·31	0·70	—0·39
Ludhiana	0·12	0·67	—0·55

The area of greatest deficiency hence, included the greater part of the South-East Punjab, in which the rainfall during the preceding south-west monsoon was most seriously in defect.

The rainfall of the month was as usual light in the North-Western Provinces. No rain fell over a considerable portion of Oudh, more especially the Lucknow, Unao and Rai Bareilly districts, the central division of the North-Western Provinces (including the districts of Banda, Fatehpur, Hamirpur, Cawnpore, Jalaun, Etawah, Farukhabad, Mainpuri and Etah) and a part of the western division, including the districts of Agra, Muttra and Jhansi. Showers were received in the remainder of the province, chiefly during the third and fourth periods of disturbed weather of the month, *viz.*, from the 21st to the 24th and 27th to the 29th.

The rainfall was moderately heavy in the Dehra Dun, Almora, Garhwal and Naini Tal districts during the fourth period, and light to moderate in the submontane districts. The following gives a summary of the rainfall in the eight divisions of the province:—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.	Average actual, March 1897.	Average normal, March.	Variation from normal.
				Inches.	Inches.	Inch.
North-Western Provinces, East.	1·5	0·7	+0·8	0·51	0·26	+0·25
South Oudh . .	0·5	0·7	—0·2	0·19	0·30	—0·11
North Oudh . .	1·2	0·9	+0·3	0·82	0·43	+0·39
North Western Provinces, Central.	0·1	0·7	—0·6	0·02	0·30	—0·28
North-Western Provinces, West.	0·8	1·1	—0·3	0·18	0·39	—0·21
North-Western Provinces, East Submontane.	1·3	0·7	+0·6	0·55	0·29	+0·26
North-Western Provinces, West Submontane.	1·7	1·8	—0·1	0·66	0·88	—0·22
North-Western Provinces. Hills.	4·0	3·6	+0·4	2·20	2·04	+0·16

The rainfall of the month was hence normal in the hill districts and in moderate excess in the eastern submontane districts (including Basti, Gorakhpur, Azamgarh and Ballia), North Oudh and the eastern division of the North Western Provinces and was scanty and in defect over the remainder of the province.

Bengal and Assam received larger and more favourable rain than usual. The rainfall occurred chiefly during the third and fourth disturbed periods of the month, *viz.*, from the 22nd to the 25th and the 28th to the 30th. Light local showers were received in East Bengal on the 6th and 7th and in South-West and North Bengal on the 11th and 12th. The whole province received general rain between the 22nd and the 25th. The 23rd and 24th were the days of heaviest and most general rain. The following gives the

amounts in 24 hours exceeding three inches recorded during this period :—

DATE.	DISTRICT.	Station.	Rainfall in 24 hours preceding 8 A.M. of date.
			Inches.
23rd March 1897	Balasore . . .	Bhadrak . .	4·15
,, ,,	Bankura . . .	Bankura . .	3·25
24th ,,	Cuttack . . .	False Point . .	3·59
,, ,,	Balasore . . .	Jellasore . .	3·56
,, ,,	,, . . .	Balasore . .	3·08

The rainfall of the last period from the 28th to the 30th was more irregularly distributed than that of the preceding burst. Orissa, South-West and North Bengal received fairly general and moderate rain, and Bihar, Chota Nagpur and East Bengal light to moderate sporadic showers. The rainfall was most general on the 29th. The following large falls were registered during this period :—

Date.	District.	Station.	Rainfall in 24 hours preceding 8 A.M. of date.
			Inches.
28th March 1897 .	Hooghly . .	Hooghly . .	4·51
29th ,, .	Cuttack . . .	Cuttack . . .	4·53
30th ,, .	Puri . . .	Pipli . . .	4·23

The following comparative statement of the rainfall of the month in the nine divisions of the province is based on the whole of the available data, published in the *Provincial Gazette* :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.	Average actual, March 1897.	Average normal, March.	Variation from normal.
				Inches.	Inches.	Inches.
Eastern Bengal . .	4·4	3·3	+1·1	2·77	2·61	+0·16
Deltaic Bengal . .	3·5	2·6	+0·9	2·13	1·78	+0·35
Central Bengal . .	3·2	1·8	+1·4	1·75	1·03	+0·72
North Bengal . .	5·0	1·8	+3·2	3·01	1·23	+1·78
Bengal Hills . .	5·0	3·2	+1·8	2·64	1·84	+0·80
Orissa	3·0	2·1	+0·9	3·47	1·21	+2·26
Chota Nagpur . .	3·9	1·9	+2·0	1·78	0·99	+0·79
South Bihar . .	2·6	0·9	+1·7	0·95	0·44	+0·51
North Bihar . . .	2·7	0·9	+1·8	1·37	0·46	+0·91

The data show that the rainfall was in excess through out the Province. The excess was most marked in Orissa, North Bengal and North Bihar. Orissa received an average of 3·47 inches, three times its normal amount, and North Bengal of 3·01 inches or nearly two and a half times its normal fall. Chota Nagpur and Bihar obtained about double their normal fall. The excess was, absolutely and relatively to the normal, least in East Bengal where it averaged only 6 per cent. above the normal.

Assam received on the whole favourable rain during the month. Cachar had light to moderate daily showers during the period from the 5th to the 12th, moderate to heavy daily showers from the 19th to the 25th, and light showers on the last three days of the month. The Assam valley received light to moderate rain on the 6th and 7th and again on the 10th and 11th and almost daily moderate rain from the 19th to the end of the month. The general rainfall statement shows that the rainfall of the month was in moderate excess in each of the three divisions and by amounts which averaged nearly 33 per cent. for the whole Province.

The following gives comparative data for the three divisions of the province :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.	Average actual, March 1897.	Average normal, March.	Variation from normal.
				Inches.	Inches.	Inches.
Assam (Surma) . .	12·0	8·7	+3·3	10·09	8·46	+1·63
,, (Hill Tracts) .	9·4	6·0	+3·4	6·10	3·70	+2·40
,, (Brahmaputra) .	8·9	7·6	+1·3	5·52	4·13	+1·39

The following gives a comparative statement of the rainfall of each district in the province :—

DIVISION.	District.	RAINFALL.		
		Average actual, March 1897.	Average normal, March.	Variation from normal.
		Inches.	Inches.	Inches.
Upper Assam . .	Nowgong . .	4·46	2·71	+1·75
	Sibsagar . .	7·30	4·44	+2·86
	Lakhimpur . .	6·25	6·18	+0·07
Lower Assam . .	Darrang . .	4·21	3·04	+1·17
	Kamrup . .	5·56	3·81	+1·75
	Goalpara . .	4·73	2·37	+2·36
Cachar . . .	Cachar . . .	11·42	8·70	+2·72
	Sylhet . . .	8·76	8·25	+0·51

The rainfall of the month in Burma was larger than usual. Little or no rain was received during the first

three weeks of the month. Series of thunderstorms occurred during the period from the 22nd to the 26th. The rainfall of the month was in considerable excess in Arakan and Upper and Central Burma and normal in Lower Burma and Tenasserim, as is shown by the following statement :—

DIVISION.	RAINFALL.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.
	Inches.	Inch.	Inches.
Tenasserim	0·39	0·22	+0·17
Lower Burma, . . .	0·11	0·08	+0·03
Central Burma	0·33	0·02	+0·31
Upper Burma	0·42	?	?
Arakan	1·05	0·34	+1·61

No rain fell in Berar during the month. The eastern and central divisions of the Central Provinces obtained local thundershowers during the last two disturbances of the month, *i.e.*, from the 20th to the 24th and on the 28th and 29th. Bilaspur received 2·06 inches during a thunderstorm on the 20th and Pendra in the Bilaspur District 2·5 inches on the 29th. The rainfall was, however, generally small in amount and of little importance. The following gives a comparative statement for the three divisions of the province :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, March 1897.	Average normal, March.	Variation from normal.	Average actual, March 1897.	Average normal, March.	Variation from normal.
				Inches.	Inch.	Inches.
Central Provinces, East	2·7	1·1	+1·6	1·64	0·51	+1·13
" Central	0·6	0·8	—0·2	0·21	0·40	—0·19
" West .	0·1	0·7	—0·6	0·07	0·28	—0·21

No rain fell in the Bombay Presidency, where the month was even drier than usual. The deficiency ranged between an average of one-tenth of an inch in the Konkan and two-tenths in the Bombay Deccan.

The northern coast districts of Madras, including Ganjam, Vizagapatam and Godavari received general and moderate rain from thunderstorms on the 24th, 25th and again on the 28th, and Kistna and Nellore light scattered showers chiefly on the 28th. The Coromandel and southern districts had light showers during the period from the 25th to the 29th. A few scattered showers of little value were received in the interior districts. The rainfall of the month was scanty and deficient over the whole of the Presidency except in the north coast districts. The following gives comparative data for the eight divisions of Madras and for Travancore for the month :—

DIVISION.	RAINY DAYS.		RAINFALL.		
	Average actual, March 1897.	Average normal, March.	Average actual, March 1897.	Average normal, March.	Variation from normal.
			Inches.	Inches.	Inches.
Madras East Coast, North . .	2·4	0·8	1·65	0·51	+1·14
Madras East Coast, North(a) .	3·0	2·0	1·50	1·91	+0·43
Madras Central . . .	0·2	0·3	0·08	0·14	—0·06
Madras East Coast, Central .	0·3	0·3	0·13	0·21	—0·08
Madras East Coast, South . .	0·6	0·5	0·31	0·36	—0·05
Madras, South	0·7	1·5	0·43	1·06	—0·63
Madras South, Central . .	0·7	0·8	0·36	0·54	—0·18
Malabar Coast	0·1	0·8	0·06	0·44	—0·38
Travancore State . . .	1·6	?	0·99	?	?

Table

Abstract of Observations taken at 8 A.M. at 21

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	I.—Burma Coast and Bay Islands.		...	...	−·011	...	...	...	...	...	...	...	92·6	0	72·7	+1·3	82·7	+0·7	19·9	...	...	...	...	29·5
1	Tenasserim and Bay Islands.	Port Blair	61	29·899	?	29·891	29·975	15th	29·846	26th	·129	81·7	92·1	?	77·3†	?	84·7†	?	14·8	94·9	25th & 30th	73·2	3rd	21·7
		Mergui	96	29·871	?	29·899	29·926	15th	29·819	21st	·107	81·8	91·6	?	73·6	?	82·6	?	18·0	95·2	30th	69·1	14th	26·1
		Tavoy	26	29·978	?	29·935	30·034	15th	29·938	12th	·096	77·0	94·3	?	69·8	?	82·1	?	24·5	98·7	24th	63·2	3rd	35·5
		Moulmein	94	29·880	−·008	29·912	29·937	15th	29·832	26th	·105	77·2	93·8	−0·1	74·2	+1·9	84·0	+0·9	19·6	99·4	3rd	69·8	3rd	29·6
2	Lower Burma	Rangoon	41	29·912	−·019	29·891	29·968	15th	29·852	4th	·116	75·4	97·8	+1·5	71·2	+0·3	84·5	+0·9	26·6	102·1	24th	64·8	18th	37·3
		Bassein	27	29·932	−·003	29·894	29·989	9th	29·862	4th	·127	77·2	93·7	−0·6	71·2	+1·0	82·5	+0·2	22·5	98·2	24th	65·9	6th	32·3
		Diamond Island,	41	29·920	−·014	29·896	29·974	2nd & 15th	29·850	4th	·124	79·8	84·9	−0·8	76·6	+1·9	80·8	+0·6	8·3	89·6	2 days	72·9	26th	16·7
5	Arakan	Akyab	20	29·947	−·009	29·910	30·023	9th	29·860	4th	·163	76·0	87·4	?	70·0	+1·2	78·7	?	17·4	92·2	16th	62·7	2 days	29·5
3	Central Burma	Toungoo	183	29·751	−·012	29·878	29·818	15th	29·674	4th	·144	76·9	97·8	+0·1	70·3	?	84·1	?	27·5	100·7	3 days	64·2	3rd	36·5
	II.—Burma Inland.		...	...	?	...	...	...	...	...	...	...	96·3	+1·3	66·7	+1·0	81·5	+1·2	29·6	...	...	...	...	44·7
3	Central Burma	Thayetmyo	134	29·787?	?	29·864?	29·851	15th	29·707	4th	·144	77·2	100·2	+0·5	68·0	+1·8	84·1	+1·2	32·2	105·1	12th	60·2	2 days	44·9
4	Upper Burma	Minbu	?	29·764	?	?	29·845	9th	29·68	4th	·162	76·3	98·9	?	70·9	?	84·9	?	28·0	104·6	12th	62·1	3rd	42·5
		Yamethin	645	29·273?	?	29·875?	29·347	9th	29·198	4th	·149	77·4	99·1	?	69·4	?	84·3	?	29·7	104·5	11th	63·2	2nd	41·3
		Mandalay	249	29·656?	?	29·851?	29·720	15th	29·571	4th	·149	78·3	98·9	?	70·8	?	84·9	?	28·1	105·1	22nd	60·2	4th	44·9
		Kindat	?	29·510?	?	?	29·650	9th	29·386	30th	·264	66·4	92·0	+2·0	60·7	+0·1	76·4	+1·1	31·3	98·3	21st	49·5	1st	48·8
		Bhamo	?	29·558?	?	?	29·666	9th	29·451	30th	·215	67·4	88·9	?	60·3	?	74·6	?	28·6	96·1	20th	50·4	2nd	45·7
5(a)	Burma Hill Stations.	Taunggyi	?				Not re	corded.				68·0	82·1	?	54·4	?	68·3	?	27·7	87·1	22nd	49·5	27th	37·6
		Lashio	?	27·144	?	?	27·228	15th	27·077	4th	·151	65·6	86·7	?	57·6	?	72·2	?	29·1	108·5	17th	49·0	4th	59·5
	III.—Assam.		...	...	−·010	...	...	...	...	...	...	...	84·6	+0·2	60·9	−1·0	72·6	−0·4	23·7	...	...	...	...	42·1
7	Surma	Silchar	104	29·855	−·009	29·914	29·973	15th	29·742	4th	·231	69·3	86·5	+1·2	64·0	+0·6	75·3	+0·9	22·5	96·1	22nd	53·3	1st	42·8
		Salonah	?	29·688	?	29·898	29·909	9th	29·461	12th	·448	65·9	86·7	?	58·5	?	72·6	?	28·2	92·5	19th	49·1	2nd	43·4
9	Brahmaputra	Sibsagar	333	29·620	−·016	29·924	29·745	15th	29·462	30th	·283	62·7	79·8	+0·6	58·8	−1·3	69·3	−0·4	21·0	87·5	13th	51·5	5th	36·0
		Dhubri	115	29·803	−·005	29·878	29·946	15th	29·656	30th	·290	67·4	85·3	−1·2	62·2‡	−2·3	73·3‡	−1·8	23·1	97·2	20th	51·0	1st	46·2
	IV.—Bengal and Orissa.		...	...	−·016	...	...	...	...	...	...	...	89·1	−0·4	67·2	+0·6	78·2	+0·1	21·9	...	...	...	...	38·7
6	East Bengal	Chittagong	87	29·860	−·017	29·897	29·956	15th	29·768	4th	·188	74·4	87·2	+1·0	69·2	+1·5	78·2	+1·3	18·0	91·2	17th	59·1	1st	32·1
		Lungleh	?				Not re	corded.				65·3	76·1	?	60·9	?	68·5	?	15·2	82·2	22nd	54·6	28th	27·6
		Noakhali	43	29·886*	?	29·877*	29·986	9th	29·802	4th	·184	76·3	86·9	?	69·1	?	78·1	?	17·8	91·5	16th & 17th	58·0	15th & 16th	33·5
		Comilla	36	29·898	?	29·883	30·006	15th	29·797	4th	·209	75·0	89·6	?	68·2	?	78·9	?	21·4	95·3	11th	57·0	1st	38·3
		Sirajganj	49	29·856	?	29·856	29·992	15th	29·760	30th	·232	70·3	87·2	?	63·4	?	75·3	?	23·8	93·5	21st	51·2	1st	42·3
		Narayanganj	26	29·895	−·022	29·870	30·021	15th	29·789	4th	·232	74·1	89·2	−0·8	69·5	+1·1	79·4	+0·2	19·7	96·1	18th	58·3	1st	37·8
		Barisal	12	29·909	−·023	29·868	30·043	15th	29·816	4th	·227	75·9	89·8	+1·9	70·4	+1·2	80·1	+1·6	19·4	95·3	18th	61·9	25th	33·4
		Mymensingh	59	29·863	−·021	29·875	29·992	15th	29·766	30th	·226	69·5	85·2	−1·3	64·2	+0·1	74·7	−0·6	21·0	92·5	19th	52·0	1st	40·5
10	Deltaic Bengal	Faridpur	46	29·876	?	29·871	29·997	15th	29·782	4th	·215	72·2	90·5	?	66·3	?	78·5	?	24·2	98·8	19th	53·0	1st	45·8
		Jessore	33	29·875	−·024	29·855	29·997	15th	29·791	4th	·206	74·9	92·4	−0·1	69·3	+1·0	80·9	+0·5	23·1	100·5	19th	58·1	13th	42·4
		Calcutta	21	29·893	−·018	29·860	30·023	15th	29·805	5th	·218	75·0	89·7	−0·7	70·6	+0·9	80·2	+0·1	19·1	98·9	11th	63·7	13th	35·2
		Saugor Island	25	29·887	−·020	29·857	30·005	15th	29·810	4th	·195	78·9†	86·9†	−0·3†	76·0†	+1·0†	81·5	+0·4	10·9	89·9	4th	68·9	24th	21·0
		Krishnagar	47	29·868	?	29·865	30·003	15th	29·779	5th	·224	74·8	92·8	?	67·0	?	79·9	?	25·8	101·4	19th	57·4	13th	44·0
		Midnapore	149	29·762*	?	29·861*	29·884	15th	29·667	5th	·217	76·0*	95·3*	?	71·3*	?	83·3*	?	24·0	103·4	19th	66·2	4th & 24th	37·2

* Mean of 30 days. † Mean of 28 days. ‡ Mean of 25 days.

Note.—When a query is inserted in the variation returns from any sta tio

I.

stations in India, Burma, etc., in March, 1897.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 March 1897.	Normal rainfall for period, from 1st to 31st March.	Variation from normal of period, 1st to 31st March.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·37	0·52	+1·02	...	...	...	...	I.—Burma Coast and Bay Islands.		
9	5	5	4	2	1	1	1	3	3·7	4·4	− 16	82	·888	2·9	0	?	?	0·11	0·47	−0·36	0·11	0·47	− 0·36	0·08	Port Blair	Tenasserim and Bay Islands.	1
...	10	1	3	1	1	...	...	15	2·6	2·0	+ 30	77	·638	3·4	4	?	?	4·75	2·48	+2·27	4·75	2·48	+ 2·27	2·25	Mergui		
21	2	...	...	...	...	...	1	7	2·0	?	?	81	·749	0·5	0	?	?	0·02	?	?	0·02	?	?	0·02	Tavoy.		
...	1	5	12	5	3	4	1	...	3·2	3·0	+ 7	81	·755	3·1	1	0·36	+0·64	0·26	0·41	−0·15	0·26	0·41	− 0·15	0·26	Moulmein.		
...	3	2	2	2	2	9	9	2	3·7	5·0	− 26	86	·755	2·6	0	0·36	−0·36	0·12	0·28	−0·16	0·12	0·28	− 0·16	0·09	Rangoon	Lower Burma.	2
...	...	1	...	...	1	...	4	25	6·7	4·9	+ 37	83	·779	2·0	1	0	+1·00	0·10	0·02	+0·08	0·10	0·02	+ 0·08	0·10	Bassein.		
...	8	1	2	...	...	...	5	15	14·3	7·9	+ 81	75	·758	2·8	1	0	+1·00	0·82	0·01	+0·81	0·82	0·01	+ 0·81	0·82	Diamond Island.		
...	5	17	5	2	...	1	1	...	3·5	3·7	− 5	84	·758	4·2	2	0·82	+1·18	4·93	0·42	+4·51	4·93	0·42	+ 4·51	2·84	Akyab.	Arakan.	5
1	4	2	3	14	6	...	...	1	4·5	2·8	+ 61	70	·660	2·0	2	0·18	+1·82	1·24	0·05	+1·19	1·24	0·05	+ 1·19	1·03	Toungoo	Central Burma.	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·46	0·66	−0·43	...	...	...	...	II.—Burma Inland.		
...	1	...	2	5	13	2	2	6	2·4	5·2	− 54	59	·551	1·1	0	0	0	0·06	0·05	+0·01	0·06	0·05	+ 0·01	0·06	Thayetmyo	Central Burma.	3
...	1	2	4	11	6	1	1	2	5·3	?	?	57	·524	2·3	2	?	?	0·29	?	?	0·29	?	?	0·17	Minbu	Upper Burma.	4
9	...	...	...	17	5	...	...	...	5·4	?	?	55	·516	1·3	1	?	?	0·91	?	?	0·91	?	?	0·87	Yamethin.		
3	1	...	...	1	11	10	2	3	5·4	?	?	58	·586	1·1	1	?	?	0·21	?	?	0·21	?	?	0·18	Mandalay.		
25	...	...	...	...	1	2	2	1	?	?	?	90	·590	3·0	2	?	?	0·41	1·27	−0·86	0·41	1·27	− 0·86	0·25	Kindat.		
12	...	10	2	...	...	3	3	1	4·0	?	?	80	·532	2·0	3	?	?	0·85	?	?	0·85	?	?	0·34	Bhamo.		
6	...	...	...	2	13	9	1	...	?	?	?	49	·335	4·6	1	?	?	0·58	?	?	0·58	?	?	0·49	Taunggyi.	Burma Hill Stations.	5(a)
			Not	rec	orde	d.			?	?	?	71	·459	6·5	3	?	?	0·99	?	?	0·99	?	?	0·46	Lashio.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·83	5·24	+2·11	...	...	...	...	III.—Assam.		
27	...	...	1	...	1	...	...	2	2·8	3·3	− 15	84	·609	5·0*	13	10·00	+3·00	10·94	8·71	+2·23	10·94	8·71	+ 2·23	2·30	Silchar	Surma.	7
9	1	12	4	...	...	1	2	2	?	?	?	90	·574	2·6	7	?	?	5·27	?	?	5·27	?	?	1·76	Salonah		
13	...	14	1	1	2	...	...	...	5·2	2·8	+ 86	92	·529	6·6†	11	9·96	+1·04	6·68	5·07	+1·61	6·68	5·07	+ 1·61	1·30	Sibsagar	Brahmaputra.	9
3	1	14	5	3	2	3	...	...	5·4	6·3	− 14	75	·507	2·1	6	2·07	+3·93	4·41	1·93	+2·48	4·41	1·93	+ 2·48	1·68	Dhubri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·65	1·54	+1·03	...	...	...	...	IV.—Bengal and Orissa.		
3	3	6	6	13	...	...	...	...	5·2	5·8	− 10	83	·707	4·0	6	2·92	+3·08	2·75	2·52	+0·23	2·75	2·52	+ 0·23	1·19	Chittagong	East Bengal.	6
			Not	rec	orde	d.			?	?	?	68	·420	?	4	?	?	4·10	?	?	4·10	?	?	1·85	Lungleh.		
...	1	4	5	3	5	12	1	...	5·2	?	?	83	·760	3·9	4	3·46	+0·54	2·03	3·40	−1·37	2·03	3·40	− 1·37	0·74	Noakhali.		
1	1	1	3	4	19	...	2	...	5·2	?	?	85	·743	5·2*	5	4·22	+0·78	4·54	3·16	+1·38	4·54	3·16	+ 1·38	2·19	Comilla.		
10	...	...	6	5	3	5	2	...	3·5	?	?	83	·626	4·6†	4	2·40	+1·60	2·36	1·38	+0·98	2·36	1·38	+ 0·98	0·88	Sirajganj.		
3	...	4	2	3	7	7	4	1	6·0	4·7	+ 28	83	·706	6·9	5	3·50	+1·50	2·57	2·67	−0·10	2·57	2·67	− 0·10	0·94	Narayanganj.		
28	...	...	...	1	...	2	...	...	1·6	?	?	86	·781	4·0	2	3·27	−1·27	0·67	2·52	−1·85	0·67	2·52	− 1·85	0·55	Barisal.		
10	..	2	10	9	...	...	...	...	1·5	?	?	83	·608	?	9	3·54	+5·46	3·72	2·02	+1·70	3·72	2·02	+ 1·70	1·01	Mymensingh.		
13	2	1	...	2	9	4	...	...	3·2	?	?	86	·679	2·6	5	3·73	+1·27	1·68	2·60	−0·92	1·68	2·60	− 0·92	0·75	Faridpur	Deltaic Bengal.	10
17	1	...	...	1	5	4	2	1	2·7	3·2	− 16	83	·729	4·6	5	3·27	+1·73	1·63	2·15	−0·52	1·63	2·15	− 0·52	0·60	Jessore.		
4	1	2	...	3	7	11	2	1	5·3	5·5	− 4	84	·732	3·6	3	2·36	+0·64	1·37	1·57	−0·20	1·37	1·57	− 0·20	0·80	Calcutta.		
...	3	3	1	1	7	12	2	2	15·4	12·3	+ 25	83§	·819§	4·9	2	1·92	+0·08	1·71	1·24	+0·47	1·71	1·24	+ 0·47	1·38	Saugor Island.		
2	2	1	1	5	8	7	4	1	4·8	?	?	74	·646	3·5‖	5	2·00	+3·00	2·59	1·33	+1·26	2·59	1·33	+ 1·26	1·06	Krishnagar.		
6	5	...	...	...	15	3	...	1	2·9	?	?	75*	·662*	2·5§	3	2·42	+0·58	2·40	1·52	+0·88	2·40	1·52	+ 0·88	1·34	Midnapore.		

‖ Mean of 29 days. § Mean of 27 days.

the data from that station are not employed for calculating the provincial variations.

Table

Abstract of Observations taken at 8 A.M. at 211

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
11	Central Bengal	Bankura	298	29·576	?	29·832	29·706	15th	29·479	5th	·227	73·6	93·3	?	68·3	?	80·7	?	25·0	103·6	19th	61·7	4th	41·9
		Raniganj	334	29·576	?	29·867	29·709	14th	29·467	5th	·242	73·1	92·3	?	66·7	?	79·5	?	25·6	102·9	19th	60·4	4th	42·5
		Burdwan	99	29·811	−·015	29·860	29·943	15th	29·710	5th	·233	74·9	93·9	+0·3	69·0	+0·5	81·5	+0·4	24·9	103·4	19th	62·1	15th	41·3
		Naya Dumka	489	29·406	?	29·865	29·545	14th & 15th	29·291	5th	·254	73·5	91·0	?	65·7	?	78·3	?	25·3	101·8	19th	56·1	1st	45·7
		Berhampore	67	29·845	−·007	29·862	29·932	15th	29·758	11th	·224	72·0	91·8	−1·0	65·2	−0·8	78·5	−0·9	26·6	102·6	19th	56·1	1st	46·5
		Rampur Boalia.	70	29·829	?	29·850	29·975	15th	29·665	11th	·310	72·8	91·6	?	64·5	?	78·0	?	27·1	101·0	19th	53·3	1st	47·7
		Malda	72	29·822	?	29·847	29·984	15th	29·724	5th	·260	70·7	90·9	?	60·7	?	75·8	?	30·2	101·4	21st	48·5	1st	52·9
		Bogra	61	29·835	?	29·850	29·970	15th	29·733	30th	·237	70·2	88·8	−0·7	63·7	+0·1	76·3	−0·3	25·1	99·2	20th	53·2	1st	46·0
12	North Bengal	Dinajpur	123	29·779	−·007	29·861	29·921	15th	29·651	30th	·270	67·9	88·0	−1·2	60·2	−1·3	74·1	−1·3	27·8	98·8	21st	48·5	1st	50·3
		Rangpur	123	29·790	?	29·872	29·930	15th	29·662	30th	·268	68·0	85·9	?	60·4	?	73·2	?	25·5	96·2	20th	46·1	1st	50·1
		Jalpaiguri	284	29·634	?	29·887	29·779	15th	29·513	19th	·266	66·2	83·9	−1·1	58·7	−0·5	71·3	−0·8	25·2	93·4	20th	50·1	13th	43·3
		Cooch Behar	150	29·751	?	29·859	29·892	15th	29·628	30th	·264	67·2*	83·6	?	60·9*	?	72·3*	?	22·7	93·4	20th	51·4	15th	42·0
17	North Bihar	Purnea	125	29·777	−·005	29·861	29·926	15th	29·657	30th	·259	66·5	88·8	−1·4	60·1	−0·3	74·5	−0·9	28·7	99·7	20th	49·3	1st	50·4
14	Orissa	Balasore	56	29·870	−·005	29·863	29·999	15th	29·785	5th	·214	77·1	91·9	+0·8	71·4	+1·6	81·7	+1·2	20·5	100·5	3 days	65·8	3 days	34·7
		False Point.	21	29·910	−·011	29·873	30·025	15th	29·821	5th	·204	79·9	86·6	−1·0	74·5	+2·3	80·6	+0·7	12·1	89·5	4th	68·5	24th	21·0
		Cuttack	80	29·833	−·023	29·857	29·940	15th	29·726	5th	·214	77·0	96·1	−0·7	73·6	+0·9	84·9	+0·1	22·5	102·2	4 days	68·2	4th	34·0
		Shortt's Island.	?	29·914*	?	?	30·021	9th	29·821	6th	·200	80·3†	86·9†	?	76·1†	?	81·5†	?	10·8	88·8	7th	70·6	26th	18·2
		Puri	20	29·908	?	29·871	30·020	15th	29·818	5th	·202	80·1	87·2	?	76·6	?	81·9	?	10·6	89·2	4th	69·1	24th	20·1
	V.—Gangetic Plain and Chota Nagpur.		...	...	−·026	...	...	...	...	...	...	...	89·6	−1·0	61·9	−0·6	75·8	−0·9	27·7	...	...	...	...	47·9
15	Chota Nagpur	Hazaribagh.	2,007	27·872	−·029	29·860	27·998	14th	27·739	5th	·259	70·2	87·3	−1·4	62·9	−1·0	75·1	−1·2	24·4	97·1	10th	56·2	13th	40·9
		Ranchi	2,128	27·775	?	29·848	27·897	15th	27·651	5th	·246	78·1	90·7	?	65·4	?	78·1		25·3	101·1	19th	59·6	13th	41·5
		Daltonganj	730?	29·184	?	29·895?	29·323	14th	29·010	22nd	·313	67·2	75·3	?	59·6	?	67·4	?	15·7	83·4	3rd	51·0	1st	32·4
		Chaibassa	760?	29·142	?	29·867	29·273	14th	29·021	5th	·252	73·5	93·2	−0·3	66·5	−0·7	80·2	−0·5	27·3	103·2	19th	60·0	4th	43·2
16	South Bihar	Gaya	375	29·513	−·031	29·853	29·663	14th	29·370	2 days	·293	72·2	91·9	−1·8	65·1	−1·1	78·6	−1·5	26·8	101·7	19th	55·8	1st	45·9
		Dehri	351	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Patna	183	29·706	−·030	29·848	29·861	14th	29·579	22nd	·282	70·8	89·6	−1·5	63·6	0	76·6	−0·8	26·0	101·0	19th	54·3	1st	46·7
		Arrah	190	29·714*	?	29·863*	29·866	14th	29·571	5th	·295	69·7*	92·1*	?	62·3*	?	77·2*	?	29·8	101·7	23rd	51·2	1st	50·5
		Buxar	239	29·650	?	29·851	29·794	14th	29·516	5th	·278	71·5	90·2	?	63·4	?	76·9	?	26·8	100·5	21st	54·4	1st	46·1
17	North Bihar	Bhagalpur	160	29·733	?	29·849	29·881	14th	29·625	5th	·256	73·2	90·1	?	63·2	?	76·7	?	26·9	101·8	21st	51·2	1st	50·6
		Darbhanga	166	29·721‡	−·024‡	29·847‡	29·883	15th	29·589	22nd	·294	68·7	87·1	−0·6	61·8	−1·4	74·5	−1·0	25·3	96·8	19th	51·8	1st	45·0
		Muzaffarpur	178	29·711	?	29·849	29·864	14th	29·587	22nd	·277	68·5	88·0	?	59·6	?	73·8	?	28·4	98·7	19th	47·2	1st	51·5
		Motihari	224	29·658	?	29·849	29·822	14th	29·525	22nd	·297	64·0	88·6	?	57·0	?	72·8	?	31·6	99·0	21st	42·9	1st	56·1
		Chapra	181	29·713	?	29·854	29·864	15th	29·577	5th	·287	70·3	91·2	?	62·4*	?	76·8*	?	28·8	101·6	19th	52·5	1st	49·1
18	N.-W. Provinces (East).	Benares	267	29·625	−·021	29·857	29·773	14th	29·472	22nd	·301	69·2	91·3	?	61·2	−1·1	76·3	?	30·1	100·8	18th	48·7	1st	52·1
		Allahabad	309	29·584	−·026	29·856	29·720	14th	29·380	22nd	·340	71·9	92·5	−0·8	62·7	+0·6	77·6	−0·1	29·8	102·6	18th	50·9	1st	51·7
23	N.-W. Provinces (East, Sub-montane).	Gorakhpur	256	29·613	−·025	29·836	29·768	15th	29·476	22nd	·292	69·7	89·8	−1·0	61·6	−0·9	75·7	−1·0	28·2	99·3	18th	50·3	1st	49·0
19	South Oudh	Lucknow	368	29·512	−·025	29·852	29·653	14th	29·330	22nd	·323	69·5	90·6	−0·7	60·0	−0·6	75·3	−0·7	30·6	99·3	18th & 21st.	47·2	1st	52·1
20	North Oudh	Bahraich	403	29·463	?	29·841	29·606	15th	29·314	22nd	·292	68·7	89·8	?	59·7	?	74·5	?	29·6	98·9	18th	48·0	1st	50·9
21	N.-W. Provinces (Central).	Cawnpore	416	29·469	?	29·853	29·603	15th	29·299	22nd	·304	70·3	92·0	?	60·7	?	76·4	?	31·3	101·4	18th	49·5	1st	51·9
		Mainpuri	516	29·361	?	29·855	29·487	14th	29·203	28th	·284	67·3	90·1	?	58·8	?	74·5	?	31·3	100·3	18th	49·6	3rd & 7th	50·7

* Mean of 30 days. † Mean of 29 days. ‡ Mean of 28 days.

I—*continued.*

stations in India, Burma, etc., in March, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 March 1896.	Normal rainfall for period, 1st to 31st March.	Variation from normal of period, 1st to 31st March.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
10	...	1	1	2	2	1	12	2	4·3	P	P	63	·534	2·5	5	1·85	+3·15	4·81	1·18	+3·63	4·81	1·18	+3·63	3·25	Bankura	Central Bengal.	11
19	1	1	1	2	1	...	3	3	2·5	P	P	56	·461	2·1	5	1·58	+3·42	2·35	0·82	+1·53	2·35	0·82	+1·53	1·12	Raniganj.		
10	2	1	1	4	2	7	1	3	3·1	3·4	−9	68	·599	3·7	6	2·31	+3·69	1·52	1·58	−0·06	1·52	1·58	−0·06	0·30	Burdwan.		
12	1	1	3	1	2	2	4	5	1·3	P	P	47	·392	2·2	2	1·54	+0·46	2·14	0·85	+1·29	2·14	0·85	+1·29	1·10	Naya Dumka.		
13	1	...	1	...	7	5	2	2	3·4	3·4	0	73	·586*	3·6	2	1·96	+0·04	1·27	1·05	+0·22	1·27	1·05	+0·22	0·66	Berhampore.		
11	2	2	2	2	2	5	4	1	3·0	P	P	73	·607	2·6*	2	1·65	+0·35	0·75	0·93	−0·18	0·75	0·93	−0·18	0·39	Rampore Boalia.		
...	1	...	...	...	...	8	15	7	2·6	P	P	66	·501	0·9*	2	1·19	+0·81	1·73	0·80	+0·93	1·73	0·80	+0·93	1·01	Malda.		
12	...	3	...	11	...	5	...	...	2·8	P	P	75	·559	3·2†	6	1·80	+4·20	2·47	1·06	+1·41	2·47	1·06	+1·41	1·61	Bogra.		
...	1	10	6	4	3	5	...	2	4·8	P	P	68	·471	2·3*	6	1·23	+4·77	3·34	0·87	+2·47	3·34	0·87	+2·47	2·05	Dinajpur	North Bengal.	12
10	1	5	6	...	1	6	2	...	2·1	P	P	75	·521	3·2	7	1·57	+5·43	2·98	1·24	+1·74	2·98	1·24	+1·74	1·40	Rangpur.		
...	3	9	4	6	2	2	2	3	3·3	P	P	75	·488	3·0	5	1·96	+3·04	1·89	1·50	+0·39	1·89	1·50	+0·39	0·57	Jalpaiguri.		
3	...	7	9	4	5	2	1	...	4·5	P	P	79*	·534*	3·5	6	P	P	2·45	P	P	2·45	P	P	1·05	Cooch Behar		
4	1	8	7	2	2	5	2	...	5·1	3·4	+50	68	·450	3·0	4	0·80	+3·20	1·58	0·40	+1·18	1·58	0·40	+1·18	0·89	Purnea	North Bihar.	17
10	2	2	...	...	6	10	...	1	5·1	P	P	85	·791	2·5	3	2·96	+0·04	5·68	1·45	+4·23	5·68	1·45	+4·23	2·77	Balasore	Orissa.	14
3	1	1	...	1	11	5	6	3	10·3	10·9	−6	83	·347	4·6‖	5	1·54	+3·46	4·07	0·93	+3·14	4·07	0·93	+3·14	3·59	False Point.		
10	1	3	1	1	3	8	4	...	3·8	3·5	+9	81	·759	2·7†	3	1·96	+1·04	5·38	1·41	+3·97	5·38	1·41	+3·97	3·90	Cuttack.		
...	2	1	1	...	5	14	5	2	18·9	P	P	79†	·816†	3·1†	2	P	P	3·76	P	P	3·76	P	P	2·76	Shortt's Island.		
5	...	1	...	1	1	17	4	2	14·1	P	P	85	·880	3·5	2	1·00	+1·00	2·55	0·61	+1·94	2·55	0·61	+1·94	2·28	Puri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·05	0·49	+0·55	...	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**		
4	...	...	1	2	7	7	5	5	8·3	7·4	+12	48	·352	2·3	6	1·88	+4·12	2·01	0·75	+1·26	2·01	0·75	+1·26	0·60	Hazaribagh	Chota Nagpur.	18
8	1	1	1	2	4	3	3	8	7·1	P	P	40	·366	0·8*	5	2·80	+2·20	1·64	1·38	+0·26	1·64	1·38	+0·26	0·61	Ranchi.		
...	2	...	2	3	5	13	3	3	4·9	P	P	65	·439	1·0	5	1·80	+3·20	1·48	0·70	+0·78	1·48	0·70	+0·78	0·51	Daltonganj.		
8	...	...	...	...	3	11	8	1	1·7	P	P	62	·519	1·6*	4	2·42	+1·58	1·43	1·27	+0·16	1·43	1·27	+0·16	0·51	Chaibassa.		
13	...	2	2	3	2	5	4	...	2·8	3·3	−15	47	·375	2·0	3	1·07	+1·93	1·23	0·43	+0·80	1·23	0·43	+0·80	0·85	Gaya	South Bihar.	16
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Dehri.		
4	...	1	6	2	...	5	11	2	3·8	3·4	+12	57	·437	2·1	2	0·81	+1·19	0·85	0·38	+0·47	0·85	0·38	+0·47	0·54	Patna.		
...	1	1	4	1	2	9	9	3	4·3	P	P	55*	·403*	1·6*	2	0·88	+1·12	0·97	0·40	+0·57	0·97	0·40	+0·57	0·75	Arrah.		
1	...	2	8	1	4	7	8	...	6·6	P	P	47	·362	2·1	1	1·00	0	0·48	0·32	+0·16	0·48	0·32	+0·16	0·41	Buxar.		
10	1	3	3	2	4	3	4	1	3·3	P	P	51	·416	1·6	5	0·76	+4·24	2·31	0·40	+1·91	2·31	0·40	+1·91	1·01	Bhagalpur.	North Bihar.	17
...	1	3	7	6	2	3	5	4	4·6	4·5	+2	58	·410	1·6	4	0·76	+3·24	2·23	0·32	+1·91	2·23	0·32	+1·91	1·43	Darbhanga.		
3	...	3	6	4	...	2	7	6	4·5	P	P	62	·436	1·1	3	1·00	+2·00	1·28	0·40	+0·88	1·28	0·40	+0·88	0·49	Muzaffarpur.		
...	1	5	8	2	2	5	8	5	6·3	P	P	85	·520	0·6	2	0·78	+1·22	1·38	0·41	+0·97	1·38	0·41	+0·97	1·02	Motihari.		
5	...	...	6	3	3	6	6	2	4·3	P	P	58	·438	2·1	1	0·80	+0·20	0·28	0·37	−0·09	0·28	0·37	−0·09	0·21	Chapra.		
4	1	1	5	2	3	7	7	1	4·9	4·8	+2	55	·391	2·4	3	0·64	+2·36	0·69	0·28	+0·41	0·69	0·28	+0·41	0·30	Benares	N.-W. Provinces (East).	18
9	1	1	3	2	...	5	6	4	4·2	2·8	+50	43	·340	2·3	0	0·73	−0·73	0·16	0·32	−0·16	0·16	0·32	−0·16	0·06	Allahabad.		
2	6	4	3	1	4	2	3	6	2·9	3·6	−19	56	·407	2·6	1	0·73	+0·27	0·59	0·42	+0·17	0·59	0·42	+0·17	0·34	Gorakhpur	N.-W. Provinces (East, Submontane).	23
9	...	2	6	1	1	...	11	1	2·7	4·0	−33	52	·378	1·5	1	1·00	0	0·83	0·37	+0·46	0·83	0·37	+0·46	0·83	Lucknow	South Oudh.	19
4	2	1	9	5	...	2	3	5	3·8	P	P	55	·395	1·2	1	P	P	1·11	0·47	+0·64	1·11	0·47	+0·64	0·99	Bahraich	North Oudh.	20
7	2	1	2	3	1	6	7	2	4·6	P	P	30	·300	0·8	0	0·80	−0·80	0	0·24	−0·24	0	0·24	−0·24	0	Cawnpore	N.-W. Provinces (Central).	21
5	5	1	4	1	1	...	12	2	4·3	P	P	45	·295	3·5	0	P	P	0	0·24	−0·24	0	0·24	−0·24	0	Mainpuri.		

‖ Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 211

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	VI.—Upper Sub-Himalayas		...	...	−·036	...	...	...	...	...	...	...	82·7	−1·9	56·6	−0·2	69·7	−1·1	26·2	...	...	...	...	45·2
24	N.-W. Provinces (West, Submontane).	Bareilly	568	29·294	−·022	29·848	29·437	15th	29·168	22nd	·269	66·0	87·9	+0·3	58·9	−0·1	73·4	+0·1	29·0	95·9	18th	49·7	1st	46·2
		Dehra Dun	2,233	27·620	−·049	29·867	27·753	15th	27·480	28th	·273	61·3	78·5	−1·0	54·8	−0·5	66·7	−0·8	23·7	88·0	17th	48·0	1st & 5th	40·0
		Roorkee	887	28·967	−·031	29·860	29·105	2nd	28·819	28th	·286	62·1	84·5	−1·3	55·3	−1·1	69·9	−1·2	29·2	92·7	17th	45·1	1st	47·6
22	N.-W. P. (West)	Meerut	738	29·130	?	29·862	29·273	2nd	28·970	28th	·303	65·3	86·3	−0·6	57·7	−0·1	72·0	−0·4	28·6	95·0	17th	49·1	1st	45·9
26	South-East Punjab.	Delhi	718	29·152	−·032	29·860	29·298	2nd	28·979	28th	·319	66·6	85·6	−2·6	61·5	−0·6	73·6	−1·6	24·1	96·2	17th	53·9	1st	42·3
28	Central Punjab.	Lahore	702	29·152	−·048	29·859	29·371	2nd	28·935	9th	·436	61·0	80·6	−3·1	56·8	+2·0?	68·7	−0·6?	23·8	90·6	17th	49·2	6th & 13th.	41·4
27	South Punjab	Sirsa	662	29·212	−·032	29·869	29·420	2nd	28·993	28th	·427	63·6	86·3	−2·4	56·7	−0·5	71·5	−1·5	29·6	97·3	16th	47·2	13th	50·1
		Patiala	818	29·029	?	29·846	29·209	2nd	28·823	28th	·386	64·9	83·5	?	58·3	?	70·9	?	25·2	94·0	17th	49·0	6th	45·0
29	Punjab (Submontane).	Ludhiana	812	29·039	−·042	29·855	29·214	2nd	28·859	27th	·355	63·2	82·4	−2·7	56·6	−0·6	69·5	−1·7	25·8	93·1	17th	48·2	1st	44·9
		Sialkot	830	29·026	−·034	29·864	29·240	2nd	28·791	9th	·449	61·5	79·9	−1·9	54·1	−1·2	67·0	−1·6	25·8	90·1	17th	40·1	10th	50·0
		Umballa	892	28·973	?	29·865	29·114	2nd	28·782	28th	·332	63·7	84·6	?	57·2	?	70·9	?	27·4	96·0	16th	48·0	1st	48·0
31	North Punjab	Rawalpindi	1,643	28·202	?	29·899	28·431	2nd	27·905	9th	·526	56·6	72·6	−4·1	50·8	+0·4	61·7	−1·9	21·8	83·6	17th	42·5	12th	41·1
	VII.—Indus Valley and North-West Rajputana.		...	...	−·032	...	...	...	...	...	...	...	84·1	−2·3	56·8	−1·9	70·5	−2·1	27·3	...	...	...	...	46·6
31	North Punjab	Peshawar	1,110	28·814	−·036	29·914	29·107	2nd	28·455	9th	·652	57·2	72·3	−4·4	50·2	−1·5	61·3	−3·0	22·1	80·1	17th	42·9	22nd	37·2
		Mardan	?			Not re	corded.					53·5	71·6	?	43·7	?	57·7	?	27·9	80·0	3 days	38·0	3rd	42·0
32	West Punjab	Khushab	612	29·254	?	29·867	29·516	2nd	28·950	9th	·566	61·5	80·0	?	55·2	?	67·6	?	24·8	90·3	17th	44·5	5th & 12th.	45·8
		Montgomery	558	29·308	?	29·859	29·557	2nd	29·096	27th	·461	63·6	84·6	?	54·6	?	69·6	?	30·0	95·4	16th	45·0	12th	50·4
		D. I. Khan	593	29·322	−·048	29·891	29·622	2nd	29·031	9th	·591	61·0	80·2	?	53·2	?	66·7	?	27·0	89·3	17th	44·0	12th	45·3
		Mooltan	420	29·459	−·058	29·870	29·756	2nd	29·242	9th	·514	61·5	85·3	−1·0	56·6	−1·4	71·0	−1·2	28·7	93·8	18th	48·4	12th	45·4
47	Sind	Jacobabad	186	29·710	−·025	29·865	30·055	2nd	29·455	27th	·600	67·1	89·3	−1·8	58·1	−1·3	73·7	−1·6	31·2	95·0	17th & 19th.	43·0	11th	52·0
		Hyderabad	96	29·833	−·012	29·885	30·130	2nd	29·665	27th	·465	70·8	91·3	−2·0	62·9	−1·6	77·1	−1·8	28·4	98·6	26th	47·0	11th	51·6
		Kurrachee	12	29·947	−·010	29·910	30·189	2nd	29·766	27th	·423	72·2	84·5	?	66·1	?	75·3	?	18·4	91·3	6th	56·4	12th	34·9
51	West Rajputana	Bickaneer	771?	29·101	?	29·867	29·355	2nd	28·909	27th	·446	67·9	87·1	−2·3	61·7	−3·8	74·4	−3·1	25·4	95·7	16th	47·1	3rd	48·6
		Pachpadra	380?	29·500?	?	29·850?	29·720	2nd	29·351	27th	·369	69·0	92·6	?	58·4	?	75·5	?	34·2	100·1	20th	43·1	11th	57·0
		Jodhpur	810	29·106	?	29·903	29·300	2nd	28·926	27th	·374	69·1	90·8	?	61·1	?	76·0	?	29·7	98·1	16th	49·2	12th	48·9
	VIII.—East Rajputana, Central India and Gujarat.		...	...	−·018	...	...	...	...	...	...	...	91·1	−1·3	62·0	−1·1	76·6	−1·2	29·1	...	...	...	...	47·0
50	East Rajputana	Jeypore	1,431	28·470	−·025	29·901	28·632	2nd	28·308	28th	·324	68·2	88·8	−1·2	59·4	−1·5	74·1	−1·4	29·4	97·0	17th & 27th	48·2	11th & 12th.	48·8
		Sambhar	1,254	28·635	−·023	29·892	28·818	2nd	28·473	27th	·345	66·4	88·1	−0·1	58·5	−0·8	73·3	−0·5	29·6	97·5	16th	48·4	13th	49·1
		Ajmere	1,611	28·295	−·033	29·914	28·468	2nd	28·130	27th	·338	67·5	87·4	−1·9	58·8	−0·4	73·1	−1·2	28·6	95·4	15th	45·3	13th	50·1
		Deesa	466	29·465	−·017	29·897	29·637	2nd	29·350	27th	·287	71·6	94·3	−1·6	61·4	−2·5	77·9	−2·1	32·9	100·9	20th	51·1	10th	49·8
46	Kathiawar and Cutch.	Bhuj	395	29·554	−·003	29·913	29·745	2nd	29·421	27th	·324	72·4	91·9	−1·8	63·5	−2·3	77·7	−2·1	28·4	98·0	20th	53·0	11th	45·0
		Rajkot	429	29·522	−·010	29·915	29·663	2nd	29·412	27th	·251	70·9	93·6	?	60·4	−2·2	77·1	?	33·2	98·4	7th	48·0	12th	50·4
		Veraval	?	29·945	?	29·905	30·064	10th	29·851	22nd	·213	70·5	82·0	?	63·6	?	72·8	?	18·4	91·1	13th	54·8	11th	36·3
		Ghadechi	35	29·918	?	29·900	30·054	2nd	29·823	27th	·231	73·3	94·8	?	64·1	?	79·5	?	30·7	103·1	15th	53·3	12th	49·8
49	Central India	Nowgong	757	29·141	−·028	29·877	29·260	3rd & 15th.	28·982	22nd	·278	69·6	90·5	?	61·0	+0·2	75·8	?	29·5	98·0	21st & 28th	51·0	14th	47·0
		Indore	1,823	28·107	−·005?	29·909	28·238	2nd	27·991	22nd	·247	71·5	91·5	−1·1	59·6	−1·0	75·6	−1·1	31·9	98·1	17th	48·1	12th	50·0
		Neemuch	1,630	28·285	−·009?	29·913	28·473	2nd	28·158	27th	·315	71·5	90·3	−1·6	59·6	−2·0	75·0	−1·8	30·7	97·8	15th & 16th.	48·9	3rd	48·9
45	Gujarat	Surat	39	29·926	−·010	29·908	30·065	10th	29·838	27th	·227	73·7	95·1	−1·0	65·6	?	80·4	?	29·5	102·7	15th	59·5	11th & 13th.	43·2
		Ahmedabad	164	29·784*	?	29·899*	29·931	2nd	29·665	22nd	·266	73·6*	95·8†	?	66·3†	?	81·1†	?	29·5	103·2	16th	56·2	11th	47·0
22	N.-W. P. (West)	Agra	555	29·330	−·030	29·863	29·466	2nd	29·163	28th	·303	69·3	89·6	−1·9	62·2	−0·6	75·9	−1·3	27·4	99·0	17th	54·9	12th & 13th.	44·1
21	N.-W. P. (Central)	Jhansi	858	29·050	−·028	29·882	29·169	15th	28·898	28th	·271	74·7	92·9	−0·2	66·7	+1·2	79·8	+0·5	26·2	102·1	18th	56·9	1st	45·2

* Mean of 30 days.

† Mean of 29 days.

I—*continued.*

stations in India, Burma, etc., in March, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 March 1897.	Normal rainfall for period, 1st to 31st March.	Variation from normal of period, 1st to 31st March.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·70	0·89	−0·16	...	...	...	...	VI.—Upper Sub-Himalayas.		
11	1	4	...	3	...	2	2	8	3·3	4·3	− 23	49	·318	2·3	1	1·82	− 0·82	0·48	0·94	−0·46	0·48	0·94	−0·46	0·33	Bareilly .	N.-W. Provinces (West, Sub-montane.)	24
28	1	...	...	1	...	...	...	1	1·7	2·3	− 26	57	·313	4·1	2	2·64	− 0·64	0·77	1·07	−0·30	0·77	1·07	−0·30	0·36	Dehra Dun.		
24	...	1	...	2	1	1	...	2	2·1	2·9	− 28	56	·318	2·3	3	1·82	+ 1·18	1·04	0·72	+0·32	1·04	0·72	+0·32	0·47	Roorkee.		
16	...	1	1	2	...	...	10	1	3·8	2·7	+ 41	48	·299	2·4	1	1·55	−0·55	0·35	0·77	−0·42	0·35	0·77	−0·42	0·32	Meerut. .	N.-W. P. (West).	22
13	1	...	1	4	...	...	8	4	4·3	3·9	+ 10	43	·289	4·5	1	1·18	− 0·18	0·41	0·56	−0·15	0·41	0·56	−0·15	0·28	Delhi . .	South-East Punjab.	26
12	2	5	1	2	2	...	2	5	3·4	3·1	+ 10	63	·336	4·1	3	1·36	+ 1·64	0·44	0·73	−0·29	0·44	0·73	−0·29	0·16	Lahore.	Central Punjab.	28
4	6	2	3	4	3	4	1	4	6·9	3·8	+ 82	43	·251	4·6	0	0·55	− 0·55	0	0·37	−0·37	0.	0·37	−0·37	0	Sirsa.	South Punjab.	27
12	2	5	...	1	4	6	1	...	4·7	?	?	66	·413	2·5	2	?	?	0·30	?	?	0·30	?	?	0·17	Patiala		
19	2	1	...	4	1	...	1	3	2·2	1·8	+ 22	61	·355	3·9	1	2·36	− 1·36	0·22	0·99	−0·77	0·22	0·99	−0·77	0·10	Ludhian	Punjab (Sub-montane).	29
10	5	5	3	1	1	1	1	4	3·0	1·9	+ 58	64	·347	2·7	4	2·64	+ 1·36	0·93	1·18	−0·25	0·93	1·18	−0·25	0·30	Sialkot.		
21	...	...	2	3	...	...	2	3	2·7	?	?	59	·346	2·4	1	?	?	0·27	0·73	−0·46	0·27	0·73	−0·46	0·25	Umbalia.		
17	...	1	2	1	1	...	9	...	4·8	2·6	+ 85	72	·326	4·8	6	3·91	+ 2·09	3·18	1·76	+1·42	3·18	1·76	+1·42	1·10	Rawalpindi.	North Punjab.	31
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·61	0·44	−0·02	...	...	...	...	VII.—Indus Valley and North-West Rajputana.		
13	1	...	...	3	6	3	4	1	3·8	3·7	+ 3	71	·336	6·1	7	3·55	+ 3·45	2·06	1·70	+0·36	2·06	1·70	+0·36	0·83	Peshawar .	North Punjab.	31
			Not	rec	orde	d.			?	?	?		?	3·7	3	?	?	3·11	?	?	3·11	?	?	1·62	Mardan.		
15	4	3	3	1	1	...	3	1	5·1	?	?	52	·287	4·5	2	1·60	+ 0·40	0·96	0·54	+0·42	0·96	0·54	+0·42	0·35	Khushab .	West Punjab.	32
8	4	7	3	3	...	...	3	3	6·3	?	?	46	·272	3·5	0	1·00	− 1·00	0	0·41	−0·41	0	0·41	−0·41	0	Montgomery.		
15	6	5	...	...	...	...	1	4	3·0	2·1	+ 43	62	·343	3·3	2	1·55	+ 0·45	0·72	0·63	+0·09	0·72	0·63	+0·09	0·30	D. I. Khan		
12	2	11	...	4	...	...	...	2	2·2	2·1	+ 5	56	·311	3·2	0	1·18	− 1·18	0·15	0·38	−0·23	0·15	0·38	−0·23	0·09	Mooltan.		
9	4	3	4	2	1	1	3	4	5·0	3·9	+ 28	32	·216	3·5	0	0·73	− 0·73	0	0·14	−0·14	0	0·14	−0·14	0	Jacobabad .	Sind . . .	47
6	5	1	...	...	2	11	1	5	11·4	8·3	+ 37	44	·331	2·8	0	0·50	− 0·50	0	0·14	−0·14	0	0·14	−0·14	0	Hyderabad.		
7	1	1	1	...	...	5	11	5	8·6	11·8	− 27	67	·533	2·5	0	0·55	− 0·55	0	0·23	−0·23	0	0·23	−0·23	0	Kurrachee.		
1	2	2	3	3	4	8	5	3	7·7	4·3	+ 79	39	·263	4·0	1	?	?	0·32	0·20	+0·12	0·32	0·20	+0·12	0·32	Bickaneer .	West Rajputana.	51
...	6	3	4	1	3	11	...	3	9·2	4·1	+124	49	·350	1·1	0	?	?	0	0·07	−0·07	0	0·07	−0·07	0	Pachpadra.		
5	2	8	3	...	2	7	4	...	4·2	?	?	33	·238	2·5	0	?	?	0	?	?	0	?	?	0	Jodhpore.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·02	0·18	−0·16	...	...	...	...	VIII.—East Rajputana, Central India and Gujarat		
7	3	6	1	...	...	5	5	4	4·4	5·7	− 23	47	·317	3·5	0	0·50	−0·50	0·01	0·39	−0·38	0·01	0·39	−0·38	0·01	Jeypore .	East Rajputana.	50
18	6	1	2	...	1	1	2	...	5·8	6·2	− 6	45	·292	3·8	0	0·64	− 0·64	0·03	0·36	−0·33	0·03	0·36	−0·33	0·03	Sambhar.		
15	1	4	1	1	2	4	3	...	4·6	3·6	+ 28	45	·308	3·0	0	0·27	− 0·27	0·07	0·17	−0·10	0·07	0·17	−0·10	0·07	Ajmere.		
...	2	5	6	...	2	4	7	5	9·1	8·9	+ 2	40	·311	1·6	0	0·18	− 0·18	0	0·05	−0·05	0	0·05	−0·05	0	Deesa.		
...	2	1	2	...	1	3	13	9	11·4	8·3	+ 37	56	·443	2·5	0	?	?	0	0·09	−0·09	0	0·09	−0·09	0	Bhuj . .	Kathiawar and Cutch.	46
5	3	2	1	...	...	2	9	9	7·1	8·1	− 12	61	·472	1·7	0	0	0	0	0·01	−0·01	0	0·01	−0·01	0	Rajkot.		
...	11	1	...	1	...	...	8	10	7·2	?	?	71	·531	1·3	0	?	?	0	?	?	0	?	?	0	Veraval.		
4	3	...	...	...	...	3	9	12	6·2	?	?	42	·354	1·0	0	?	?	0	?	?	0	?	?	0	Ghadechi.		
2	2	2	1	...	1	11	11	1	3·4	2·3	+ 48	39	·285	2·3	1	0·55	+ 0·45	0·16	0·27	−0·11	0·16	0·27	−0·11	0·16	Nowgong .	Central India.	49
3	8	9	...	...	...	1	7	3	2·8	3·7	− 24	31	·235	1·5	0	0	0	0	0·02	−0·02	0	0·02	−0·02	0	Indore.		
5	3	9	2	4	1	5	2	...	8·0	9·1	− 12	39	·313	1·3	0	0·18	− 0·18	0	0·08	−0·08	0	0·08	−0·08	0	Neemuch.		
11	6	3	...	1	4	1	4	1	3·8	6·5	− 41	66	·555	0·4	0	0	0	0	0	0	0	0	0	0	Surat . .	Gujarat.	45
...	4	4	4	1	1	2	4	10	5·6†	?	?	47*	·386*	2·0*	0	?	?	0	?	?	0	?	?	0	Ahmedabad.‡		
1	...	3	...	6	...	5	...	16	6·3	4·5	+ 40	39	·284	2·4	0	0·82	−0·82	0·03	0·31	−0·28	0·03	0·31	−0·28	0·03	Agra . .	N.-W. P. (West).	22
10	...	...	...	...	...	10	4	7	2·6	3·4	− 24	34	·300	0·7	0	1·00	−1·00	0	0·35	−0·35	0	0·35	−0·35	0	Jhansi . .	N.-W.P. (Central)	21

‡ Wind observation of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 211 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	IX.—Deccan	...	...	...	−·016	...	...	...	...	...	...	...	97·6	+0·2	66·9	−0·4	82·2	−0·1	30·6	...	...	...	...	43·2
38	Bombay Deccan	Belgaum	2,524	27·417	−·014	29·875	27·499	2nd	27·361	22nd	·138	74·3	96·0	+2·2	63·4	−0·7	79·7	+0·8	32·6	99·2	5th & 19th.	58·4	7th	40·8
		Sholapur	1,590	28·335	−·015	29·875	28·453	2nd	28·258	20th	·195	79·4	101·9	+1·4	69·2	+0·4	85·6	+0·9	32·7	104·2	3 days	61·6	1st	42·6
		Poona	1,840	28·110	−·010	29·919	28·222	2nd	28·025	22nd	·197	72·3	99·3	+2·2	61·1	−3·2	80·2	−0·5	38·2	103·0	5th	54·4	1st	48·6
		Bijapur	1,946	27·986	?	29·872	28·084	2nd	27·909	19th	·175	78·7	99·9	?	70·7	?	85·3	?	29·2	102·2	5th & 27th.	67·0	28th	35·2
40	Khandesh	Malegaon	1,430	28·505	−·013	29·905	28·626	2nd	28·403	22nd	·223	74·9	97·2	−0·1	61·7	−2·0	79·5	−1·1	35·5	102·3	20th	52·5	1st & 13th.	49·8
		Ahmednagar	2,152	27·794	?	29·897	27·911	2nd	27·704	22nd	·207	75·2	96·3	?	60·4	?	78·4	?	35·9	99·3	3 days	52·5	13th	46·8
41	Berar	Akola	930	28·978	−·018	29·872	29·082	2nd	28·871	22nd	·211	75·5	99·6	+0·8	64·4	−1·5	82·0	−0·4	35·2	105·2	18th	55·5	1st & 13th.	49·7
		Amraoti	1,215	28·695	−·011	29·879	28·805	2nd	28·581	22nd	·224	76·2	99·2	+0·9	68·9	+0·4	84·1	+0·7	30·3	104·3	20th & 21st.	59·8	1st	44·5
42	Central Provinces (West).	Khandwa	1,044	28·880	−·011	29·902	29·024	2nd	28·765	27th	·259	72·9	96·8	−0·7	63·8	−1·2	80·3	−1·0	33·0	102·7	17th & 20th.	52·1	12th & 13th	50·6
		Hoshangabad	1,006	28·907	−·015	29·897	29·051	2nd	28·782	22nd	·269	71·0	94·9	−1·2	63·9	−0·4	79·4	−0·8	31·0	101·5	21st	56·8	4 days	44·7
		Nagpur	1,025	28·873	−·026?	29·866	28·986	15th	28·754	22nd	·232	76·4	99·6	+1·1	67·5	−0·1	83·6	+0·5	32·1	104·1	4 days	57·7	14th	46·4
43	Central Provinces (Central)	Chanda	634	29·271	−·018	29·857	29·363	2nd	29·174	22nd	·189	78·0	100·6	+0·4	65·3	−1·9?	83·0	−0·8?	35·3	105·2	18th	50·9	13th	54·3
		Seoni	2,033	27·885	−·016	29·878	27·997	15th	27·781	22nd	·216	73·7	92·9	−0·6	62·1	−1·4	77·5	−1·0	30·8	99·5	18th	54·0	12th	45·5
		Jubbulpur	1,327	28·584	−·017	29·896	28·704	15th	28·468	22nd	·236	71·2	92·4	−0·7	60·2	−0·9	76·3	−0·8	32·2	100·5	21st	51·4	1st	49·1
		Saugor	1,807	28·094	−·010	29·873	28·211	3rd	27·955	22nd	·256	74·1	90·9	−1·4	66·2	+1·8	78·6	+0·2	24·7	99·3	21st	56·1	12th	43·2
49	Central India	Sutna	1,040	28·849	−·030	29·873	28·975	15th	28·687	22nd	·288	72·1	91·3	−0·3	62·7	+1·7	77·0	+0·7	28·6	100·5	18th	53·8	1st & 14th.	46·7
44	Central Provinces (East).	Raipur	970	28·936	−·011	29·873	29·032	15th	28·845	22nd	·187	74·7	95·8	−0·7	68·1	−0·4	82·0	−0·6	27·7	103·3	19th	62·2	1st	41·1
		Sambalpur	486	29·435	−·009	29·878	29·550	15th	29·341	5th	·209	75·8	95·2	−1·8	67·0	−0·4	81·1	−1·1	28·2	103·5	20th	59·2	4th	44·3
39	Hyderabad (North).	Aurangabad	1,865?	28·091	?	29·907	28·158	2nd	28·015	22nd	·143	78·1	98·9	?	63·3‡	?	81·1‡	?	35·6	102·4	17th	55·2	13th	47·2
		Indur	?			Not recorded.						82·5	99·8	?	71·7	?	85·7	?	28·1	103·0	21st	62·2	1st	40·8
		Bidar	2,165?	27·766	?	29·850	27·876	2nd	27·655	22nd	·221	81·9	96·9	?	70·2	?	83·6	?	26·7	98·4	28th & 29th.	66·7	12th	31·7
53	Hyderabad (South).	Gulbarga	1,592	28·425	?	29·872	28·550	10th	28·333	27th	·217	81·3	101·8	?	72·8	?	87·3	?	29·0	104·3	31st	65·6	7th	38·7
		Raichur	1,309	28·596	?	29·850	28·708	15th	28·515	22nd	·193	81·6	101·0	?	75·7	?	88·4	?	25·3	103·0	28th & 31st.	70·1	11th	32·9
		Hyderabad (Deccan).	1,690	28·236	−·031	29·875	28·348	2nd	28·165	22nd	·183	79·0	99·1	+1·4	72·7	+3·2	85·9	+2·3	26·4	101·9	18th & 31st	66·2	10th	35·7
		Secunderabad	1,787	28·141	?	29·882	28·252	2nd	28·069	22nd	·183	76·4	100·2	?	71·7	?	86·0	?	28·5	103·7	31st	64·5	10th	39·2
		Khamamet	373	29·557	?	29·877	29·670	15th	29·475	24th	·195	81·0	98·8	?	75·7	?	87·3	?	23·1	103·2	6th	69·3	10th	33·9
	X.—West Coast		...	...	−·006	...	...	...	...	...	...	...	87·6	−0·1	74·5	−0·5	81·1	−0·3	13·1	...	...	...	...	21·0
	Konkan	Bombay	37	29·930	−·006	29·907	30·051	10th	29·851	19th	·200	75·3	84·2	−1·4	71·2	−2·3	77·7	−1·9	13·0	86·0	27th & 29th.	66·0	1st	20·0
		Ratnagiri	110	29·842	−·002	29·892	29·938	10th	29·760	19th	·178	76·1	86·1	−1·6	70·6	−1·7	78·4	−1·7	15·5	90·4	3rd	65·9	13th	24·5
		Mormugao	60	29·906	?	29·901	30·000	16th	29·844	22nd & 27th.	·156	78·0	85·8	?	74·0	?	79·9	?	11·8	91·0	3rd	70·9	1st	20·1
		Goa*	199	29·748	0	29·885	29·848	16th	29·689	22nd	·159	77·7	84·2	?	75·0	?	79·6	?	9·2	87·0	3rd	60·5	16th	26·5
		Karwar	44	29·922	+·004	29·899	30·015	16th	29·859	26th	·156	74·0	86·8	−1·0	70·9	−2·2	78·9	−1·6	15·9	89·3	1st & 3rd.	63·5	1st	25·8
33	Malabar	Cochin	11	29·912	−·016	29·880	30·020	16th	29·893	22nd	·127	83·5	93·3	+2·7	79·0	+2·3	86·2	+2·5	14·3	94·8	3 days	74·7	21st	20·1
		Calicut	27	29·927	−·017	29·883	30·015	16th	29·884	22nd & 26th.	·131	82·0	90·7	+0·2	77·0	+1·1	83·9	+0·7	13·7	92·3	21st	74·0	4th	18·3
		Mangalore	65	29·901	−·005	29·898	29·985	16th	29·850	26th	·135	80·8	89·2	+0·3	75·7	−0·1	82·5	+0·1	13·5	91·3	3rd	71·9	1st	19·4
		Trivandrum	198	29·733	?	29·862	29·809	16th	29·689	21st	·120	81·0	87·7	?	77·0	?	82·4	?	10·7	89·0	30th	74·5	5 days	14·5
	XI.—South India		...	...	−·022	...	...	...	...	...	...	...	94·3	+0·9	73·4	+2·3	83·9	+1·6	20·8	...	...	...	...	30·5
57	Madras (South).	Pamban	37	29·919	?	29·883	30·011	15th	29·842	22nd	·169	84·0	90·2	?	78·5	?	84·4	?	11·7	92·3	27th	73·7	17th	18·6
		Tinnevelly	168	29·780	?	29·879	29·880	16th	29·711	26th	·169	82·7	97·5	?	77·5	?	87·5	?	20·0	101·4	23rd	73·4	18th	28·0
		Madura	447	29·502	−·024	29·886	29·601	16th	29·442	22nd	·159	82·2	96·4	−0·5?	75·2	+2·7	85·8	+1·1?	21·2	100·0	26th	71·0	17th	29·0

* Mean of 28 days.

‡ Mean of 30 days.

I—*continued.*

in India, Burma, etc., in March, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 March 1897.	Normal rainfall for period, from 1st to 31st March.	Variation from normal of period, 1st to 31st March.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·21	0·47	−0·21	...	...	...	...	IX.—Deccan.		
11	5	3	1	...	3	3	1	4	11·9	11·6	+ 3	39	·322	0·9	0	1·00	−1·00	0	0·35	−0·35	0	0·35	−0·35	0	Belgaum .	Bombay Deccan.	38
3	3	5	1	3	2	2	1	11	8·6	7·4	+17	27	·279	0·7	0	0·36	−0·36	0	0·34	−0·34	0	0·34	−0·34	0	Sholapur.		
2	...	1	...	2	1	8	9	8	10·6	8·3	+28	39	·307	0·7	0	0·36	−0·36	0	0·05	−0·05	0	0·05	−0·05	0	Poona.		
3	1	...	...	...	...	2	14	11	4·4	?	?	50	·497	0·6	0	0·03	−0·03	0	?	?	0	?	?	0	Bijapur.		
2	3	...	...	...	...	1	11	14	10·6	6·4	+66	64	·557	1·5	0	0	0	0	0·03	−0·03	0	0·03	−0·03	0	Malegaon .	Khandesh.	40
4	14	2	1	...	1	...	1	8	15·4	?	?	65	·574	0·5	0	?	?	0	?	?	0	?	?	0	Ahmednagar.		
7	...	1	1	4	...	3	9	6	5·2	4·4	+18	28	·254	0·8	0	0·82	−0·82	0	0·55	−0·55	0	0·55	−0·55	0	Akola . .	Berar.	41
...	3	8	5	1	1	4	8	1	4·6	4·0	+15	48	·441	0·4	0	0·45	−0·45	0	0·40	−0·40	0	0·40	−0·40	0	Amraoti.		
8	1	3	1	2	...	...	12	4	5·7	4·6	+24	28	·233	0·6	0	0·18	−0·18	0	0·13	−0·13	0	0·13	−0·13	0	Khandwa .	Central Provinces (West).	42
28	...	2	1	...	...	...	...	...	0·6	2·6	−77	37	·282	1·1	0	0·36	−0·36	0	0·23	−0·23	0	0·23	−0·23	0	Hoshangabad		
13	8	3	...	1	4	...	...	2	5·9	4·5	+31	45	·411	0·9	1	1·00	0	0·15	0·61	−0·46	0·15	0·61	−0·46	0·15	Nagpur.		
5	7	6	4	3	3	...	1	2	2·4	3·2	−25	43	·429	0·7	1	?	?	1·61	1·49	+0·12	1·61	1·49	+0·12	1·61	Chanda .	Central Provinces (Central).	43
...	4	12	4	1	1	5	...	4	3·5	3·4	+ 3	48	·411	0·6	1	1·73	−0·73	0·20	0·70	−0·50	0·20	0·70	−0·50	0·20	Seoni.		
4	1	2	1	6	10	4	3	...	2·9	3·0	− 3	47	·363	1·6	1	0·82	+0·18	0·17	0·51	−0·34	0·17	0·51	−0·34	0·15	Jubbulpore.		
...	4	4	4	5	2	6	2	4	6·5	3·2	+103	45	·381	1·4	0	0·64	−0·64	0	0·26	−0·26	0	0·26	−0·26	0	Saugor.		
2	6	3	...	...	5	1	5	9	6·9	5·5	+26	33	·253	1·4	0	0·91	−0·91	0·23	0·50	−0·27	0·23	0·50	−0·27	0·09	Sutna.	Central India.	49
13	...	4	2	3	2	5	1	1	5·4	4·7	+15	41	·350	1·4	3	1·00	+2·00	0·57	0·81	−0·24	0·57	0·81	−0·24	0·20	Raipur.	Central Provinces, East.	44
...	9	6	3	5	2	3	...	3	5·4	2·0	+170	57	·510	1·3	4	?	?	2·38	1·20	+1·18	2·38	1·20	+1·18	1·23	Sambalpur.		
16	1	8	2	1	...	1	...	2	3·5	?	?	26	·254	0·6	0	?	?	0	0·06	−0·06	0	0·06	−0·06	0	Aurangabad.	Hyderabad (North).	39
11	3	1	...	5	3	1	2	5	5·0	?	?	48	·541	1·3	0	?	?	0·02	0·27	−0·25	0·02	0·27	−0·25	0·02	Indur.		
...	7	7	...	1	6	5	3	2	7·1	?	?	55	·604	0·3	0	?	?	0	0·34	−0·34	0	0·34	−0·34	0	Bidar.		
6	...	5	2	1	...	3	...	3	9·2	?	?	44	·476	1·1	0	?	?	0	0·21	−0·21	0	0·21	−0·21	0	Gulbarga .	Hyderabad (South).	53
...	4	1	...	5	7	4	3	7	7·3	?	?	49	·540	0·7	0	?	?	0	?	?	0	?	?	0	Raichur.		
13	...	3	4	4	2	...	5	...	4·4	?	?	63	·627	0·8	0	?	?	0	0·75	−0·75	0	0·75	−0·75	0	Hyderabad (Deccan), Secunderabad		
6	...	1	13	2	1	1	3	4	6·3	5·0	+26	61	·559	1·0	0	?	?	0	?	?	0	?	?	0			
7	...	...	...	21	3	...	...	...	9·0	?	?	76	·814	1·3	0	?	?	0·04	?	?	0·04	?	?	0·04	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·15	0·58	−0·41	...	...	...	...	X.—West Coast.		
1	10	8	3	2	1	...	1	5	9·2	11·5	−20	77	·682	1·4	0	0·09	−0·09	0	0·03	−0·03	0	0·03	−0·03	0	Bombay .	Konkan.	37
14	7	4	...	3	...	...	...	3	5·3	9·9	−46	72	·651	0·8	0	0	0	0	0·01	−0·01	0	0·01	−0·01	0	Ratnagiri.		
...	18	2	2	4	2	...	1	2	10·1	?	?	78	·750	1·2	0	?	?	0	?	?	0	?	?	0	Mormugao.		
3	13	2	5	...	2	1	...	2	?	?	?	74	·704	1·0	0	?	?	0	0	0	0	0	0	0	Goa.*		
1	11	8	10	1	...	...	...	...	5·6	?	?	81	·680	0·6	0	0	0	0	0	0	0	0	0	0	Karwar.		
...	17	13	...	...	...	1	...	...	7·5	?	?	76	·876	2·1	1	2·45	−1·45	1·03	2·44	−1·41	1·03	2·44	−1·41	0·96	Cochin .	Malabar.	32
...	7	12	6	1	...	...	...	5	15·2	?	?	75	·816	2·3	0	0·63	−0·63	0	0·52	−0·52	0	0·52	−0·52	0	Calicut.		
10	2	2	12	5	...	...	...	...	2·4	3·4	−29	75	·785	0·6	0	0·10	−0·10	0	0·06	−0·06	0	0·06	−0·06	0	Mangalore.		
7	9	5	8	1	...	...	...	1	4·9	?	?	75	·808	2·4	1	?	?	0·35	1·57	−1·22	0·35	1·57	−1·22	0·27	Trivandrum.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·48	0·52	+0·10	...	...	...	...	XI.—South India.		
...	...	12	6	5	6	...	2	...	5·7	?	?	76	·888	2·4	2	1·30	+0·70	0·29	0·79	−0·50	0·29	0·79	−0·50	0·15	Pamban .	Madras (South)*	57
...	9	4	2	2	1	...	4	9	4·3	?	?	71	·809	1·2	1	2·40	−1·40	0·32	?	?	0·32	?	?	0·32	Tinnevelly.		
...	10	5	3	6	2	...	...	5	3·0	4·1	−27	73	·814	1·6	0	0·36	−0·36	0	0·61	−0·61	0	0·61	−0·61	0	Madura.		

Table

Abstract of Observations taken at 8 A.M. at 211 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
34	Madras, South Central.	Salem	940	29·036	−·025	29·917	29·140	16th	28·972	22nd	·168	81·2	99·7	+1·3	73·7	+3·1	86·7	+2·2	26·0	103·4	26th	62·9	4th	40·5
		Coimbatore	1,348	28·605	−·023	29·903	28·714	16th	28·543	22nd	·171	77·8	96·0	−0·3?	71·0	+1·2	83·5	+0·5?	25·0	98·9	19th & 31st.	65·1	4th	33·8
35	Coorg	Mercara	3,781	26·269	0	?	26·349	16th	26·210	22nd	·139	71·1	84·5	0	63·0	+1·8	73·8	+0·9	21·5	87·5	5th & 14th.	59·7	22nd	27·8
36	Mysore	Chitaldroog	2,405	27·553	?	29·864	27·631	16th	27·489	21st	·142	79·2	96·1	?	70·7	?	83·4	?	25·4	99·2	31st	64·9	10th	34·3
		Bangalore	3,021	26·975	−·020	29·885	27·051	16th	26·912	22nd	·139	74·5	93·1	+2·8	67·4	+3·1	80·3	+3·0	25·7	95·3	27th & 30th.	60·4	3rd	34·9
		Hassan	3,091	26·914?	?	29·909?	26·988	16th	26·857	22nd	·131	73·6	92·6	?	62·7	?	77·7	?	29·9	93·9	3 days	55·5	4th	38·4
		Mysore	2,518	27·466	?	29·898	27·543	16th	27·409	22nd	·134	75·9	95·0	?	68·8	?	81·9	?	26·2	97·4	3 days	63·5	3rd & 4th.	33·9
56	Madras, East Coast, South.	Negapatam	31	29·923	−·021	29·883	30·021	16th	29·861	22nd	·160	83·4	89·7	+1·0	77·5	+2·2	83·6	+1·6	12·2	95·2	25th & 26th.	72·9	4th	22·3
		Cuddalore	12	29·943	?	29·834	30·043	16th	29·873	22nd	·170	81·7	90·2	?	74·6	?	82·4	?	15·6	99·3	22nd	69·7	9th	29·6
		Trichinopoly	255	29·695	−·032	29·884	29·797	16th	29·637	22nd	·160	81·8	99·0	+1·5	74·9	+2·3	87·0	+1·9	24·1	103·6	26th	69·4	4th & 5th.	34·2
		Madras	22	29·938	−·023	29·891	30·035	16th	29·856	25th	·179	82·0	90·6	+1·4	74·6	+2·6	82·6	+2·0	16·0	96·0	26th	68·0	3rd	28·0
55	Madras, East-Coast, Central.	Nellore	71	29·855	?	29·859	29·972	10th	29·757	25th	·215	81·2	95·9	?	75·2	?	85·6	?	20·7	104·8	25th	71·1	4 days	33·7
		Masulipatam	15	29·934	−·021	29·884	30·043	2nd	29·849	24th	·194	82·0	91·2	−0·2?	73·9	+1·5	82·6	+0·7?	17·3	96·6	13th	67·2	10th	29·4
54	Madras, Central	Cuddapah	433	29·479	−·022	29·850	29·591	10th	29·401	25th	·190	85·3	103·4	+2·2	77·8	+2·8	90·6	+2·5	25·6	107·3	26th	71·1	3rd	36·2
		Kurnool	923	28·985	−·030	29·851	29·089	2nd & 10th	28·903	22nd	·186	82·2	102·5	+1·8	74·9	+2·9	88·7	+2·4	27·6	104·8	30th & 31st,	64·8	10th	40·0
		Bellary	1,475	28·451	−·013	29·865	28·539	10th	28·387	22nd	·152	82·9	102·6	+2·3	74·6	+2·7	88·7	+2·5	28·0	106·2	31st	68·2	10th & 11th	38·0
52	Madras, East-Coast, North.	Rajahmundry	112			Untrustworthy.						80·8	96·0	+0·1	75·5	+1·7	85·8	+0·9	20·5	100·0	5th	72·1	25th & 26th.	27·9
		Cocanada	26	29·920	?	29·891	30·032	2nd	29·859	24th	·173	80·2	88·9	−0·7?	76·9	+2·4	82·9	+0·9?	12·0	93·1	3 days	73·5	22nd	19·6
		Vizagapatam	31	29·903	−·030	29·872	30·001	15th	29·838	4th	·163	81·6	89·9	+0·1	75·7	+1·3	82·8	+0·7	14·2	93·7	19th	71·9	21st & 25th	21·8
		Gopalpur	21	29·904	?	29·865	30·017	15th	29·818	5th	·199	80·2	87·5	?	74·7	?	81·1	?	12·8	89·2	16th	68·1	4th	21·1
	XII.—Hill Stations.																							
48	Baluchistan	Sharigh	?	(a) 25·849	?	?	26·100	2nd	25·640	27th	·460	(a) 57·1	(a) 71·7	?	(a) 45·8	?	58·8	?	25·9	80·0	14th	33·0	11th	47·0
		Pishin	?				Not recorded.					?	65·2	?	34·8	?	50·0	?	30·4	78·4	14th	20·9	22nd	57·5
		Quetta	5,502	24·622	−·028	?	24·786	2nd	24·427	27th	·359	47·0	62·8	−1·7	38·0	−1·7	50·4	−1·7	24·8	77·2	14th	27·8	3 days	49·4
		Kalat	?				Not recorded.					(a) 45·3	64·0	?	(a) 30·0	?	47·0	?	34·0	76·5	14th	15·4	10th	61·1
		Chaman	4,311	25·693	?	?	25·840	10th	25·512	27th	·328	52·3	65·6	?	43·7	?	54·7	?	21·9	79·8	30th	30·1	21st	49·7
30	Punjab	Leh	11,503	19·614	?	?	19·821	13th	19·377	28th	·444	21·6	36·1	?	17·7	?	25·9	?	18·4	43·0	19th	7·0	1st & 13th.	36·0
		Srinagar	5,204	24·894	?	?	25·086	2nd	24·578	28th	·508	41·0	53·0	?	35·7	?	44·4	?	1	62·9	17th	28·1	1st	34·8
		Astor (Kashmir).	?	22·205	?	?	22·439	2nd	21·859	28th	·580	30·8	42·1	?	25·7	?	33·9	?	16·4	52·9	27th	11·7	11th	41·2
		Minimarg .*	?	21·274	?	?	21·485	2nd	21·002	28th	·483	26·1	41·8‡	?	18·0	?	29·9	?	23·8	59·4	30th	5·5	22nd	53·9
		Skardu	?	22·877	?	?	23·140	13th	22·538	28th	·602	33·6	44·4	?	29·8	?	37·1	?	14·6	52·0	27th & 30th,	18·7	1st	33·3
		Dras	?	20·727	?	?	20·946	13th	20·413	28th	·533	?	?	?	?	?		?	?	?	...	?	...	?
		Gilgit	?	24·674†	?	?	24·890	13th	24·35	21st & 28th	·540	46·2	55·0	?	43·1†	?	49·3†	?	11·9	69·4	27th	37·5	11th	31·9
		Chitral	?	?	?	?	?	...	?	...	?	39·4	53·6	?	37·0	?	45·3	?	16·6	62·7	31st	31·6	2nd	31·1
		Cherat	?	25·665	?	?	25·899	2nd	25·330	9th	·569	50·5	59·1	?	46·5	?	52·8	?	12·6	70·3	17th	35·0	10th	35·3
		Murree	6,344	23·783	−·054	?	23·964	2nd	23·516	21st	·448	45·5	54·1	−4·7	38·5	−5·3	46·3	−5·0	15·6	64·1	17th	22·5	10th	41·6
		Poo	?				Not recorded.					?	47·5	?	30·2	?	38·8	?	17·3	57·1	17th	22·5	31st	34·6
		Simla	7,224	23·070	−·040	?	23·238	15th	22·895	28th	·343	48·3	54·6	−2·2	43·1	−1·4	48·9	−1·8	11·5	64·4	17th	32·2	29th	32·2
25	N.-W. Provinces.	Chakrata	6,977	23·291	−·033	?	23·441	15th	23·155	22nd	·286	46·6	57·8	−4·1	42·4	−1·6	50·1	−2·9	15·4	67·2	17th	33·1	5th	34·1
		Mussooree	6,705	23·488	?	?	23·639	15th & 16th.	23·347	22nd	·292	49·7	58·8	?	44·9	?	51·9	?	13·9	67·2	17th	36·0	5th	31·2
		Ranikhet	6,069	24·089	−·016	?	24·225	15th	23·977	22nd	·248	52·0	63·1	−2·0	47·5	−1·4	55·3	−1·7	15·6	71·5	18th	38·5	29th	33·0
13	Bengal	Yatung	10,480?				Not recorded.					?	49·4	?	33·2	?	41·3	?	16·2	55·9	20th	23·9	6th & 12th.	32·0
		Darjeeling	7,421	22·964	−·004	?	23·136	15th	22·844	30th	·292	48·0	56·8†	+0·1	41·8	−1·2	49·3†	−0·6	15·0	64·1	11th	37·1	24th	27·0
		Gantok	5,660?	24·452	?	?	24·569	3rd	24·317	30th	·252	54·0	65·1	?	39·0	?	52·0	?	26·1	73·8	20th	34·2	25th	38·6

*The Observations of 27 days. † Mean of 30 days. ‡ Mean of 26 days. (a) Uncorrected.

I—*continued.*

in India, Burma, etc., in March, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 March 1897.	Normal rainfall for period, 1st to 31st March.	Variation from normal of period, 1st to 31st March.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
5	...	6	8	2	5	5	...	...	6·2	5·5	+13	71	·765	0·9	3	1·64	+1·36	0·74	0·88	−0·14	0·74	0·88	−0·14	0·49	Salem	Madras, South Central.	34
...	...	...	23	...	...	...	8	...	1·6	3·3	−52	80	·777	3·9	0	1·18	−1·18	0·06	0·59	−0·53	0·06	0·59	−0·53	0·06	Coimbatore.		
23	1	...	4	1	1	...	...	1	5·0	3·4	+47	61	·461	1·5	0	2·00	−2·00	0·01	0·87	−0·86	0·01	0·87	−0·86	0·01	Mercara	Coorg.	35
...	1	1	1	3	1	6	11	7	6·7	?	?	45	·450	0·7	0	?	?	0	?	?	0	?	?	0	Chitaldroog	Mysore	36
...	...	2	1	5	5	14	3	1	7·0	3·6	+94	64	·551	0·6	1	0·82	+0·18	0·64	0·54	+0·10	0·64	0·54	+0·10	0·64	Bangalore.		
1	...	4	3	6	4	7	5	1	2·9	?	?	64	·519	1·3	0	?	?	0·01	?	?	0·01	?	?	0·01	Hassan.		
...	...	1	1	3	4	13	7	2	8·3	?	?	69	·617	2·0	0	?	?	0·05	?	?	0·05	?	?	0·05	Mysore.		
8	...	1	3	2	7	6	1	3	9·3	3·6	+158	77	·885	3·2	0	0·73	−0·73	0	0·54	−0·54	0	0·54	−0·54	0	Negapatam	Madras, East-Coast, South.	56
...	...	...	1	...	15	5	7	3	1·2	?	?	82	·894	1·1	0	1·50	−1·50	0	?	?	0	?	?	0	Cuddalore.		
20	1	1	2	1	3	1	1	1	3·3	3·8	−13	72	·784	2·4	0	0·82	−0·82	0	0·55	−0·55	0	0·55	−0·55	0	Trichinopoly.		
...	...	1	...	2	15	11	2	...	6·7	6·4	+ 5	79	·874	3·1	0	0·64	−0·64	0·06	0·39	−0·33	0·06	0·39	−0·33	0·06	Madras.		
1	...	...	...	30	...	...	...	...	7·2	?	?	83	·885	3·5	0	0·40	−0·40	0	?	?	0	?	?	0	Nellore	Madras, East-Coast, Central.	55
8	...	1	1	8	10	1	1	1	7·4	6·8	+ 9	81	·890	4·3	1	0·27	+0·73	0·81	0·12	+0·69	0·81	0·12	+0·69	0·81	Masulipatam.		
...	...	11	4	7	2	2	3	2	?	?	?	65	·794	0·4	0	0·20	−0·20	0·08	0·06	+0·02	0·08	0·06	+0·02	0·08	Cuddapah	Madras, Central.	54
27	...	...	3	1	...	...	...	...	?	?	?	49	·538	0·8	0	0·67	−0·67	0	0·54	−0·54	0	0·54	−0·54	0	Kurnool.		
14	...	...	...	...	2	2	3	10	3·5	4·6	−24	41	·464	1·4	0	0·73	−0·73	0	0·22	−0·22	0	0·22	−0·22	0	Bellary.		
8	5	...	12	2	3	...	1	...	?	?	?	74	·795	4·6	3	0·05	+2·95	2·52	0·43	+2·09	2·52	0·43	+2·09	1·20	Rajahmundry	Madras, East-Coast, North.	52
5	3	3	1	1	4	3	7	4	7·2	?	?	77	·795	1·9	4	0·60	+3·40	3·20	0·53	+2·67	3·20	0·53	+2·67	2·06	Cocanada.		
16	...	...	...	...	...	1	10	4	1·1	3·0	−63	76	·824	3·8	3	1·09	+1·91	1·22	0·39	+0·83	1·22	0·39	+0·83	0·81	Vizagapatam.		
2	2	1	...	...	1	22	1	2	17·9	11·8	+52	78	·796	0·9	3	1·13	+1·87	0·98	0·78	+0·20	0·98	0·78	+0·20	0·42	Gopalpur.		
																									XII.—Hill Stations.		
8	15	...	1	2	...	...	...	5	8·9	?	?	43	·204	2·3	0	?	?	0·07	?	?	0·07	?	?	0·05	Sharigh	Baluchistan.	48
			Not	recorded.					?	?	?	?	?	?	0	?	?	0	?	?	0	?	?	0	Pishin.		
19	1	2	1	3	1	1	2	1	4·6	4·8	− 4	50	·162	4·3	5	4·91	+0·09	1·37	1·70	−0·33	1·37	1·70	−0·33	0·39	Quetta.		
...	...	1	1	...	17	6	3	3	?	?	?	51	·152	3·0	2	?	?	0·79	?	?	0·79	?	?	0·49	Kalat.		
...	2	...	3	10	8	6	1	1	8·9	?	?	51	·199	3·5	3	?	?	0·77	?	?	0·77	?	?	0·44	Chaman.		
...	...	14	5	4	6	1	1	...	1·5	?	?	44	·052	7·2	3	?	?	0·75	?	?	0·75	?	?	0·15	Leh	Punjab.	30
7	5	2	...	4	5	2	4	2	6·6	?	?	93	·241	6·7	9	?	?	5·79	?	?	5·79	?	?	1·54	Srinagar.		
14	...	...	...	...	9	8	...	...	3·2	?	?	73	·129	5·9	9	?	?	3·75	?	?	3·75	?	?	1·02	Astor (Kashmir).		
15	...	4	3	2	...	...	1	2	5·0	?	?	87	·112	7·1	15	?	?	7·13	?	?	7·13	?	?	1·80	Minimarg. *		
15	2	...	...	1	2	...	11	...	3·7	?	?	96	·191	7·3	10	?	?	1·82	?	?	1·82	?	?	0·46	Skardu.		
30	1	...	...	...	...	...	...	...	0·6	?	?	?	?	6·2	14	?	?	5·21	?	?	5·21	?	?	1·07	Dras.		
			Not	recorded.					?	?	?	52	·166	7·5	2	?	?	0·66	?	?	0·66	?	?	0·37	Gilgit.		
2	2	3	5	4	6	3	2	4	?	?	?	83	·201	7·0	12	?	?	4·65	?	?	4·65	?	?	1·11	Chitral		
3	11	...	...	1	1	1	1	13	18·0	?	?	52	·191	4·8	7	?	?	2·85	?	?	2·85	?	?	1·10	Cherat.		
1	8	3	7	7	1	...	...	4	13·4	9·4	+43	47	·136	5·8	8	5·36	+2·64	6·02	3·65	+2·37	6·02	3·65	+2·37	1·75	Murree.		
13	...	2	3	4	1	2	2	4	?	?	?	?	?	5·8	8	?	?	6·66	?	?	6·66	?	?	1·74	Poo.		
11	4	4	2	...	2	1	...	...	8·0	2·8	+186	40	·132	5·0	5	4·64	+0·36	2·27	2·24	+0·03	2·27	2·24	+0·03	0·95	Simla.		
10	13	6	...	...	1	...	...	1	10·9	5·9	+85	51	·158	4·4	5	4·80	+0·20	4·54	2·39	+2·15	4·54	2·39	+2·15	1·62	Chakrata.	North-Western Provinces.	25
...	3	3	8	2	...	...	6	9	?	?	?	51	·176	3·9	4	?	?	1·76	?	?	1·76	?	?	0·61	Mussooree.		
10	...	7	2	3	1	5	1	2	3·5	2·6	+35	57	·215	3·4	5	4·00	+1·00	2·48	2·24	+0·24	2·48	2·24	+0·24	1·16	Ranikhet.		
			Not	recorded.					?	?	?	?	?	?	10	?	?	3·00	?	?	3·00	?	?	0·65	Yatung.	Bengal.	13
5	1	...	5	7	3	4	6	...	8·2	6·6	+24	71	·234	2·3¶	4	3·38	+0·62	2·63	1·65	+0·98	2·63	1·65	+0·98	1·06	Darjeeling.		
13	2	4	1	1	1	...	4	1	?	?	?	68	·272	?	6	?	?	2·95	?	?	2·95	?	?	0·78	Gantok.		

¶ Mean of 28 days.

Table

Abstract of Observations taken at 8 A.M. at 211 Stations

Meteorological Province or District.	Station.	Elevation of barcistern 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.
Central India.	Mount Abu.	3,945	26·054	−·039	?	26·193	2nd	25·923	28th	·270	65·2	75·1	−3·4	58·7	−3·1	66·9	−3·3	16·4	81·7	16th	50·0	11th	31·7
	Pachmarhi .	3,528	26·473	−·024	?	26·595	2nd	26·376	22nd	·219	70·5	83·9	−0·6	59·7	−0·7	71·8	−0·7	24·2	91·7	21st	49·7	14th	42·0
South India .	Wellington .	6,200	24·284	−·026	?	24·357	3rd	24·234	22nd	·123	63·6	75·6	+1·9	52·9	+0·1	64·3	+1·0	22·7	79·2	20th	46·2	10th	33·0
XIII.—Extra India.																							
Ceylon . .	Trincomalee.	12	29·932	?	29·870	30·005	15th	29·881	25th	·124	81·9	89·0	?	77·7	?	83·4	?	11·3	92·0	26th & 27th.	74·0	19th	18·0
	Colombo .	40	29·905	−·028	29·871	29·968	15th	29·860	22nd	·108	82·2	89·6	?	76·5	?	83·1	?	13·1	93·0	3rd	73·5	15th	19·5
Persia . .	Meshed .	3,104				Not recorded.					40·6	?	?	34·4	?	?	?	?	?	...	17·0	21st	?
	Resht (b) .	...				Not recorded.					48·1	58·9	?	43·0 (a)	?	51·4 (a)	?	15·9	75·5	31st	25·0	18th	50·5
	Teheran .	?†	*26·026	?	?	26·250	3rd	25·745	24th	·505	43·8†	55·4†	?	33·5‡	?	46·2‡	?	21·9	65·7	31st	26·1	1st	39·6
			*25·449	?	?	25·680	3rd	25·220	24th	·460													
	Ispahan .	?	*24·360	?	?	24·550	4th	24·120	24th	·430	43·9	61·2	?	35·4	?	48·3	?	25·8	75·7	12th	25·7	15th	50·0
			*24·643	?	?	24·830	4th	24·420	24th	·410													
	Bushire .	14	30·003	+·007	29·976	30·243	15th	29·650	24th	·593	63·2	70·6	−2·0	57·4	−0·8	64·0	−1·4	13·2	81·6	19th & 24th.	48·3	1st	33·3
	Jask . .	?	29·974	?	29·926	30·177	10th	29·836	24th	·341	70·7	78·8	?	66·2	?	72·5	?	12·6	83·8	31st	60·8	18th	23·0
Arabia . .	Muscat .	20	29·976	?	29·944	30·173	10th	29·790	24th	·383	73·9	76·2	?	71·4	?	73·8	?	4·8	80·0	31st	67·1	10th	12·9
	Baghdad .	220?	29·886	−·049	30·093	30·188	7th	29·548	23rd	·640	55·9	69·5	−5·2	49·1	+2·0	59·3	−1·6	20·4	79·6	31st	39·8	15th	39·8
	Aden . .	94	29·904	+·002	29·930	29·983	16th	29·775	22nd	·208	77·4	84·2	−1·0	74·6	−0·1	79·4	−0·6	9·6	89·8	9th	66·9	7th	22·9
	Perim . .	?	29·768	?	?	29·849	3rd	29·673	23rd	·176	78·7	85·1	?	75·3	?	80·2	?	9·8	86·9	28th & 30th.	72·8	6th & 7th.	14·1
Afghanistan	Kabul .					Not recorded.					36·2	51·7	?	30·9	?	41·3	?	20·8	64·2	25th & 31st.	19·8	11th	44·4
Central Asia .	Kashgar .	?	¶25·560	?	?	26·100	11th	25·104	26th	·996	40·3	46·9	?	35·4	?	41·1	?	11·5	69·2	26th	24·5	2nd	44·7
Arabian Sea Islands.	Amini Devi.	15																					
Africa . .	Zanzibar .	73	29·938	?	29·937	30·006	16th	29·855	24th	·151	82·3	86·7	?	80·3	?	83·5	?	6·4	89·4	27th	76·8	5th	12·6

* Aneroid uncorrected. † Mean of 30 days. ‡ Mean of 29 days. (a) Mean of 27 days. (b) 9 A.M. observations.
¶ Aneroid corrected.

NOTE.—When a query is inserted in the variation returns from any stations the data from

I—*concluded.*

in India, Burma, etc., in March 1897—concluded.

Wind Direction. Number of winds from									Wind velocity.			Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.								Variation from normal of period, 1st to 31st March.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean velocity in miles per hour.	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 March 1897.	Normal rainfall for period, from 1st to 31st March.				
4	2	6	...	...	1	8	6	4	9·3	6·7	+39	35	·218	2·6	0	0·27	−0·27	0	0·12	−0·12	0	0·12	−0·12	0	Mount Abu.	Central India.
18	2	3	...	...	...	2	2	4	8·3	4·6	+80	42	·318	1·9	0	0·73	−0·73	0	0·32	−0·32	0	0·32	−0·32	0	Pachmarhi.	
24	...	4	1	1	...	...	1	...	2·2	2·8	−21	69	·414	1·5	4	3·13	+0·87	3·11	2·81	+0·30	3·11	2·81	+0·30	1·65	Wellington.	South India.
																									XIII.—Extra India.	
10	...	2	...	1	...	18	...	...	1·2	?	?	83	·904	1·9	1	?	?	1·29	1·21	+0·08	1·29	1·21	+0·08	1·29	Trincomalee	Ceylon.
...	...	1	8	16	4	2	...	...	6·5	5·0	+30	79	·875	2·8	6	?	?	3·56	4·65	−1·09	3·56	4·65	−1·09	1·13	Colombo.	
				Not	rec	orded.			?	?	?	80 (a)	·209 (a)	6·6	5	?	?	1·92	?	?	1·92	?	?	0·76	Meshed.	Persia.
				Not	rec	orded.			?	?	?	93	·319	?	5	?	?	3·10	?	?	3·10	?	?	1·20	Resht.	
15	7	2	1	1	...	1	2	1	4·9	?	?	?	?	4·7†	9	?	?	2·73	?	?	2·73	?	?	0·82	Teheran§.	
4	2	...	8	1	1	5	4	6	7·0	?	?	89	·264	2·1	1	?	?	0·20	?	?	0·20	?	?	0·20	Ispahan.	
1	4	6	5	8	...	...	...	7	9·9	8·9	+11	70	·405	3·5	1	?	?	0·31	?	?	0·31	?	?	0·20	Bushire.	
6	2	...	11	1	...	...	2	9	9·4	?	?	73	·554	2·4	1	?	?	0·12	?	?	0·12	?	?	0·12	Jask.	
...	2	...	3	5	2	...	7	12	5·0	?	?	68	·570	2·8	0	?	?	0·03	?	?	0·03	?	?	0·03	Muscat.	Arabia.
6	7	1	1	3	3	2	2	6	4·7	?	?	67	·307	0·2	2	?	?	0·65	?	?	0·65	?	?	0·31	Baghdad.	
...	1	7	16	4	1	...	...	2	11·1†	14·9	−26	73	·682	5·4	0	?	?	0	1·16	−1·16	0	1·16	−1·16	0	Aden.	
5	...	...	14	7	2	...	3	...	15·3	?	?	73	·743	5·1	0	?	?	0	?	?	0	?	?	0	Perim.	
...	3	...	3	...	4	3	15	3	?	?	?	77	·165	3·6	8	?	?	3·41	?	?	3·41	?	?	1·00	Kabul.	Afghanistan.
26	...	1	2	1	...	...	...	...	1·8	?	?	?	?	5·4	0	?	?	0·03	?	?	0·03	?	?	0·03	Kashgar§.	Central Asia.
																									Amini Devi.	Arabian Sea Islands.
...	3	4	3	4	8	8	...	1	3·7	?	?	85	·926	4·8	7	?	?	8·84	?	?	8·84	?	?	2·61	Zanzibar.	Africa.

§ Wind observations of 30 days.

that station are not employed for calculating the provincial variations.

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. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, wet-bulb. Mean minimum.	Temperature, wet-bulb. Mean 10 hours.	Temperature, wet-bulb. Mean 16 hours.	Temperature, wet-bulb. Mean daily.
Burma Coast and Bay Islands.	Port Blair	...	29·920	29·804	·116	29·851	0	29·842	92·3	77·3†	15·0	94·9	73·2	21·7	87·6	89·0	82·9†	+1·4	74·6	79·5	80·1	78·1
	Rangoon	...	·931	·777	·154	·856	−·002	·833	98·2	71·1	27·1	102·0	64·8	37·2	84·6	93·8	81·9	+1·4	68·6	73·8	74·6	72·2
	Diamond Island	...	·941	·826	·115	·873	−·007	·849	85·0	76·6	8·4	89·6	73·0	16·6	82·5	82·9	79·2	+0·8	72·8	74·7	74·9	74·1
	Cocos Island	111	·857	·753	·104	·795	−·001	·838	88·4	76·8	11·6	91·9	74·3	17·6	84·4	84·8	80·6	+1·0	72·2	75·9	76·0	74·7
	Akyab	...	·964	·844	·120	·899	+·001	·862	87·5	69·9	17·6	92·2	62·5	29·7	82·6	83·8	78·3	+0·3	67·3	76·3	77·2	73·6
Assam.	Silchar	...	·867	·730	·137	·795	−·005	·851	86·5	64·0	22·5	96·1	53·3	42·8	75·3	83·4	74·2	+0·8	62·6	69·4	70·4	67·5
	Sibsagar	...	·636	·481	·155	·559	−·016	·854	79·7	58·8	20·9	87·5	1·5	36·0	70·0	78·0	67·8	+0·2	58·5	64·4	66·7	63·2
	Dhubri	...	·825	·680	·145	·750	+·002	·820	85·4	62·2(a)	23·2	97·2	51·0	46·2	75·5	83·9	72·1(a)	−2·0	59·4	65·2	67·0	63·9
Bengal and Orissa.	Chittagong	...	·878	·757	·121	·812	−·012	·847	87·3	69·2	18·1	91·1	59·1	32·0	81·8	83·6	77·8	+1·0	67·5	74·0	74·5	72·0
	Narayanganj	...	·913	·779	·134	·842	−·007	·816	89·4	69·5	19·9	96·1	58·4	37·7	80·7	87·1	78·7	+0·3	65·2	71·8	71·2	69·4
	Calcutta (Alipore)	...	·915	·784	·131	·843	−·010	·809	89·9	70·6	19·3	98·9	63·9	35·0	81·4	88·2	79·4	+0·2	66·4	71·7	71·3	69·8
	Saugor Island	...	·913	·788	·125	·844	−·012	·812	87·2†	76·0†	11·2	92·9	68·7	24·2	82·5†	84·3†	79·9 (b)	+0·5	72·5†	75·8†	76·5†	74·9
	Burdwan	...	·835	·690	·145	·754	−·004	·799	94·3	69·0	25·3	103·6	62·1	41·5	83·6	92·1	81·0	+0·5	63·3	70·1	69·4	67·6
	Berhampore	...	·855	·719	·136	·778	−·008	·793	92·0	65·2	26·8	102·6	56·1	46·5	82·6	91·2	78·3	−0·2	59·6	68·7	68·3	65·5
	False Point	...	·931	·806	·125	·868	−·013	·830	86·7	74·5	12·2	89·7	68·4	21·3	83·9	83·9	78·8	+1·1	72·8‡	77·0	76·7	75·5
	Cuttack	...	·853	·710	·143	·786	−·013	·807	96·0	73·6	22·4	102·2	68·2	34·0	83·7	92·9	82·6	+0·6	70·9	74·4	73·7	73·0
Sangetic Plain and Chota Nagpur.	Hazaribagh	...	27·893	27·790	·103	27·837	−·025	·777	87·4	62·9	24·5	97·1	56·2	40·9	78·8	85·2	74·9	−0·5	53·7	61·4	63·1	59·4
	Patna	...	29·723 (b)	29·594 (b)	·129	29·654	−·018	·789 (b)	89·8	63·6	26·2	101·0	54·3	46·7	81·2	88·5	76·8	−0·3	56·3	66·2	67·8	63·4
	Darbhanga	...	·752	·612	·140	·677	−·009	·797	87·4	61·8	25·6	97·2	51·8	45·4	78·5	86·8	74·9	−0·7	57·3	64·3	65·7	62·4
	Allahabad	...	·605	·471	·134	·527	−·023	·789	92·8	62·7	30·1	102·4	50·7	51·7	82·4	91·5	77·5	−0·3	53·5	62·7	65·8	60·6
	Lucknow	...	·535	·413	·122	·468	−·026	·793	91·1	60·0	31·1	99·5	47·1	52·4	81·2	88·4	75·7	−0·5	53·3	63·4	66·1	60·9
Upper Sub-Himalayas.	Dehra Dun	...	27·657	27·556	·101	27·599	−·031	·807	78·8	54·9	23·9	88·2	48·1	40·1	69·8	74·8‡	65·8	−1·1	49·8	56·0	56·7	53·8
	Roorkee	...	28·990	28·894	·106	28·930	−·026	·791	84·9	55·3	29·6	93·1	45·3	47·8	74·1	82·7	69·4	−0·3	50·8	59·5§	60·8§	57·0
	Meerut	...	29·151	29·052	·099	29·094	−·021	·802	86·6	57·7	28·9	95·1	48·9	46·2	77·2	83·8	71·3	0	51·5	60·0	60·7	57·4
	Lahore	...	·174	·091	·083	·126	−·042	·811	80·8	56·8	24·0	90·6	49·0	41·6	69·8	80·1	68·4	+0·6	50·9	58·6	61·6	57·1
	Ludhiana	...	·064	28·979	·085	·016	−·034	·808	82·7	56·7	26·0	93·1	48·3	44·8	72·9	80·4	68·9	+0·1	52·3	61·1§	63·8§	59·1
Indus Valley and N.-W. Rajputana.	Peshawar	...	28·839	·755	·084	28·791	−·021	·918	72·6	50·3	22·3	80·1	43·2	36·9	65·2	70·1	60·6	−2·4	46·5	55·9	57·8	53·4
	Mooltan	...	29·481	29·379	·102	29·424	−·039	·819	85·5	56·6	28·9	93·7	48·2	45·5	72·5	83·2	70·3	−0·9	49·5	58·0	61·9	56·5
	Jacobabad	...	·735	·605	·130	·664	−·021	·809	89·6	58·0	31·6	95·1	43·0	52·1	78·5	88·2	73·2	−1·7	48·1	57·6	61·6	55·8
	Kurrachee	...	·963	·857	·106	·907	−·007	·869	84·6	66·1	18·5	91·2	56·3	34·9	79·0	80·6	74·4	−1·1	61·1	67·4	69·0	65·8
E. Rajputana, Central India, and Gujarat.	Jeypore	...	28·495	28·384	·111	28·433	−·017	·820	89·2	59·3	29·9	97·2	47·9	49·3	79·6	87·5	73·7	−0·9	51·1	61·3	64·5	59·0
	Ajmere	...	·312	·199	·113	·252	−·029	·823	87·8	58·8	29·0	95·2	45·3	49·9	77·6	86·2	73·4	0	50·1	60·1	63·3	57·8
	Deesa	...	29·479	29·350	·129	29·408	−·014	·825	94·5	61·4	33·1	100·8	51·2	49·6	83·0	93·2	78·6	−2·1	51·3	62·5	64·1	59·3
	Nowgong	...	·158	·038	·120	·090	−·022	·799	90·9	61·0	29·9	98·0	51·0	47·0	81·9	90·2	76·0	−0·5	51·9	60·3	62·2	58·1
	Agra	...	·352	·230	·122	·279	−·037	·795	90·0	62·2	27·8	99·1	54·8	44·3	79·7	88·1	75·2	+0·3	52·7	61·2	63·4	59·1
Deccan.	Belgaum	...	27·431	27·302	·129	27·365	−·010	·750	96·2	63·4	32·8	99·2	58·2	41·0	86·3	90·0	77·7	+0·6	56·4	60·6	66·9	61·3
	Sholapur	...	28·342	28·184	·158	28·260	−·022	·749	102·1	69·2	32·9	104·2	61·6	42·6	90·1	100·3	85·2	+1·1	55·2	64·3	68·2	62·6
	Poona	...	·110	27·969	·141	·045	−·006	·784	99·4	61·1	38·3	103·0	54·4	48·6	86·5	96·1	79·7	−0·2	52·8	61·2	63·3	59·1
	Akola	...	·992	28·833	·159	·907	−·021	·772	99·9	64·4	35·5	105·3	55·4	49·9	88·4	98·9	82·8	+0·1	51·2	64·1	68·1	61·1
	Buldana	2,132	27·818	27·685	·133	27·746	−·009	·776	94·6	69·1	25·5	99·0	61·2	37·8	84·0	93·1	82·3	+0·2	53·0	58·7	61·6	57·8
	Khandwa	...	28·895	28·752	·143	28·819	−·001	·802	97·1	63·6	33·5	102·7	52·1	50·6	86·5	96·5	80·6	−0·4	50·2	61·3	64·3	58·6

(b) Mean of 27 days. † Mean of 28 days. ‡ Mean of 21 days. (a) Mean of 25 days.

II.

84 Stations in India, Burma, etc., for March 1897.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from											Wind Steadiness.		Wind Velocity.		Rainfall.			
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.	Station.	Meteorological Province.
																									%	%						
·824†	·904	·907	·878	+·015	88	69	66	74	−2	2·4	3·3	2·9	0	1	6	14	19	16	...	2	2	2	N. 82° E.	N. 62° E.	58	64	88	103	...	...	Port Blair	Burma Coast and Bay Islands.
·668	·689	·602	·653	−·018	87	59	39	62	−2	2·4	3·8	3·1	+1·0	...	2	3	5	15	14	11	9	3	S. 3° W.	S. 22° W.	42	56	95	114	...	...	Rangoon	
·759	·758	·760	·759	−·006	83	68	68	73	−2	1·9	2·7	2·3	−0·4	...	4	1	2	1	1	1	11	41	N. 50° W.	N. 42° W.	79	83	364*	206	...	...	Diamond Island,	
·730	·785	·781	·765	−·003	79	66	65	76	+4	1·8	2·5	2·2	+0·6	...	16	3	3	3	...	..	8	29	N. 30° W.	N. 9° W.	68	70	?	399	Nil	Nil	Cocos Island	
·641	·827	·848	·772	+·094	87	73	73	78	+7	4·7	3·9	4·3	+2·3	...	3	11	6	6	4	7	9	16	N. 39° W.	N. 53° W.	18	24	83	93	...	...	Akyab	
·555	·639	·574	·589	+·010	92	72	51	72	0	5·4	5·3	5·4	+1·0	29	2	3	7	2	3	4	8	4	S. 85° W.	S. 56° E.	5	20	67*	70	...	...	Silchar	Assam.
·492	·532	·506	·510	−·036	99	73	54	75	−4	4·5	3·8	4·2	−1·7	10	...	41	1	3	...	5	1	1	N. 48° E.	N. 55° E.	58	64	125*	68	...	...	Sibsagar	
(a) ·475	·492	·442	·470	−·027	(a) 84	56	40	60	−1	1·8	2·2	2·0	−0·5	7	4	12	11	2	4	15	5	2	S. 60° E.	S. 59° E.	6	9	134*	153	...	...	Dhubri	
·659	·741	·736	·712	+·029	92	68	65	75	+1	4·8	3·6	4·2	+1·0	1	1	4	2	7	10	22	12	3	S. 39° W.	S. 36° W.	52	20	124*	129	...	...	Chittagong	Bengal and Orissa.
·575	·672	·557	·601	−·023	79	65	45	63	−3	4·1	3·4	3·8	+0·5	...	1	5	3	13	9	19	7	5	S. 19° W.	S. 27° W.	40	53	146	117	...	...	Narayanganj	
·600	·658	·551	·603	−·031	79	62	42	61	−5	3·3	2·6	3·0	+0·5	2	2	2	3	3	16	24	8	2	S. 33° W.	S. 36° W.	58	49	126	118	...	...	Calcutta (Alipore).	
·758†	·310†	·814†	·791	−·017	84†	73†	70†	76	−2	5·1	3·0	4·1	+0·4	1	6	...	1	5	34	10	4	1	S. 11° W.	S. 26° W.	61	61	369	309	...	...	Saugor Island	
·518	·569	·423	·503	−·013	72	50	30	51	−2	2·6	2·9	2·8	+0·3	6	10	...	3	2	7	14	13	7	S. 82° W.	S. 82° W.	39	41	75*	76	...	...	Burdwan	
·446	·526	·393	455	−·044	70	48	28	49	−7	2·0	2·7	2·4	−0·4	10	4	1	3	1	7	15	12	9	S. 74° W.	S. 71° W.	42	49	81*	84	...	...	Berhampore	
·790‡	·839	·825	·818	+·032	93‡	72	71	79	−2	4·7	4·2	4·5	+1·3	...	...	4	2	7	36	9	3	1	S. 1° W.	S. 50° W.	71	37	246*	266	...	...	False Point	
·721	·730	·579	·677	+·025	87	63	39	63	+2	2·5	2·6	2·6	+0·2	3	5	5	5	4	13	17	6	4	S. 30° W.	S. 16° W.	31	37	91	79	...	...	Cuttack	
·306	·337	·309	·317	+·033	53	35	28	39	+5	2·5	3·1	3·0	+0·3	3	13	2	2	1	8	6	7	20	N. 54° W.	N. 74° W.	42	54	203	194	...	...	Hazaribagh	Ganjetic Plain and Chota Nagpur.
·368	·449	·411	·409	+·018	61	43	32	45	0	2·3	2·3	2·3	−0·3	4	1	3	11	3	3	4	22	11	N. 81° W.	N. 73° W.	29	52	91*	91	...	...	Patna	
·418	·418	·357	·298	−·049	75	44	30	50	−4	1·7	1·4	1·6	+0·3	...	2	3	12	12	3	7	14	9	S. 23° W.	S. 78° W.	11	31	110	113	...	...	Darbhanga	
·298	·314	·295	·303	−·056	51	29	20	34	−8	2·0	2·6	2·3	+0·3	3	4	4	5	5	2	4	17	18	N. 62° W.	N. 62° W.	12	40	116*	85	...	...	Allahabad	
·326	·356	·351	·344	−·016	62	34	27	47	+4	2·5	2·7	2·6	−0·2	3	2	2	7	3	2	4	34	5	W	N. 56° W.	48	44	75*	98	...	...	Lucknow	
·273	·283	·239?	·265	−·028	63	40	29?	44	−4	4·5	4·9	4·7	+1·2	12	2	5	5	5	5	10	8	10	S. 74° W.	N. 80° W.	18	27	40	50	...	...	Dehra Dun	Upper Sub-Himalayas.
·317	·315§	·245§	·292	−·036	72	38§	23§	44	−5	2·0	2·9	2·5	0	23	1	7	...	12	...	5	...	14	N	N. 64° W.	6	25	50	72	...	...	Roorkee	
·306	·292	·230	·276	−·081	63	31	20	38	−11	1·9	3·8	2·9	+0·4	9	...	4	6	4	2	2	28	7	N. 86° W.	N. 60° W.	37	44	103*	66	...	...	Meerut	
·301	·348	·306	·318	−·036	65	48	30	48	−2	3·6	3·9	3·8	+0·6	4	9	7	4	5	4	2	12	15	N. 37° W.	N. 10° W.	32	31	82	70	...	...	Lahore	
·339	·382§	·370§	·364	0	73	47§	36§	52	−2	3·5	4·3	3·9	−0·2	15	6	5	...	6	5	3	5	17	N. 47° W.	N. 45° W.	24	34	51	50	...	...	Ludhiana	
·278	·338	·333	·316	−·012	75	55	47	59	+2	5·7	6·1	5·9	+1·1	23	9	3	4	4	1	2	4	12	N. 18° W.	N. 18° E.	24	16	90*	91	...	...	Peshawar	
·267	·296	·274	·279	−·110	57	37	25	40	−12	2·7	3·3	3·0	+0·4	8	2	28	1	4	2	14	...	3	N. 52° E.	N. 2° W.	24	22	68*	45	...	...	Mooltan	Indus Valley and N.-W. Rajputana.
·214	·199	·193	·202	−·099	44	20	15	26	−11	2·4	3·1	2·8	−0·2	12	4	3	13	8	3	8	2	9	N. 75° E.	N. 87° E.	11	15	121*	91	...	...	Jacobabad	
·484	·525	·560	·523	−·068	74	52	54	60	−5	2·5	2·5	2·5	−0·2	3	1	3	2	1	1	25	24	2	S. 69° W.	S. 77° W.	66	60	265*	281	...	...	Kurrachee	
·283	·322	·327	·310	+·005	55	31	25	37	0	3·3	4·4	3·9	+0·9	1	4	4	3	5	6	12	11	15	S. 88° W.	N. 39° W.	34	32	105	113	...	...	Jeypore¶	
·264	·311	·302	·292	−·050	52	33	24	36	−5	2·6	3·2	2·9	+0·6	2	2	7	1	4	6	12	19	9	S. 81° W.	S. 79° W.	40	30	119	94	...	...	Ajmere	E. Rajputana, Central India, and Gujarat.
·255	·296	·215	·255	−·044	46	27	14	29	0	1·5	1·4	1·5	−0·8	...	4	7	6	3	2	6	22	12	N. 82° W.	N. 66° W.	24	35	219	209	...	...	Deesa	
·272	·240	·193	·235	−·100	50	22	13	28	−12	1·5	2·8	2·2	−0·7	1	2	3	4	...	2	6	38	6	N. 87° W.	N. 70° W.	66	41	78*	56	...	...	Nowgong	
·278	·299	·262	·280	−·047	49	30	19	33	−6	2·1	2·6	2·4	+0·2	...	...	1	...	13	1	15	1	31	N. 86° W.	N. 68° W.	39	42	181*	111	...	...	Agra	
·373	·212	·376	·320	−·080	65	17	27	36	−5	0·5	0·4	0·5	−1·4	...	6	8	7	3	5	4	12	17	N. 42° W.	N. 81° W.	29	17	288	272	..	...	Belgaum	Deccan.
·267	·286	·291	·282	−·062	37	20	15	24	−7	0·9	1·5	1·2	−1·2	6	7	9	2	5	6	5	7	15	N. 40° W.	N. 44° E.	23	5	195*	190	...	...	Sholapur	
·301	·229	·174	·235	−·077	56	18	11	28	−2	0·7	0·7	0·7	−1·4	...	...	1	...	3	...	15	27	16	N. 89° W.	N. 63° W.	74	43	288*	190	...	...	Poona	
·209	·279	·277	·255	−·046	33	21	15	23	−6	0·4	1·0	0·7	−1·0	3	5	3	5	3	...	1	12	30	N. 44° W.	N. 43° W.	57	42	126	113	...	...	Akola	
·207	·185	·160	·184	−·098	29	16	10	19	−9	0·5	1·0	0·8	−1·4	5	9	3	4	1	...	2	8	30	N. 39° W.	N. 28° W.	62	47	156	176	Nil	Nil	Buldana	
·203	·236	·204	·214	−·088	33	19	12	21	−10	0·6	0·7	0·7	−1·0	2	5	13	1	5	1	2	8	25	N. 27° W.	N. 45° W.	47	45	140	116	...	...	Khandwa	

§ Mean of 30 days. ¶ Wind observations, 61 days. * Corrected.

Table

Abstract of Observations recorded at 0 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.
Deccan—concld.	Hoshangabad	...	28·924	28·775	·149	28·844	−·014	29·797	95·2	63·7	31·5	101·5	56·8	44·7	83·4	94·7	79·7	−0·6	51·5	62·9	67·1	60·5
	Nagpur	...	·895	·723	·172	·804	−·018	·765	99·9	67·3	32·6	104·6	57·9	46·7	86·9	97·4	83·9	+0·6	56·8	69·0	72·9	66·2
	Do. (Sanitary Commr.'s Office).	...	·913	·772	·141	·838	?	·788	100·7	67·7	33·0	105·7	59·3	46·4	88·1	99·2	83·9	?	55·7	65·7	68·8	63·4
	Jubbulpore	...	·594	·464	·130	·524	−·015	·793	92·7	60·3	32·4	100·6	51·5	49·1	81·9	91·3	76·5	−0·1	54·5	62·6	65·6	69·9
	Saugor	...	·113	27·989	·124	·046	−·025	·780	91·2	66·1	25·1	99·3	56·1	43·2	82·5	89·7	78·7	+1·5	54·9	65·2	69·6	63·2
	Sutna	...	·862	28·732	·130	·797	−·020	·781	91·6	62·7	28·9	100·3	53·8	46·5	83·5	90·6	77·1	+1·0	51·1	60·3	63·0	58·1
	Raipur	...	·955	·805	·150	·875	−·014	·770	95·8	68·0	27·8	103·3	62·0	41·3	84·5	94·5	82·5	+0·6	57·8	64·3	66·5	62·9
	Hyderabad (Deccan.)	...	·246	·101	·145	·170	−·010	·760	99·4	72·7	26·7	103·4	66·0	37·4	88·4	98·2	85·7	+3·6	65·5	72·0	72·3	69·9
West Coast.	Bombay	...	29·943	29·823	·120	29·877	+·003	·854	84·3	71·2	13·1	86·0	66·1	19·9	78·9	81·3	77·2	−1·6	67·4	71·5	72·4	70·4
	Ratnagiri	...	·856	·747	·109	·795	+·009	·843	86·2	70·6	15·6	90·5	66·0	24·5	82·2	83·4	77·9	−1·6	66·6	72·0	74·1	70·9
	Karwar	...	·939	·816	·123	·871	+·008	·847	86·8	70·8	16·0	89·5	63·6	25·9	82·3	84·8	78·5	−1·5	68·8	72·9	74·6	72·1
	Cochin	...	·958	·839	·119	·893	+·001	·830	93·5	79·0	14·5	94·9	74·7	20·2	87·8	90·7	85·8	+2·5	76·0	78·6	80·0	78·2
South India.	Salem	...	·041	28·865	·176	28·959	−·023	·817	99·9	73·6	26·3	104·3	62·9	41·4	87·8	96·8	84·8	+2·8	71·1	75·9	76·7	74·6
	Mercara	...	26·284	26·171	·113	26·234	−·002	?	84·4	63·0	21·4	87·4	59·5	27·9	77·4	80·6	72·8	+1·0	57·8	63·8	66·4	62·7
	Chitaldroog	...	27·564	27·422	·142	27·491	+·004	·758	96·5	70·6	25·9	99·7	65·0	34·7	86·2	94·9	83·2	+1·6	60·5	66·3	67·4	64·7
	Bangalore	...	26·990	26·848	·142	26·921	−·017	·765	93·3	67·4	25·9	95·4	60·2	35·2	83·0	91·7	80·0	+3·1	60·6	66·5	65·1	64·1
	Hassan	...	·928	·790	·138	·861	+·005	·772	92·8	62·7	30·1	93·9	55·5	38·4	83·1	91·0	77·3	+1·3	60·7	64·3	65·5	63·5
	Mysore	...	27·475	27·322	·153	27·404	+·011	·773	95·3	68·8	26·5	97·9	63·3	34·6	84·2	93·7	81·6	+1·6	64·6	68·4	67·6	66·9
	Trichinopoly	...	29·703	29·545	·158	29·630	−·024	·812	99·2	74·9	24·3	105·4	69·5	35·9	89·1	96·8	85·3	+2·0	71·6	75·0	74·5	73·7
	Madras	...	·950	·819	·131	·884	−·020	·836	90·7	74·7	16·0	96·0	68·1	27·9	86·7	86·2	82·0	+1·2	?	77·4	77·7	76·3
	Bellary	...	28·466	28·305	·161	28·384	−·018	·762	102·7	74·6	28·1	106·0	67·2	38·8	90·6	99·9	87·9	+2·3	62·8	68·5	70·3	67·2
	Cocanada	...	29·947	29·803	·144	29·868	+·002	·830	89·0	76·8	12·2	93·3	73·5	19·8	83·8	87·4	82·5	0	73·0	75·7	76·4	75·0
Hill Station, Baluchistan.	Vizagapatam	...	·921	·796	·125	·852	−·020	·819	90·0	75·7	14·3	93·5	72·0	21·5	86·8	86·1	82·8	+0·3	75·3	76·3	76·8	75·4
	Quetta	...	24·635	24·568	·067	24·595	−·024	?	62·9	38·0	24·9	77·4	27·8	49·6	54·7	59·1	49·5	−1·6	32·3	42·7	44·8	39·9
Hill Stations, Punjab.	Leh	...	19·621	19·570	·051	19·601	−·059	?	36·5	17·7	18·8	43·0	7·0	36·0	28·0	33·9	27·0	−4·9	14·7	21·2	26·6	20·8
	Srinagar	...	(a) 24·902	(a) 24·839	·063	(a) 24·864	−·035	?	53·4	35·7	17·7	62·9	28·1	34·8	45·5	52·3	44·3	−1·1	35·5	43·2	48·3	42·3
	Murree	...	23·806	23·784	·022	23·788	−·056	?	54·4	38·4	16·0	63·6	22·5	41·1	49·5	49·8	45·5	−4·2	(a) 32·5	40·2	41·8	38·2
	Kailang	10,087	20·745	20·689	·056	20·728	−·074	?	42·4	20·9	21·5	50·5	6·0	44·5	30·6	33·6	28·5	−0·6	19·8	27·3	29·9	25·7
	Simla (Ridge)	...	23·092	23·045	·047	23·062	−·035	?	54·8	42·4	12·4	64·4	32·2	32·2	50·4	51·7	48·1	−2·4	35·9	40·2	41·5	39·2
Hill Stations, N.-W.P.	Chakrata	...	·317	·261	·056	·282	−·034	?	57·9	42·5	15·4	67·2	33·3	33·9	51·4	52·2	49·0	−2·3	37·7	42·0	41·8	40·5
	Ranikhet	...	24·118	24·049	·069	24·077	−·006	?	63·3	47·4	15·9	71·5	38·6	32·9	57·4	59·4	54·6	−1·9	41·6	47·1	47·6	45·4
Hill Station, Nepal.	Katmandu	4,388	25·621	25·542	·079	25·583	−·028	?	76·1	44·4	31·7	85·4	38·7	46·7	65·4	71·5	59·1	−1·4	42·7	53·8	55·1	50·5
Hill Station, Bengal.	Darjeeling	...	(a) 22·986	22·907†	·079	22·946†	+·002	?	56·9†	41·8	15·1	64·1	37·1	27·0	(c) 52·0	54·0†	48·7†	+0·5	39·0	(c) 45·9	46·7†	43·9
Hill Stations, Central India.	Mount Abu	...	26·079	26·003	·076	26·035	−·033	·855	75·4	58·7	16·7	81·7	50·2	31·5	69·8	73·6	66·6	−2·3	46·6	52·8	55·2	51·5
	Pachmarhi	...	·497	·401	·096	·444	−·018	?	84·1	59·6	24·5	91·5	49·7	41·8	76·6	83·2	73·5	−0·3	49·8	59·7	63·6	57·7
	Chikalda	3,642	·398	·292	·106	·340	−·006	·873	86·1	65·8	20·3	91·9	57·0	34·9	77·9	84·8	77·5	+0·3	51·9	55·7	58·4	55·3

(a) Mean of 30 days. † Mean of 26 days. ‡ Mean of 27 days.

II—*continued.*

at 84 Stations in India, Burma, etc., for March 1897—continued.

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.		
																									%	%						
·235	·322	·325	·204	−·126	39	28	20	29	− 6	1·1	1·3	1·2	−0·7	34	1	4	3	...	2	9	8	1	S. 67° W.	N. 60° W.	16	12	15	66	...	...	Hoshangabad	Deccan—*concld.*
·342	·495	·515	·451	+·096	50	39	29	39	+ 5	0·9	2·9	1·9	−0·6	11	6	7	5	3	7	6	5	12	N. 43° W.	N. 1° E.	13	12	136	115	...	...	Nagpur	
·306	·365	·325	·332	?	43	27	17	29	?	0·8	1·9	1·4	?	3	8	7	8	2	7	11	10	6	N. 83° W.	?	13	?	56*	?	...	...	Do. (Sanitary Commr.'s Office).	
·363	·340	·314	·329	+·005	68	30	22	40	+ 1	1·2	1·3	1·3	−1·0	1	7	9	1	4	4	7	16	13	N. 62° W.	N. 70° W.	37	23	72	68	...	...	Jubbulpore	
·298	·416	·482	·398	+·121	46	37	34	39	+ 7	1·4	1·7	1·6	+0·1	3	6	7	3	2	4	8	15	14	N. 65° W.	N. 59° W.	37	29	170	84	...	...	Saugor	
·241	·243	·236	·246	−·016	42	21	16	26	− 6	1·2	1·2	1·2	−0·7	...	4	3	5	1	7	3	14	25	N. 62° W.	N. 53° W.	48	43	139*	133	...	...	Sutna	
·351	·340	·282	·324	−·035	51	30	18	33	− 3	1·0	2·3	1·7	−0·3	18	3	8	3	3	1	12	11	3	S. 86° W.	N. 77° W.	18	25	134*	119	...	...	Raipur	
·549	·587	·473	·536	+·071	67	44	26	46	+ 1	1·1	1·2	1·2	−0·6	15	5	6	6	9	6	3	10	2	S. 38° E.	S. 41° E.	8	23	107*	105	...	...	Hyderabad (Deccan).	
·624	·677	·681	·661	−·051	82	68	63	71	− 1	1·3	1·1	1·2	−0·4	...	4	8	4	...	1	...	14	31	N. 40° W.	N. 31° W.	64	52	218	270	...	...	Bombay	West Coast.
·603	·651	·719	·658	−·048	80	59	63	67	− 1	0·4	0·7	0·6	−0·1	...	6	...	...	...	...	5	15	36	N. 58° W.	N. 64° W.	84	59	226	227	...	...	Ratnagiri	
·681	·686	·721	·696	−·057	90	62	60	71	− 3	0·3	0·3	0·3	−1·1	...	1	...	...	...	...	...	24	37	N. 62° W.	N. 75° W.	92	77	135	96	...	...	Karwar	
·860	·854	·882	·865	+·022	87	65	61	71	− 4	2·2	1·9	2·1	−0·6	6	3	...	...	...	...	...	23	30	N. 61° W.	N. 76° W.	81	52	179	169	...	...	Cochin	
·732	·739	·669	·713	+·075	88	56	38	61	+ 5	1·7	3·1	2·4	0	1	1	7	10	12	13	15	3	...	S. 21° E.	S. 66° E.	45	38	149	126	...	...	Salem	South India.
·424	·440	·488	·451	−·033	74	47	47	56	− 7	1·7	2·9	2·3	−1·7	26	2	2	2	1	...	3	4	22	N. 48° W.	N. 39° W.	39	22	121	83	...	...	Mercara	
·406	·400	·329	·378	−·019	54	32	20	35	− 3	0·4	2·2	1·3	−1·0	1	3	5	8	5	1	6	17	16	N. 63° W.	N. 87° E.	32	27	144*	154	...	...	Chitaldroog	
·458	·464	·315	·412	−·043	68	41	21	43	− 7	0·5	1·2	0·9	−1·4	...	1	9	16	6	6	11	7	6	S. 50° E.	S. 27° E.	16	46	169*	100	...	...	Bangalore	
·511	·373	·317	·400	−·054	89	33	22	48	− 8	1·1	4·0	2·6	−1·3	...	2	10	10	12	5	15	4	4	S. 34° E.	S. 84° E.	24	51	72*	74	...	...	Hassan	
·559	·500	·352	·470	+·015	79	43	22	48	0	1·6	2·7	2·2	−0·1	8	4	12	12	7	4	6	6	3	N. 84° E.	N. 84° E.	21	37	201*	182	...	...	Mysore	
·734	·680	·555	·656	−·002	85	49	32	55	− 3	1·9	2·2	2·1	−1·0	19	2	8	14	10	6	1	1	1	S. 78° E.	N. 85° E.	40	50	79	91	...	...	Trichinopoly	
?	·817	·836	·829	+·057	?	64	67	76	+ 2	4·8	1·7	3·3	+0·9	...	...	...	4	33	19	6	...	...	S. 26° E.	S. 46° E.	84	81	162	150	...	...	Madras	
·429	·420	·370	·406	−·015	50	29	19	33	− 3	1·5	5·1	3·3	+1·1	15	2	1	7	1	7	2	10	17	N. 70° W.	S. 35° E.	26	19	87	109	...	...	Bellary	
·763	·784	·761	·769	+·044	83	67	58	69	+ 3	2·2	1·8	2·0	+1·0	...	1	2	8	19	17	12	3	...	S. 18° E.	S. 3° W.	61	57	174*	158	...	..	Cocanada	
·790	·766	·799	·785	+ 063	89	60	64	71	+ 5	3·8	3·2	3·5	+1·5	1	...	1	...	4	25	20	8	3	S. 27° W.	S. 41° W.	72	61	49	63	...	...	Vizagapatam.	
·130	·154	·155	·146	−·068	57	36	33	42	−15	3·4	4·7	4·1	0	35	3	2	1	1	2	2	6	10	N. 58° W.	S. 74° W.	23	33	109*	102	...	...	Quetta	Hill Station, Baluchistan.
·064	·062	·087	·071	−·031	65	40	45	50	− 8	7·5	8·1	7·8	+1·5	1	2	12	5	6	16	17	2	1	S. 8° E.	S. 40° W.	34	22	37	45	...	...	Leh.	Hill Stations, Punjab.
·208	·256	·297	·254	+ 022	98	83	76	86	+ 9	6·5	6·0	6·3	+0·7	8	16	6	2	5	3	2	7	13	N. 20° W.	N. 7° W.	37	8	123*	83	...	...	Srinagar.	
(a) ·121	·155	·185	·154	−·033	(a) 52	47	54	51	− 3	5·8	7·0	6·4	+0·5	...	5	2	18	16	15	2	2	2	S. 52° E.	S. 39° E.	53	35	275*	225	...	...	Murree.	
·103	·125	·136	·121	+·004	88	73	72	78	+ 8	6·9	7·4	7·2	+1·0	...	3	1	...	4	4	10	32	8	S. 83° W.	S. 70° W.	66	73	46	32	8·40	2·29	Kailang.	
·147	·146	·160	·151	−·034	55	41	44	47	− 3	6·1	6·4	6·3	+1·5	12	9	9	2	1	9	7	1	1	N. 62° E.	S. 33° W.	5	24	179	136	...	...	Simla (Ridge). (i)	
·179	·172	·159	·170	−·024	67	48	44	53	0	5·3	6·0	5·7	+1·8	6	16	4	...	2	33	...	...	1	S. 14° E.	S. 52° W.	24	11	261	150	...	...	Chakrata.	Hill Stations, N.-W.P.
·204	·220	·211	·212	−·020	64	49	44	52	− 1	3·1	5·6	4·4	+0·7	10	3	8	...	6	4	12	13	6	S. 77° W.	S. 57° W.	26	27	93*	78	...	...	Ranikhet.	
·257	·284	·248	·263	−·042	36	47	34	56	− 5	3·0	3·7	3·4	−0·2	...	...	5	17	2	...	4	26	7	N. 70° W.	N. 82° W.	19	48	39	32	2·22	0·77	Katmandu. (i)	Hill Station, Nepal.
·204‡	(c) ·249	·247†	·233	−·019	76‡	(c) 66	60†	67	− 6	(c) 3·4	4·4†	3·9	−1·3	1	3	4	7	3	...	8	22	6	N. 84° W.	S. 75° W.	37	44	193	187	...	...	Darjeeling. (f)	Hill Station, Bengal.
·181	·210	·228	·207	−·012	37	29	27	31	− 1	1·9	2·0	2·0	−0·5	...	7	7	...	2	3	19	15	9	N. 89° W.	N. 81° W.	46	38	224*	164	...	...	Mount Abu.	Hill Stations, Central India.
·252	·325	·366	·314	+·069	49	36	33	39	+ 5	1·7	1·9	1·8	−0·3	12	6	2	1	1	2	10	16	12	N. 78° W.	N. 57° W.	47	32	177*	115	...	...	Pachmarhi.	
·231	·192	·188	·203	−·084	36	21	16	24	− 9	1·2	1·8	1·5	−0·9	17	19	4	...	...	1	8	6	7	N. 35° W.	N. 53° W.	39	30	229*	173	*Nil*	*Nil*	Chikalda.	

(c) Mean of 29 days. (f) Wind observations, 54 days. * Corrected. (i) Wind observations, 61 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.
Hill Station, S. India.	Wellington	...	24·302	24·219	·083	24·261	−·005	P	75·6	52·9	22·7	79·0	46·3	32·7	71·0	71·6	63·2	+1·0	50·6	59·3	61·2	57·0
Extra India.	Muscat	...	29·995	29·908	·087	29·952	+·014	29·920	76·3	71·4	4·9	80·0	67·1	12·9	74·9	75·8	73·7	−0·7	63·8	67·9	68·7	66·8
	Aden	...	·924	·804	·120	·852	+·006	·878	84·3	74·6	9·7	89·7	66·7	23·0	79·5	81·9	78·9	−0·3	68·5	72·3	71·5	70·8
	Perim	...	·784	·657†	·127	·707†	+·030	P	85·1	75·3	9·8	86·9	72·8	14·1	81·8	82·0†	79·5†	−0·4	70·5	73·5	73·9†	72·6
	Zanzibar	...	·945†	·817	·128	·881	+·035	·881†	86·9	80·3	6·6	89·5	76·8	12·7	83·5†	85·9	83·4	+0·9	77·1	79·1†	79·2	78·5
	Port Victoria (Seychelles).	15	·959	·865	·094	·912	+·007	·851	84·9	78·7	6·2	87·0	75·7	11·3	83·6	84·1	81·6	+1·7	74·9	78·1	78·4	77·1
	Mauritius	181	?	?	?	·770	−·020	·897	?	?	?	91·3	62·7	28·6	P	?	78·0	−0·7	?	P	?	P

† Mean of 30 days.

II—*concluded.*

84 Stations in India, Burma, etc., for March 1897—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.		
																									%	%						
·353	·389	·435	·392	+·058	86	52	56	65	+5	2·8	4·0	3·4	+0·4	3	5	2	6	37	9	...	...	...	S. 50° E.	S. 49° E.	71	65	53	61	...	...	Wellington.	Hill Station, S. India.
·498	·592	·612	·567	—·027	65	69	69	68	−1	2·3	2·4	2·4	+0·3	...	2	7	8	5	2	...	7	31	N. 28° W.	N. 13° W.	42	40	117	102	...	...	Muscat.	Extra India.
·621	·701	·633	·652	−·053	72	69	58	66	−5	4·5	1·2	2·9	—0·3	1	3	9	32	7	6	1	2	1	S. 88° E.	N. 86° E.	64	72	379*	366	...	...	Aden.	
·685	·716	·731†	·711	−·025	78	66	67†	70	−2	4·1	2·0†	3·1	+1·1	3	...	...	28	20	3	...	5	2	S. 66° E.	S. 63° E.	64	55	433	441	...	...	Perim. (i)	
·890	·939†	·909	·913	+·024	86	82†	73	80	+2	3·9†	4·3	4·1	—0·8	...	6	7	3	11	14	9	4	7	S. 2° E.	S. 34° E.	19	21	89*	141	...	...	Zanzibar. (i)	
·817	·891	·895	·858	+·054	83	77	77	79	0	6·1	7·0	6·6	—0·1	6	8	5	...	5	...	...	14	24	N. 44° W.	N. 31° W.	56	56	132	127	17·44	3·20	Port Victoria (Seychelles).	
?	?	?	·686	?	?	?	?	74	−4	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	242	240	0·88	0·39	Mauritius.	

G. I. C. P. O.—No. 12 Meteor.—17-7-97.—385.

(i) Wind observations, 61 days.

* Corrected.

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 shown by the following notation:—

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

LITHO. BY J. N. MUNDLE.

Explanation

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

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

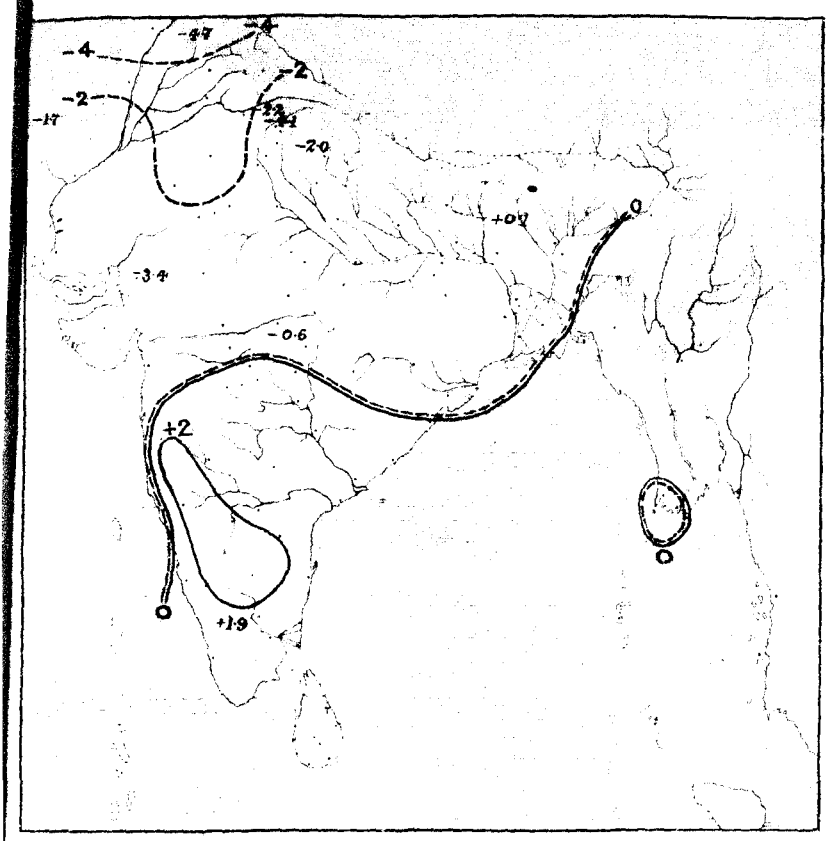
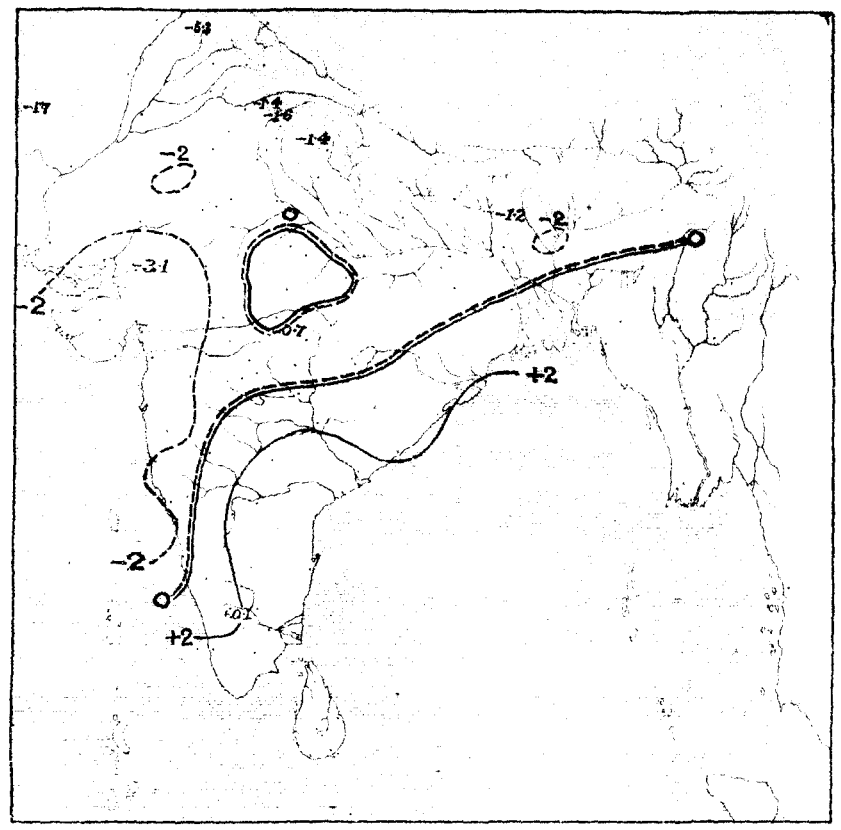


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

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

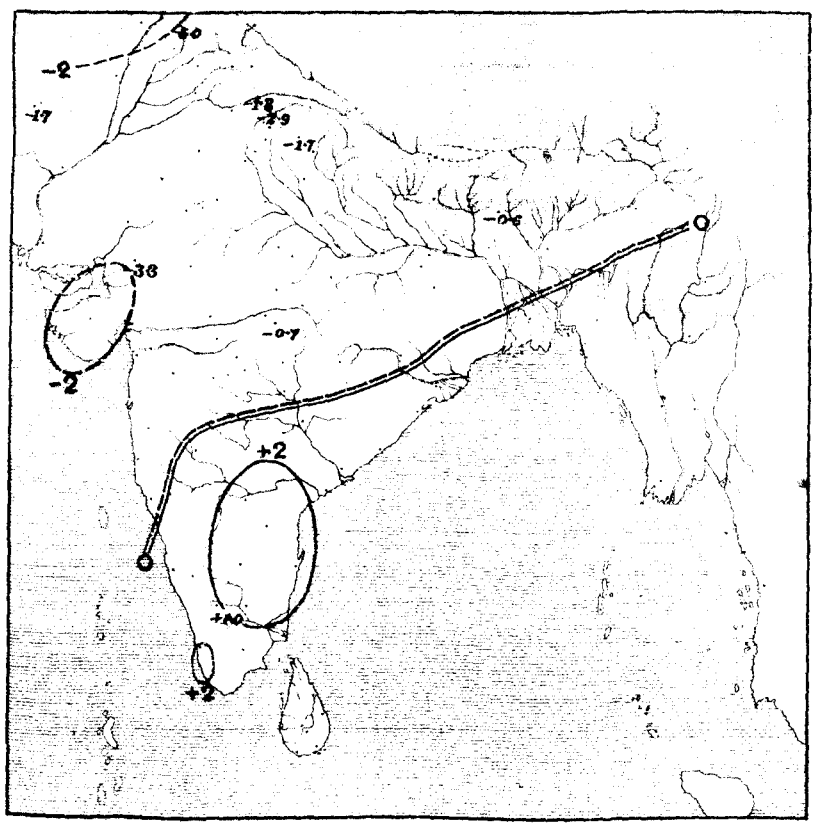
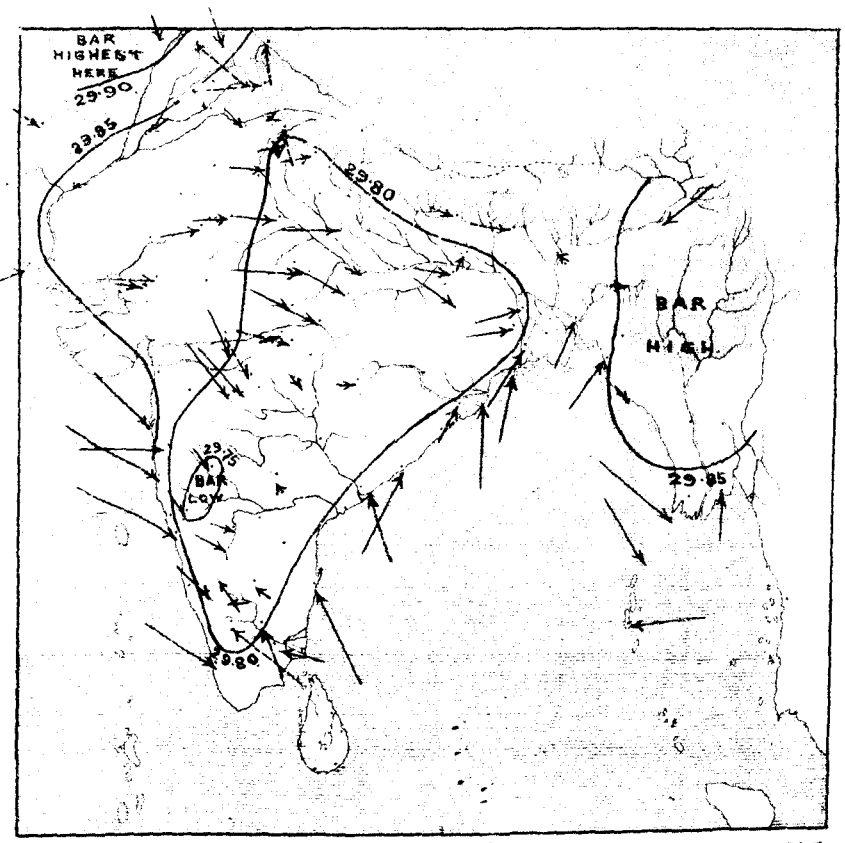


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF MARCH 1897



Reg. No. 24. Wr., 1.—Jan. 96.—5,000

LITHO. Stn. N. MUNDLE.

Explanation.

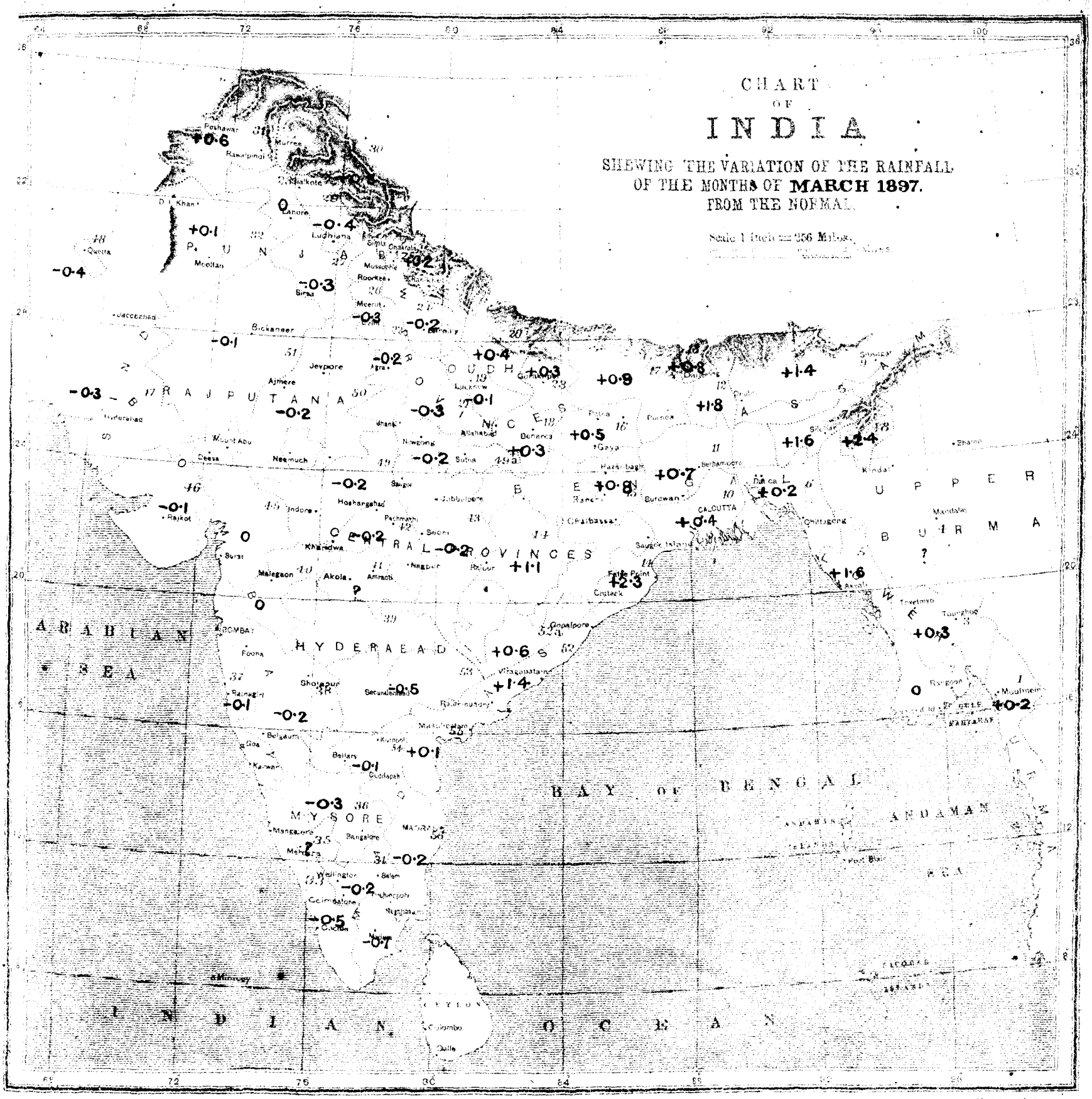
Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant: a length of ⅝th 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 (182 in number), except those at the Hill Stations over 3,500 feet in Elevation. The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.



Explanation.

LITHO. BY J. N. MUNDLE.

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

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

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, APRIL 1897.

INTRODUCTION.

THIS Review of the weather in India during the month of April 1897 is based on observations taken daily at 8 A.M. at 210 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 84 stations. In the rainfall summary the rainfall data of the meteorological observatories and the weekly rainfall telegrams received during the month from District Officers throughout India, 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, 1897.

April is the second month of the hot-weather period or season in Northern and Central India. The most important meteorological feature of the month is the more or less steady increase of temperature which occurs during the month. At the end of March the area of maximum temperature covers the Central and North Deccan. The mean temperature in that area at that time averages 92°. Temperature increases about 10° in Upper India, 5° in Central India, and remains practically unchanged in Ceylon and Southern India. Hence the area of maximum temperature is transferred northwards during the month, and at the end of the month includes the North Deccan, the Central Provinces, and the adjacent districts of South Bihar, the North-Western Provinces and Central India.

The increase of temperature in India during the month produces a corresponding change in the distribution of pressure. Pressure falls rapidly in Northern India, and more especially in Upper and Central India, and the area of minimum pressure is usually transferred northwards to North-Western India during the month. Pressure at the end of the month is highest in the coast districts and adjacent sea areas, but the gradients are small except in the neighbourhood of the coast and at the time of greatest heat during the day when steepish gradients obtain over a narrow belt near the coasts. These afternoon gradients are steepest in the west coast districts and the Bengal and Orissa coast districts.

Local sea winds or land and sea breezes prevail in the coast districts. In the interior of Northern India and Burma the winds blow down the river plains and valleys. The westerly winds in the Gangetic Plain are usually of considerable intensity and of high temperature. The air motion over the greater part of the interior occurs chiefly during the day hours, the nights being generally almost calm.

One of the important meteorological features of the month is the hot-weather depression which usually covers the eastern districts of the Central Provinces and Chota Nagpur. It is almost certainly a product, and not the cause, of the system of converging winds which obtain

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at this time in North-Eastern India, *viz.*, westerly winds in the Gangetic Plain, easterly winds in Assam and North Bengal, and southerly winds in Bengal and Orissa.

The chief disturbances of the month belong almost exclusively to the class of hot-weather storms. They are usually accompanied with thunder and rain or hail in the coast districts and near the hills of Northern and Southern India. In the drier districts of North-Western India they usually give no rain and belong to the class known as dust-storms. Thunderstorms are of most frequent occurrence in Assam and Bengal, more especially the eastern and northern districts, and these provinces hence receive a considerable amount of rain during the month. Southern India and Tenasserim also obtain moderate rain during the month, and the rainfall in these areas appears to be, in part at least, due to brief temporary advances of moist south-westerly winds from the equatorial belt.

At the commencement of the month a depression and cold-weather storm was filling up in the East Punjab. Weather was showery in the Punjab and Kashmir on the 1st and 2nd. Temperature was on the 1st below the normal over the whole of India with the exception of Lower Burma, Madras, Hyderabad and Mysore.

Thunderstorms gave numerous showers in Lower and West Bengal, Chota-Nagpur and the east and south districts of the Central Provinces on the 3rd, 4th and 5th, and produced a considerable reduction of temperature in North-East India and the Central Provinces. Fine weather set in on the 5th and continued until the 15th in that area.

A cool wave, due apparently to the snowfall in the Afghan, Kashmir and Punjab mountain districts from the 1st to the 4th, advanced eastwards across Northern India during this period and produced a large temporary reduction of temperature. The following table gives temperature variation data of the provinces in Northern and Central India for the 1st and 4th and also for the period from the 5th to the 9th:—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	1st April.	4th April.	5th April.	6th April.	7th April.	8th April.	9th April.
	°	°	°	°	°	°	°
Baluchistan (Quetta)	−1·4	−2·6	−8·5	−9·0	−3·8	+1·6	+2·0
Punjab	−3·2	−2·7	−1·9	−5·6	−5·3	−2·0	+0·7
Sind and Rajputana	−1·0	−2·0	−0·6	−8·2	−6·7	−4·2	+0·4
North-Western Provinces and Oudh.	−3·2	−1·9	−0·9	−1·6	−5·7	−5·6	−2·1
Central India and Gujarat	−0·5	−1·5	+0·7	−1·7	−5·3	−5·5	−3·4
Bihar	−6·1	−2·7	−2·1	−0·6	−4·0	−4·9	−3·3
Chota Nagpur	−5·2	−5·5	−4·1	−3·1	−7·7	−6·4	−5·6
Central Provinces and Berar	−2·9	−2·3	−1·4	−3·3	−4·2	−5·4	−6·1
Bengal	−3·3	−2·3	−3·5	+2·0	−3·5	−2·8	−2·7

The reduction of temperature ranged between 5° and 15° in Upper India and decreased eastwards to 5° to 10° in Bihar and Bengal.

Pressure was during this period in general excess, but on the 8th, 9th and 10th it was low, relatively to the neighbouring districts, in the sub-montane districts of the North-Western Provinces and hence strong and very dry westerly winds prevailed in the Gangetic Plain, Rajputana and Central India from the 8th to the 10th. The following gives examples of the great dryness of the air from the observations of the 10th:—

Station.	Relative humidity at	
	8 A. M.	4 P. M.
	%	%
Allahabad	17	3
Jhansi	14	?
Ajmere	26	19
Indore	16	?

Temperature increased rapidly on the 9th, 10th and 11th in Northern India and was in general excess again on the 13th. The following gives the daily changes of temperature during this period and the variations from the normal on the 13th in the large divisions of Northern and Central India:—

Province.	Change of temperature during 24 hours preceding 8 A.M. of				Variation from normal of mean temperature of 24 hours preceding 8 A.M. of
	9th April.	10th April.	11th April.	12th April.	13th April.
	°	°	°	°	°
Baluchistan (Quetta)	+0·5	+4·9	+1·2	−5·7	+3·6
Punjab	+2·7	+2·2	+1·4	+0·9	+3·4
Sind and Rajputana	+4·7	0	+1·9	+1·6	+2·8
North-Western Provinces and Oudh.	+3·5	+1·5	+1·3	+2·0	+2·9
Central India and Gujarat	+2·1	+2·9	+1·4	−0·2	+1·7
Bihar	+1·8	+3·0	+0·7	+0·5	+0·7
Chota Nagpur	+1·2	+4·1	+2·2	+0·4	+0·9
Central Provinces and Berar	−0·7	+3·8	+0·7	+1·3	+1·6
Bengal	+0·3	+2·4	+0·7	+0·4	+1·1
Assam	+0·2	−1·3	+1·6	+0·4	+2·0

A low pressure area appeared or formed in Sind on the 9th and intensified on the 10th. It advanced eastwards through the South Punjab on the 11th and filled up during the next 24 hours. Its disappearance was

followed by disturbed showery weather and much snow on the higher elevations of the Punjab and Kashmir Himalayas on the 12th, 13th and 14th.

Fine weather set in over Northern India on the 13th and continued until the 18th. During this period temperature was steadily in moderate to large excess over the whole of Northern and Central India. The following gives data in illustration :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	13th April.	14th April.	15th April.	16th April.	17th April.	18th April.
	°	°	°	°	°	°
Baluchistan (Quetta)	+3·6	+5·0	+4·6	+5·6	+6·5	+6·7
Punjab	+3·4	+5·2	+5·1	+5·6	+7·1	+6·8
Sind and Rajputana	+2·8	+4·3	+5·8	+5·8	+5·7	+6·7
North-Western Provinces and Oudh.	+2·9	+2·7	+4·5	+6·8	+8·0	+8·3
Central India and Gujarat.	+1·7	+2·3	+4·8	+4·1	+5·6	+5·9
Bihar	+0·7	+2·4	+3·7	+5·3	+8·6	+8·0
Chota Nagpur	+0·9	+2·4	+2·9	+3·8	+5·1	+6·4
Central Provinces and Berar.	+1·6	+2·5	+5·1	+3·7	+3·4	+4·3
Bengal	+1·1	+2·6	+3·2	+4·3	+5·7	+5·3
Assam	+2·0	+3·4	+3·4	+4·2	+3·4	+2·5
Burma	+1·0	+1·4	+1·7	+2·3	+1·9	+2·5

Weather was feebly disturbed in Ceylon and Southern India from the 15th to the 17th, when series of thunderstorms gave moderate to heavy rain. The following large falls were registered :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
CEYLON	Colombo	5th	4·63
TRAVANCORE STATE	Quilon	"	5·65
MADURA	Kodaikanal	"	3·15
TINNEVELLY	Kayalpatnam	"	2·81
MALABAR	Cochin	"	2·79
NILGIRIS	Coonoor	16th	3·06
MALABAR	Badagara	17th	2·85
SOUTH CANARA	Hosdrug	"	2·91

Pressure was in slight to moderate general excess on the 13th and 14th, but gave way locally in the North-Western Provinces on the 15th and 16th and a low pressure area lay over the sub-montane districts of the North-Western Provinces on the 15th, 16th and 17th, and as usual under these conditions, strong hot dry winds obtained in the Gangetic Plain. The highest temperatures of the month in Northern India were generally recorded during this period. The 18th was on the whole the hottest day, and temperatures slightly exceeding 110° were recorded at the majority of stations in South Bihar and the eastern districts of the North-Western Provinces. The following gives the humidity percentages at the driest stations on the 18th :—

STATION.	RELATIVE HUMIDITY AT	
	8 A.M.	4 P.M.
	%	%
Hazaribagh	14	10
Gaya	19	?
Allahabad	15	4
Sutna	10	4
Jhansi	15	?

The second fortnight of the month was more disturbed than usual. A series of three shallow depressions formed in rapid succession in Sind and passed eastwards across North Rajputana to the South-East Punjab. The first formed on the 17th and 18th and advanced to the South-East Punjab on the 19th and disappeared during the next 24 hours.

The second formed on the 21st and 22nd and marched across Rajputana on the 23rd and disappeared during the next 24 hours.

The third or last of the series appeared or originated in Upper Sind on the 25th and advanced eastwards through North and Central Rajputana on the 26th.

These three disturbances gave unsettled showery weather in Upper India. The Baluchistan plateau received daily rain from the 18th to the 26th, Kashmir from the 20th to the 28th and the Punjab from the 19th to the 28th and the weather was throughout very disturbed in the Punjab and Kashmir hills and heavy snow fell on all the higher ranges.

Weather was also throughout this period more or less unsettled over the remainder of India, more especially in North-Eastern and Southern India. Malabar, the Konkan, Mysore and the Deccan had series of thunderstorms on the 18th and 19th and again on the 21st and 22nd, and Bengal and Bihar on the 20th, 21st and 22nd.

An important effect of this disturbed weather from the 18th to the 22nd was to give unusually low temperature over nearly the whole of India, the reduction below the normal varying in different districts according to the amount and distribution of the rainfall. The following

gives variation data for the period from the 20th to the 23rd :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	20th April.	21st April.	22nd April.	23rd April.
	°	°	°	°
Burma	−0·2	+0·8	+1·0	+2·6
Bengal and Assam	+1·3	−0·3	−5·3	−1·0
N.-W. Provinces and Oudh	+5·3	−5·6	−7·4	−4·0
Punjab	−2·2	−11·5	−9·2	−8·7
Sind and Rajputana	+1·3	−10·4	−5·1	−3·1
Central India and Gujarat	+6·4	−2·5	−2·9	−1·2
Central Provinces and Berar	+4·9	0	−2·5	−0·1
Bombay	+0·2	−0·3	−0·3	+0·4
Madras	+1·0	+1·2	−0·8	+0·3

During the remainder of the month unsettled weather continued in the North-West Himalayas and Afghan mountains and temperature recorded was steadily below the normal in Baluchistan and Upper India, as is shown by the following data :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	24th April.	25th April.	26th April.	27th April.	28th April.	29th April.	30th April.
	°	°	°	°	°	°	°
Baluchistan (Quetta)	−4·3	−4·9	−2·1	−11·4	−8·9	−2·8	+0·5
Punjab	−6·8	−5·7	−3·3	−10·0	−11·9	−6·1	−2·4
Punjab Hills	−9·3	−10·4	−8·4	−13·7	−9·8	−3·3	−1·5
Rajputana and Sind	−4·9	−3·4	−0·7	−2·9	−4·7	−6·5	−4·4

Weather was, on the other hand, generally fine throughout this period over the remainder of India and temperature was hence more or less above the normal in that area. The following gives data :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	24th April.	25th April.	26th April.	27th April.	28th April.	29th April.	30th April.
	°	°	°	°	°	°	°
North-Western Provinces and Oudh.	+1·3	−1·0	+1·0	+3·5	+0·8	−2·9	−2·9
Bengal and Assam	+1·7	+3·1	+3·9	+4·2	+4·6	+2·2	+0·8
Central India and Gujarat	+1·7	+0·9	+1·5	+2·1	+3·2	+1·1	−0·6
Central Provinces and Berar	+3·1	+2·0	+1·9	+3·3	+4·6	+2·4	−0·5
Bombay	+1·3	+1·2	+1·8	+2·8	+3·8	+3·3	+3·2
Madras	+1·0	+1·0	+1·1	+0·9	+1·0	+1·3	+0·9
Burma	+3·2	+3·9	+5·2	+4·6	+4·8	+5·8	+2·9

A noteworthy feature of this period was the excessive temperature in Upper Burma from the 24th to the 29th. This is most fully shown by the variation data of the stations named below :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	24th April.	25th April.	26th April.	27th April.	28th April.	29th April.
	°	°	°	°	°	°
Bhamo	+6·2	+4·8	+8·0	+3·9	+5·8	+8·8
Kindat	+5·1	+4·3	+6·7	+8·0	+9·6	+10·3
Mandalay	+5·9	+5·5	+6·0	+5·9	+9·0	+8·4
Yamethin	+5·2	+6·8	+10·1	+3·5	+4·0	+7·7
Minbu	+6·3	+8·0	+8·9	+10·6	+8·8	+10·0
Thayetmyo	+2·5	+4·1	+4·5	+4·1	+3·4	+5·6

Pressure.—The mean pressure of the Indian area was ·039″ above the normal. Pressure was locally in excess, relatively to the general condition, in Northern India except East Bengal and Assam. The excess was more than ·02″ in amount in Upper Sind and the Punjab and was absolutely greatest in the North Punjab, at Peshawar (+·058″), Rawalpindi (+·046″) and Sialkot (+·037″). Pressure was in local defect in the Peninsula and Burma, Assam and East Bengal and the deficiency was most marked in Malabar, Ceylon and Lower Burma, and exceeded ·03″ in amount at Colombo (−·044″), Cochin (−·034″) and perhaps Diamond Island (−·036″), Moulmein (−·035″) and Toungoo (−·037″).

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

METEOROLOGICAL PROVINCE.	Variation of mean 8 A. M. pressure of April 1897 from normal.	Pressure anomaly, April 1897.
	″	″
Burma Coast and Bay Islands	+·010	−·029
Burma Inland	+·023	−·016
Assam	+·034	−·005
Bengal and Orissa	+·040	+·001
Gangetic Plain and Chota Nagpur	+·048	+·009
Upper Sub-Himalayas	+·061	+·022
Indus Valley and North-West Rajputana	+·068	+·029
East Rajputana, Central India and Gujarat	+·047	+·008
Deccan	+·038	−·001
West Coast	+·018	−·021
South India	+·027	−·012

Temperature.—The variations of the mean temperature conditions of the month from the normal were generally small in amount, due to the general prevalence of slightly disturbed weather and the occurrence of numerous dust-storms and thundershowers. There were only two areas in which the temperature variations were large. The first included Upper Burma, Cachar and East Bengal, in which the rainfall of the month was deficient and temperature was considerably in excess. The second area included the North and Central Punjab, Kashmir and the Upper India hill districts where temperature was in considerable to large defect and the rainfall in the plains and lower hills and the snowfall in the higher hills was much greater than usual.

The mean day temperature was in excess in the Peninsula, Burma and North-Eastern India. The excess was generally small in amount except in Upper Burma, Cachar and East Bengal, where it exceeded 3°. It was large at Kindat (+4°·9), Silchar (+4°·4) and Bhamo (+4°·3). The mean day temperature was in defect in North-Western India and in parts of Chota Nagpur, the Central Provinces and Central India. The deficiency averaged 3½° in the Punjab and was more than 4° in amount at Peshawar (—6°·7) and Rawalpindi and Lahore (each —4°·2).

The night temperature was above the normal over nearly the whole of India. The variations were generally small, but in an area, including the greater part of the Deccan, Berar, the western districts of the Central Provinces and the eastern states of Central India, and also in Central Burma, they were more than 2° in amount. The excess was absolutely greatest in Berar at Akola (+4°·1) and Amraoti (+3°·9). The minimum temperature was in slight defect in the West Punjab, West and North Rajputana and Sind and also in Assam, South-West Bengal and Orissa. The deficiency exceeded 2° only at Peshawar (—2°·5).

The mean temperature of the month was below the normal in Upper India. The deficiency was generally small in that area, but was more than 2° at Peshawar (—4°·6) and at Rawalpindi (—2°·1).

It was generally in excess over the remainder of India, but the variations were small and less than 2°, except in two areas, *viz*:—Berar and the greater part of Burma. The mean temperature of the month averaged 2°·6 above the normal in Berar, 3°·0 in excess in Central Burma, 2°·1 in excess in Upper Burma, and 1°·8 in excess in Lower Burma.

The following table gives temperature variation data of the month for the eleven meteorological provinces of India:—

Meteorological Province.	Variation from normal of		
	Mean maximum temperature, April 1897.	Mean minimum temperature, April 1897.	Mean daily temperature, April 1897.
	°	°	°
Burma Coast and Bay Islands	+0·8	+3·4	+2·3
Burma Inland	+3·4	+0·9	+2·2
Assam	+2·9	—0·3	+1·3
Bengal and Orissa	+1·3	—0·3	+0·5
Gangetic Plain and Chota Nagpur	+0·3	+0·8	+0·6
Upper Sub-Himalayas	—2·4	+0·4	—1·0
Indus Valley and North-West Rajputana.	—1·9	—0·8	—1·3
East Rajputana, Central India and Gujarat.	—0·4	+0·7	+0·2
Deccan	+0·2	+2·1	+1·2
West Coast	+0·4	+0·6	+0·5
South India	—0·1	+1·1	+0·5

Winds.—The mean winds of the month were slightly weaker than usual. They were of normal steadiness but more westerly and feebler than usual in Bengal. Winds were stronger than usual in the Gangetic Plain and the westerly element in their directions was very pronounced. They were, on the other hand, weaker and more variable than usual in Central India and Rajputana. They were normal at the west coast stations, but stronger in the Central Provinces and the Deccan. Strong but very unsteady southerly winds prevailed at the Seychelles and steady south-east winds at Zanzibar.

Humidity and cloud.—The mean humidity conditions of the month were practically normal in Burma and at Port Blair. The air was unusually dry in Assam, Bengal and the Gangetic plain. The increased dryness of the air was most pronounced in Bengal and the mean humidity of the month was more than 10 below the normal at Berhampore (—15) and Calcutta (—11). The variations of the mean humidity of the month from the normal were small and irregular in the Punjab, Sind, Baluchistan, Rajputana and Central India. Humidity was normal in the Konkan and the Madras Coast districts and also in the Bombay Deccan and the Central Provinces. It was in moderate to considerable defect in the Deccan and Mysore, more especially at Mercara (—9), Hassan (—8), Bangalore and Mysore (each —7). A noteworthy feature of the month was the excessive humidity at the hill stations in Upper India. The mean humidity of the month was 17 in excess at Srinagar, 10 at Kailang and 5 at Leh.

It was normal or in slight defect at the hill stations in the Central and Eastern Himalayas.

Skies were more clouded than usual during the month over the whole of India with the exception of Assam, Sikkim, Bengal and Bihar, and also the Konkan. The deficiency in the amount of cloud was greatest in that area at Silchar (—2·3) and at Sibsagar and Dhubri (each—1·9). Cloud was most largely in excess at the hill stations in North-Western India, more especially at Srinagar (+1·9) and Simla (+1·6).

The following table gives the variations of the mean absolute and relative humidity and cloud amount of the month from the normal in ten meteorological provinces:—

Meteorological Province.	Variation from Normal of		
	Mean absolute humidity, April 1897.	Mean relative humidity, April 1897.	Mean cloud amount, April 1897.
	"		
Burma Coast and Bay Islands	+·028	—1	—0·1
Assam	—·025	—7	—2·0
Bengal and Orissa	—·062	—7	—0·5
Gangetic Plain and Chota Nagpur	—·037	—4	0
Upper Sub-Himalayas	—·020	—1	+0·1
Indus Valley and North-West Rajputana	—·032	+1	+0·4
East Rajputana, Central India and Gujarat.	—·008	—1	+0·2
Deccan	+·019	0	+0·6
West Coast	+·012	0	+0·1
South India	—·037	—3	+0·8

Rainfall.—Practically no rain fell in Rajputana, the greater part of the North-Western Provinces, Central India, Kathiawar, Gujarat, the South Konkan and the Coromandel coast districts. The only districts which received moderate rain were Bengal and Assam, the North Punjab and Malabar, Mysore and Coorg. The chief periods of disturbance and of thundershowers and rain were from the 3rd to the 7th, the 11th and 12th, and the 18th to the end of the month. The last period was very disturbed, in part due to the passage of a succession of three hot weather depressions across Upper India.

The rainfall of the month was below the normal in 33 rainfall divisions out of 58. The deficiency was large and marked in Assam, East and North Bengal and Sikkim. The Brahmaputra Valley received an average of only 3·65 inches or barely 46 per cent. of its normal amount. The variations over by far the greater part of the remainder of India were small and of little importance. The precipitation was in considerable to large excess in the North Punjab (115 per cent. above), and in the Punjab and Kashmir Himalayas and Baluchistan Hills. It was also in largish local excess in the eastern districts of the Central Provinces, and in South Madras, and was, on the other hand, very deficient in Lower Burma and Tenasserim. The following table gives comparative data for the eleven meteorological provinces of the Empire:—

Meteorological Province.	Rainfall.		
	Mean actual, April 1897.	Mean normal, April.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	0·75	2·45	—1·70
Burma Inland	0·61	1·27	—0·66
Assam	3·67	9·51	—5·56*
Bengal and Orissa	1·64	2·55	—0·83
Gangetic Plain and Chota Nagpur	0·48	0·34	+0·14*
Upper Sub-Himalayas	0·48	0·60	—0·10*
Indus Valley and North-West Rajputana.	0·72	0·42	+0·13*
East Rajputana, Central India and Gujarat.	0·06	0·08	—0·01*
Deccan	0·65	0·42	+0·21*
West Coast	2·04	1·73	+0·57*
South India	1·02	1·13	—0·52*

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

Atmospheric Pressure.

The mean pressure of the Indian area was ·039" above the normal. This largish excess was probably chiefly a result of the heavy rain and snowfall of the previous month in Upper India. Pressure was, relatively to the general condition, in local excess in Northern India except East Bengal and Assam. The excess was moderately large and

was more than ·03″ in amount at the stations for which data are given below:—

STATION.	Variation of mean 8 A.M. pressure of April 1897 from normal.	Pressure anomaly, April 1897.
	″	″
Peshawar	+·097	+·058
Rawalpindi	+·085	+·046
Sialkot	+·076	+·037
Sirsa	+·074	+·035
Lahore	+·071	+·032
Dera Ismail Khan	+·070	+·031

This local excess was evidently a result of the large precipitation in the neighbouring hill districts of Upper India.

Pressure was in relative defect over nearly the whole of the Peninsula and in Burma, Assam and East Bengal. The deficiency was small in amount over the greater part of that area but exceeded ·03″ in Lower Burma, Malabar and Ceylon. The following gives data for stations in this area:—

DIVISION.	STATION.	Variation of mean 8 A.M. pressure of April 1897 from normal.	Pressure anomaly, April 1897.
		″	″
Ceylon	Colombo	−·005	−·044
Malabar	Cochin	+·005	−·034
	Calicut	+·009	−·030
Burma	Rangoon	−·003(?)	−·042(?)
	Toungoo	+·002	−·037
	Diamond Island	+·003	−·036
	Moulmein	+·004	−·035
	Tavoy	+·013	−·026
	Thayetmyo	+·013	−·026

Pressure was less considerably in excess at the hill stations in Northern India than at the neighbouring plains stations or the vertical pressure anomalies were negative. The following gives their values for six pairs of stations:—

HILL STATION.	Variation of pressure from normal (a).	NEIGHBOURING PLAIN STATION.	Variation of pressure from normal (b).	Vertical pressure anomaly or (a)−(b).
	″		″	″
Leh	+·020	Lahore	+·075	−·055
Murree	+·047	Peshawar	+·097	−·050
Simla	+·043	Ludhiana	+·062	−·019
Ranikhet	+·054	Bareilly	+·048	+.006
Darjeeling	+·061	Dhubri	+·047	+·014
Mount Abu	+·022	Deesa	+·027	−·005

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

1st.—Pressure was in considerable general excess.

2nd.—Pressure was in local excess in Northern India, the excess being largish in the Punjab, especially in the northern districts.

3rd.—Pressure was in local defect in the Peninsula and Burma. The deficiency was marked in Lower Burma, Ceylon and Malabar, where it was more than ·03″ in amount.

4th.—The vertical pressure anomalies in Northern India were negative and moderate in amount.

Barometric depressions of the month.

At the commencement of the month the pressure conditions differed little from the normal, but the barometric changes were large and irregular. Weather was showery in Kashmir and the hill districts of the Punjab and the North Western Provinces from the 1st to the 6th, and in the North Punjab from the 1st to the 3rd. Pressure increased rapidly in the North Punjab on the 3rd. Thunderstorms gave light to moderate rain in South Bengal and Orissa on the 3rd and 4th. A brisk to rapid rise of pressure occurred over nearly the whole of Northern and Central India and the Deccan on the 4th, and pressure was on that day in considerable to large excess over Northern India and was normal in Southern India. Local thundershowers were received in some parts of Southern India, the Central Provinces, Chota Nagpur and Assam during the next three days. Pressure changed very irregularly during this period, but without modifying to any marked extent the abnormal features of the pressure conditions, the chief of which was a considerable to large excess of pressure over the whole of Northern and Central India.

Pressure decreased over Northern India on the 8th and 9th and on the morning of the 10th the variations were comparatively small, except in the South-West Punjab and Upper Sind where a shallow depression had formed,

It failed to intensify and moved across the southern districts of the Punjab to the foot of the Simla Hills where it broke up on the afternoon of the 11th. This feeble disturbance gave light showers to the Punjab (chiefly the northern and north-western districts) on the 11th and 12th and to Kashmir from the 10th to the 14th.

Light local thundershowers were received in the Bombay Deccan from the 9th to the 12th.

Fine weather prevailed generally from the 12th to the 14th. Pressure on the latter date was in considerable excess in the Punjab and in slight to moderate excess in the Gangetic Plain and Bengal and was normal in the western half of the Peninsula.

Weather was disturbed in the Madras Presidency during the next three days. The barometric changes were irregular and series of thunderstorms occurred giving fairly general rain, heaviest in the southern districts.

Pressure gave way on the 15th and 16th over Northern India and was lowest at the foot of the Garhwal and Nepal hills from the 15th to the 17th. As usual with this distribution of pressure, strong dry hot westerly winds prevailed in the Gangetic Plain during this period.

The remainder of the month was unusually disturbed, in part due to the passage in rapid succession of three shallow depressions across Upper India.

Pressure gave way briskly in Upper India on the 17th and 18th and a shallow depression lay over Upper Sind and the South-West Punjab on the morning of the 18th. It was transferred to the East Punjab on the 19th and apparently crossed Kashmir on the 20th. This is indicated by the following data:—

Station.	Change of pressure in 24 hours preceding 8 A.M. of				
	18th April.	19th April.	20th April.	21st April.	22nd April.
	"	"	"	"	"
Peshawar	−·063	+·018	+·001	+·076	+·119
Lahore	−·055	− 007	+·136	+·043	+·030
Murree	−·033	−·119	−·043	+·084	+·130
Simla	+·046	+·022	−·045	−·096	+·100
Srinagar	−·032	−·078	−·078	+·049	+·104
Kailang	+·006	−·029	−·133	−·022	+ 048
Dras	−·021	−·116	−·072	+·086	+·050
Skardu	−·007	− 161	−·024	−·053	+·131
Gilgit	−·060	−·100	−·100	+·160	+·020
Leh	−·020	−·088	−·205	−·033	+·181

The barometric changes at the higher and interior hill stations were large but irregular. They however show that the approach of the depression to the foot of the hills was followed for a short time by very disturbed weather in the Kashmir and Punjab Hills.

Pressure increased briskly to rapidly in the Punjab, the North-Western Provinces, Bihar, Central India and the Central Provinces on the 21st and 22nd, whilst at the same time it was falling slightly to briskly in Sind and Baluchistan. A shallow depression lay over that area on the 21st. It intensified on the 22nd and began to drift eastwards on the morning of the 23rd and disappeared during the next 24 hours.

The third of the series of depressions formed on the 25th in Sind. Pressure gave way rapidly on that day in Upper Sind and a well-defined depression lay over that area on the morning of the 26th. Pressure was at this time, as during the existence of the second depression, in large local excess in the North Punjab.

The depression passed rapidly eastwards during the day and there was practically no trace of its existence on the 27th. Pressure had however given way locally in the North Punjab during the previous 24 hours and weather was disturbed in the Kashmir and Punjab Himalayas. The following gives pressure data for the period from the 24th to the 28th, showing that the changes occurred almost simultaneously over the whole area and that they were most pronounced at the highest and more interior stations of Leh and Dras:—

Station.	Change of pressure in 24 hours preceding 8 A.M. of				
	24th April.	25th April.	26th April.	27th April.	28th April.
	"	"	"	"	"
Rawalpindi	+·006	+·045	−·071	−·045	+·109
Peshawar	−·084	+·092	−·029	−·113	+·137
Lahore	+·106	+·015	−·123	+·061	+·121
Ludhiana	+·077	−·006	−·089	+·092	+·078
Murree	+·032	+·066	−·088	−·072	+·186
Srinagar	+·020	+·092	−·114	−·024	+·170
Leh	+·072	−·020	+·051	−·131	+·215
Kailang	+·040	−·002	+·002	−·078	+·140
Skardu	+·065	+·020	−·004	−·052	+·188
Dras	+·077	−·008	+·044	−·159	+·220
Gilgit	+·100	0	−·080	− 020	+·120

A comparison of these changes with the corresponding changes at the level of the plains in the Punjab indicates clearly that the eastward movement of the depression gave rise to large barometric movements in the hill districts. The movement in the hills was however not of a definite cyclonic character.

A comparison of the barometric changes in Mesopotamia and Persia with those in Baluchistan and Upper

India establishes that these disturbances did not pass as cyclonic storms from Persia across Baluchistan. They originated in the hot weather depression area in Upper Sind where the conditions are especially favourable to the establishment of convective movements on the large scale due to rapid and excessive thermal action.

Weather was more or less disturbed during the whole period from the 20th to the 27th, when these depressions passed in rapid succession from Sind eastwards across North Rajputana and the South Punjab. The Baluchistan plateau received daily rain from the 18th to the 26th and Kashmir from the 19th to the 28th. Thundershowers gave light to moderate rain in the Punjab from the 19th to the 21st and from the 23rd to the 28th and in the hill districts of the North-Western Provinces from the 24th to the 28th. In Bengal series of north-westers and thunderstorms gave general and moderate rain on the 21st and 22nd and again on the 29th and 30th. Assam received daily rain from the 18th to the end of the month.

Weather was also feebly unsettled during this period in the Deccan and Southern India. The Bombay Deccan had showers on the 20th, 22nd, 23rd and 24th and again on the 29th and 30th, and South Madras daily rain due to thunderstorms from the 19th to the 26th.

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

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Hills bordering the Dera Ismail Khan District.*—The Deputy Commissioner reports as follow:—"No snow fell during the month. It rained on the 25th and 26th April, and good floods came down the Draband and Chundhwan rivers for three or four days. The snow has now decreased considerably, most having melted, though some still remains in the clifts, where the sun's rays do not fall. The weather is hotter than last year."

(2) *Waziristan.*—Snow fell slightly during the month on the Marwattai hills (10,000 feet) on the 3rd, 21st, 22nd, 25th and 26th. It melted soon after falling except in sheltered places. On each occasion the snow on the hills was accompanied by heavy rain in the Wanu plain. The weather was unusually cold and very unsettled up to the 27th. The snowfall of the present year was heavier than that of the past two years.

(3) *Kurram.*—No snow fell in the Kurram Valley in April, but late showers of snow and hail fell on the higher ranges of the Sufed Koh above 8,000 feet on the 21st, 22nd, 24th and 25th with corresponding storms of heavy and continuous rain in the valley which reduced the temperature considerably.

The higher passes are still heavily covered with snow, but will soon be open now for traffic with the Ningrihar and Jellalabad side.

(4) *Khyber Pass Districts.*—A light shower of snow was received in the last week of April in Tirah. None fell at Tor Sappar and on the Lakka hills during the month. The snowfall of the season was above the normal.

(5) *Chitral.*—Colonel Davidson, Commanding at Chitral, writes as follows of the snowfall in Chitral during the past winter in the following terms:—

"The snowfall on the Lowarai range has been tremendous this winter. The oldest inhabitants say they have never seen such snow.

"I fancy that in the main valley of the Ashreth River, rising at the Lowarai Pass (10,500 feet high), the snow at this moment must be 30, 40, 50, 60 feet deep, and I should not be surprised if it were in places 100 feet deep.

"The oldest inhabitants of Chitral tell me that, although of late years it has been unusual to have so much snow as has fallen in 1896-97, they remember that twenty years ago snow used to fall in as great quantity as has fallen during the last six months.

"The people about Lower Chitral say that both the rain and snowfall of 1897 have been excessive, and predict a very hot summer.

"I may note that snow fell very early in the autumn of 1896 in the Upper Chitral Valley.

"On the 1st September 1896 it fell on the high hills quite close to Drosh. Between the 15th October and 1st November we had snow on several days in the Upper Turipho Valley and near the Baroghil Pass. On the 26th October some of us crossed the Rich Janali Pass, 14,200 feet, finding 1½ to 2 feet of snow on it. On the 29th October we were on the Baroghil Pass, about 12,500 feet, and found about the same quantity of snow. It had fallen unusually early and heavy.

"On the 7th November we found about a foot of snow on the Shandev Pass (about 12,200 feet high)."

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Murree.*—The only fall of snow was on the 20th when two inches were received.

(2) *Chamba.*—The following interesting report of the snowfall of the past winter up to the 30th April has been received from the Deputy Conservator of Forests:—

April.—There was a heavy fall of snow in the main Ravi Valley on the 5th, which descended to comparatively low levels.

The following special report regarding the snowfall in the Chamba State has been received from the Deputy Conservator of Forests :—

Statement of the snowfall measured.

MONTH.	DALHOUSIE NEIGHBOURHOOD.			WEST OF STATE.	TISA RANGE, NORTH OF STATE.			VALLEY OF THE RAVI.				
	Kalatop, 8,000 feet.	Surkhigalli, 5,000 feet.	Banikhet, 4,500 feet.	Bhandal, 6,000 feet.	Tissa, 5,000 feet.	Thanela, 7,000 feet.	Chanan, 6,500 feet.	Chamba, 3,000 feet.	Bassu, 5,500 feet.	Chitral, 6,000 feet.	Olansa, 7,000 feet.	Barmant, 7,000 feet.
	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
December 1896 . . .	1 10	0 5	*Nil*	1 0	0 4½	2 2	1 4	*Nil*	1 7	2 6	3 3	5 4
January 1897	3 8	0 11	0 6	2 0½	1 0	6 3	5 2	0 4	2 4	3 1	7 3	11 9
February „	4 6	1 9	*Nil*	2 8	0 3½	5 8	2 2	0 10	2 10	2 7	3 6	4 4
March „	1 10	*Nil*	*Nil*	0 4	0 1	1 2	0 6½	*Nil*	0 4	0 6	1 6	5 5
April „	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	1 1	1 11
TOTAL .	11 10	3 1	0 6	6 0½	1 9	15 3	9 2½	1 2	7 1	8 8	16 7	28 9

"The total snowfall of the recording stations during the winter of 1896-97 was in excess of that of the previous winter, but generally less than that of the winter of 1894-95. The snowfall on the higher ranges was, however, probably greater than that of the winter of 1894-95, that is to say, at elevations about 9,000 feet. This is borne out by the snowfall measured at Barmaur, a place at the extreme east of the state and nearly surrounded by high ranges.

"The principal storms which caused snow to fall generally over the state came from a westerly direction, and were preceded by high winds and rain at low elevations. These storms occurred on the 28th to the 30th December, the 12th to 14th, 19th, 20th, 27th, 30th and 31st January, the 12th and 13th February and the 21st and 28th March.

"The chief feature of the snowfall of the winter under report was the late fall in March at comparatively low elevations, and even in April at places at the foot of high ranges. The last fall of importance at elevations over 9,000 feet was as late as the 7th May.

"The heaviest general fall of snow occurred on the 12th and 13th February, when the snow line descended to 2,500 feet.

"The weather was unusually cold during March and April, and the amount of cloud much greater than usual. This has resulted in the accumulation of snow in the beginning of May being greater than in normal years, and its presence in large quantities at much lower elevations than usual. The accumulation of snow on the higher passes seems to be undoubtedly greater than is usual in the middle of May, and the Sach Pass is not open yet.

"Although the late snowfalls and unusual accumulation in May no doubt have resulted in a lower temperature than usual, the real cause seems to be due to the series of storms accompanied by high winds which have reached this part of the country from the west. Between these storms, local ones of less importance have occurred, which are probably due to the snowfall, and the amount of cloud ensuing from the former and the falls of rain during April at low elevations have been above the normal for those months."

(3) *Kulu.*—"There were falls of snow on the high passes on the 1st, 3rd, 5th, 6th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th and 27th April. The fall of the 25th descended to an elevation of 7,000 feet and measured about 6 inches.

The weather was generally cold during the month. The Bhubhu, Basleo, Jalori and Rotang Passes are still closed for laden animals. There is no hope of the Rotang Pass being open for laden animals till the beginning of June 1897.

The snowfall in the month under report was greater than in April 1896."

The following table shows the reported depth of snow on the higher passes and peaks of the sub-division at the end of the month :—

DISTRICT.	Name of pass.	Height above sea level.	REPORTED DEPTH OF SNOW ON THE 20th APRIL.						
			1897	1896	1895	1894	1893	1892	1891
		Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
Kulu .	Rotang . .	13,000	11	16	13	13	13	3	10
	Hamta . .	1 500	11	9	4	10	11	2½	?
	Chander Khani .	...	8	3	4	9	12	3½	10
	Barsai . .	...	3	3	4	6	6	2	5
	Bujadhur .	...	3½	2	4	8	6	½	4
	Lohri Achri .	...	7½	5	5	7	5	*Nil*	3
	Bhubhu . .	10,000	2	½	3	2	5	„	
Plach .	Serikhand . .	15,000	15	8	15	15	30	6	
	Dundku . .	...	5	1	4	5	6	*Nil*	
	Gargarasan .	17,000	7	1	10	8	25	„	
	Tirath . .	...	7	1	8	7	25	„	

(4) *Poo* (*Upper Sutlej Valley*):—The following is a statement of the snowfall as observed at Poo :—

Date and month.	Character.	Depth.	REMARKS.
March 4th	...	3 inches	Snow descended to bottom of valley.
„ 9th and 10th	...	6 inches	Ditto ditto.
„ 20th to 22nd	Heavy	18 inches	
„ 26th to 28th	Heavy	28 inches	
April 1st to 3rd	Light	...	
„ 13th	...	...	Snow descended to 11,000 feet.
„ 20th and 21st	...	...	Ditto ditto.
„ 23rd and 24th	...	...	Ditto to 10,000 feet.
„ 26th and 27th	Heavy	...	Ditto to bottom of valley.

The snow accumulation on the higher passes exceeded the accumulation of snow in previous years. Passes above 12,000 feet were not open at the end of April.

(5) *Kilba.*—The following is a statement of the snow-storms in this district during the month.—

19th April 1897.—Snow accompanied by an easterly wind fell throughout Bushahr in the zone above 10,000 feet giving a sprinkling only at this elevation, where lower down there was light rain.

20th.—Clouds continued to arrive from the south-east giving snow above 10,000 feet and rain below.

21st.—A slight break occurred and the snow line returned to 12,000 feet where it had all along been permanent.

22nd.—Commenced snowing on the higher slopes and raining in the lower valleys and appeared to be general. Snow line descended to 10,000 feet.

23rd.—No improvement ; sky cloudy. Snow line descended to 9,000 feet with heavy rain at lower elevations.

24th.—A slight improvement but clouds still about and low down in valleys.

25th.—During the night snowing to 9,000 feet with heavy rain lower down. Wind from south-east.

26th.—Morning fine ; later on there was a return to prevailing conditions ; snow fell again to 9,000 feet with heavy rain below.

27th.—Morning fine and snow line to above 10,000 feet, but in the afternoon a south wind set in, and fresh snow fell to 10,000 feet and rain lower down.

28th.—Snowing at high altitudes and raining at lower till evening when the clouds dispersed and fine weather set in.

The weather during the period was, while the storms lasted, unusually cold, and the valley had the appearance of the monsoon so far as clouds and moisture were concerned. During the intervals the weather in the lower valley was warm and steamy. The changes were very sudden. The following gives the approximate depth of snow lying at the end of the month on the chief passes in this district :—

Harung pass, 13,000 feet, over Ruldang from Baspa valley to Barang on the Sutlej, the depth of snow was 6 feet.

Buldar pass from Kanawar to Spitti, 16,000 feet, 25 to 30 feet deep.

Rupan, 15,000 feet:—Pass from Ghirwal to Sunglas Bashahr, 15 feet deep.

Brinda, 15,000 feet:—Pass from Palur valley to Barpa valley, 15 to 20 feet deep.

Runang pass, 14,000 feet from Signam to Poo, 10 to 15 feet deep.

Moral ridge, 12,000 feet:—6 feet deep.

Poo, 10,000 feet, in Upper Kunawar and hot aspect. The largest accumulation at one time was 6 feet.

The accumulation on the upper slopes appears to be very large, much more so than usual in normal years. The last heavy fall on the 24th March started several snow avalanches which descended into the valley, and on this date over the Sutlej below Mehbar, 6,000 feet above sea level, there is a snow bridge at least 10 feet thick and another over the Baspa 6,000 feet. Between Chargaon and Kilba snow avalanches descended down the Tikru, Phinla and Jampur valleys and for some time bridged the Sutlej.

The inhabitants say that the past winter has been the longest they can remember for 24 years, and that it was quite an abnormal one, as the intervals of fine weather were short, and after the spring had set in and all the fruit trees had blossomed, a heavy snowfall occurred descending low down in all the valleys, completely destroying the blossom and ruining the prospect of the fruit crop on which the people largely depend. The cattle and sheep have also suffered, as the continuation of cold weather kept back the crops of grass on the lower hills.

(6) *Kailang.*—No snow fell from the 1st to the 9th, but from the 10th to the 29th about 5 feet of snow fell at Kailang, where it mostly fell melting or very wet. The accumulation of fresh snow on the surrounding high mountains must have been great.

Summary of snowfall reports.—Weather was unusually cloudy, with frequent rain or snow in the hill districts of Upper India. The snowfall was chiefly confined to the higher elevations above 10,000 feet to 12,000 feet, and was much larger in amount than usual on the mountains to the north of the Punjab, and in Kashmir, and the greater part of the Punjab Himalayas. The snow accumulation was hence considerably greater than usual at the end of the month.

Summary of special Storm Reports.

The following gives a statement of the chief local storms of which reports were received from observers during the month. These storms were all of the ordinary hot-weather type, *viz.*, thunderstorms or hailstorms in Bengal, the North-Western Provinces, the Deccan and Madras, and duststorms in the hottest and driest districts of Northern and Central India, more especially the Punjab and Rajputana:—

3rd April.—North-wester at False Point from 1 A.M to 2 A.M.

Hailstorm at Chanda at 4-15 P.M.

5th.—Duststorms at Jeypore at 4-20 P.M., Allahabad at 1 P.M., and Sutna at 2-30 P.M. Hailstorm at Simla at 1-40 P.M.

9th.—Thunderstorm at Poona (3-40 P.M. to 4-10 P.M.).

10th.—Duststorm at Poona (3-40 P.M. to 4-30 P.M.). Temperature fell 13°·5 during the storm. A few drops of rain fell at 4-25 P.M.

11th.—Duststorm at Gulbargah (6 P.M. to 6-55 P.M.). The rainfall during the storm was 0·35 inch.

13th.—Thunderstorm at Poona (5-5 P.M. to 5-50 P.M.).

15th.—Duststorm at Jubbulpore (4-20 P.M. to 5-30 P.M.). Hailstorms are reported to have occurred in the neighbouring districts.

Severe thunderstorm at Salem (5 P.M. to 6 P.M.).

17th.—Duststorm at Gulbargah (4-15 P.M. to 5-10 P.M.).

18th.—Violent duststorm at Jacobabad from north-west (8-30 P.M. to 10-30 P.M.).

19th.—Severe hailstorm at Mymensingh with very strong winds which damaged many houses (at 8-30 P.M.).

Duststorm at Dhubri (2-20 P.M.). Wind velocity averaged 41 miles per hour between 2 P.M. and 2-30 P.M. Temperature fell from 86° at 2 P.M. to 73° at 3 P.M. Total rainfall during storm, 0·08 inch.

Duststorm at Jodhpur 6-30 P.M. to 6-45 P.M.

Duststorm at Delhi from west (at midnight).

Thunderstorm at Srinagar with strong winds. The wind velocity from 4-20 P.M. to 4-50 P.M. was 30 miles per hour.

20th.—Duststorm at Allahabad (began at 4 P.M. and lasted till 11 P.M.). The wind velocity was not great, not exceeding 22 miles per hour.

Severe duststorm from north-west at Jubbulpore. The storm lasted from 3 P.M. to 4 P.M., and the greatest velocity of the wind was 75 miles per hour.

Drops of rain fell which were stated to be almost as cold as ice.

Duststorm at Bahraich from 3-35 P.M. to 6 P.M. The greatest velocity of the wind was between 5 and 5-30 P.M., when the anemometer recorded 21·3 miles.

Duststorm at Hoshangabad from north-east (3-45 P.M. to 10 P.M.).

Duststorm at Benares (from 6-35 P.M. to 8 P.M.). The storm came from north-west. The anemometer recorded 19·2 miles from 6-55 P.M. to 7-10 P.M., giving a mean velocity of 77 miles per hour during that interval.

Duststorm at Lahore from 5-20 P.M. to 6 P.M. Temperature fell 8° during the storm. There was no rain.

Duststorm at Pachmarhi from 5-10 P.M. to 10 P.M.

Thunderstorm at Simla at 0-10 P.M. The storm passed from south-west to north-east.

Thunderstorm at Srinagar (2-25 P.M. to 6 P.M.).

Duststorm at Jeypore at 9-30 A.M., and again at noon to 1-30 P.M.

22nd.—Thunderstorm at Salem from 1 P.M. to 2-15 P.M.

Violent duststorm at Raipur.

23rd.—Duststorms at Jodhpur (4-45 P.M. to 5 P.M.) and Jeypore (8-15 P.M. to 8-52 P.M.).

Thunderstorm and wind squalls at the Ridge Station F.L.V. at 9-15 A.M. The strongest gusts were of force 7. The rainfall from 9 A.M. of the 23rd to 3 A.M. of the 24th was 2·96 inches.

24th.—Severe thunderstorm at Simla from 0-30 A.M. to 0-50 A.M., and again from 0-45 P.M. to 2 P.M. and again from 2-30 P.M. to 6 P.M.

Duststorms at Raipur and Delhi (4 A.M.).

26th.—Thunderstorm at Simla (8-45 P.M. to 10-55 P.M.).

27th.—Violent thunderstorm at Mussooree (3·30 A.M. to 4 A.M.).

28th.—Severe duststorm at Mymensingh at 10 P.M.

29th.—Severe thunderstorm at Nagpur (5 P.M. to 6 P.M.).

Violent duststorm at Raipur during night.

30th.—Severe duststorm at Nagpur from 5 P.M. to 6 P.M.

Severe duststorm at Raipur during evening.

Duststorm at Pachmarhi (3·25 P.M. to 3·35 P.M.).

Duststorm at Jubbulpore. Hailstorm at Sutna (4·50P. M.). The largest stones weighed ½ oz.

Duststorm at Allahabad from 6·15 P.M. to 8P.M. No thunder was heard during the storm.

The following gives a brief summary of the more important hailstorms in Assam and Rajputana during the month, of which reports have been received from the Political Agents or other local authorities :—

5th.—Hailstorm at Jeypore at 5 A.M. It lasted only one minute and was of no importance.

10th.—Hailstorm at Bhor, the capital of the Bhor State in the Satara District, Bombay. The storm came from north.

15th.—Hailstorm in the Jorhat sub-district, mouza Salmana.

19th.—Hailstorm at Shillong in the Khasi Jaintia Hills.

20th.—Hailstorm in the Suratgurh Tehsil of the Bickaneer State. The largest stones were 1½ inches in diameter.

24th.—Severe hailstorm in the Mouzas Kachamari, Jagial Town, Nij Shahar, Pakhimaria and Singiapotam of the Nowgong district of Assam. Storm came from north-west and caused slight damage to the crops.

25th.—Severe hailstorm in the Mangaldai, Bangalagarh, Mohanpur, Soinabari, Dhula, Chapai, Rangamati, Owtola Chapari sub-divisions of the Darrang district of Assam. The largest stones were 1 inch in diameter. Hailstorm at Bekani in the Nowgong district of Assam. The largest stones were about ½ inch in diameter.

26th.—Hailstorm in the Lunkaransar Tehsil of the Bickaneer State. The largest stones were ½ inch in diameter.

27th.—Hailstorm at Jowai in the Khasi Hills. The storm came from the north-west and was accompanied by high winds and heavy thunder. The total rainfall in one hour and a quarter was 3·5 inches. The hailstones were of the size of peas.

28th.—Hailstorm at Gauhati. Storm came from north-west. Hailstorm in the Khasi Jaintia Hills.

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

Arabian Sea.—Winds were, as is ordinarily the case in April, very unsteady in the centre and west of the Arabian Sea, though chiefly from between north and east. Over the north of the sea normal westerly winds obtained on the majority of days, but they were feebler than usual, and except on one occasion did not exceed 5 in force. Very variable airs obtained during the greater part of the month in the east and south of the sea. The chief abnormal feature of the meteorology of the Arabian Sea was the feebleness of the in-draught to the heated land area along the Konkan and Malabar coasts, and winds were hence exceedingly light and unsteady in that area on most days. The air movement of the month for the whole of the Arabian Sea averaged 2·5 or 0·2 below the normal.

Weather was even finer than usual except in the south-east where showers and squalls were of frequent occurrence.

Conditions were also abnormal in the Persian Gulf and the Gulf of Oman where the winds contained an abnormal easterly component.

Bay of Bengal.—Ordinary winds of in-draught to the heated land area obtained along the coasts of the Bay throughout the month except on the 3rd and 4th, when abnormal northerly winds were experienced in the north-west angle of the Bay due to conditions over the land. On the other hand, winds were remarkably unsteady over the centre and south. Abnormal winds from between north and east prevailed over the latter area during the greater part of the month and hence the weather over that region, as indeed over nearly the whole of the Bay, was quiet and settled.

The mean air movement of the month for the whole of the Bay did not differ to any extent from the normal, being only about 7 per cent. weaker than usual.

Equatorial belt.—There is no information available for the eastern half of the equatorial belt. In the western half of the belt winds from between west and north predominated during the first half of the month and from between south and east during the second half.

Temperature of the Air.

The mean maximum or day temperature of the month of April was below the normal in the Punjab, Upper Sind, Rajputana, the western districts of the North-Western Provinces, Bundelkhand, Chota Nagpur,

North Madras and the eastern districts of the Central Provinces, and in excess over the remainder of India. The variations were, however, small except in two areas. The first of these included Upper Burma, Cachar and East Bengal in which the mean maximum temperature of the month was from 2° to 5° above the normal. The following gives data for the central area of greatest excess :—

Station.	Mean maximum temperature.		
	Actual, April 1897.	Normal, April.	Variation of actual from normal.
	°	°	°
Kindat	100·4	95·5	+4·9
Bhamo	97·3	93·0	+4·3
Silchar	92·0	87·6	+4·4
Chittagong	92·3	88·6	+3·7
Barisal	94·6	91·2	+3·4

The second area of large variation included nearly the whole of the Punjab. In that area the day temperature was in moderate to large defect, as is shown by the data of the following stations :—

Station.	Mean maximum temperature.		
	Actual, April 1897.	Normal, April.	Variation of actual from normal.
	°	°	°
Peshawar	79·9	86·6	—6·7
Rawalpindi	83·8	88·0	—4·2
Lahore	92·3	96·5	—4·2
Delhi	96·9	100·4	—3·5
Dera Ismail Khan	89·8	93·2	—3·4
Sirsa	97·3	100·4	—3·1
Ludhiana	94·6	97·6	—3·0

The temperature and pressure variations were hence inversely related in Upper India, excess in the former element accompanying defect in the latter.

The maximum temperature of the month was almost as largely below the normal at the hill stations in Upper India as at the neighbouring plain stations, as is shown by the following data :—

Station.	Mean maximum temperature.		
	Actual, April 1897.	Normal, April.	Variation of actual from normal.
	°	°	°
Murree	63·9	68·4	—4·5
Simla	63·6	66·8	—3·2
Chakrata	66·9	70·5	—3·6
Leh	52·8	57·1	—4·3
Kailang	47·5	51·4	—3·9

The highest maximum temperatures of the month were generally registered in Northern and Central India and the Central Provinces in the third week of the month from the 16th to the 20th and in the greater part of the Deccan and Burma on the 29th and 30th.

The highest temperatures of the month were registered between the 16th and 20th in Berar, the Central Provinces, Bengal, Central India, the North-Western Provinces, Rajputana and the Punjab and in Burma and the Deccan in the last week of the month. The following gives the more noteworthy cases :—

Station.	Highest maximum temperature recorded in April 1897.	Date on which recorded.	Highest maximum temperature recorded in April previous to 1897.	Year in which recorded.
	°		°	
Calcutta	103·9	18th	107·0	1896
Khandwa	112·7	17th and 19th	115·2	1896
Amraoti	112·5	19th and 20th	114·5	1896
Deesa	115·0	17th	114·5	1892 and 1896
Indore	108·0	19th	110·0	1896
Nowgong	110·5	19th	112·6	1896
Jeypore	109·5	18th	111·5	1896
Akola	114·0	20th	114·0	1896

The following gives the highest maximum temperatures registered in Central Burma, West Bengal, Berar, Gujarat, Rajputana, Sind and the eastern districts of the North-Western Provinces :—

Station.	Highest maximum temperature recorded in April 1897.	Date on which recorded.
	°	
Minbu	110·1	27th
Mandalay	110·1	29th
Raniganj	113·1	19th
Burdwan	113·0	18th
Bankura	112·5	19th
Midnapur	112·4	19th
Allahabad	113·1	28th
Pachpadra	113·5	17th and 18th
Jacobabad	112·7	18th
Deesa	115·0	17th
Ahmedabad	114·3	18th
Akola	114·0	20th

The mean minimum temperature of the month was above the normal except in the West Punjab, West and North Rajputana, Sind, Assam, South-West Bengal, Orissa and the southern districts of Chota Nagpur. The variations from the normal in the area of deficient night temperature were small except at Peshawar where the mean night temperature of the month was 2°·5 below the normal.

The minimum temperature of the month was above the normal, but by small amounts (less than 2°), except in two areas for which data are given below:—

Area.	Station.	Mean minimum temperature. Actual, April 1897.	Normal, April.	Variation of actual from normal.
		°	°	°
1st Area	Toungoo	78·0	73·3	+4·7
	Moulmein	79·3	75·8	+3·5
	Minbu	78·5	75·9	+2·6
2nd Area	Akola	78·1	74·0	+4·1
	Amraoti	79·4	75·5	+3·9
	Hyderabad (Deccan)	78·3	75·1	+3·2
	Sutna	73·8	71·0	+2·8
	Saugor	75·2	72·4	+2·8
	Nagpur	78·6	75·9	+2·7
	Hoshangabad	75·9	73·2	+2·7
	Sholapur	77·6	75·0	+2·6
	Khandwa	76·4	74·3	+2·1
	Jhansi	78·0	75·9	+2·1

The night temperature was largely below the normal at the hill stations in Upper India and more especially at the interior and higher stations. The following gives data:—

Station.	Mean minimum temperature. Actual, April 1897.	Normal, April.	Variation of actual from normal.
	°	°	°
Leh	29·9	30·6	—0·7
Kailang	27·5	30·9	—3·4
Murree	45·9	52·0	—6·1
Simla	50·8	52·5	—1·7

The lowest temperatures of the month were recorded in Northern and Central India during the first week of the month. They were in no way remarkable (except by contrast with the high temperatures previously prevailing) and were not so low as have been previously recorded.

The mean temperature of the month was above the normal over the whole of India except the Punjab, Sind, Rajputana and the western districts of the North-Western Provinces and a small area in Bengal and the eastern districts of the Central Provinces defined by the stations of Raipur, Chaibassa, Balasore and Cuttack.

Over by far the greater part of India the mean temperature differed from the normal by less than 2°. It was in moderate excess over the greater part of Burma, East Bengal and Cachar. The following gives data for this area of increased temperature in April:—

Station.	Mean daily temperature. Actual, April 1897.	Normal, April.	Variation of actual from normal.
	°	°	
Toungoo	89·7	86·7	+3·0
Kindat	84·0	81·2	+2·8
Minbu	91·9	89·3	+2·6
Silchar	80·7	78·2	+2·5
Yamethin	90·1	87·9	+2·2
Chittagong	83·2	81·1	+2·1
Bhamo	82·3	80·2	+2·1
Moulmein	87·1	85·0	+2·1
Tavoy	85·9	83·8	+2·1

It was also in moderate excess in Berar, as is shown by the following data:—

Station.	Mean daily temperature. Actual, April 1897.	Normal, April.	Variation of actual from normal.
	°	°	°
Akola	92·6	89·8	+2·8
Amraoti	92·9	90·4	+2·5
Buldana	89·7	88·3	+1·4
Chikalda	84·4	83·2	+1·2

Temperature was in moderate to considerable defect in the North Punjab. The following gives data :—

Station.	Mean daily temperature. Actual, April 1897.	Normal, April.	Variation of actual from normal.
	°	°	°
Peshawar	69·0	73·6	−4·6
Rawalpindi	71·7	73·8	−2·1
Dera Ismail Khan	77·1	79·1	−2·0

It was in moderate to large defect in the Punjab and Kashmir Himalayas, as is shown by the following data :—

Station.	Mean daily temperature. Actual, April 1897.	Normal, April.	Variation of actual from normal.
	°	°	°
Leh	41·3	43·0	−1·7
Kailang	36·0	40·1	−4·1
Srinagar	53·1	57·3	−4·2
Murree	54·9	60·2	−5·3
Simla	57·2	59·7	−2·5
Chakrata	58·9	61·3	−2·4
Ranikhet	65·2	65·8	−0·6

The following table gives comparative data of the mean temperature conditions of the month in 56 meteorological divisions of India :—

Province.	Division.	Actual Temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	94·9	76·8	85·9	18·0	24·8	+0·6	+3·5	−2·9
	Lower Burma (Deltaic)	95·3	78·2	86·8	17·1	24·1	+1·7	+1·9	−0·2
	Central do.	102·8	77·1	90·0	25·7	36·3	+1·3	+4·7	−3·4
	Upper do.	102·2	73·2	87·8	29·0	43·5	+3·4	+0·8	+2·6
	Arakan	90·4	75·1	82·8	15·3	29·4	?	?	?
Bengal and Assam	Eastern Bengal	92·2	72·8	82·5	19·4	34·8	+3·1	+0·3	+2·8
	Assam (Surma)	91·6	67·8	79·7	23·8	37·9	+4·4	+0·5	+3·9
	Do. (Brahmaputra)	87·5	67·8	77·6	19·7	34·4	+2·1	−0·8	+2·9
	Deltaic Bengal	97·6	74·7	86·2	22·9	39·9	+1·0	−0·7	+1·7
	Central do.	101·0	73·7	87·4	27·3	45·9	+1·9	−0·5	+2·4
	North do.	92·7	69·2	80·9	23·5	41·0	+1·7	−0·2	+1·9
	Bengal Hills	63·2	45·7	54·4	17·5	32·6	+1·7	+1·0	+0·7
	Orissa	94·0	77·8	85·9	16·2	31·5	−0·8	−0·5	−0·3
	Chota Nagpur	100·2	73·7	87·0	26·6	43·3	−1·0	−0·4	−0·6
	Bihar (South)	102·9	75·0	89·0	27·9	45·0	+0·4	+1·4	−1·0
	Do. (North)	99·5	71·0	85·3	28·5	47·5	+0·6	+0·1	+0·5
North-Western Provinces and Oudh.	North-Western Provinces (East)	104·5	72·9	88·8	31·6	48·3	+1·0	+1·6	−0·6
	Oudh (South)	102·4	72·2	87·3	30·2	49·6	+0·1	+1·2	−1·1
	Do. (North)	102·3	70·3	86·3	32·0	48·6	?	?	?
	North-Western Provinces (Central)	103·1	73·8	88·5	29·3	48·0	−0·4	+2·1	−2·5
	Do. do. (West)	98·2	71·3	84·8	26·9	45·9	−2·5	+0·6	−3·1
	Do. do. (Submontane East)	102·7	74·0	88·4	28·7	45·5	+1·9	+1·6	+0·3
	Do. do. (do. West)	95·4	66·4	81·0	29·0	50·7	−0·5	−0·1	−0·4
	Do. do. (Hills)	69·8	53·5	61·7	16·3	41·6	−2·3	−0·7	−1·6
Punjab	Punjab (South-East)	96·9	73·6	85·3	23·3	43·8	−3·5	+0·3	−3·8
	Do. (South)	96·3	68·1	82·2	28·2	49·3	−3·1	−0·4	−2·7
	Do. (Central)	92·3	67·0	79·7	25·3	50·4	−4·2	+2·3	−6·5
	Do. (Submontane)	94·6	67·1	80·9	27·5	52·8	−2·9	+0·9	−3·8
	Do. (Hills)	62·0	44·5	53·3	17·5	40·3	−3·9	−3·9	0
	Do. (North)	80·4	57·9	69·2	22·6	47·4	−5·5	−1·3	−4·2
	Do. (West)	93·4	66·3	79·9	27·1	51·0	−2·3	+0·1	−2·4
Bombay and Malabar Coast Districts (Madras).	Malabar	90·9	78·5	84·8	12·4	19·2	+0·6	+0·5	+0·1
	Madras (South Central)	99·1	75·8	87·4	23·4	30·6	−0·5	+1·2	−1·7
	Coorg	86·2	65·2	75·7	21·0	28·3	+1·7	+1·1	+0·6
	Mysore	95·1	70·6	82·9	24·5	35·5	+1·0	+1·2	−0·2
	Konkan	89·1	78·9	84·0	10·1	19·8	+0·1	+0·6	−0·5
	Bombay Deccan	101·8	73·1	87·5	28·7	39·9	+0·8	+1·6	−0·8
	Hyderabad (North)	100·6	76·0	88·3	24·6	34·0	?	?	?
	Khandesh	102·2	72·0	87·1	30·2	48·7	+0·8	+1·6	−0·8

Province.	Division.	Actual temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Central Provinces and Berar.	Berar	106·7	78·8	92·8	28·0	44·7	+1·2	+4·0	—2.8
	Central Provinces (West)	105·5	77·0	91·3	28·5	48·3	+0·5	+2·5	—2·0
	Do. (Central)	101·6	73·7	87·7	27·9	45·2	—0·9	+1·3	—2·2
	Do. (East)	101·4	75·6	88·5	25·9	44·8	—1·4	+0·3	—1·7
Bombay (North)	Gujarat	102·7	75·3	89·0	27·5	44·4	?	?	?
	Kathiawar & Cutch	98·3	71·3	84·8	27·1	45·4	+0·4	+0·3	—0·1
	Sind	97·9	70·7	84·3	27·2	46·7	—0·3	—0·6	—0·3
	Baluchistan Hills	76·6	46·8	61·8	29·8	54·2	—1·3	—1·6	—0·3
Rajputana and Central India.	Central India (East)	101·4	72·1	86·8	29·4	47·5	—0·1	+1·6	—1·7
	Rajputana (East), Central India (West)	99·7	69·8	84·8	29·9	52·2	—0·6	—0·4	+0·2
	Do. (West)	101·4	69·7	85·6	31·7	51·6	—1·5	—1·3	+0·2
Madras	East Coast (North)	94·6	79·0	86·8	15·6	26·0	—0·1	+0·9	+1·0
	Hyderabad (South)	102·4	78·3	90·4	24·1	33·8	—0·1	+3·2	—3·3
	Madras (Central)	105·0	79·5	92·3	25·5	35·5	+0·5	+0·9	—0·4
	East Coast (Central)	97·4	78·2	87·9	19·2	28·9	—0·1	+1·4	—1·5
	Do. (South)	94·6	78·5	86·5	16·1	25·3	0·3	+1·0	—1·3
	Madras (South)	94·8	78·9	86·9	15·9	23·2	+2·9	+1·6	—4·5

At the commencement of the month temperature was below the normal over the whole of India except Madras. The deficiency was most marked in Northern India where it averaged 3°. The following gives mean variation data for the 24 hours preceding 8 A.M. of the 1st :—

Province or area.	Variation from normal of Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	—2·2	+0·2	—1·0
Bengal and Assam	—3·3	—4·5	—3·9
North-Western Provinces and Oudh	—4·5	—1·9	—3·2
Punjab	—5·4	—0·9	—3·2
Sind and Rajputana	—1·5	—0·5	—1·0
Central India and Gujarat	—3·7	+2·7	—0·5
Central Provinces and Berar	—3·8	—1·9	—2·9
Bombay	—0·4	—1·2	—0·8
Madras	+2·4	+3·5	+3·0

Temperature increased on the 3rd, 4th and 5th in North-Eastern India and Burma. It fell very rapidly on the 5th and 6th in Baluchistan and Upper India due to the advance of a cool wave from the north-west. The following gives mean temperature variations for the 1st, 4th and 6th for comparison :—

Province or area.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 1st April.	4th April.	6th April.
	°	°	°
Baluchistan (Quetta)	—1·4	—2·6	—9·0
Punjab	—3·2	—2·7	—5·6
Sind and Rajputana	—1·0	—2·0	—8·2
North-Western Provinces and Oudh	—3·2	—1·9	—1·6
Central India and Gujarat	—0·5	—1·5	—1·7
Bihar	—6·1	—2·7	—0·6
Chota Nagpur	—5·2	—5·5	—3·1
Central Provinces and Berar	—2·9	—2·3	—3·3
Bengal	—3·3	—2·3	+2·0
Burma	—1·0	+1·2	+1·5

The cool wave extended over the North-Western Provinces and Rajputana on the 7th into North-Eastern India on the 8th. Temperature steadily increased during the next five days and was in excess over the whole of India except Madras on the 13th. The following gives data illustrating these conditions and changes :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 7th April.	8th April.	9th April.	10th April.	11th April.	12th April.	13th April.
	°	°	°	°	°	°	°
Baluchistan (Quetta)	—3·8	+1·6	+2·0	+6·1	+7·5	+1·9	+3·6
Punjab	—5·3	—2·0	+0·7	+2·9	+4·3	+5·2	+3·4
Sind and Rajputana	—6·7	—4·2	+0·4	+0·4	+2·3	+3·9	+2·8

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	7th April.	8th April.	9th April.	10th April.	11th April.	12th April.	13th April.
	°	°	°	°	°	°	°
North-Western Provinces and Oudh.	−5·7	−5·6	−2·1	−0·6	+0·7	+2·71	+2·9
Central India and Gujarat	−5·3	−5·5	−3·4	−0·5	+0·9	+0·7	+1·7
Central Provinces and Berar	−4·2	−5·4	−6·1	−2·3	−1·6	−0·3	+1·6
Bengal and Assam	−3·6	−3·1	−2·8	−0·7	−0·2	−0·3	+0·7
Burma	+1·7	+2·1	+1·2	−0·3	−0·6	−0·6	+1·0
Bombay	−1·5	−0·6	+1·3	+1·5	+0·1	+0·9	+2·1
Madras	+0·7	+1·2	0	−0·4	−0·9	−1·2	−1·4
Mean of whole India	−3·3	−2·6	−1·2	0	+0·6	+1·2	+1·6

Temperature was steadily above the normal over the same areas from the 14th to the 19th, as is shown by the following data :—

Province.	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.
	°	°	°	°	°	°
Baluchistan (Quetta)	+5·0	+4·6	+5·6	+6·5	+6·7	+0·7
Punjab	+5·2	+5·1	+5·6	+7·1	+6·8	+6·0
Sind and Rajputana	+4·3	+5·8	+5·8	+5·7	+6·7	+5·9
North-Western Provinces and Oudh	+2·7	+4·5	+6·8	+8·0	+8·3	+7·3
Central India and Gujarat	+2·3	+4·8	+4·1	+5·6	+5·9	+5·7
Central Provinces and Berar	+2·5	+5·1	+3·7	+3·4	+4·3	+4·9
Bengal and Assam	+2·3	+2·9	+3·7	+5·6	+5·3	+3·9
Burma	+1·4	+1·7	+2·3	+1·9	+2·5	−0·5
Bombay	+1·9	+2·0	+2·5	+2·0	+1·8	+0·5
Mean of whole India	+2·4	+3·5	+3·6	+4·4	+4·9	+3·9

The highest day temperatures of the month were generally registered during this period. The greatest excess of temperature during this period occurred on the 18th on which day temperature was more than 10° above the normal at Allahabad (+11°·1), Lucknow (+10°·4) and Benares (+10°·2).

Frequent showers were received during this period in Southern India, and temperature was hence generally below the normal from the 14th to the 16th in Madras. The following gives data :—

Province.	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.
	°	°	°	°	°	°
Madras	−0·8	−0·2	−1·8	+0·2	+2·1	+1·8

A succession of hot weather disturbances affected Northern and Central India during the next nine days. Series of thunderstorms occurred daily on the 20th, 21st and 22nd, during which period North-Eastern India and the Punjab received light to moderate rain. The Punjab obtained frequent light showers from the 23rd to the 28th. These duststorms and thunderstorms cooled the air very largely, and temperature was more or less below the normal over the whole of Northern India from the 21st to the 23rd and over Upper India from the 24th to the 28th. The following variation dataillustrate these features :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of							
	21st April.	22nd April.	23rd April.	24th April.	25th April.	26th April.	27th April.	28th April.
	°	°	°	°	°	°	°	°
Baluchistan (Quetta)	−9·8	+1·1	−6·4	−4·3	−4·9	−2·1	−11·4	−8·9
Punjab	−11·5	−9·2	−8·7	−6·8	−5·7	−3·3	−10·0	−11·9
Sind and Rajputana	−10·4	−5·1	−3·1	−4·9	−3·4	−0·7	−2·9	−4·7
North-Western Provinces and Oudh.	−5·6	−7·4	−4·0	+1·3	−1·0	+1·0	+3·5	+0·8
Central India and Gujarat.	−2·5	−2·9	−1·2	+1·7	+0·9	+1·5	+2·1	+3·2
Bihar	−1·4	−6·1	−3·3	+0·4	+2·9	+3·7	+4·4	+5·1
Chota Nagpur	+3·6	−6·5	−2·7	+1·3	+2·9	+3·1	+3·6	+2·7
Central Provinces and Berar.	0	−2·5	−0·1	+3·1	+2·0	+1·9	+3·3	+4·6
Bengal	−2·1	−7·1	−0·4	+2·2	+4·3	+5·0	+5·8	+6·0
Burma	+0·8	+1·0	+2·6	+3·2	+3·9	+5·2	+4·6	+4·8

The cooling effect of these storms was most strongly exhibited on the 21st, 22nd, 27th and 28th.

The following gives examples of the very large reduction of temperature at selected stations :—

Date.	Station.	Variation from normal		
		Maximum temperature.	Minimum temperature.	Mean temperature.
		°		°
21st April 1897	Peshawar	−19·9	−13·5	−16·7
"	Delhi	−20·8	−9·3	−15·1
"	Jeypore	−21·6	−9·0	−15·3
22nd	Ludhiana	−23·5	−2·2	−12·9
"	Burdwan	−22·1	−4·8	−13·5
27th	Peshawar	−25·4	−6·9	−16·2
"	Rawalpindi	−27·2	−6·0	−16·6
28th	Sialkot	−21·1	−9·3	−15·2
"	Rawalpindi	−20·6	−7·4	−14·0
"	Lahore	−19·2	−7·0	−13·1

During this period from the 20th to the 28th, temperature was steadily in excess in the Peninsula and Burma. It was also in excess in North-Eastern India from the 24th to the 28th. The most noteworthy feature of this period was the excessive temperature in Burma, more especially in Upper Burma. The following gives comparative data :—

Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of								
	20th April.	21st April.	22nd April.	23rd April.	24th April.	25th April.	26th April.	27th April.	28th April.
	°	°	°	°	°	°	°	°	°
Upper Burma .	+2·6	+2·2	+2·3	+3·5	+5·7	+5·9	+7·9	+6·4	+7·4
Lower Burma .	+0·2	+0·4	+0·9	+1·7	+1·9	+1·8	+2·1	+2·8	+2·2

The character of the temperature conditions in that area is shown more fully by the variation data of the following seven stations :—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of								
	20th April.	21st April.	22nd April.	23rd April.	24th April.	25th April.	26th April.	27th April.	28th April.
	°	°	°	°	°	°	°	°	°
Chittagong .	+1·3	+0·6	−1·8	+1·6	+1·6	+3·6	+4·6	+5·3	+4·2
Silchar . .	+2·0	+2·3	−2·5	+0·8	+5·0	+5·7	+3·0	+5·1	+7·4
Bhamo . .	+3·9	+4·5	+6·0	+5·2	+6·2	+4·8	+8·0	+3·9	+5·8
Kindat . .	+3·9	+4·3	+2·6	+1·3	+5·1	+4·3	+6·7	+8·0	+9·6
Mandalay .	+1·2	+2·9	+2·7	+5·2	+5·9	+5·5	+6·0	+5·9	+9·0
Minbu . .	−1·2	+1·8	+0·9	+3·8	+6·3	+8·0	+8·9	+10·6	+8·8
Yamethin .	−6·7?	−2·6	−0·9	+2·0	+5·2	+6·8	+10·1	+3·5	+4·0

The highest maximum temperatures of the month in Burma were recorded during this period. The most noteworthy were the following :—

Station.	Highest maximum temperature recorded in April 1897.	Date on which recorded.
	°	
Minbu	110·1	27th
Mandalay	110·1	29th
Kindat	106·7	29th
Lashio	104·0	26th
Moulmein	98·4	30th
Diamond Island	91·1	27th

Temperature increased in North-Western India during the last two days of the month and decreased in Burma and the Peninsula, and the variations from the normal on the 30th were generally similar to those of the 20th, but less marked. The following gives variation data for the twenty-four hours preceding 8 A.M. of the 30th :—

Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+3·8	+2·0	+2·9
Bengal and Assam	+0·6	+0·9	+0·8
N.-W. Provinces and Oudh . .	−2·9	−2·9	−2·9
Punjab	−3·6	−1·2	−2·4
Sind and Rajputana	−2·7	−6·0	−4·4
Central India and Gujarat . .	−0·4	−0·7	−0·6
Central Provinces and Berar . .	−1·1	+0·2	−0·5
Bombay	+3·8	+2·5	+3·2
Madras	+0·1	+1·7	+0·9

The following table gives variation data of the mean temperature week by week during the month and of the whole month. The data are taken from the weekly reviews published in the *Gazette of India* :—

Province.	Variation from normal of mean temperature of week ending				
	10th April 1897.	17th April 1897.	24th April 1897.	1st May 1897.	For whole month.
	°	°	°	°	°
Burma	+1·3	+1·0	+1·3	+4·1	+2·2
Bengal and Assam . . .	−2·2	+2·1	+0·8	+2·8	+0·5
North-Western Provinces and Oudh.	−2·6	+4·0	+0·7	−0·4	+0·2
Punjab	−2·0	+5·1	−3·7	−5·6	−1·5
Sind and Rajputana . . .	−3·0	+4·4	−1·4	−3·3	−0·8
Central India and Gujarat . .	−2·5	+2·9	+1·9	+0·7	+0·7
Central Provinces and Berar .	−3·6	+2·1	+2·1	+1·1	+1·1
Bombay	−0·6	+1·6	+0·5	+2·6	+0·9
Madras	+0·2	−0·9	+0·9	+0·8	+0·5

Winds.

Winds were on the mean of the month slightly weaker than usual at Rangoon and Port Blair and were of normal steadiness. Winds were on the mean of the month much more westerly than usual in Bengal, except at False Point, where they were less westerly than usual. The following gives data in illustration :—

	Station.	Wind direction.		
		Mean actual, April 1897.	Mean normal, April.	Westerly deflection.
Coast Station	False Point	S 11° W	S 31° W	—20
Interior	Calcutta	S 45° W	S 7° W	+38
	Chittagong	S 57° W	S 9° W	+48
	Berhampore	S 72° W	S 30° W	+42
	Burdwan	S 52° W	S 38° W	+14

Winds were of normal steadiness, but on the whole feebler than usual in Orissa and Bengal.

The following gives data for four representative stations :—

Station.	Steadiness.			Velocity in miles per diem.		
	Actual percentage, April 1897.	Normal percentage, April.	Variation from normal.	Mean actual, April 1897.	Mean normal, April.	Variation from normal.
False Point	77	79	— 2	273	341	—68
Saugor Island	68	78	—10	417	419	— 2
Chittagong	60	44	+16	107	165	—58
Calcutta	61	71	—10	161	169	— 8

Winds were generally stronger and steadier than usual in the North-Western Provinces and of normal strength in Bihar, and the westerly element of the air movement was more strongly marked than usual. The following gives comparative data for four stations :—

Station.	Wind direction.			Velocity in miles per diem.		
	Mean actual, April 1897.	Mean normal, April.	Increased westerly deflection.	Mean actual, April 1897.	Mean normal, April.	Variation from normal.
Patna	N 72° W	N 32° W	+40	114	116	— 2
Allahabad	N 54° W	N 54° W	0	140	96	+44
Meerut	N 70° W	N 60° W	+10	82	60	+22
Lahore	N 31° W	N 23° W	+ 8	79	77	+ 2

Winds were somewhat weaker and less steady than usual in Rajputana and Central India. The direction of the air movement varied irregularly from station to station, but on the mean of the whole area was much more northerly and less westerly than usual.

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

Province or area.	Steadiness.			Wind velocity in miles per diem.		
	Mean actual percentage, April 1897.	Mean normal percentage, April.	Variation from normal.	Mean actual, April 1897.	Mean normal, April.	Variation from normal.
Bengal	56	56	0	172	194	—22
Chota Nagpur	60	46	+14	207	216	— 9
Bihar	23	21	+ 2	122	129	— 7
North-Western Provinces and Oudh.	47	37	+10	98	85	+13
Punjab	24	24	0	64	73	— 9
Sind	51	47	+ 4	204	215	—11
Rajputana	51	55	— 4	147	164	—17
Central India	34	58	—24	114	117	— 3
Central Provinces	26	38	—12	123	119	+ 4
Berar	44	58	—14	161	176	—15

Winds were of normal strength and direction on the west coast, but were slightly more steady than usual, *e. g.* —

Station.	Wind Direction.		Steadiness.			Velocity in miles per diem.		
	Mean actual, April 1897.	Mean normal, April.	Actual percentage, April 1897.	Normal percentage, April.	Variation from normal.	Mean actual, April 1897.	Mean normal, April.	Percentage variation from normal.
Bombay	N 70° W	N 57° W	70	55	+15	242	264	—22
Ratnagiri	N 74° W	N 76° W	79	62	+17	224	220	+ 4

Winds were on the average of the month stronger than usual in the Central Provinces and the Deccan, and varied irregularly from the normal in direction. They were also less steady than usual. Winds were on the whole more steady than usual in Mysore and South Madras. The

following gives comparative data of the mean air movement in the Deccan and Southern India :—

DIVISION.	VELOCITY IN MILES PER DIEM.		
	Mean actual, April 1897.	Mean normal, April.	Variation from normal.
West Coast	191	184	+ 7
Bombay Deccan	277	256	+21
Madras Deccan	143	138	+ 5
Madras Coast	130	156	—26
Madras, South	121	103	+18

The mean winds at the hill stations varied in a very irregular manner from the normal. The mean direction at Simla was N 63° E, the normal being S 67° W, and at Chakrata S 9° E, the normal being S 64° W. Northerly winds were more prevalent than usual in Sikkim. Thus the mean wind direction of the month at Darjeeling was N 72° W instead of S 71° W.

A most noteworthy feature of the air movement was the prevalence of unsteady southerly winds (stronger than the normal) at the Seychelles. The following is a comparison of the wind data for April 1897 and April 1896, 1895, and 1894 :—

MONTH.	Mean actual, wind direction.	Mean actual, percentage of steadiness.	Mean wind velocity in miles per diem.
April 1894	S 69° W	13	?
„ 1895	N 49° E	15	103
„ 1896	S 60° E	33	74
„ 1897	S 6° W	13	136

Humidity and Cloud.

The air was slightly drier than usual at Port Blair and Rangoon, due to somewhat higher temperature than usual, as the amount of aqueous vapour contained in the air was on the average of the month slightly larger than the normal.

In Arakan the air contained considerably more vapour than usual, and the humidity percentage of the month was in moderate excess at Akyab (+ 7).

The air was very dry over the whole of Northern and Central India. The air contained much less vapour than usual in those areas, the deficiency at some stations in the North-Western Provinces and Central India exceeding 20 per cent. in amount. As temperature was much higher than usual over nearly the whole of that area, the mean relative humidity of the month was in large defect over the greater part of the area. It was 8 or more in defect at stations for which comparative data are given below :—

STATION.	RELATIVE HUMIDITY.		
	Actual, April 1897.	Normal, April.	Variation from normal.
	%	%	
Silchar	67	76	—9
Berhampore	43	58	—15
Calcutta	57	68	—11
Allahabad	22	31	—9
Nowgong	23	31	—8

The following gives mean data for the whole area of decreased humidity, including Northern and Central India :—

PROVINCE OR AREA.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.	Average actual, April 1897.	Average normal, April.	Variation from normal.
	"	"	"	%	%	
Bengal	·702	·771	—·069	60	68	—8
Bihar	·520	·522	—·002	44	47	—3
Chota Nagpur	·297	·303	—·006	27	28	—1
North-Western Provinces and Oudh.	·329	·362	—·033	31	34	—3
Punjab	·406	·421	—·015	46	44	+2
Rajputana	·350	·363	—·013	30	31	—1
Central India	·287	·308	—·021	23	27	—4

The variations of the mean humidity of the month from the normal at stations in the Central Provinces and Berar differed very largely from station to station. In the cases of Pachmarhi and Nagpur the large humidity variations are almost certainly erroneous, due to the adoption of irregular methods of observation by the observers. On the whole the mean humidity conditions probably differed little from the normal in these areas as also in the

Bombay Deccan. The following gives comparative data for these areas :—

AREA.	Absolute humidity.			Relative humidity.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.	Average actual, April 1897.	Average normal, April.	Variation from normal.
	"	"	"	%	%	
Central Provinces	·385	·364	+·021	29	28	+1
Berar	·316	·301	+·015	22	24	—2
Bombay Deccan	·428	·431	—·003	38	38	0

The air was generally drier on the mean of the month in Mysore, Coorg and the Madras Deccan. The following gives comparative data for this area :—

DIVISION.	Absolute humidity.			Relative humidity.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.	Average actual, April 1897.	Average normal, April.	Variation from normal.
	"	"	"	%	%	
Madras Deccan	·438	·522	—·084	34	39	—5
Mysore	·485	·536	—·051	48	55	—7
Coorg	·532	·587	—·055	65	74	—9

The mean humidity of the month was normal in the West Coast districts and in the Madras Coast districts and South Madras, as is shown by the following data :—

DIVISION.	Absolute humidity.			Relative humidity.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.	Average actual, April 1897.	Average normal, April.	Variation from normal.
	"	"	"	%	%	
West Coast	·846	·834	+·012	73	73	0
Madras Coast	·846	·842	+·004	70	70	0
South Madras	·739	·723	+·016	59	57	+2

A noteworthy feature of the conditions of the month was the large excess of vapour and increased humidity at the hill stations in the Kashmir Himalayas. The following gives data :—

STATION.	Absolute humidity.			Relative humidity.		
	Actual, April 1897.	Normal, April.	Variation from normal.	Actual, April 1897.	Normal, April.	Variation from normal.
	"	"	"	%	%	
Leh	·115	·110	+·005	49	44	+5
Kailang	·150	·154	—·004	71	61	+10
Srinagar	·356	·328	+·028	88	71	+17
Murree	·212	·227	—·015	53	47	+6
Simla	·202	·228	—·026	45	44	+1

The mean humidity of the month was normal at Chakrata, Ranikhet and Mount Abu, and slightly below the normal at Quetta.

The month of April 1897 was considerably drier than usual, but was not so dry as April 1896, probably the driest April on record in Northern and Central India. The mean 4 P.M. relative humidity of the month was 15 per cent. or less at a considerable number of the observing stations, including those for which data are given below :—

STATION.	Relative humidity.	
	Mean 4 P.M.	Lowest during month.
	%	%
Allahabad	11	3
Deesa	12	5
Nowgong	13	4
Khandwa	12	3
Buldana	13	6

The mean daily humidity was less than 25 per cent. at the following stations :—

STATION.	Relative humidity.		
	Actual, April 1897.	Normal, April.	Variation from normal.
	%	%	
Allahabad	22	31	—9
Nowgong	23	31	—8
Buldana	20	24	—4
Akola	24	23	+1
Khandwa	21	26	—5
Sutna	23	23	0

The driest districts of the month hence included the south-eastern districts of the North-Western Provinces,

Bundelkhand, Baghelkhand and the greater part of Berar.

The driest period of the month was the 8th to the 10th. The following gives data showing the minimum aqueous vapour pressure and humidity recorded at the driest stations in India during the month :—

STATION.	NORMAL OF MONTH.		LOWEST ACTUAL.		DATE.
	Aqueous vapour pressure.	Relative humidity.	Aqueous vapour pressure.	Relative humidity.	
	"	%	"	%	
Mount Abu	·254	28	·077	8	23rd
Deesa	·359	28	·110	5	9th
Jeypore	·326	28	·123	7	8th
Khandwa	·339	26	·111	3	14th
Nowgong	·355	31	·112	4	9th
Sutna	·260	23	·092	3	17th
Buldana	·301	24	·083	6	8th
Allahabad	·384	31	·071	3	10th
Hazaribagh	·303	28	·109	7	9th

The following is a brief summary of the mean humidity conditions of the month of April 1897 :—

(1) The air was slighly drier than usual at Port Blair and in Lower Burma, but was damper on the mean of the month in Arakan.

(2) Humidity was largely in defect in Bengal, Bihar, Chota Nagpur, at some stations of the North-Western Provinces, Rajputana and Central India. The deficiency was, on the whole, most marked in Bundelkhand and the eastern districts of the North-Western Provinces.

(3) It was considerably drier than usual in Mysore, Coorg and the Madras Deccan.

(4) Humidity was normal in the West Coast and Madras Coast districts, South Madras, the Bombay Deccan, Berar and the Central Provinces.

(5) A noteworthy feature of the month was the large excess of vapour at the Kashmir stations and the increased humidity at the hill stations in Northern India.

Cloud was in slight excess in Lower Burma, Arakan, East Bengal and Cachar.

It was more or less below the normal in Bengal, Assam and Bihar. The following gives comparative data :—

DIVISION.	MEAN CLOUD AMOUNT.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.
Assam	3·2	5·2	—2·0
Bengal	3·0	3·6	—0·6
Bihar	1·0	1·4	—0·4

There was more cloud than usual in the North-Western Provinces, the Punjab, Sind, Rajputana and Baluchistan. The following gives data :—

PROVINCE.	MEAN CLOUD AMOUNT.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.
North-Western Provinces and Oudh	2·0	1·9	+0·1
Punjab	3·1	2·8	+0·3
Sind	2·2	2·1	+0·1
Baluchistan (Quetta)	3·6	3·2	+0·4
Rajputana	2·3	2·0	+0·3

Cloud was as largely in excess at the hill stations in Upper India as in the neighbouring plains, but was below the normal in Nepal and Sikkim. The following table gives comparative data for six stations in illustration :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, April 1897.	Normal, April.	Variation from normal.
Leh	7·3	6·2	+1·1
Kailang	6·1	5·7	+0·4
Murree	6·2	5·2	+1·0
Simla	5·7	4·1	+1·6
Katmandu	2·4	3·3	—0·9
Darjeeling	5·3	6·1	—0·8

The mean amount of cloud during the month was in excess over the whole of the Peninsula, except the Konkan, as is shown by the following data :—

DIVISION.	MEAN CLOUD AMOUNT.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.
Berar	3·1	2·1	+1·0
Central Provinces	2·9	2·2	+0·7
Deccan	4·3	3·1	+1·2
Madras Coast	3·0	2·5	+0·5
Madras South	4·3	3·9	+0·4
Mysore	4·8	4·1	+0·7
Coorg	6·1	5·5	+0·6
South India Hills (Wellington)	5·6	4·7	+0·9

The following gives data for the local area of deficient cloud on the west coast:—

Station.	Mean cloud amount.		
	Actual, April 1897.	Normal, April.	Variation from normal.
Bombay	1·5	2·2	—0·7
Ratnagiri	1·0	1·4	—0·4

Cloud was less than usual at Muscat and Aden and also at Zanzibar. The mean for the month was, on the other hand, in excess at the Seychelles (+0·6).

Skies were most serene in India during the month at Darbhanga (where the mean cloud amount was 0·6) and at Ratnagiri and Deesa (for which the mean amount of cloud was 1·0).

Rainfall.

The mean rainfall of the month was less than a tenth of an inch (*i.e.*, practically or absolutely *nil*) in amount in Sind, Rajputana, the greater part of the North-Western Provinces, Central India, Kathiawar, Gujarat, the South Konkan and the Coromandel Coast districts. The following areas received moderate to heavy rain:—

(1) Bengal and Assam.
(2) Malabar.
(3) Mysore and Coorg.
(4) The North Punjab.

The rainfall of the month occurred chiefly during thunderstorms and was hence very irregularly distributed both as to time and locality. The chief periods of disturbed weather and rainfall were as follows:—

(1) *The 3rd to the 7th.*—The eastern and central districts of the Central Provinces and Baghelkhand obtained daily thundershowers during this period. South-west Bengal had moderate rain on the 3rd and 4th, and South Madras from the 4th to the 7th.

(2) *The 11th and 12th.*—when the North Punjab and Kashmir obtained light to moderate rain accompanying the advance of a depression across Northern India.

(3) *The 18th to the end of the month.*—during which weather was more or less disturbed over the whole country and series of thunderstorms gave frequent rain. Baluchistan obtained daily rain from the 18th to the 26th, Kashmir from the 20th to the 28th, the Punjab from the 19th to 21st and the 23rd to the 28th, Bengal from the 20th to 22nd and 28th and 30th, the Bombay Deccan from the 18th to the 23rd and 28th and 30th and South Madras from the 19th to the 28th.

The following table gives comparative rainfall data of April 1897 for the 58 meteorological divisions of India:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, April 1897.	Average normal April.	Average actual, April 1897.	Average normal, April.	Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim	3·1	?	2·43	2·88	— 0·45
	Lower Burma (Deltaic)	1·2	?	0·99	1·47	— 0·48
	Central do.	1·1	?	0·92	0·83	+ 0·09
	Upper do.	1·0	?	0·50	1·25	— 0·75
	Arakan	0·6	?	0·43	1·27	— 0·84
Bengal and Assam	Eastern Bengal	2·5	5·2	1·70	4·34	— 2·64
	Assam (Surma)	5·5	12·7	2·93	11·67	— 8·74
	Do. (Hills)	4·6	9·3	3·13	5·89	— 2·76
	Do. (Brahmaputra)	6·8	12·1	3·65	7·88	— 4·23
	Deltaic Bengal	3·5	3·5	2·18	2·36	— 0·18
	Central do.	2·3	2·5	1·62	1·48	+ 0·14
	North do.	2·9	4·9	1·94	3·78	— 1·84
	Bengal Hills	5·9	8·1	3·07	5·17	— 2·10
	Orissa	1·8	1·9	1·00	1·15	— 0·15
	Chota Nagpur	2·6	1·1	1·01	0·59	+ 0·42
	Bihar (South)	1·1	0·5	0·57	0·22	+ 0·35
	Do. (North)	1·4	1·3	1·05	0·77	+ 0·28

Province.	Division.	Number of rainy days. Average actual, April 1897.	Number of rainy days. Average normal, April.	Rainfall. Average actual, April 1897.	Rainfall. Average normal, April.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
North-Western Provinces and Oudh.	North-Western Provinces (East)	0·4	0·4	0·11	0·14	— 0·03
	Oudh (South)	0·1	0·3	0·06	0·12	— 0·06
	Do. (North)	0	0·4	0·03	0·17	— 0·14
	North-Western Provinces (Central)	0·1	0·3	0·03	0·09	— 0·06
	Do. do. (West)	0·1	0·4	0·02	0·14	— 0·12
	Do. do. (Submontane East)	0·1	0·5	0·02	0·27	— 0·25
	Do. do. (do. West)	0·6	0·6	0·22	0·27	— 0·05
	Do. do. (Hills)	1·9	2·6	0·73	0·83	— 0·10
Punjab	Punjab (South-East)	0·2	0·6	0·05	0·25	— 0·20
	Do. (South)	1·2	0·7	0·60	0·35	+ 0·25
	Do. (Central)	1·3	1·5	0·49	0·64	— 0·15
	Do. (Submontane)	2·0	1·3	1·29	0·68	+ 0·61
	Do. (Hills)	5·4	3·5	2·96	2·32	+ 0·64
	Do. (North)	6·2	2·5	3·18	1·48	+ 1·70
	Do. (West)	1·6	0·9	0·57	0·41	+ 0·16
Bombay and Malabar Coast Districts, Madras.	Malabar	4·4	3·4	3·19	2·27	+ 0·92
	Travancore	8·5	?	5·75	?	?
	Madras (South Central)	1·8	2·2	0·84	1·49	— 0·65
	Coorg	4·2	?	2·00	?	?
	Mysore*	?	?	1·54	1·09	+ 0·45
	Konkan	0·6	0·6	0·28	0·29	— 0·01
	Bombay Deccan	2·8	1·8	1·45	0·80	+ 0·65
	Hyderabad North					
	Khandesh	0·3	0·3	0·10	0·12	— 0·02
Central Provinces and Berar.	Berar	0·3	?	0·11	0·28	— 0·17
	Central Provinces (West)	0·5	0·5	0·25	0·20	+ 0·05
	Do. do. (Central)	1·7	0·7	0·57	0·29	+ 0·28
	Do. do. (East)	2·9	1·0	1·78	0·55	+ 1·23
Bombay (North)	Gujarat	0	0	0	0·01	— 0·01
	Kathiawar	0·1	0·1	0·01	0·08	— 0·07
	Sind	0·4	?	0·18	0·21	— 0·03
	Baluchistan Hills	3·1	?	1·51	0·43	+ 1·08
Rajputana and Central India.	Central India (East)	0·3	?	0·10	0·11	— 0·01
	Rajputana (East) and Central India (West)	0·1	?	0·05	0·06	— 0·01
	Rajputana (West)	0·3	?	0·10	0·05	+ 0·05
Madras	East Coast (North)	1·2	1·0	0·62	0·50	+ 0·12
	Do. (do.) (a)	5·5	2·4	2·10	0·89	+ 1·21
	Hyderabad (South)	?	?	0·99	0·68	+ 0·31
	Madras (Central)	1·0	0·9	0·46	0·45	+ 0·01
	East Coast (Central)	0	0·4	0·01	0·19	— 0·18
	Do. (South)	1·2	0·9	0·51	0·61	— 0·10
	Madras (South)	5·3	2·6	3·29	1·96	+ 1·33

NOTE.—The figures entered against divisions marked with an asterisk have been btained from the weekly telegraphic reports.

The rainfall of the month was less than a tenth of an inch in ten out of the 58 rainfall divisions and less than half an inch in eleven divisions, and between half an inch and an inch in twelve divisions. It exceeded two inches in twelve divisions only, for which data are given below :—

Division.	Rainfall. Average actual, April 1897.	Rainfall. Average normal, April.	Rainfall. Variation from normal.
	Inches.	Inches.	Inches.
Punjab (Hills)	2·96	2·32	+0·64
,, (North)	3·18	1·48	+1·70
Assam (Burma)	2·93	11·67	—8·74
,, (Hill tracts)	3·13	5·89	—2·76

Division.	Rainfall. Average actual, April 1897.	Rainfall. Average normal, April.	Rainfall. Variation from normal.
	Inches.	Inches.	Inches.
Assam (Brahmaputra)	3·65	7·88	—4·23
Deltaic Bengal	2·18	2·36	—0·18
Bengal Hills	3·07	5·17	—2·10
Tenasserim	2·43	2·88	—0·45
Malabar	3·19	2·27	+0·92
Travancore	5·75	?	?
Madras (South)	3·29	1·96	+1·33
Do East Coast North (a)	2·10	0·89	+1·21

The rainfall of the month was in large defect in the three Assam divisions and the Bengal hills, but was normal or

in excess in the remaining divisions, in which the rainfall of the month exceeded two inches. An important feature of the month was the scanty rainfall in Assam and North Bengal.

There were two periods of general rainfall during the month in Assam. These were the 4th to the 8th and the 18th to the 30th. The rainfall during the first period was generally light in amount. The second period gave light to moderately general rain over the whole province. The following are the largest falls in 24 hours registered during this period of frequent light showers:—

DISTRICT.	STATION.	DATE.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Khasi and Jaintia Hills.	Cherrapunji Mission Dispensary.	20th	2·63
Sylhet	Lalakhal	,,	2·61
Goalpara	Damra	,,	2·27
Sibsagar	Sonari	23rd	2·50
,,	Nazira	,,	2·03
Darrang	Gahpur	26th	2·07
Khasi and Jaintia Hills.	Cherrapunji Police Station	,,	2·02
Darrang	Mangaldai	,,	2·01
Khasi and Jaintia Hills.	Jowai	28th	3·50
,,	Shillong	29th	2·05
Sibsagar	Dafla Ting	,,	2·21
Naga Hills	Dimapur	,,	2·01

Hailstorms appear to have been less frequent than usual. The precipitation of the month was in large and general defect. The following gives comparative data for each of the eight plains districts:—

DISTRICT.	RAINFALL.			
	Average actual, April 1897.	Average normal April.	Variation from normal.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	3·07	11·87	−8·80	−74
Sylhet	2·78	11·51	−8·73	−76
Goalpara	3·16	6·14	−2·98	−49
Kamrup	2·45	7·20	−4·75	−66
Darrang	2·93	6·50	−3·57	−55
Nowgong	2·39	5·23	−2·84	−54
Sibsagar	5·21	8·43	−3·22	−38
Lakhimpur	5·60	10·53	−4·93	−47

The chief periods of rainfall in Bengal were from the 3rd to the 7th, the 20th to the 22nd and the 28th to the 30th.

During the first period light thundershowers, very local in character, were received in South-West Bengal, North Bengal, Bihar, Orissa and Chota Nagpur. The rainfall was heaviest and most general in Orissa and Chota Nagpur and was very light in Bihar and North Bengal.

The rainfall of the second period was very general over the whole of Bengal and Bihar but was practically *nil* in Orissa and Chota Nagpur. Falls exceeding one inch were recorded at a large number of stations on the 21st. The most noteworthy were:—

DISTRICT.	STATION.	DATE.	Rainfall durinall 24 hours preceding 8 A.M. of date.
			Inches.
Burdwan	Kalna	21st	2·60
Monghyr	Begusarai	,,	2·50
Darbhanga	Tajpur	,,	2·41
Rangpur	Rangpur	,,	2·19
Bhagalpur	Banegaon	,,	2·15

South-West Bengal received light to moderate rain during the third period, North Bengal and Chota Nagpur light scattered showers and East Bengal, Bihar and Orissa a few light showers of little importance. The following gives comparative data of the mean rainfall of the month in the eight divisions of the province:—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.	Average actual, April 1897.	Average normal, April.	Variation from normal.
				Inches.	Inches.	Inches.
Bengal (Eastern)	2·5	5·2	−2·7	1·70	4·34	−2·64
,, (Deltaic)	3·5	3·5	0	2·18	2·36	−0·18
,, (Central)	2·3	2·5	−0·2	1·62	1·48	+0·14
,, (North)	2·9	4·9	−2·0	1·94	3·78	−1·84
Bengal (Hills)	5·9	8·1	−2·2	3·07	5·17	−2·10
Orissa	1·8	1·9	−0·1	1·00	1·15	−0·15
Chota Nagpur	2·6	1·1	+1·5	1·01	0·59	+0·42
Bihar (South)	1·1	0·5	+0·6	0·57	0·22	+0·35
,, (North)	1·4	1·3	+0·1	1·05	0·77	+0·28

Principally no rain fell in Burma from the 1st to the 18th except in Mergui and Tavoy which received a few light showers of little importance. Tenasserim, Lower

and Central Burma received moderately heavy rain on the 19th from a series of thunderstorms, the falls exceeding one inch at many stations. The largest amounts recorded are 2·42 inches at Daunbyn in the Thongwa district.

Weather was slightly disturbed with frequent showers over the whole of Burma, but chiefly in Tenasserim from the 27th to the end of the month. The rainfall of the month was below the normal of the period, more especially in Arakan and Lower Burma, as is shown by the following statement :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, April 1897.	Average normal, April. 1897.	Variation from normal.	Average actual, April 1897.	Average normal, April.	Variation from normal.
				Inches.	Inches.	Inch.
Tenasserim . . .	3·1	?	?	2·43	2·88	−0·45
Lower Burma . .	1·2	?	?	0·99	1·47	−0·48
Central Burma . .	1·1	?	?	0·92	0·83	+0·09
Upper Burma . .	1·0	?	?	0·50	1·25	−0·75
Arakan . . .	0·6	?	?	0·43	1·27	−0·84

Light sporadic showers were received on the 6th and 21st, and the hill districts of Dehra Dun, Almora, and Garhwal obtained light to moderate showers on the 21st and the 27th and 28th. The following gives comparative data for these three districts :—

District.	Rainfall.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.
	Inches.	Inches.	Inch.
Dehra Dun	1·04	0·70	+0·34
Almora	0·45	0·89	−0·44
Garhwal	1·54	1·33	+0·21

The rainfall of the month was in general defect over the province, but the variations were small in actual amount, as the normal rainfall of the month does not exceed three-tenths of an inch in the plains of the North-Western Provinces in April.

The rainfall of the month in the Punjab was very irregularly distributed. It was much heavier than usual in the northern districts, but was scanty in the central and south-eastern districts. The following is a brief statement of the periods of rainfall during the month :—

1st.—From the 1st to the 3rd.—The northern districts of Peshawar, Rawalpindi, Hazara, Kohat and the hill districts received light showers during this period.

2nd.—The 11th and 12th.—The districts of Peshawar, Hazara and Kohat obtained light local showers.

3rd.—The 19th to the 27th.—The rainfall during this period accompanied the advance of three shallow depressions in rapid succession from Upper Sind to the South-East Punjab. The rainfall was most general on the 20th and 21st. The Delhi, Rohtak, Gurgaon, Karnal and Jhang districts received practically no rain during the whole of this period. The precipitation was heaviest in the hill districts and the sub-montane districts of Hoshiarpur, Gurdaspur, and the districts of Peshawar, Hazara, and Rawalpindi in the north of the Punjab. The following falls exceeding two inches were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M.
			Inches.
Gurdaspur . . .	Dalhousie . . .	20th .	4·07
Patiala State . . .	Gujran . . .	21st .	4·82
Jullundur . . .	Phillour . . .	„ .	2·62
Kangra	Dharmsala . . .	„ .	2·54
„	Kangra . . .	„ .	2·22
Nabha State . . .	Bundher . . .	„ .	2·27
Hoshiarpur . . .	Hoshiarpur . . .	„ .	2·20
Kohat	Thal	23rd .	2·35
Kangra	Nagar	27th .	2·14

The following table gives a comparative statement of the rainfall of the month in the seven divisions of the province :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.	Average actual, April 1897.	Average normal, April.	Variation from normal.
				Inches.	Inches.	Inches.
South-East Punjab .	0·2	0·6	−0·4	0·05	0·25	−0·20
South „ .	1·2	0·7	+0·5	0·60	0·35	+0·25
Central „ .	1·3	1·5	−0·2	0·49	0·64	−0·15
Punjab (Submontane) .	2·0	1·3	+0·7	1·29	0·68	+0·61
„ (Hills) . .	5·4	3·5	+1·9	2·96	2·32	+0·64
North Punjab . .	6·2	2·5	+3·7	3·18	1·48	+1·70
West „ . .	1·6	0·9	+0·7	0·57	0·41	+0·16

The statement shows that the rainfall of the month was in considerable excess in the North Punjab and practically normal in the central and west divisions, but was below it in the south-east division. The following gives data for the seven districts in which the rainfall was most scanty and in marked defect :—

District.	Rainfall.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.
	Inch.	Inch.	Inch.
Hissar	0·16	0·31	—0·15
Gurgaon	0·04	0·16	—0·12
Rohtak	0·06	0·31	—0·25
Delhi	0·01	0·19	—0·18
Karnal	0·11	0·39	—0·28
Lahore	0·19	0·48	—0·29
Gujranwala	0·20	0·59	—0·39

Baluchistan received daily showers from the 18th to the 26th, and the rainfall of the month was in considerable excess, as is shown by the following data :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.	Average actual, April 1897.	Average normal, April.	Variation from normal.
				Inches.	Inch.	Inches.
Baluchistan Hills	3·1	?	?	1·51	0·43	+1·08

Rain fell during three periods in Kashmir, *viz.*, the 1st to the 6th, the 10th to the 14th and the 20th to the 28th. The precipitation during the third period was unusually heavy, and heavy snow fell on the higher elevations. The total rainfall of the month ranged between 0·06 inch at Leh to 11·54 inches at Vantipore.

The month was unusually cloudy and showery throughout, and the total rainfall largely above the normal of the month.

The Bombay Deccan districts received occasional thundershowers from the 9th to the 12th, the 18th and 19th, the 22nd and 23rd and the 29th and 30th. The following gives a comparative statement of the rainfall of the month in these districts :—

District.	Rainfall.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.
	Inches.	Inches.	Inches.
Dharwar	2·55	1·24	+1·31
Bijapur	1·43	0·78	+0·65
Belgaum	2·20	1·23	+0·97
Kolhapur	2·32	0·94	+1·38
Satara	1·21	0·71	+0·50
Sholapur	0·28	0·38	—0·10
Poona	0·25	0·30	—0·05
Ahmednagar	0·24	0·17	+0·07
Nasik	0·13	0·10	+0·03
Khandesh	0·01	0·02	—0·01

The Central Provinces received larger mean amounts of rain than usual due to series of thunderstorms. The periods of most general rain and disturbances were from the 3rd to the 7th, and on the 21st, 25th and 30th. The falls were heaviest in the eastern district and diminished in total amount westwards. The southern districts of Berar obtained light to moderate showers during the same periods as the Central Provinces. The following is a comparative statement of the rainfall of the month in these two areas :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.	Average actual, April 1897.	Average normal, April.	Variation from normal.
				Inches.	Inch.	Inches.
Central Provinces (East)	2·9	1·0	+1·9	1·78	0·55	+1·23
Ditto (Central)	1·7	0·7	+1·0	0·57	0·29	+0·28
Ditto (West)	0·5	0·5	0	0·25	0·20	+0·05
Berar	0·3	?	?	0·11	?	?

The Madras Presidency, more especially the southern districts, received more frequent rain than usual. The northern coast districts had occasional light showers, and the rainfall of that division was in slight excess. The Nellore District received no rain during the month. The districts in the East Coast, South division, obtained light to moderate showers on the 15th, 16th and 17th. The South division, including the districts of Madura, Tinnevelly, Coimbatore and the Nilgiris, had frequent rain during the month—heaviest on the 6th, the 15th, and 16th and the 26th. Travancore and Malabar had frequent moderate showers giving considerably heavier rain than usual. The rainfall

in Central Madras, including the districts of Kurnool, Bellary, Cuddapah and Anantapur, was confined to occasional light local thundershowers of little importance.

The following gives a comparative statement of the rainfall of the month in the eight divisions of the Presidency :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.			
	Average actual, April 1897.	Average normal, April.	Variation from normal.	Average actual, April 1897.	Average normal, April.	Variation from normal.	Percentage variation from normal.
				Inches.	Inches.	Inches.	
Madras, East Coast, North.	1·2	1·0	+0·2	0·62	0·50	+0·12	+24
Madras, East Coast, North (*a*).	5·5	2·4	+3·1	2·10	0·89	+1·21	+136
Madras, Central	1·0	0·9	+0·1	0·46	0·45	+0·01	+ 2
Madras, South-Central.	1·8	2·2	—0·4	0·84	1·49	—0·65	—44
Madras, East Coast, Central.	0	0·4	—0·4	0·01	0·19	—0·18	—95
Madras, East Coast, South.	1·2	0·9	+0·3	0·51	0·61	—0·10	—16
Madras, South-	5·3	2·6	+2·7	3·29	1·96	+1·33	+68
Malabar . .	4·4	3·4	+1·0	3·19	2·27	+0·92	+41

The chief feature of the rainfall of the month was its abundance in the districts for which comparative data are given below :—

DISTRICT.	RAINFALL.		
	Average actual, April 1897.	Average normal, April.	Variation from normal.
	Inches.	Inches.	Inches.
Tinnevelly	4·64	1·58	+3·06
South Canara	1·85	1·16	+0·69
Malabar	3·94	3·04	+0·90
Bellary	0·98	0·54	+0·44
Vizagapatam	0·99	0·68	+0·31
Nilgiris	4·31	3·58	+0·73

Table

Abstract of Observations taken at 8 A.M. at 210 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	I.—Burma Coast and Bay Islands.		...	...	+·010	...	...	...	...	...	...	...	95·2	+0·8	77·6	+3·4	86·4	+2·3	17·6	...	...	...	...	25·3
1	Tenasserim and Bay Islands.	Port Blair	61	29·876	?	29·867	29·946	19th	29·809	30th	·137	85·1	93·6	?	80·2*	?	86·9*	?	13·4	96·4	29th	77·5	1st	18·9
		Mergui	96	29·833	?	29·861	29·884	20th	29·779	8th	·105	84·4	92·8	?	76·3	?	84·6	?	16·5	96·3	13th	73·9	4th	22·4
		Tavoy	26	29·926	+·013	29·883	29·983	19th	29·870	8th	·113	82·9	96·9	?	74·9	+0·9	85·9	?	22·0	100·2	2 days	71·2	1st	29·0
		Moulmein	94	29·841	+·004	29·872	29·933	19th	29·787	9th	·146	82·1	94·9	+0·6	79·3	+3·5	87·1	+2·1	15·6	98·4	30th	75·3	19th	23·1
2	Lower Burma	Rangoon	41	29·873	?	29·851	29·998	19th	29·813	8th	·185	81·5	100·7	?	77·0	+1·1	83·9	?	23·7	105·1	17th	73·4	1st	31·7
		Bassein	27	29·887	+·013	29·849?	29·987	19th	29·826	8th	·161	83·3	97·6	+1·7	77·0	+1·9	87·3	+1·3	20·6	101·2	3 days	72·9	19th	28·3
		Diamond Island	41	29·880	+·003	29·856	29·981	19th	29·824	8th	·157	83·7	87·7	?	80·6	+2·5	84·2	?	7·1	91·1	27th	78·9	19th	12·2
5	Arakan	Akyab	20	29·903	+·023	29·866	29·966	19th	29·852	30th	·114	82·3	91·4	−0·5	75·1	?	83·3	?	16·3	95·1	10th	68·7	10th	26·4
3	Central Burma	Toungoo	183	29·711	+·002	29·835	29·823	19th	29·658	8th	·165	84·4	101·4	+1·3	78·0	+4·7	89·7	+3·0	23·4	105·7	15th	70·2	19th	35·5
	II.—Burma Inland		...	...	+·023	...	...	...	...	...	...	...	102·5	+3·4	73·7	+0·9	88·2	+2·2	28·8	...	...	...	...	42·7
3	Central Burma	Thayetmyo	134	29·754	+·013	29·833	29·890	19th	29·698	9th	·192	85·2	104·1	+1·1	76·2	?	90·2	?	27·9	108·6	8th	69·6	2nd	39·0
4	Upper Burma	Minbu	?	29·711	+·021	?	29·806	19th	29·643	22nd	·163	84·2	105·2	+2·5	78·5	+2·9	91·9	+2·7	26·7	110·1	27th	71·1	11th	39·0
		Yamethin	645	29·235	?	29·824	29·341	19th	29·178	8th	·163	83·7	103·9	+2·8	76·2	+1·5	90·1	+2·2	27·7	108·6	8th	64·7	19th	43·9
		Mandalay	249	29·610?	?	29·808?	29·707	19th	29·548	8th	·159	84·6	104·2	+2·7	76·7	−0·6	90·5	+1·1	27·5	110·1	29th	67·1	2nd	43·0
		Kindat	?	29·416	?	?	29·530	11th	29·344	16th	·186	76·6	100·4	+4·9	67·5	+0·6	84·0	+2·8	32·9	106·7	29th	60·0	2nd	46·7
		Bhamo	?	29·503	+·035	?	29·573	11th	29·426	21st	·147	75·2	97·3	+4·3	67·3	−0·1	82·3	+2·1	30·0	103·1	4 days	58·4	2nd	44·7
5(a)	Burma Hill Stations.	Taunggyi	?			Not	recorde	d.				73·8	86·8	?	59·8	?	73·3	?	27·0	95·6	8th	52·0	2nd	43·6
		Lashio	?	27·155	+·057	?	27·262	19th	27·082	9th	·180	69·8	92·3	+3·5	62·1	−0·2	77·2	+1·7	30·2	104·0	26th	52·5	12th	51·5
	III.—Assam		...	...	+·034	...	...	...	...	...	...	...	89·5	+2·9	67·8	−0·3	78·6	+1·3	21·8	...	...	...	...	36·2
7	Surma	Silchar	104	29·805	+·026	29·863	29·866	4th	29·740	25th	·126	77·3	92·0	+4·4	69·4	+0·5	80·7	+2·5	22·6	97·1	14th	61·4	2nd	35·7
		Salona	?	29·641	?	29·845	29·771	4th	29·475	17th	·299	75·9	91·2	?	66·2	?	78·7	?	25·0	97·9	19th	57·8	2nd	40·1
9	Brahmaputra	Sibsagar	333	29·581	+·029	29·879	29·618	11th	29·497	7th	·151	70·9	84·0	+1·4	65·3	−1·1	74·7	+0·2	18·7	90·2	20th	58·1	10th	32·1
		Dhubri	115	29·760	+·047	29·831	29·829	4th	29·685	17th	·144	76·0	90·9	+2·8	70·2†	−0·4	80·4†	+1·2	20·7	99·5	17th	62·8	9th	36·7
	IV.—Bengal and Orissa		...	...	+·040	...	...	...	...	...	...	...	95·9	+1·3	73·6	−0·3	84·8	+0·5	22·3	...	...	...	...	39·2
6	East Bengal	Chittagong	87	29·818	+·023	29·853	29·890	4th	29·762	30th	·128	81·3	92·3	+3·7	74·0	+0·5	83·2	+2·1	18·3	97·7	13th	68·1	5th	29·6
		Lungleh	?			Not	recorde	d.				74·9	84·3	?	68·3	?	76·3	?	16·0	90·8	29th	60·1	1st	30·7
		Noakhali	43	29·842	?	29·831	29·909	4th	29·789	25th	·120	82·1	91·3	?	74·2	?	82·8	?	17·1	97·1	13th	65·9	3rd & 5th	31·2
		Comilla	36	29·846	?	29·830	29·913	3rd	29·796	17th	·117	81·2	94·4	?	73·0	?	83·8	?	21·4	101·3	13th	64·9	9th	36·4
		Sirajganj	49	29·803	?	29·802	29·892	4th	29·722	17th	·170	78·2	94·8	?	71·3	?	83·1	?	23·5	108·3	17th	61·2	1st	47·1
		Narayanganj	26	29·842	+·024	29·817	29·927	4th	29·775	17th	·152	80·1	93·0	?	74·5	+0·2	83·8	?	18·5	101·0	2 days	66·2	9th	34·8
		Barisal	13	29·862	+·034	29·820	29·951	4th	29·803	17th	·148	82·1	94·6	+3·4	75·3	+0·4	85·0	+1·9	19·3	101·8	13th	68·9	22nd	32·9
		Mymensingh	59	29·815	+·028	29·826	29·879	4th	29·751	25th	·128	77·6	92·5	+2·1	71·8	0	82·2	+1·1	20·7	99·2	17th	63·4	9th	35·8
10	Deltaic Bengal	Faridpur	46	29·824	?	29·819	29·917	4th	29·746	17th	·171	78·7	97·2	?	71·3	?	84·3	?	25·9	107·9	17th	61·0	1st	46·9
		Jessore	33	29·830	+·034	29·810	29·909	4th	29·751	17th	·158	82·3	98·2*	+0·9	73·5	−1·6	85·9*	−0·4	24·7	107·5	14th	65·2	2 days	42·3
		Calcutta	21	29·844	+·043	29·811	29·928	6th	29·779	17th	·149	81·4	97·0	+1·6	75·0	−0·7	86·0	+0·5	22·0	103·9	18th	67·7	2 days	36·2
		Saugor Island	25	29·840	+·036	29·809	29·984	4th	29·778	25th	·206	83·9	91·3	+0·5	79·9	+0·1	85·7	+0·3	11·4	94·9	2 days	68·9	4th	26·0
		Krishnagar	47	29·808	?	29·804	29·903	6th	29·723	18th	·180	82.3	99·8	?	73·4	?	86·6	?	26·4	109·7	17th	65·8	8th	43·9
		Midnapore	149	29·715	?	29·812	29·812	6th	29·637	18th	·175	82·1	102·2	?	75·2	?	88·7	?	27·0	112·4	19th	68·2	3rd & 9th	44·2

NOTE.—When a query is inserted in the variation returns from any station the data from that station are not employed for calculating the provincial variations.

* Mean of 27 days.

† Mean of 25 days.

I.

in India, Burma, etc., in April 1897.

Wind Direction, Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity: Mean velocity in miles per hour.	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 March to 30th April 1897.	Normal rainfall for period, 1st March to 30th April.	Variation from normal of period, 1st March to 30th April.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·75	2·45	—1·70	...	...	...	...	I.—Burma Coast and Bay Islands.		
7	4	3	2	1	3	4	3	3	3·3	4·9	− 33	80	·963	3·3	2	?	?	0·78	2·18	− 1·40	0·89	2·65	− 1·76	0·50	Port Blair .	TENASSERIM AND BAY ISLANDS.	1
...	8	...	5	1	...	2	1	13	2·2	2·1	+ 5	79	·936	3·5	3	?	?	1·76	5·46	− 3·70	6·51	7·94	− 1·43	1·04	Mergui.		
24	1	...	...	1	...	1	...	3	1·5	?	?	80	·898	0·2	1	?	?	0·36	3·80	− 3·44	0·38	5·28	− 4·90	0·36	Tavoy.		
...	2	2	3	6	7	5	3	2	4·2	3·2	+ 31	82	·891	5·4	4	4·00	0	1·69	2·95	− 1·26	1·95	3·36	− 1·41	0·84	Moulmein.		
...	...	1	...	1	3	13	11	1	5·1	4·0	+ 28	80	·861	3·7	0	2·82	−2·82	0·02	1·83	− 1·81	0·14	2·11	— 1·97	0·02	Rangoon .	LOWER BURMA.	2
...	...	...	...	1	...	2	4	23	7·8	5·7	+ 37	77	·884	3·6	0	2·18	−2·18	0	1·48	— 1·48	0·10	1·50	− 1·40	0	Bassein.		
...	2	2	4	...	...	...	...	22	14·5	5·1	+184	76	·874	4·2	0	2·09	−2·09	0	1·16	− 1·16	0·82	1·17	— 0·35	0	Diamond Island.		
...	6	14	4	1	1	1	1	2	4·1	7·2	− 43	84	·932	4·7	1	1·09	−0·09	0·98	1·08	— 0·10	5·91	1·50	+ 4·41	0·98	Akyab .	ARAKAN.	5
...	2	1	...	18	7	2	...	...	5·4	4·0	+ 35	73	·863	1·9	2	1·00	+1·00	1·12	2·09	− 0·97	2·36	2·14	+ 0·22	1·02	Toungoo .	CENTRAL BURMA.	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·61	1·27	−0·66	...	...	...	...	II.—Burma Inland.		
...	1	...	2	8	14	2	3	...	2·8	7·0	− 60	59	·716	0·9	0	1·09	−1·09	0·03	0·80	− 0·77	0·09	0·85	— 0·76	0·03	Thayetmyo.	CENTRAL BURMA.	3
1	2	2	1	17	2	...	2	3	11·5	?	?	56	·652	0·4	0	?	?	0·01	1·13	— 1·12	0·30	1·13	− 0·83	0·01	Minbu .	UPPER BURMA.	4
2	...	...	...	20	7	1	...	...	6·3	?	?	62	·720	1·0	3	?	?	3·01	1·02	+ 1·99	3·92	1·16	+ 2·76	1·78	Yamethin.		
1	5	3	2	2	9	5	2	1	5·8	?	?	59	·706	0·7	1	?	?	0·26	1·51	− 1·25	0·47	1·73	— 1·26	0·26	Mandalay.		
20	1	2	1	...	...	1	1	4	?	?	?	91	·836	0·7	1	?	?	0·17	1·30	− 1·13	0·58	3·09	— 2·51	0·16	Kindat.		
15	...	7	...	...	...	3	3	2	3·9	?	?	66	·576	1·2	1	?	?	0·19	1·86	− 1·67	1·04	2·60	— 1·56	0·12	Bhamo.		
6	...	...	...	1	6	12	4	1	?	?	?	54	·444	3·3	4	?	?	1·54	?	?	2·12	?	?	0·69	Taunggyi.	BURMA HILL STATIONS.	5(a)
				Not recorded.					?	?	?	66	·431	6·8	1	?	?	0·42	3·30	− 2·88	1·41	4·07	— 2·66	0·21	Lashio.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·67	9·51	—5·56	...	...	...	...	III.—Assam.		
25	...	1	3	1	...	...	...	...	2·2	3·4	− 35	76	·715	3·6	4	14·29	−10·29	2·80	14·34	−11·54	13·74	23·05	− 9·31	1·18	Silchar .	SURMA.	7
6	4	9	8	1	...	1	1	...	?	?	?	72	·652	2·8	8	?	?	2·82	?	?	8·09	?	?	0·79	Salona .		
7	...	16	2	3	1	1	...	...	5·6	2·9	+ 93	86	·652	5·8	11	14·04	−3·04	7·82	9·37	− 1·55	14·50	14·44	+ 0·06	1·90	Sibsagar .	BRAHMAPUTRA	9
3	...	16	7	...	1	1	2	...	7·6	8·0	− 5	73	·659	2·0	3	7·67	−4·67	1·23	4·83	− 3·60	5·64	6·76	− 1·12	0·51	Dhubri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·64	2·55	−0·83	...	...	...	...	IV.—Bengal and Orissa.		
3	2	5	4	9	6	1	...	...	4·5	7·1	− 37	77	·830	4·5	2	4·65	−2·65	0·35	3·85	− 3·50	3·10	6·37	− 3·27	0·20	Chittagong	EAST BENGAL.	6
				Not recorded.					?	?	?	49	·416	?	1	?	?	0·64	?	?	4·74	?	?	0·64	Lungleh.		
...	...	3	3	10	5	5	3	1	5·3	?	?	82	·902	3·1	2	4·62	−2·62	1·68	4·92	− 3·24	3·71	8·32	− 4·61	0·90	Noakhali.		
2	...	...	3	5	16	2	2	...	5·2	?	?	80	·856	4·8	3	6·70	−3·70	1·44	5·61	− 4·17	5·98	8·77	− 2·79	1·02	Comilla.		
7	1	3	4	3	4	7	...	1	4·3	?	?	74	·725	4·0	5	4·56	+0·44	2·79	3·05	− 0·26	5·15	4·43	+ 0·72	1·20	Sirajganj.		
...	...	...	2	4	10	9	4	1	7·1	6·7	+ 6	82	·855	3·7	5	7·08	−2·08	4·43	5·17	− 0·74	7·00	7·84	− 0·84	1·97	Narayanganj		
10	...	...	...	1	11	5	3	...	4·4	?	?	86	·950	3·4	2	4·50	−2·50	1·88	3·23	− 1·35	2·55	5·75	− 3·20	1·05	Barisal.		
4	...	1	13	10	2	...	...	...	2·5	?	?	79	·758	4·1	4	6·23	−2·23	3·15	4·44	− 1·29	6·87	6·46	+ 0·41	2·00	Mymensingh.		
9	...	...	...	1	10	8	2	...	3·5	?	?	83	·821	2·0	4	6·23	−2·23	3·02	4·20	− 1·18	4·70	6·80	− 2·10	1·18	Faridpur .	DELTAIC BENGAL.	10
10	1	...	1	2	3	10	1	2	3·0	4·5	− 50	73	·804	3·5	5	4·73	+ 0·27	1·73	3·71	− 1·98	3·36	5·86	− 2·50	0·52	Jessore.		
...	...	1	1	2	7	15	2	2	6·6	7·5	− 12	73	·789	3·2	4	2·92	+1·08	0·83	1·74	− 0·91	2·20	3·31	− 1·11	0·29	Calcutta.		
...	1	...	...	1	10	13	2	3	17·2	16·7	+ 3	79	·922	4·7	2	2·00	0	0·97	1·13	− 0·16	2·68	2·37	+ 0·31	0·70	Saugor Island.		
...	1	...	1	4	10	5	7	2	6·0	?	?	65	·721	2·6	3	3·35	−0·35	3·09	2·38	+ 0·71	5·68	3·71	+ 1·97	1·94	Krishnagar.		
4	2	...	...	2	16	5	1	...	1·4	?	?	65	·715	2·8	6	2·85	+3·15	2·35	1·50	+ 0·85	4·75	3·02	+ 1·73	0·55	Midnapore.		

Table

Abstract of Observations taken at 8 A.M. at 210 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
11	Central Bengal	Bankura	298	29·526	?	29·775	29·632	4th	29·448	18th	·184	83·2	103·0	?	75·5	?	89·3	?	27·5	112·5	19th	67·5	5th	45·0
		Raniganj	334	29·519	?	29·802	29·623	4th	29·433	18th	·190	84·1	103·6	?	75·0	?	89·4	?	28·6	113·1	19th	66·7	9th	46·4
		Burdwan	99	29·758	+·045	29·805	29·877	6th	29·670	17th	·207	83·1	103·1	+2·5	74·5	−1·1	88·8	+0·7	28·6	113·0	18th	66·8	9th	46·2
		Naya Dumka	489	29·354	?	29·798	29·446	4th	29·260	17th	·186	85·5	100·7	?	75·0	?	87·8	?	25·7	109·0	18th	66·7	1st	42·3
		Berhampore	67	29·781	+·039	29·796	29·865	4th	29·680	17th	·185	80·3	100·9	+0·7	73·9	−0·5	87·4	+0·1	27·0	110·4	17th	65·3	8th	45·1
		Rampur Boalia.	70	29·776	?	29·795	29·896	4th	29·678	17th	·218	82·3	98·9	?	73·0	?	86·0	?	25·9	108·5	17th	62·6	1st	45·9
		Malda	72	29·761	?	29·785	29·863	4th	29·654	17th	·209	80·4	99·4	?	70·4	?	85·0	?	29·0	108·7	17th	59·9	1st	48·8
		Bogra	61	29·782	?	29·796	29·861	4th	29·693	17th	·168	78·9	98·2	+2·6	72·1	+0·2	85·2	+1·4	26·1	108·8	16th	61·7	1st	47·1
12	North Bengal	Dinajpur	123	29·727	+·040	29·806	29·807	4th	29·632	17th	·175	77·9	95·9	+1·3	69·8	−0·6	82·9	+0·4	26·1	105·3	2 days	61·8	2 days	43·5
		Rangpur	123	29·741	?	29·820	29·807	4th	29·659	17th	·148	77·9	93·3	?	69·3†	?	81·2†	?	24·0	102·4	17th	61·4	9th	41·0
		Jalpaiguri	284	29·587	+·047	29·833	29·655	4th	29·502	17th	·153	76·0	91·1	+2·1	67·8	+0·2	79·5	+1·2	23·3	96·9	16th	56·6	8th	40·3
		Cooch Behar	?	29·705	?	29·810	29·819	4th	29·629	16th	·190	77·4	90·3	?	69·7	?	80·1	?	20·6	97·3	16th & 17th.	58·2	8th	39·1
17	North Bihar	Purnea	125	29·726*	+·052*	29·806*	29·820	4th	29·627	17th	·193	78·7*	97·7*	+0·5	70·1*	+0·5	83·9*	+0·5	27·6	107·3	17th	60·3	1st	47·0
14	Orissa	Balasore	56	29·820	+·059	29·813	29·959	4th	29·749	18th	·210	82·0	97·1	−0·3	75·4	−0·7	86·3	−0·5	21·7	105·5	19th	67·8	2 days	37·7
		False Point	21	29·870	+·049	29·832	29·996	4th	29·815	2 days	·181	83·5	91·0	+0·4	77·4	−0·3	84·2	+0·1	13·6	96·0	22nd	67·5	9th	28·5
		Cuttack	80	29·796	+·042	29·819	29·924	4th	29·739	26th	·185	82·2	99·9	−2·4	77·4	−0·6	88·7	−1·5	22·5	108·3	18th	71·2	11th	37·1
		Shortt's Island	?	29·863	?	?	29·958	6th	29·811	26th	·147	84·4	91·2	?	79·1	?	85·2	?	12·1	95·8	12th	70·8	4th	25·0
		Puri	20	29·877	?	29·839	29·992	4th	29·826	20th	·166	83·1	90·7	?	79·5	?	85·1	?	11·2	100·7	22nd	71·6	3rd	29·1
	V.—Gangetic Plain and Chota Nagpur.		...	...	+·048	...	...	...	...	...	...	...	101·9	+0·3	72·8	+0·8	87·4	+0·6	29·1	...	...	...	...	46·9
15	Chota Nagpur	Hazaribagh	2,007	27·851	+·041	29·786	27·931	4th	27·775	20th	·156	83·4	97·8	−0·4	73·1	+0·9	85·5	+0·3	24·7	105·1	3 days	64·3	7th	40·8
		Ranchi	2,128	27·753	?	29·797	27·840	4th	27·685	20th	·155	?	?	?	?	?	?	?	?	?	...	?	...	?
		Daltonganj	730?	29·132	?	29·821	29·233	4th	29·039	20th	·194	80·8	?	?	70·9	?	?	?	?	?	...	61·0	9th	?
		Chaibassa	760?	29·101	?	29·810	29·228	4th	29·033	20th	·195	83·1	102·6	−1·5	74·2	−1·6	88·4	−1·6	28·4	111·2	20th	65·4	9th	45·8
16	South Bihar	Gaya	375	29·546	+·040	29·784	29·568	4th	29·369	17th	·199	85·9	103·5	−0·1	76·5*	+2·1	89·9*	+1·0	27·0	111·2	28th	69·1	7th	42·1
		Dehri	351	29·494	?	29·798	29·605	4th	29·395	17th	·210	86·1	103·7	?	76·7	?	90·2	?	27·0	111·4	28th	68·5	1st	42·9
		Patna	183	29·645	+·037	29·782	29·757	4th	29·533	17th	·224	83·7	101·7	+0·8	74·0	+0·7	87·9	+0·8	27·7	110·2	18th	64·6	1st	45·6
		Arrah	190	29·648	?	29·790	29·758	4th	29·545	17th	·213	83·2	103·3	?	73·0	?	88·2	?	30·3	110·4	18th	61·4	1st	49·0
		Buxar	239	29·590	?	29·784	29·705	4th	29·483	17th	·222	85·5	102·4	?	74·7	?	88·6	?	27·7	110·9	29th	65·4	1st	45·5
17	North Bihar	Bhagalpur	160	29·671	?	29·785	29·770	4th	29·572	17th	·198	82·3	100·3	?	72·6	?	86·5	?	27·7	108·8	15th	61·6	1st	47·2
		Darbhanga	166	29·676	+·049	29·798	29·764	4th	29·574	17th	·190	80·1	97·0	+0·7	71·4	−0·4	84·2	+0·2	25·6	105·5	17th	60·6	1st	44·9
		Muzaffarpur	178	29·654	?	29·788	29·744	4th	29·563	17th	·181	80·6	99·6	?	70·6	?	85·1	?	29·0	107·7	17th	60·3	1st	47·4
		Motihari	224	29·601	?	29·787	29·689	4th & 11th	29·494	17th	·195	74·9	99·0	?	67·9	?	83·5	?	31·1	108·0	17th	56·9	8th	51·1
		Chapra	181	29·647	?	29·782	29·766	4th	29·545	17th	·221	83·2	103·6	?	73·5	?	88·6	?	30·1	111·0	18th	63·8	1st	47·2
18	N.-W. Provs., East.	Benares	267	29·577	+·063	29·800	29·665	4th	29·463	17th	·202	82·9	103·9	+0·4	72·0	?	88·0	?	31·9	111·8	18th & 19th.	63·4	1st	48·4
		Allahabad	309	29·534	+·056	29·796	29·630	4th	29·437	20th	·193	86·7	105·1	+1·0	73·8	+1·6	89·5	+1·3	31·3	113·1	28th	64·9	7th	48·2
23	N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·558	+·044	29·772	29·653	4th	29·432	17th	·221	82·9	102·7	+1·9	74·0	+1·6	88·4	+1·8	28·7	109·8	17th	64·3	1st	45·5
19	South Oudh	Lucknow	368	29·462	+·053	29·789	29·546	4th	29·343	17th	·203	84·3	102·4	+0·1	72·2	+1·2	87·3	+0·7	30·2	110·8	19th	61·2	7th	49·6
20	North Oudh	Bahraich	403	29·407	?	29·771	29·491	4th	29·288	17th	·203	83·3	102·3	?	70	?	86·3	?	32·0	109·1	16th & 17th.	60·5	5th	48·6
21	N.-W. Provs. (Central).	Cawnpore	416	29·419	?	29·789	29·493	4th & 7th	29·318	17th	·175	84·4	104·0	?	72·7	?	88·4	?	31·3	112·6	19th	62·5	1st	50·1
		Mainpuri	516	29·314	?	29·790	29·411	4th	29·209	17th	·202	82·4	101·9	?	70·6	?	86·3	?	31·3	112·2	20th	61·0	1st	51·2

* Mean of 29 days.

† Mean of 25 days.

—continued.

in India, Burma, etc., in April 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	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 March to 30th April 1897.	Normal rainfall for period, 1st March to 30th April.	Variation from normal of period, 1st March to 30th April	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
7	...	...	3	1	6	3	10	...	4·9	P	P	55	·619	1·9	3	2·73	+ 0·27	1·09	1·34	− 0·25	5·90	2·52	+ 3·38	0·70	Bankura .	CENTRAL BENGAL	11
17	...	1	1	2	2	3	3	1	3·1	P	P	48	·544	2·0	3	2·27	+ 0·73	0·52	1·27	− 0·75	2·87	2·09	+ 0·78	0·15	Raniganj.		
1	1	1	1	1	6	13	6	...	4·3	4·8	−10	63	·711	3·5	4	3·54	+ 0·56	4·91	2·06	+ 2·85	6·43	3·64	+ 2·79	1·70	Burdwan.		
15	...	...	3	2	...	3	3	4	1·2	P	P	40	·478	2·0	2	2·46	− 0·46	0·93	0·96	− 0·03	3·07	1·81	+ 1·26	0·66	Naya Dumka		
5	1	...	3	1	8	11	1	...	3·5	5·2	−33	66	·691	2·8	2	2·64	− 0·64	0·93	1·50	− 0·57	2·20	2·55	− 0·35	0·55	Berhampore.		
6	2	...	1	2	4	7	6	2	2·8	P	P	70	·776	1·2	3	2·88	+ 0·12	2·29	1·69	+ 0·60	3·04	2·62	+ 0·42	1·13	Rampur Boalia.		
...	2	2	4	3	2	9	8	...	2·5	P	P	62	·639	0·6	1	1·81	− 0·81	0·71	1·12	− 0·41	2·44	1·92	+ 0·52	0·71	Malda.		
10	...	1	1	15	...	2	1	...	3·1	P	P	71	·702	2·3	2	3·88	− 1·88	1·75	2·45	− 0·70	4·22	3·51	+ 0·71	1·55	Bogra.		
...	...	9	10	3	2	4	...	2	6·2	P	P	66	·638	1·7	2	3·12	− 1·12	0·85	2·08	− 1·23	4·19	2·95	+ 1·24	0·49	Dinajpur .	NORTH BENGAL.	12
1	...	11	13	3	...	1	1	...	2·9	P	P	73	·706	3·1	2	4·69	− 2·69	2·43	3·37	− 0·94	5·41	4·61	+ 0·80	2·19	Rangpur.		
...	4	7	8	6	1	2	1	1	4·2	P	P	69	·621	1·1	3	5·92	− 2·92	0·77	4·11	− 3·34	2·66	5·61	− 2·95	0·55	Jalpaiguri.		
...	3	1	20	3	2	...	...	1	6·4	P	P	77	·725	2·3	3	P	P	1·89	P	P	4·34	P	P	0·70	Cooch Behar		
2	2	8	10	3	1	1	1	1	5·5	3·6	+53	65	·637	4·9	2	2·04	− 0·04	1·43	1·43	0	3·01	1·83	+ 1·18	0·91	Purnea .	NORTH BIHAR.	17
6	2	...	...	...	6	15	...	1	5·7	P	P	82	·904	1·8	2	3·62	− 1·62	1·75	2·27	− 0·52	7·43	3·72	+ 3·71	0·98	Balasore .	ORISSA.	14
2	1	...	...	...	4	16	5	2	11·2	13·3	−16	80	·928	4·2	0	1·73	− 1·73	0·05	1·77	− 1·72	4·11	2·70	+ 1·41	0·04	False Point.		
10	1	2	...	...	5	7	5	...	3·8	5·1	−25	71	·790	3·0	1	1·77	− 0·77	1·57	1·15	+ 0·42	6·95	2·56	+ 4·39	1·53	Cuttack.		
...	...	1	...	...	11	12	2	2	19·0	P	P	75	·891	1·3	1	P	P	0·15	P	P	3·91	P	P	0·15	Shortt's Island.		
3	2	1	1	...	...	17	4	2	14·1	P	P	82*	·937*	3·1	0	0·81	− 0·81	0·08	0·45	− 0·37	2·03	1·06	+ 1·57	0·05	Puri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·48	0·34	+0·14	...	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**		
...	1	...	...	...	4	10	10	5	8·7	8·4	+4	34	·364	2·1	3	1·15	+ 1·85	0·45	0·41	+ 0·04	2·46	1·16	+ 1·30	0·12	Hazaribagh.	CHOTA NAGPUR	15
1	...	...	...	...	7	13	5	4	8·1	P	P	P	?	1·3	3	1·81	+ 1·19	0·75	0·64	+ 0·11	2·39	2·02	+ 0·37	0·29	Ranchi.		
...	2	1	1	5	8	7	3	3	4·8	P	P	47	·475	1·0	1	0·64	+ 0·36	0·58	0·24	+ 0·34	2·06	0·94	+ 1·12	0·50	Daltonganj.		
1	...	...	...	...	5	18	6	...	2·3	P	P	60	·698	1·9	3	1·69	+ 1·31	1·93	0·77	+ 1·16	3·36	2·14	+ 1·22	1·00	Chaibassa.		
6	1	1	2	1	6	8	5	...	3·8	3·8	0	34	·406	1·5	1	0·54	+ 0·46	0·14	0·26	− 0·12	1·37 (a)	0·69	+ 0·68	0·14	Gaya .	SOUTH BIHAR.	16
1	...	...	1	1	8	16	3	...	8·0	P	P	41	·499	0·7	2	0·25	+ 1·75	0·39	0·08	+ 0·31	0·39	0·77	− 0·38	0·25	Dehri.		
1	...	2	11	2	1	2	11	...	4·8	4·4	+9	51	·588	0·8	1	0·62	+ 0·38	0·95	0·26	+ 0·69	1·80	0·64	+ 1·16	0·95	Patna.		
2	4	2	3	2	...	6	9	2	6·2	P	P	44	·498	0·8	2	0·46	+ 1·54	0·64	0·23	+ 0·41	1·61	0·63	+ 0·98	0·43	Arrah.		
1	...	2	5	1	2	3	15	1	8·0	P	P	38	·441	1·2	0	0·35	− 0·35	0·07	0·16	− 0·09	0·55	0·48	+ 0·07	0·07	Buxar.		
7	2	4	6	4	1	3	2	1	4·3	P	P	52	·563	0·9	3	1·42	+ 1·58	0·98	0·90	+ 0·08	3·29	1·30	+ 1·99	0·50	Bhagalpur.	NORTH BIHAR.	17
...	...	...	12	9	2	1	4	2	5·4	5·1	+6	58	·593	0·6	2	1·44	+ 0·56	1·27	0·61	+ 0·66	3·50	0·93	+ 2·57	1·02	Darbhanga.		
5	...	1	9	8	...	2	4	1	5·5	P	P	57	·596	0·8	0	0·96	− 0·96	0·10	0·48	− 0·38	1·38	0·88	+ 0·50	0·08	Muzaffarpur		
...	2	4	13	3	2	2	...	4	6·7	P	P	75	·660	0·2	2	1·17	+ 0·83	1·53	0·70	+ 0·83	2·91	1·11	+ 1·80	1·32	Motihari.		
5	...	1	7	3	1	7	5	1	5·7	P	P	55	·627	1·2	1	0·54	+ 0·46	0·17	0·22	− 0·05	0·45	0·59	− 0·14	0·17	Chapra.		
8	1	1	2	...	1	7	10	...	5·0	5·0	0	40	·443	1·4	0	0·27	− 0·27	0·07	0·08	− 0·01	0·76	0·36	+ 0·40	0·07	Benares .	N.-W. PROVS. EAST.	18
1	1	1	5	2	2	6	9	3	5·9	3·2	+84	29	·352	1·6	0	0·55	− 0·55	0·01	0·11	− 0·10	0·17	0·43	− 0·26	0·01	Allahabad.		
1	2	7	4	1	4	2	5	4	3·4	4·4	−23	43	·486	0·8	0	0·73	− 0·73	0	0·43	− 0·43	0·59	0·85	− 0·26	0	Gorakhpur	N.-W. PROVINCES (EAST SUB-MONTANE).	23
8	4	...	2	...	...	3	10	3	3·0	4·4	−32	33	·386	1·9	0	0·27	− 0·27	0	0·02	− 0·02	0·83	0·39	+ 0·44	0	Lucknow .	SOUTH OUDH.	19
4	3	2	5	4	...	3	3	6	4·8	P	P	44	·506	0·9	0	P	P	0	0·34	− 0·34	1·11	0·81	+ 0·30	0	Bahraich .	NORTH OUDH.	20
3	3	1	1	2	3	8	6	3	5·1	P	P	31	·360	0·9	0	0·50	− 0·50	0	0·11	− 0·11	0	0·35	− 0·35	0	Cawnpore .	N.-W. PROVS. (CENTRAL).	21
8	2	1	1	...	...	1	14	3	4·4	P	P	32	·350	2·5	0	P	P	0	0·12	− 0·12	0	0·36	− 0·36	0	Mainpuri.		

(a) For the month of April only.

Table

Abstract of Observations taken at 8 A.M. at 210 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	VI.—Upper Sub-Himalayas.		...	...	+·061	...	...	...	...	...	...	...	94·4	−2·4	67·1	+0·4	80·7	−1·0	27·3	...	...	...	...	49·9
24	N.-W. Provinces, West (Sub-montane).	Bareilly	568	29·212	+·048	29·777	29·346	4th	29·095	17th	·251	80·5	99·5	+0·1	70·2	+1·5	84·9	+0·8	29·3	109·5	19th	60·7	7th	48·8
		Dehra Dun	2,233	27·612	+·033	29·814	27·726	4th	27·467	17th	·259	71·2	90·0	−0·2	62·9	−1·4	76·5	−0·8	27·1	103·0	18th & 19th	54·0	7th	49·0
		Roorkee	887	28·925	+·045	29·787	29·049	4th	28·766	17th	·283	77·7	96·8	−1·3	66·2	−0·4	81·5	−0·9	30·6	109·7	19th	55·4	8th	54·3
22	N.-W. P., West.	Meerut	738	29·035	+·056	29·794	29·200	4th	28·950	17th	·250	79·3	96·7	−1·7	68·1	+0·2	82·4	−0·8	28·6	107·7	19th	60·0	1st & 3rd	47·7
26	South-East Punjab.	Delhi	718	29·115	+·056	29·801	29·212	4th	29·014	17th	·198	80·2	96·9	−3·5	73·6	+0·3	85·3	−1·6	23·3	109·2	19th	65·4	3 days	43·8
28	Central Punjab.	Lahore	702	29·139	+·071	29·825	29·287	4th	28·999	19th	·288	74·0	92·3	−4·2	67·0	+2·3	79·7	−1·0	25·3	105·6	18th & 19th	55·2	7th	50·4
27	South Punjab	Sirsa	662	29·189	+·074	29·825	29·310	4th	29·076	19th	·234	77·2	97·3	−3·1	67·7	−0·4	82·5	−1·8	29·6	110·3	19th	59·8	8th	50·5
		Patiala	818	29·006	?	29·799	29·334	4th	28·892	17th	·242	78·1	95·2	?	68·4	?	81·8	?	26·8	107·8	19th	59·7	8th	48·1
29	Punjab (Sub-montane).	Ludhiana	812	29·019	+·062	29·513	29·143	4th	28·893	18th	·250	76·0	94·6	−3·0	67·7	+1·0	81·2	−1·0	26·9	109·9	19th	59·2	7th	50·7
		Sialkot	830	29·011	+·076	29·826	29·110	4th	28·862	19th	·248	75·5	92·2	−2·7	66·8	+0·7	79·5	−1·0	25·4	107·2	18th	53·0	1st	54·2
		Umballa	892	28·946	?	29·814	29·089	4th	28·838	30th	·251	75·5	97·0	?	66·8	?	81·9	?	30·2	109·9	19th	58·0	2nd	51·9
31	North Punjab	Rawalpindi	1,643	28·199	+·085	29·858	28·322	4th	28·056	19th	·266	67·6	83·8	−4·2	59·6	0	71·7	−2·1	24·2	98·6	18th	49·0	6th	49·6
	VII.—Indus Valley and North-West Rajputana.		...	...	+·068	...	...	...	...	...	...	...	94·1	−1·9	66·7	−0·8	80·4	−1·3	27·4	...	...	...	...	49·3
31	North Punjab	Peshawar	1,110	28·625	+·097	29·903	28·971	4th	28·663	30th	·308	67·5	79·9	−6·7	58·1	−2·5	69·0	−4·6	21·8	94·0	17th	49·5	6th	44·5
		Mardan	?	28·923	?	?	29·000	5th	28·737	22nd	·263	64·2	77·6	?	55·9	?	66·8	?	21·7	95·0	21st	47·0	1st	48·0
32	West Punjab	Khushab	612	29·246	?	29·838	29·401	4th	29·093	18th	·308	76·7	91·1	?	66·8	?	79·0	?	24·3	106·3	18th	55·0	6th	51·3
		Montgomery	558	29·285	?	29·818	29·420	4th & 5th	29·142	18th	·278	78·1	96·0	?	65·8	?	80·9	?	30·2	109·5	19th	55·0	6th	54·5
		D. I. Khan (Tel. Office).	593	29·307	+·070	29·861	29·477	4th	29·164	30th	·313	73·7	89·8	−3·4	64·3	−0·6	77·1	−2·0	25·5	100·7	18th	53·0	4th	47·7
		Mooltan	420	29·442	+·062	29·840	29·582	4th	29·300	18th	·282	75·4	96·6	−1·1	68·2	+0·7	82·4	−0·2	28·4	109·4	18th	58·9	6th	50·5
47	Sind	Jacobabad	186	29·367	+·063	29·816	29·634	5th	29·529	18th	·305	79·5	100·6	−1·5	68·7	−0·2	84·7	−0·9	31·9	112·7	18th	54·5	6th	58·2
		Hyderabad	96	29·789	+·064	29·539	29·929	6th	29·669	30th	·260	81·4	102·1	+0·2	70·7	−1·3	86·4	−0·6	31·4	111·7	16th	63·5	10th	48·2
		Kurrachee	12	29·898	+·054	29·861	30·025	6th	29·786	30th	239	80·2	90·9	+0·5	72·6	−0·2	81·8	+0·2	18·3	98·8	21st	65·0	4th & 6th	33·3
51	West Rajputana	Bickaneer	771?	29·084	?	29·827	29·184	4th	28·958	26th	·226	81·5	99·1	−1·5	72·3	−1·3	85·7	−1·4	26·8	110·5	18th	62·0	1st	48·5
		Pachpadra	380?	?	?	?	?	...	?	...	?	81·3	103·4	?	66·1	?	84·8	?	37·3	113·5	17th & 18th	58·7	8th	54·8
		Jodhpur	810	29·073	?	29·828	29·172	6th	28·976	30th	·196	81·8	101·7	?	70·6	?	86·2	?	31·1	111·2	17th & 18th	59·7	8th	51·5
	VIII.—East Rajputana, Central India and Gujarat.		...	...	+·047	...	...	...	...	...	...	...	100·3	−0·4	72·1	+0·7	86·2	+0·2	28·2	...	...	...	...	47·4
50	East Rajputana	Jeypore	1,431	28·451	+·056	29·842	28·531	7th	28·351	30th	·180	81·9	99·1	−1·4	70·1	+0·8	84·6	−0·3	29·0	109·5	18th	59·1	7th & 8th	50·4
		Sambhar	1,254	28·613	+·058	29·835	28·708	7th	28·515	30th	·193	80·2	98·1	−1·0	68·6	−1·7	83·4	−1·4	29·5	109·5	18th	56·9	7th	52·6
		Ajmere	1,611	28·278?	+·048	29·853?	28·358	6th	28·176	30th	·182	81·0	97·4	−1·2	69·0	−1·3	83·2	−1·3	28·4	107·9	18th	54·7	7th	53·2
		Deesa	466	29·418	+·027	29·839	29·506	7th	28·317	30th	·189	84·9	104·4	+1·5	71·6	+0·7	88·0	+1·1	32·8	115·0	17th	62·6	9th	52·4
46	Kathiawar and Cutch.	Bhuj	395	29·512	+·057	29·863	29·607	6th	29·401	30th	·206	81·1	100·8	+0·6	71·0	−0·1	85·9	+0·3	29·8	110·1	17th & 18th	63·9	12th	46·2
		Rajkot	429	29·478	+·030	29·862	29·543	7th	29·385	30th	·158	80·5	102·4	+0·2	69·6	+0·6	86·0	+0·4	32·8	110·9	17th	60·4	7th	50·5
		Veraval	?	29·891	?	29·851	29·945	11th	29·803	30th	·142	79·0	87·4	?	70·9	?	79·2	?	16·5	105·2	29th	65·3	9th & 13th	39·9
		Ghadechi	35	29·869	?	29·848	29·931	11th	29·769	30th	·162	83·9	102·6	?	73·5	?	88·1	?	29·1	109·7	17th	64·8	8th	44·9
49	Central India	Nowgong	757	29·101	+·048	29·816	29·203	7th	29·001	30th	·202	82·7	102·0	−1·8	72·2	+1·1	87·1	−0·4	29·8	110·5	19th	61·5	8th	49·0
		Indore	1,823	28·079	+·046	29·836	28·147	7th	27·970	30th	·177	83·9	101·1	+0·9	70·5	+1·4	85·8	+1·2	30·6	108·0	19th	61·6	9th	46·4
		Neemuch	1,630	28·274	?	29·818	28·352	7th	28·186	30th	·166	85·5	100·9	+0·5	71·7	+1·0	86·3	+0·8	29·2	108·1	18th & 19th	57·8	8th	50·3
45	Gujarat	Surat	39	29·870	?	29·851	29·925	11th	29·759	30th	·166	83·7	100·7	+0·5?	74·6	+2·8?	87·7	+1·7?	26·1	111·5	30th	67·0	4th	44·5
		Ahmedabad	164	29·736	?	29·846	29·816	7th	29·637	30th	·179	84·9	104·7	?	75·9	?	90·3	?	28·8	114·3	18th	70·1	3 days	44·2
22	N.-W. P., West	Agra	555	29·291	+·053	29·807	29·373	7th	29·188	30th	·185	82·9	99·8	−3·0	74·5	+1·0	87·2	−1·0	25·3	110·0	19th & 20th	65·9	7th	44·1
21	N.-W. P., Central.	Jhansi	858	29·011	+·051	29·820	29·106	7th	28·920	30th	·186	86·7	103·4	−0·4	78·0	+2·1	90·7	+0·9	25·4	112·2	19th	69·4	4th	42·8

I—*continued.*

in India, Burma, etc., in April 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	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 March to 30th April 1897.	Normal rainfall for period, 1st March to 30th April.	Variation from normal of period, 1st March to 30th April.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·48	0·60	−0·10	...	...	...	...	VI.—Upper Sub-Himalayas.		
9	1	1	...	2	1	4	2	10	3·1	4·5	−31	30	·305	2·0	0	0·45	−0·45	0	0·17	−0·17	0·48	1·11	−0·63	0	Bareilly	N.-W. Provinces, West (Sub-montane).	24
27	1	...	1	...	...	1	...	...	2·1	2·6	−19	48	·368	3·4	2	1·45	+0·55	0·76	0·53	+0·23	1·53	1·60	−0·07	0·49	Dehra Dun		
26	...	...	1	2	...	...	...	1	3·1	3·2	− 3	39	·368	2·2	0	1·18	−1·18	0·11	0·42	−0·31	1·15	1·14	+0·01	0·03	Roorkee.		
18	...	...	1	...	...	1	4	6	2·9	2·4	+21	37	·365	1·8	0	0·73	− 0·73	0·03	0·24	−0·21	0·38	1·01	−0·63	0·03	Meerut	N.-W. Provinces, West.	22
12	2	...	2	1	...	...	10	3	3·6	3·9	− 8	31	·308	3·0	0	0·64	−0·64	0·03	0·24	−0·21	0·44	0·80	−0·36	0·03	Delhi	South-East Punjab.	26
8	6	5	3	4	...	1	1	2	3·3	3·3	0	53	·437	2·7	1	1·45	−0·45	0·11	0·46	−0·35	0·55	1·19	−0·64	0·11	Lahore	Central Punjab	28
6	8	4	4	1	2	2	1	2	6·9	4·0	−73	37	·329	3·3	3	0·64	+2·36	0·49	0·31	+0·18	0·49	0·68	−0·19	0·21	Sirsa	South Punjab.	27
11	3	4	...	...	3	5	4	...	4·6	?	?	55	·532	2·8	2	?	?	0·28	?	?	0·58	?	?	0·17	Patiala.		
21	2	3	...	...	...	...	1	3	1·7	2·1	−19	50	·437	3·0	2	1·55	+0·45	1·47	0·85	+0·62	1·69	1·84	−0·15	1·27	Ludhiana	Punjab (Sub-montane).	29
3	11	7	2	1	...	1	1	4	3·5	2·3	+52	52	·466	2·1	1	2·09	−1·09	0·46	0·91	−0·45	1·39	2·09	−0·70	0·31	Sialkot.		
22	...	...	...	1	...	1	...	6	2·8	?	?	47	·407	1·7	2	?	?	0·30	0·53	−0·23	0·57	1·26	−0·69	0·17	Umballa.		
5	4	6	...	1	...	1	7	6	5·3	2·8	+89	73	·503	5·0	3	3·27	−0·27	1·76	1·95	−0·19	4·94	3·71	+1·23	0·68	Rawalpindi	North Punjab.	31
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·72	0·42	+0·13	...	...	...	...	VII.—Indus Valley and North-West Rajputana.		
15	1	...	...	3	3	5	2	1	3·5	4·2	−17	74	·492	4·8	7	3·36	+3·64	2·72	1·84	+0·88	4·78	3·54	+1·24	0·79	Peshawar	North Punjab.	31
		Not	recorde	d.					?	?	?	?	?	4·3	5	?	?	3·05	?	?	6·16	?	?	0·80	Mardan.		
5	6	11	4	...	2	...	1	1	9·5	?	?	44	·396	3·2	2	1·30	+0·70	0·63	0·62	+0·01	1·59	1·16	+0·43	0·35	Khushab	West Punjab.	32
1	3	8	6	4	1	1	1	5	6·7	?	?	39	·365	3·1	0	0·70	−0·70	0·13	0·11	+0·02	0·13	0·52	−0·39	0·09	Montgomery		
5	8	9	...	...	...	1	2	5	4·1	2·4	+71	60	·550	2·8	1	1·64	−0·64	0·62	0·77	−0·15	1·34	1·40	−0·06	0·48	D. I. Khan		
8	5	11	...	2	1	1	...	2	2·3	2·5	− 8	51	·445	2·3	2	0·36	+1·64	0·65	0·07	+0·58	0·80	0·45	+0·35	0·30	Mooltan.		
5	2	1	13	5	3	...	...	1	5·7	3·9	+46	36	·363	2·7	1	0·27	+0·73	0·25	0·20	+0·05	0·25	0·34	−0·09	0·25	Jacobabad	Sind.	47
7	2	3	...	...	1	15	1	1	11·8	10·2	+ 8	43	·451	1·3	1	0	+1·00	0·37	0·04	+0·33	0·37	0·18	+0·19	0·37	Hyderabad.		
5	1	1	...	...	...	5	12	6	8·9	14·0	−36	72	·738	1·9	0	0·45	−0·45	0	0·33	−0·33	0	0·56	−0·56	0	Kurrachee.		
2	3	4	2	4	2	5	4	4	7·8	4·7	+66	39	·417	2·8	0	?	?	0	0·17	−0·17	0·32	0·37	−0·05	0	Bickaneer	West Rajputana.	51
...	4	7	2	2	6	8	1	...	10·1	4·5	+124	44	·471	1·0	0	?	?	0·05	0·01	+0·04	0·05	0·08	−0·03	0·05	Pachpadra.		
10	1	4	2	2	2	5	2	2	4·2	?	?	26	·276	1·5	1	?	?	0·16	?	?	0·16	0·08	+0·08	0·13	Jodhpur.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·06	0·08	−0·01	...	...	...	...	VIII.—East Rajputana, Central India and Gujarat.		
7	5	5	1	1	...	...		9	4·7	5·7	−18	37	·403	2·6	1	0·30	+0·70	0·15	0·09	+0·06	0·16	0·48	−0·32	0·12	Jeypore	East Rajputana.	50
11	7	1	2	...	1	1	5	2	6·2	7·0	−11	44	·456	2·0	0	0·30	−0·30	0·15	0·08	+0·07	0·18	0·44	−0·26	0·06	Sambhar.		
12	...	4	...	..	1	2	7	4	4·7	5·0	− 6	40	·420	1·9	2	0·18	+1·82	0·27	0·06	+0·21	0·34	0·23	+0·11	0·10	Ajmere.		
...	6	5	3	2	1	3	6	4	9·0	9·4	− 4	33	·393	0·9	0	0	0	0·05	0·01	+0·04	0·05	0·06	−0·01	0·05	Deesa.		
...	5	1	...	...	...	...	13	10	10·6	10·9	− 3	47	·506	1·6	0	?	?	0	0·18	−0·18	0	0·27	−0·27	0	Bhuj	Kathiawar and Cutch.	46
2	5	2	1	..	...	...	8	12	7·5	11·1	−32	54	·571	1·1	0	0·10	−0·10	0	0·02	−0·02	0	0·03	−0·03	0	Rajkot		
...	10	1	...	...	...	1	10	8	7·4	?	?	68	·659	1·8	0	?	?	0	?	?	0	?	?	0	Veraval.		
...	7	2	...	1	3	4	3	10	9·3	?	?	39	·452	0·8	0	?	?	0·01	?	?	0·01	?	?	0·01	Ghadechi.		
4	4	1	3	1	1	8	6	2	3·4	2·8	+21	31	·337	2·4	0	0	0	0·08	0·06	+0·02	0·24	0·33	−0·09	0·04	Nowgong	Central India.	49
3	8	9	...	1	2	...	1	6	3·1	4·4	−30	44	·538	1·5	0	0	0	0·02	0·06	−0·04	0·02	0·08	−0·06	0·02	Indore.		
2	5	12	5	2	...	1	2	1	6·4	10·3	−38	33	·405	1·4	0	0·09	−0·09	0·04	0·09	−0·05	0·04	0·17	−0·13	0·04	Neemuch.		
4	4	6	1	2	6	4	...	3	4·9	8·0	−39	57	·653	1·3	0	0	0	0	0·01	−0·01	0	0·01	−0·01	0	Surat	Gujarat.	45
...	5	4	3	2	1	3	...	11	4·9	?	?	40	·463	1·3	0	?	?	0	?	?	0	0·03	−0·03	0	Ahmedabad		
2	...	4	...	...	...	9	...	15	5·8	4·7	+23	38	·435	1·0	0	0·55	−0·55	0·03	0·14	−0·08	0·09	0·45	−0·36	0·06	Agra	N.-W. P., West	22
11	2	2	...	4	2	3	1	5	2·5	4·2	−40	22	·276	0·9	0	0·55	−0·55	0·02	0·13	−0·11	0·02	0·48	−0·46	0·02	Jhansi	N.-W. P., Central.	21

Table

Abstract of Observations taken at 8 A.M. at 210 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.
	IX.—Deccan		...	...	+·038	...	...	...	...	...	...	...	102·7	+0·2	75·5	+2·1	89·1	+1·2	27·2	...	...	...	...	41·8
38	Bombay, Deccan	Belgaum	2,524	27·399	+·024	29·835	27·445	19th & 22nd	27·325	30th	·120	78·3	97·0	+0·6	68·8	+1·5	82·9	+1·1	28·2	101·2	29th & 30th	62·9	22nd	38·3
		Sholapur	1,590	28·309	+·029	29·827	28·358	19th	28·224	30th	·134	86·5	104·6	−0·6	77·6	+2·6	91·1	+1·0	27·0	109·2	30th	71·5	1st	37·7
		Poona	1,840	28·080	+·021	29·855	28·129	18th	27·985	30th	·144	81·7	103·6	+2·5	70·6	+0·8	87·2	+1·7	33·0	109·3	30th	62·4	1st	47·2
		Bijapur	1,946	27·961	?	29·824	28·000	19th	27·887	30th	·113	84·3	102·1	?	75·5	?	88·8	?	26·6	107·2	30th	71·0	22nd	36·2
40	Khandesh	Malegaon	1,430	28·468	+·027	29·835	28·520	7th	28·362	30th	·158	86·6	103·6	+0·8	72·6	+1·6	88·1	+1·2	31·0	109·4	30th	58·4	4th	51·0
		Ahmednagar	2,152	27·769	?	29·833	27·813	11th	27·667	30th	·146	84·3	100·7	?	71·3	?	86·1	?	29·4	106·3	30th	60·0	4th	46·3
41	Berar	Akola	930	28·945	+·038	29·812	29·008	11th	28·842	30th	·166	88·8	107·1	+1·4	78·1	+4·1	92·6	+2·8	29·0	114·0	20th	69·3	7th	44·7
		Amraoti	1,216	28·660	+·043	29·814	28·724	8th	28·595	30th	·129	88·4	106·3	+1·0	79·4	+3·9	92·9	+2·5	26·9	112·5	19th & 20th	67·8	1st	44·7
42	Central Provinces, West.	Khandwa	1,045	28·834	+·030	29·827	28·902	6th	28·717	30th	·185	86·7	106·0	+1·7	76·4	+2·1	91·2	+1·9	29·6	112·7	17th & 19th	63·6	9th	49·1
		Hoshangabad	1,006	28·857	+·028	29·816	28·950	8th	28·749	30th	·201	86·0	104·0	−0·3	75·9	+2·7	90·3	+1·2	28·7	111·6	19th	61·8	9th	49·8
		Nagpur	1,025	28·840	+·037	29·811	28·910	8th	28·781	26th	·129	86·8	106·2	+0·5	78·6	+2·7	92·4	+1·6	27·6	112·7	20th	66·6	8th	46·1
43	Central Provinces, Central.	Chanda	634	29·260?	?	29·835?	29·322	15th	29·209?	30th	·113	86·6	104·6?	?	76·2?	?	90·4?	?	28·4	110·7	3 days	65·4	1st	45·3
		Seoni	2,033	27·862	+·046	29·814	27·928	8th	27·809	30th	·119	84·2	99·9	−1·4	72·1	+0·4	86·0	−0·5	27·8	107·1	19th & 20th	61·0	9th	46·1
		Jubbulpore	1,327	28·547	+·046	29·824	28·622	8th	28·465	26th	·157	83·8	101·6	−0·2	71·3	+0·7	86·5	+0·3	30·3	108·0	4 days	59·3	9th	48·7
		Saugor	1,807	28·064	+·038	29·800	28·143	7th	27·956	30th	·187	86·2	100·4	−1·1	75·2	+2·8	87·8	+0·9	25·2	107·3	19th & 20th	66·6	4th & 6th	40·7
49	Central India	Sutna	1,040	28·815	+·055	29·809	28·898	7th	28·721	30th	·177	85·9	101·7	+0·1	73·8	+2·8	87·8	+1·5	27·9	109·6	19th & 28th	65·2	9th & 10th	44·4
44	Central Provinces, East.	Raipur	970	28·904	+·055	29·819	28·978	4th	28·842	20th	·136	85·1	102·9	−1·4	77·1	+0·3	90·0	−0·6	25·8	110·5	20th	65·7	4th	44·8
		Sambalpur	486	29·395	+·057	29·831	29·506	4th	29·317	20th	·189	83·1	99·9	?	74·0?	−1·7?	87·0?	?	25·9	108·0	28th	63·2	9th	44·8
39	Hyderabad (North).	Aurangabad	1,865	28·067	?	29·848	28·158	4th	28·012	30th	·146	87·5	104·5	?	74·6	?	89·5	?	25·9	110·0	20th & 30th	65·0	4th	45·0
		Indur	?			Not	recorded					87·4	103·0	?	79·0	?	91·0	?	24·0	108·6	29th	70·0	1st	38·6
		Bidar	2,165?	27·716	?	29·818	27·805	15th	27·667	2nd	·138	84·7	98·1	?	72·9	?	85·5	?	25·2	99·8	30th	70·4	9th	29·4
53	Hyderabad (South).	Gulbarga	1,502	28·417?	?	29·852?	28·198	15th	28·340	3rd	·158	85·6	103·7	?	77·5	?	90·6	?	26·2	107·9	30th	72·7	25th	35·2
		Raichur	1,309	28·572	?	29·815	28·615	13th	28·506	30th	·109	85·0	102·1	?	79·7	?	90·9	?	22·4	105·5	28th	73·1	22nd	32·4
		Hyderabad (Deccan).	1,690	28·220	?	29·839	28·263	11th	28·167	30th	·096	84·8	102·1	−0·1	78·3	+3·2	90·2	+1·6	23·8	106·4	19th & 29th	73·7	15th	32·7
		Secunderabad	1,787	28·129	?	29·848	28·173	13th	28·078	30th	·095	82·6	102·5	?	77·0	?	89·7	?	25·5	108·8	19th	71·9	15th	36·9
		Khamamet	373	29·536	?	29·853	29·593	5th	29·452	2nd	·141	84·1	101·7	?	79·0	?	90·4	?	22·7	106·2	19th	74·3	6th & 21st	31·9
	X.—West Coast		...	...	+·018	..	...	...	...	...	...	...	89·9	+0·4	78·7	+0·6	84·3	+0·5	11·2	...	...	...	...	19·5
37	Konkan	Bombay	37	29·887	+·020	29·863	29·942	18th	29·802	30th	·140	82·0	88·5	+0·3	77·6	+0·3	83·1	+0·3	10·9	93·5	28th	71·0	4th	22·5
		Ratnagiri	110	29·806	+·030	29·853	29·868	22nd	29·733	30th	·135	83·2	90·0	+0·1	78·3	+1·5	84·2	+0·8	11·7	93·4	14th	71·9	4th	21·5
		Mormugao	60	29·867	?	29·862	29·941	22nd	29·780	30th	·161	83·9	89·6	?	79·8	?	84·7	?	9·8	95·0	22nd	74·9	1st	20·1
		Goa	199	29·713	+·020	29·849	29·786	22nd	29·626	30th	·160	83·3	87·5	?	81·0	?	84·3	?	6·5	90·0	4 days	75·5	1st	14·5
		Karwar	44	29·879	+·023	29·855	29·953	6th	29·798	30th	·155	81·7	89·7	−0·1	77·9	+0·1	83·8	0	11·8	91·8	23rd & 24th	71·5	5th	20·3
33	Malabar	Cochin	11	29·908	+·005	29·816	29·966	13th	29·866	27th	·100	83·5	92·3	+1·2	78·4	+0·1	85·4	+0·7	13·9	94·8	2nd & 28th	71·2	21st	23·6
		Calicut	27	29·893	+·009	29·849	29·953	6th	29·840	30th	·113	83·1	91·6	+0·3	78·5	+0·7	85·1	+0·5	13·1	93·9	30th	74·0	23rd	19·9
		Mangalore	65	29·863	+·021	29·860	29·937	6th	29·804	30th	·133	83·6	91·1	+0·3	79·4	+0·6	85·3	+0·5	11·7	93·8	28th	74·9	19th	18·9
		Trivandrum	198	29·703	?	29·832	29·768	16th	29·659	26th & 29th	·109	81·5	88·7	?	77·7	?	83·2	?	11·0	90·5	4 days	76·0	17th	14·5
	XI.—South India		...	...	+·027	...	...	...	...	...	...	...	96·3	−0·1	76·5	+1·1	86·4	+0·5	19·8	...	...	...	...	29·1
57	Madras (South).	Pamban	37	29·884	?	29·847	29·945	6th	29·642	3 days	·103	85·2	91·3	?	80·2	?	85·8	?	11·1	93·3	3 days	77·2	6th & 30th	16·1
		Tinnevelly	168	29·753	?	29·851	29·800	6th	29·708	30th	·092	83·5	95·8	?	78·7	?	87·3	?	17·1	101·4	2nd	74·9	7th & 13th	26·5
		Madura	447	29·469	+·020	29·851	29·526	6th	29·422	30th	·104	84·2	97·2	−2·9	77·8	+1·6	87·5	−0·7	19·4	100·5	1st & 2nd	73·5	16th	27·0

I—*continued.*

in India, Burma, etc., in April 1897—continued.

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.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean velocity in miles per hour.	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 March to 30th April 1897.	Normal rainfall for period, 1st March to 30th April.	Variation from normal of period, 1st March to 30th April.					
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·65	0·42	+0·21	...	...	...	...	IX.—Deccan.			
7	1	2	2	2	1	3	7	5	11·4	13·1	−13	54	·524	2·7	5	3·36	+1·64	2·16	1·72	+ 0·44	2·16	2·07	+ 0·09	1·00	Belgaum	Bombay Deccan.	38
...	2	...	1	8	1	4	3	11	11·1	8·2	+32	35	·427	3·5	0	1·20	−1·20	0·09	0·57	− 0·48	0·09	0·91	− 0·82	0·06	Sholapur.		
1	1	...	...	3	1	7	10	7	11·3	9·9	+14	39	·416	2·1	1	1·09	−0·09	0·28	0·54	− 0·26	0·28	0·59	− 0·31	0·21	Poona.		
2	1	...	2	3	...	3	10	9	5·5	P	P	60	·701	3·2	4	1·80	+2·20	1·27	P	P	1·27	1·01	+ 0·26	0·57	Bijapur.		
3	4	2	1	...	1	...	9	10	10·4	7·7	+35	54	·680	2·2	1	0·18	+0·82	0·37	0·10	+ 0·27	0·37	0·13	+ 0·24	0·37	Malegaon	Khandesh.	40
2	9	7	4	6	...	...	...	2	16·3	P	P	37	·428	2·0	2	P	P	0·22	P	P	0·22	0·56	− 0·34	0·11	Ahmednagar.		
...	...	2	2	2	1	2	12	9	5·7	5·4	+ 6	32	·433	2·2	0	0·36	−0·36	0·04	0·16	− 0·12	0·04	0·71	− 0·67	0·04	Akola	Berar.	41
...	4	2	6	2	1	6	8	1	3·5	4·4	−20	34	·454	2·7	0	0·45	−0·45	0	0·25	− 0·25	0	0·65	− 0·65	0	Amraoti.		
5	1	5	...	...	...	3	11	5	6·7	5·6	+20	26	·329	1·9	0	0·18	−0·18	0·01	0·17	−0·16	0·01	0·30	− 0·29	0·01	Khandwa	Central Provinces, West.	42
21	...	5	3	...	...	...	1	...	1·6	2·9	−45	33	·402	1·6	0	0·09	−0·09	0·04	0·16	− 0·12	0·04	0·39	− 0·35	0·02	Hoshangabad.		
10	2	2	2	5	4	3	1	1	5·9	5·3	+11	36	·452	3·1	2	0·82	+1·18	0·56	0·34	+ 0·22	0·71	0·95	− 0·24	0·43	Nagpur.		
7	4	4	5	7	3	...	...	...	2·2	3·8	−42	52	·666	3·6	6	P	P	2·20	0·38	+ 1·82	3·81	1·87	+ 1·94	0·80	Chanda	Central Provinces, Central.	43
...	2	6	1	7	4	7	...	3	4·1	3·8	+ 8	41	·492	2·3	3	0·45	+2·55	0·67	0·35	+ 0·32	0·87	1·05	− 0·18	0·28	Seoni.		
5	2	3	1	5	6	5	2	1	3·4	3·5	− 3	37	·420	2·2	1	0·27	+0·73	0·72	0·18	+ 0·54	0·89	0·69	+ 0·20	0·60	Jubbulpore.		
...	4	8	4	3	3	3	2	3	8·9	3·7	+141	40	·490	2·2	0	0·09	−0·09	0·09	0·10	− 0·01	0·09	0·36	− 0·27	0·05	Saugor.		
2	8	...	...	1	3	2	6	8	7·1	6·8	+ 4	27	·298	1·2	0	0·27	−0·27	0·10	0·12	− 0·02	0·33	0·62	− 0·29	0·09	Sutna	Central India.	49
8	2	...	1	3	4	11	1	...	7·5	5·9	+27	42	·492	2·7	2	1·00	+1·00	0·75	0·47	+ 0·28	1·39	1·28	+ 0·11	0·49	Raipur	Central Provinces, East.	44
...	4	8	4	1	9	3	...	1	4·8	2·6	+85	55	·617	3·3	3	P	P	2·24	0·51	+ 1·73	4·62	1·71	+ 2·91	1·03	Sambalpur.		
9	2	5	1	3	2	4	2	2	4·4	P	P	27	·350	2·0	0	P	P	0·07	0·18	− 0·11	0·07	0·24	− 0·17	0·07	Aurangabad	Hyderabad (North).	39
2	1	...	3	4	5	5	8	2	7·1	P	P	54	·698	3·2	4	P	P	1·47	0·31	+ 1·16	1·49	0·58	+ 0·91	0·52	Indur.		
...	1	4	4	1	2	12	5	1	7·8	P	P	62	·733	1·5	3	P	P	0·55	0·83	− 0·28	0·55	1·17	− 0·62	0·23	Bidar.		
9	1	3	2	2	...	6	...	3	9·9	P	P	46	·550	3·9	3	P	P	0·73	0·71	+ 0·02	0·73	0·92	− 0·19	0·35	Gulbarga.	Hyderabad (South).	53
...	4	...	5	6	6	2	4	3	11·2	P	P	58	693	3·3	4	P	P	1·16	P	P	1·16	0·98	+ 0·18	0·44	Raichur.		
13	1	1	2	5	2	...	5	1	5·8	P	P	58	·680	1·9	0	P	P	0·04	0·67	− 0·63	0·04	1·42	− 1·38	0·02	Hyderabad (Deccan).		
3	...	2	12	4	1	1	2	5	6·7	5·3	+26	54	·607	2·3	0	P	P	0·10	P	P	0·10	1·45	− 1·35	0·07	Secunderabad.		
13	...	...	...	12	5	...	...	...	9·4	P	P	76	·893	1·2	1	P	P	1·02	P	P	1·06	1·74	− 0·68	1·02	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·04	1·73	+0·57	...	...	...	...	X.—West Coast.			
1	10	5	1	1	6	...	1	5	10·1	11·3	−11	75	·827	3·4	0	0	0	0	0·01	− 0·01	0	0·04	− 0·04	0	Bombay.	Konkan.	37
8	7	1	...	3	3	1	1	6	5·9	11·1	−47	71	·806	1·5	0	0·09	−0·09	0·02	0·07	− 0·05	0·02	0·08	− 0·06	0·01	Ratnagiri.		
...	11	3	...	3	2	6	3	2	9·4	P	P	75	·880	3·2	0	P	P	0·01	P	P	0·01	P	P	0·01	Mormugao.		
4	5	2	3	1	7	3	1	4	P	P	P	75	·855	4·8	0	P	P	0	0·07	− 0·07	0	0·07	− 0·07	0	Goa.		
...	18	1	...	...	...	3	5	3	6·1	P	P	77	·832	3·8	2	0·36	+1·64	0·38	0·41	− 0·03	0·38	0·41	− 0·03	0·26	Karwar.		
8	11	10	...	...	...	...	...	1	6·2	P	P	80	·921	5·1	9	5·55	+3·45	9·63	4·37	+ 5·26	10·66	6·81	+ 3·85	2·79	Cochin	Malabar	33
6	3	9	2	2	...	...	1	7	13·9	P	P	79	·897	5·1	6	3·13	+2·87	4·41	3·17	+ 1·24	4·41	3·69	+ 0·72	1·74	Calicut.		
21	1	2	3	2	1	...	...	...	2·5	3·7	−32	74	·855	4·4	2	1·00	+1·00	0·92	1·13	− 0·21	0·92	1·19	− 0·27	0·68	Mangalore.		
15	4	3	4	...	...	...	1	3	3·8	P	P	80	·861	6·1	8	P	P	2·98	4·58	− 1·60	3·33	6·15	− 2·82	0·67	Trivandrum.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·02	1·13	−0·52	...	...	...	...	XI.—South India.			
1	...	5	9	9	4	1	1	...	6·2	P	P	77	·935	2·8	6	1·30	+4·70	2·20	4·13	− 1·93	2·49	4·92	− 2·43	0·87	Pamban	Madras (South)	57
...	7	3	1	...	1	3	4	11	3·2	P	P	78	·899	5·9	10	3·40	+6·60	5·30	P	P	5·62	3·66	+ 1·96	1·70	Tinnevelly.		
3	10	6	1	3	2	...	...	5	P	3·6	P	72	·862	3·7	3	1·82	+1·18	2·01	1·88	+ 0·13	2·01	2·49	− 0·48	0·76	Madura.		

Table

Abstract of Observations taken at 8 A.M. at 210 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
34	Madras, South Central.	Salem	940	29·009	+·021	29·883	29·060	6th	28·961	30th	·099	84·2	101·1	0	77·1	+1·5	89·1	+0·8	24·0	104·4	1st	73·0	12th & 13th	31·4
		Coimbatore	1,348	28·572	+·016	29·863	28·623	6th	28·520	30th	·103	79·9	97·1	−1·0	74·4	+0·8	85·7	−0·1	22·7	100·4	12th	70·6	12th	29·8
35	Coorg	Mercara	3,781	26·253	+·026	?	26·301	6th	26·220	30th	·081	73·4	86·2	+1·7	65·2	+1·1	75·7	+1·4	21·0	91·0	15th	62·7	3 days	28·3
36	Mysore	Chitaldroog	2,405	27·533	?	29·834	27·596	13th	27·474	30th	·122	81·3	97·8	?	74·2	?	86·0	?	23·6	101·1	28th	65·9	22nd	35·2
		Bangalore	3,021	26·957	+·014	29·848	26·997	6th	26·910	30th	·087	77·5	94·2	+1·0	70·4	+1·2	82·3	+1·1	23·8	97·3	28th	66·3	13th	31·0
		Hassan	3,091	26·892	?	29·867	26·935	6th	26·846	30th	·089	76·5	92·7	?	66·5	?	79·6	?	26·2	96·4	13th	60·1	12th	36·3
		Mysore	2,518	27·447	?	29·867	27·491	6th	27·400	30th	·091	78·1	95·1	?	71·3	?	83·2	?	23·8	97·9	3 days	66·5	19th	31·4
56	Madras, East Coast, South.	Negapatam	31	29·892	+·022	29·851	29·951	6th	29·830	30th	·121	86·1	92·1	−0·5	80·9	+2·1	86·5	+0·8	11·2	97·7	18th	75·9	10th & 11th	21·8
		Cuddalore	12	29·911	?	29·852	29·965	6th	29·855	30th	·110	84·9	92·5	?	77·4	?	85·0	?	15·1	96·3	1st & 18th	72·2	10th	24·1
		Trichinopoly	255	29·665	+·018	29·852	29·718	6th	29·610	30th	·108	84·5	100·5	−0·6	78·0	+0·7	89·3	+0·1	22·5	105·2	1st	73·4	11th	31·8
		Madras	22	29·906	+·026	29·858	29·948	6th	29·847	30th	·101	85·6	93·1	+0·2	77·5	+0·3	85·3	+0·3	15·6	96·0	2nd & 18th	72·5	12th	23·5
55	Madras, East Coast, Central.	Nellore	71	29·834	?	29·839	29·883	5th	29·793	21st	·090	85·1	100·0	?	77·7	?	88·9	?	22·3	105·3	19th	73·1	13th	32·2
		Masulipatam	15	29·910	+·046	29·860	29·955	5th	29·865	26th & 30th	·090	85·7	94·8	−0·1	78·7	+1·4	86·8	+0·7	16·1	98·2	21st	72·6	14th	25·6
54	Madras, Central	Cuddapah	433	29·459	+·026	29·826	29·512	16th	29·410	30th	·102	88·9	106·1	+1·0	81·6	+1·0	93·9	+1·0	24·5	110·3	3rd	75·3	12th	35·0
		Kurnool	923	28·963	?	29·821	29·011	16th	28·903	30th	·108	85·7	104·7	+0·1	78·9	+0·6	91·8	+0·4	25·8	108·8	28th	71·9	13th	36·9
		Bellary	1,475	28·428	+·029	29·833	28·465	16th	28·345	30th	·120	85·7	104·2	+0·3	78·0	+1·0	91·1	+0·7	26·2	107·2	3 days	72·7	22nd	31·5
52	Madras, East Coast, North.	Rajahmundry	112			Not recorded.						84·4	100·1	−0·3	79·2	+0·6	89·7	+0·2	20·9	103·1	26th	74·3	12th	28·8
		Cocanada	26	29·902	+·056	29·863	29·949	5th	29·850	30th	·099	84·4	93·8	−1·1	80·1	+1·0	87·0	−0·1	13·7	100·6	3 days	76·0	12th	24·6
		Vizagapatam	31	29·875	+·037	29·844	29·925	6th	29·806	26th	·119	86·0	93·6	+1·2	79·0	+1·0	86·3	+1·1	14·6	97·7	12th & 17th	73·4	12th	24·3
		Gopalpur	21	29·870	?	29·831	29·932	4th	29·822	17th	·110	84·1	90·7	?	77·6	?	84·2	?	13·1	98·2	12th	72·1	10th	26·1
	XII.—Hill Stations																							
48	Baluchistan	Sharigh	?	25·881(a)	?	?	26·000	28th	25·720	8th	·280	70·8(b)	(c) 82·3	?	54·0 (c)	?	68·2	?	28·3	95·0	18th	41·0	6th	54·0
		Pishin	?			Not recorded.						?	76·3	?	43·5	?	59·9	?	32·8	89·6	16th	29·5	3rd	60·1
		Quetta	5,502	24·670	+·050	?	24·769	28th	24·568	22nd	·201	58·2	72·3	−1·3	44·8	−1·6	58·6	−1·5	27·5	84·2	17th	32·3	6th	51·9
		Kalat	?			Not recorded.						59·3(c)	74·4	?	37·5	?	56·0		36·9	86·9	18th	28·4	6th	58·5
		Chaman	4,311	25·704	?	?	25·811	28th	25·542	22nd	·269	66·2	77·9	?	54·3	?	66·1	?	23·6	89·2	16th	42·6	3rd	46·6
30	Punjab	Leh	11,503	19·732	?	?	19·893	15th	19·536	21st	·357	37·0	52·8	?	29·8	?	41·3	?	23·0	63·7	19th & 20th	22·5	1st & 8th	41·2
		Srinagar	5,204	24·956	?	?	25·133	15th	24·806	20th	·327	54·3	62·2	?	44·0	?	53·1	?	18·2	77·8	18th	37·1	7th	40·7
		Skardu (Kashmir).	?	22·921	?	?	23·075	16th	22·764	21st	·311	46·5	58·9	?	42·1	?	50·5	?	16·8	72·4	18th	33·2	2nd	39·2
		Dras	?	20·842	?	?	21·006	15th	20·666	27th	·310	?	?	?	?	?	?	?	?	?	...	?	...	?
		Gilgit	?	24·695	?	?	24·810	3 days	24·510	20th	·300	55·6	66·7	?	50·8	?	58·7	?	15·9	83·9	18th	43·3	3rd	40·6
		Chitral	?			Not recorded.						51·0	65·0	?	46·6	?	55·8	?	18·4	79·9	30th	37·4	5th & 6th	42·5
		Killa Drash	?			Not recorded.						56·7	67·7	?	46·4	?	57·1	?	21·3	82·3	30th	37·8	5th	44·5
		Cherat	?	25·718	?	?	25·821	15th	25·582	27th	·239	57·5	67·6	?	52·9	?	60·3	?	14·7	79·3	18th & 30th	45·2	3rd	34·1
		Murree	6,344	23·865	+·047	?	23·979	15th	23·714	20th	·265	55·2	63·9	−4·5	45·9	−6·1	54·9	−5·3	18·0	80·1	18th	35·5	3rd	44·6
		Poo	?			Not recorded.						?	57·6	?	37·7	?	47·6	?	19·9	72·7	20th	28·8	2nd	43·9
		Simla	7,224	23·145	+·043	?	23·235	15th	23·054	21st	·181	56·7	63·6	−3·2	50·8	−1·7	57·2	−2·5	12·8	75·4	19th	41·2	6th	34·2
25	N.-W. Provinces	Chakrata	6,977	23·354	+·041	?	23·439	11th	23·265	21st	·174	55·7	66·9	−3·6	50·8	−1·2	58·9	−2·4	16·1	80·3	18th	38·2	4th	42·1
		Mussooree	6,705	23·555	?	?	23·645	12th	23·468	21st	·176	58·4	69·0	?	52·8	?	60·9	?	16·2	82·3	18th	41·0	4th	41·3
		Ranikhet	6,069	24·136	+·054	?	24·232	12th	24·052	21st	·180	62·8	73·5	−1·0	56·8	−0·2	65·2	−0·6	16·7	85·5	18th	44·0	21st	41·5
		Muktesar	?	22·893	?	?	23·001	12th	22·791	21st	·210	58·8	68·9	?	50·8	?	59·9	?	18·1	81·6	19th	37·9	21st	43·7
13	Bengal	Yatung	10,180?			Not recorded.						?	55·6	?	43·5	?	49·6	?	12·1	63·0	17th	33·9	9th	29·1
		Darjeeling	7,421	23·016	+·061	?	23·091	19th	22·906	7th	·185	55·0	63·1(b)	+1·7	48·5	+1·0	55·7(b)	+1·4	14·6	70·1	17th	41·1	1st	29·0
		Gantok	5,660?	24·442	?	?	24·523	19th	24·346	24th	·177	61·3	70·9	?	45·1	?	58·0	?	25·8	77·2	16th	37·6	9th	39·6

(a) Aneroid uncorrected. (b) Mean of 29 days. (c) Uncorrected.

I—*continued.*

in India, Burma, etc., in April 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity: Mean velocity in miles per hour.	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 March to 30th April 1897.	Normal rainfall for period, 1st March to 30th April.	Variation from normal of period, 1st March to 30th April.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
3	...	8	8	3	3	3	2	...	6·2	5·0	+24	69	·827	4·0	3	2·27	+0·73	0·52	1·58	− 1·06	1·26	2·46	− 1·20	0·18	Salem	Madras, South Central.	34
...	2	4	6	3	2	1	9	3	2·0	3·5	−43	81	·838	4·1	2	2·18	−0·18	0·99	1·71	− 0·72	1·05	2·30	− 1·25	0·64	Coimbatore.		
23	2	3	...	...	...	...	1	1	4·9	3·8	−29	67	·539	5·6	4	4·70	−0·70	1·12	2·72	− 1·60	1·13	3·59	− 2·46	0·54	Mercara	Coorg.	35
...	1	...	3	3	1	7	9	6	7·9	?	?	53	·561	2·7	2	?	?	1·88	?	?	1·88	1·68	+ 0·20	1·55	Chitaldroog.	Mysore.	36
...	...	1	2	5	9	9	2	2	7·2	3·5	+106	63	·599	3·2	0	1·18	−1·18	0·06	1·15	− 1·09	0·70	1·69	− 0·99	0·03	Bangalore.		
...	...	...	4	8	6	4	3	5	3·1	?	?	64	·581	5·4	3	?	?	2·55	?	?	2·56	2·16	+ 0·40	1·12	Hassan.		
4	1	1	1	3	4	8	5	3	7·8	?	?	69	·653	5·0	6	?	?	2·99	?	?	3·04	3·15	− 0·11	1·85	Mysore.		
11	...	2	3	5	9	...	...	...	8·8	5·2	+69	76	·917	4·0	1	0·55	+0·45	0·22	0·35	− 0·13	0·22	0·89	− 0·67	0·14	Negapatam	Madras, East Coast, South.	56
...	4	...	...	2	8	9	3	4	1·4	?	?	80	·966	2·4	1	0·60	+0·40	0·43	?	?	0·43	1·17	− 0·74	0·38	Cuddalore.		
21	2	...	1	1	2	...	2	1	3·8	4·0	− 5	70	·833	4·0	3	1·27	+1·73	1·30	1·53	− 0·23	1·30	2·08	− 0·78	0·77	Trichinopoly		
...	...	...	1	2	13	11	...	3	6·9	7·9	−13	74	·922	4·3	0	0·27	−0·27	0·07	0·62	− 0·55	0·13	1·01	− 0·88	0·07	Madras.		
4	...	...	...	17	9	...	...	...	6·9	?	?	76	·919	6·3	0	0·30	−0·30	0	?	?	0	0·31	− 0·31	0	Nellore	Madras, East Coast, Central	55
4	2	1	...	6	13	3	1	...	8·1	8·8	− 8	81	1·004	4·7	0	0·27	−0·27	0	0·15	− 0·15	0·81	0·27	+ 0·54	0	Masulipatam.		
...	...	3	15	9	1	2	...	...	?	?	?	60	·818	2·9	0	0·70	−0·70	0	0·38	− 0·38	0·08	0·44	− 0·36	0	Cuddapah.	Madras, Central.	54
15	...	...	11	...	...	2	1	1	?	?	?	52	·635	3·5	2	1·33	+0·67	1·22	0·65	+ 0·57	1·22	1·19	+ 0·03	0·95	Kurnool.		
9	4	...	2	1	1	...	8	5	4·8	5·2	− 8	37	·459	4·7	0	1·27	−1·27	0·07	0·58	− 0·51	0·07	0·80	− 0·73	0·04	Bellary.		
4	1	2	1	5	5	4	7	1	?	?	?	70	·825	6·1	1	0·70	+0·30	0·12	0·39	− 0·27	2·64	0·82	+ 1·82	0·12	Rajahmundry.	Madras, East Coast, North.	52
2	4	...	...	4	3	8	6	3	7·5	?	?	73	·835	2·8	0	0·50	− 0·50	0·06	0·21	− 0·15	3·26	0·74	+ 2·52	0·05	Cocanada.		
14	...	...	...	...	...	2	11	3	2·1	3·9	−46	68	·848	3·7	1	0·36	+ 0·64	0·25	0·49	− 0·24	1·47	0·88	+ 0·59	0·25	Vizagapatam.		
...	6	2	1	...	3	14	1	3	16·9	14·5	+17	72	·820	0·4	1	0·78	+0·22	0·11	0·67	− 0·56	1·09	1·45	− 0·36	0·11	Gopalpur.		
																									XII.—Hill Stations.		
4	8	...	1	6	...	1	...	9	5·5	?	?	33	·244	2·6	3	?	?	1·82	?	?	1·89	1·38	+ 0·51	0·75	Sharigh.*	Baluchistan	48
Not recorded.									?	?	?	?	?	?	0	?	?	0	?	?	0	2·55	− 2·55	0	Pishin.		
29	...	...	...	...	1	...	...	...	5·4	4·8	+13	55	·263	3·3	5	3·55	+1·45	2·28	1·20	+ 1·08	3·65	2·90	+ 0·75	1·05	Quetta.		
...	...	...	...	...	19	3	6	2	?	?	?	48	·234	2·4	2	?	?	0·49	?	?	1·28	2·06	− 0·78	0·34	Kalat.		
...	1	1	5	8	5	7	2	1	8·7	?	?	42	·257	3·9	3	?	?	1·19	?	?	1·96	2·36	− 0·40	0·42	Chaman.		
...	...	4	5	4	8	4	3	2	3·6	?	?	44	·097	6·7	0	?	?	0·07	?	?	0·82	0·44	+0·38	0·07	Leh	Punjab.	30
3	4	1	2	6	4	1	3	6	7·3	?	?	93	·336	7·1	10	?	?	4·93	?	?	10·72	2·71	+ 8·01	1·77	Srinagar.		
14	...	1	...	...	...	2	13	...	5·5	?	?	84	·265	7·4	3	?	?	1·04	?	?	2·86	?	?	0·46	Skardu (Kashmir).		
28	1	...	1	...	...	...	...	...	0·6	?	?	?	?	6·1	10	?	?	4·91	?	?	10·12	?	?	1·23	Dras.		
Not recorded.									?	?	?	56	·239	7·3	4	?	?	0·88	?	?	1·54	?	?	0·20	Gilgit.		
8	3	4	1	1	6	4	2	1	?	?	?	75	·278	6·3	12	?	?	4·20	?	?	8·85	?	?	0·99	Chitral.		
...	7	1	4	1	...	2	13	2	?	?	?	59	·265	?	11	?	?	4·88	?	?	6·66	?	?	0·95	Killa Drash.		
5	13	1	...	...	...	...	2	9	18·2	?	?	64	·295	4·4	12	?	?	5·39	?	?	8·24	?	?	1·41	Cherat.		
...	12	1	1	14	...	...	...	2	11·0	8·7	+26	50	·219	5·7	9	5·64	+2·36	4·77	3·40	+ 1·37	10·79	7·05	+ 3·74	1·25	Murree.		
10	2	1	3	4	8	1	...	1	?	?	?	?	?	3·9	7	?	?	3·12	?	?	9·78	?	?	1·60	Poo.		
12	6	3	1	2	2	1	...	...	5·9	2·9	+103	41	·184	4·1	4	4·09	−0·09	1·65	1·90	− 0·25	3·92	4·14	− 0·22	0·48	Simla.		
6	19	4	...	...	1	...	...	...	11·4	6·1	+87	50	·212	3·5	3	?	?	1·99	1·48	+ 0·51	6·49	3·87	+ 2·62	0·73	Chakrata	N.-W. Provinces.	25
...	1	3	9	...	1	...	2	14	?	?	?	45	·212	2·6	5	1·10	+3·90	1·53	?	?	3·29	4·00	− 0·71	0·69	Mussooree.		
6	3	7	1	3	1	2	1	6	3·4	3·0	+13	51	·245	2·7	1	2·55	−1·55	1·26	1·11	+ 0·15	3·74	3·35	+ 0·39	1·07	Ranikhet.		
...	...	5	3	8	2	1	...	11	2·4	?	?	35	·165	2·4	2	?	?	0·46	?	?	3·31	?	?	0·31	Muktesar.		
Not recorded.									?	?	?	?	?	?	11	?	?	3·43	?	?	6·43	?	?	0·63	Yatung	Bengal.	12
4	1	5	11	3	1	2	2	1	9·5	8·4	+13	78	·340	4·0	6	8·46	−2·46	2·92	4·61	−1·69	5·56	6·26	− 0·70	1·44	Darjeeling.		
11	...	5	1	1	1	1	6	3	5·0	?	?	70	·384	?	11	?	?	9·57	?	?	12·52	?	?	2·39	Gantok.		

* Winds observations of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 210 Stations

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 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.
Central India	Mount Abu	3,945	26·076	+·022	P	26·127	7th	26·009	30th	·118	76·4	84·5	−1·1	68·3	0	76·4	−0·6	16·2	94·2	17th	61·4	21st	32·8
	Pachmarhi	3,528	26·472	+·029	P	26·529	15th	26·398	30th	·131	80·8	93·1	+0·8	70·6	+1·3	81·9	+1·1	22·5	99·7	19th	56·2	9th	43·5
South India	Wellington	6,200	24·272	−·006	P	24·307	6th	24·233	30th	·074	65·9	75·9	0	55·7	−0·3	65·8	−0·2	20·2	79·2	29th	50·6	14th	28·6
XIII.—Extra India.																							
Ceylon	Trincomalee	12	29·903	P	29·841	29·948	6th	29·840	26th	·108	82·4	90·7	P	78·3	P	84·5	P	12·4	95·0	18th & 20th	75·5	25th & 26th.	19·5
	Colombo	40	29·880	−·005	29·846	29·943	19th	29·830	30th	·113	81·6	89·4	P	75·9	P	82·7	P	13·5	92·0	3rd & 9th.	71·0	9th	21·0
Persia	Meshed	3,104			Not recorded.						55·8	P	P	46·1	P	?	P	P	P	...	35·6	19th	P
	Teheran	P	a25·470* a26·004*	? P	P P	25·640 26·200	19th 19th	25·290 25·800	16th 16th	·350 ·400	58·3*	71·6	P	48·5	P	60·1	P	23·1	84·7	30th	36·0	19th	48·7
	Ispahan	P	a24·413 a24·694	P P	P P	24·540 24·810	4th 4th & 28th	24·210 24·500	16th 16th	·330 ·310	58·9	73·7	P	44·9	P	59·3	P	28·8	84·1	30th	38·1	19th	46·0
	Bushire	14	29·906	+·021	29·879	30·017	6th	29·743	14th	·274	75·6	82·2	+0·6	67·7	+1·6	75·0	+1·1	14·5	100·0	30th	61·2	2nd & 4th	38·8
	Jask	P	29·890	P	29·842	30·033	6th	29·770	30th	·263	78·6	86·2	P	72·6	P	79·4	P	13·6	97·3	15th	65·2	4th	32·1
Arabia	Muscat	20	29·889	P	29·857	30·018	6th	29·798	30th	·220	81·5	83·7	P	78·6	P	81·2	P	5·1	92·5	16th	72·3	3rd	20·2
	Baghdad	2202	29·796*	−·054	29·996*	29·981	6th	29·570	27th	·411	67·7*	83·3*	+2·3	59·5*	+5·1	71·4*	+3·7	23·8	91·7	5th	53·8	23rd	37·9
	Aden	94	29·859	+·014	29·885	29·919	2nd	29·786	25th	133	81·6	89·1	−1·5	77·8	+0·2	83·5	−0·7	11·3	99·1	21st	73·4	11th	25·7
	Perim	P	29·718	P	P	29·769	2nd	29·656	23rd	·113	82·5	88·7	P	79·0	P	83·8	P	9·7	93·3	26th	76·3	12th	17·0
Afghanistan	Kabul	P			Not recorded.						49·2	65·4	P	43·5	P	54·4	P	21·9	79·2	30th	32·0	4th	47·2
Central Asia	Kashgar	P																					
Arabian Sea Islands.	Amini Devi	15																					
Africa	Zanzibar	73	30·011	P	30·011	30·070	29th	29·959	10th	·111	78·9	84·2	P	77·1	P	80·6	P	7·1	89·0	6th	73·6	20th	15·4

* Mean of 29 days.
(*a*) Aneroid uncorrected.

I—*concluded.*

in India, Burma, etc., in April 1897—concluded.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	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 March to 30th April 1897.	Normal rainfall for period, 1st March to 30th April.	Variation from normal of period 1st March to 30th April.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
3	2	3	2	2	1	9	2	6	8·5	7·7	+10	29	·260	9·0	0	0·09	−0·09	0·08	0·06	+ 0·02	0·08	0·18	− 0·10	0·08	Mount Abu	Central India.
13	1	1	4	2	3	3	...	3	9·9	5·3	+87	42	·423	2·2	0	0·45	−0·45	0·09	0·23	− 0·14	0·09	0·55	− 0·46	0·06	Pachmarhi	
22	1	6	1	...	...	...	...	...	2·6	2·9	−10	71	·444	4·9	6	4·50	+1·50	4·94	2·78	+ 2·16	8·05	5·59	+ 2·46	2·53	Wellington.	South India.
																									XIII.—Extra India.	
5	...	...	...	...	2	23	...	...	1·3	?	?	84	·933	3·2	6	?	?	4·02	1·75	+2·27	5·31	2·96	+ 2·35	1·99	Trincomalee	Ceylon.
...	...	1	4	20	4	1	...	...	6·5	5·6	+16	83	·903	4·5	13	?	?	11·07	12·32	−1·25	14·63	16·97	− 2·34	4·63	Colombo.	
				Not	recorded.				?	?	?	67	·304	4·9	6	?	?	3·27	?	?	5·19	?	?	1·82	Meshed.	Persia.
15	...	1	2	1	5	1	3	1	3·6	?	?	?	?	2·3*	2	?	?	0·93	?	?	3·66	?	?	0·46	Teheran.	
1	1	5	3	2	1	4	7	6	6·3	?	?	84	·423	2·5	2	?	?	0·38	?	?	0·58	?	?	0·27	Ispahan.	
2	6	3	3	6	1	1	1	7	9·8	9·1	+8	62	·542	3·4	0	?	?	0·06	0·68	−0·62	0·37	1·40	−1·03	0·06	Bushire.	
2	1	...	16	3	...	...	...	7	6·5	?	?	77	·765	1·5	0	?	?	0	?	?	0·12	?	?	0	Jask.†	
...	...	3	9	4	2	1	4	7	3·6	?	?	70	·742	1·2	0	?	?	0	?	?	0·03	1·14	−1·11	0	Muscat	Arabia.
11	8	1	1	...	3	...	1	4	4·2*	?	?	62*	·421*	0*	2	?	?	0·45	?	?	1·10	3·12	−2·02	0·33	Baghdad.	
1	1	7	19	1	1	...	...	...	14·1*	14·8	−5	76	·816	3·1	0	?	?	0	0·66	−0·66	0	1·82	−1·82	0	Aden.	
...	...	...	14	16	...	...	...	...	20·2	?	?	77	·858	5·0	0	?	?	0	?	?	0	0·16	−0·16	0	Perim.	
3	...	2	7	...	8	3	7	...	?	?	?	73	·259	4·0	12	?	?	5·39	?	?	8·80	?	?	1·40	Kabul	Afghanistan.
																									Kashgar	Central Asia.
																									Amini Devi	Arabian Sea Islands.
...	...	...	...	3	16	11	...	...	5·8	?	?	89	·880	7·1	20	?	?	19·30	?	?	28·14	16·99	+11·15	2·76	Zanzibar	Africa.

† Wind observations of 29 days.

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.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Burma Coast and Bay Islands.	Port Blair	...	29·882	29·774	·108	29·821	+·022	29·812	93·6	80·3	13·3	96·4	77·5	18·9	90·4	90·3	85·3	+1·5	77·4	82·6	82·1	80·7
	Rangoon	...	·881	·723	·158	·806	+·009	·783	100·6	76·9	23·7	105·1	73·6	31·5	90·0	95·6	86·4	+1·7	73·9	78·3	79·2	77·1
	Diamond Island	...	·890	·771	·119	·823	+·001	·798	87·8	80·6	7·2	91·2	78·8	12·4	85·6	85·2	82·7	+0·8	77·2	78·4	78·6	78·1
	Cocos Island	111																				
	Akyab	...	·913	·778	·135	·843	+·013	·805	91·0	75·1	15·9	94·9	68·7	26·2	87·1	87·9	82·5	−0·3	72·3	80·6	82·4	78·4
Assam.	Silchar	...	·815	·670	·145	·744	+·024	·798	91·9	69·4	22·5	97·2	61·4	35·8	83·5	89·8	80·0	+2·4	67·3	74·2	75·5	72·3
	Sibsagar	...	·597	·443	·154	·518	+·029	·809	84·3	65·3	19·0	90·2	58·1	32·1	76·2	83·2	74·0	+0·8	64·7	69·8	72·5	69·0
	Dhubri	...	·774	·617	·157	·690	+·035	·759	91·1	70·7	20·4	99·5	62·8	36·7	81·6	89·9	79·8	+1·7	66·8	72·3	73·8	71·0
Bengal and Orissa.	Chittagong	...	·829	·706	·123	·762	+·017	·796	92·6	74·0	18·6	97·7	68·1	29·6	88·7	88·3	82·4	+1·9	71·7	77·8	77·8	75·8
	Narayanganj	...	·865	·725	·140	·794	+·039	·768	93·3	74·4	18·9	101·0	66·2	34·8	85·1	90·8	82·9	+0·6	70·8	76·8	76·9	74·8
	Calcutta (Alipore)	...	·856	·720	·136	·786	+·038	·752	97·2	75·0	22·2	103·7	67·6	36·1	88·0	95·4	85·7	+0·7	70·1	75·3	74·9	73·4
	Saugor Island	...	·857	·734	·123	·791	+·038	·760	91·3	79·9	11·4	95·0	68·8	26·2	87·1	88·7	84·1	+0·6	75·4	79·6	80·6	78·5
	Burdwan	...	·771	·614	·157	·691	+·044	·734	103·4	74·5	28·9	113·3	66·8	46·5	92·0	101·1	87·5	+0·5	68·2	74·7	73·5	72·1
	Berhampore	...	·795	·643	·152	·717	+·043	·732	101·1	73·9	27·2	110·4	65·3	45·1	90·9	100·4	86·4	+0·4	65·3	73·6	73·0	70·6
	False Point	...	·881	·759	·122	·818	+·040	·780	91·1	77·4	13·7	95·8	67·7	28·1	88·7	87·6	82·6	+0·7	76·0	79·3	80·4	78·6
	Cuttack	...	·808	·665	·143	·742	+·051	·762	100·0	77·4	22·6	108·4	71·4	37·0	89·8	98·2	86·5	−0·1	72·8	76·1	75·6	74·8
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·866	27·760	·106	27·815	+·045	·714	98·2	73·1	25·1	105·1	64·3	40·8	90·7	94·4	85·1	+0·9	58·5	65·1	65·4	63·0
	Patna	...	29·657	29·508	·149	29·581	+·031	·711	102·0	74·0	28·0	110·2	64·6	45·6	92·5	100·1	87·3	+0·8	64·0	73·1	73·8	70·3
	Darbhanga	...	·689	·533	·156	·609	+·040	·726	97·4	71·4	26·0	105·8	60·6	45·2	87·7	97·1	84·1	0	65·6	72·2	71·6	69·8
	Allahabad	...	·545	·405	·140	·470	+·051	·723	105·1	73·8	31·3	113·2	65·0	48·2	96·6	103·1	89·5	+1·8	59·2	67·8	67·9	65·0
	Lucknow	...	·486	·367	·119	·425	+·063	·741	102·8	72·2	30·6	111·1	61·2	49·9	93·3	100·4	88·2	+0·9	59·8	68·0	69·4	65·7
Upper Sub-Himalayas.	Dehra Dun	...	27·643	27·545	·098	27·582	+·045	·739	90·5	62·9	27·6	103·4	54·0	49·4	80·6	87·5	76·6	−0·5	54·2	61·8	62·0	59·3
	Roorkee	...	28·950	28·841	·109	28·887	+·056	·723	97·2	66·2	31·0	109·7	55·6	54·1	88·1	95·1	81·8	+0·4	57·1	65·7	66·0	62·9
	Meerut	...	29·111	29·006	·105	29·052	+·061	·740	97·1	67·9	29·2	107·8	59·8	48·0	90·2	95·5	82·6	+0·1	58·6	66·4	66·7	63·9
	Lahore	...	·161	·066	·095	·108	+·070	·774	92·9	67·0	25·9	105·8	55·2	50·6	83·1	92·1	80·1	+0·5	58·8	66·5	68·4	64·6
	Ludhiana	...	·037	28·944	·093	28·985	+·067	·758	95·0	67·8	27·2	109·9	59·2	50·7	85·4	92·5	81·3	+0·4	59·7	67·3	67·6	64·9
Indus Valley and N.-W. Rajputana.	Peshawar	...	28·845	·759	·086	·797	+·109	·906	80·6	58·2	22·4	94·0	49·5	44·5	73·8	78·2	69·2	−3·9	55·0	63·6	64·7	61·1
	Mooltan	...	29·455	29·345	·110	29·395	+·067	·779	97·1	68·1	29·0	109·5	58·9	50·6	84·9	94·8	82·4	+0·1	58·8	66·5	69·4	64·9
	Jacobabad	...	·690	·560	·130	·620	+·071	·761	101·2	68·6	32·6	112·9	54·5	58·4	90·4	98·9	84·7	−1·3	58·2	66·2	69·0	64·5
	Kurrachee	...	·913	·810	·103	·860	+·050	·822	91·1	72·6	18·5	98·5	65·0	33·5	86·6	85·8	79·7	0	69·7	75·1	76·3	73·7
E. Rajputana, C. India and Gujarat.	Jeypore	...	28·474	28·366	·108	28·414	+·068	·773	99·4	70·0	29·4	109·5	59·0	50·5	90·9	97·2	84·0	−1·1	57·6	66·9	68·5	64·3
	Ajmere	...	·290	·185	·105	·231	+·050	·768	97·7	69·0	28·7	107·8	54·7	53·1	89·9	96·1	84·2	−0·4	58·2	68·1	70·9	65·7
	Deesa	...	29·427	29·300	·127	29·358	+·035	·765	104·7	71·5	33·2	115·2	62·4	52·8	94·1	102·7	88·4	+0·4	58·2	67·9	68·5	64·9
	Nowgong	...	·112	28·987	·125	·044	+·053	·734	102·4	72·2	30·2	110·5	61·4	49·1	94·7	101·2	87·4	0	57·8	66·9	68·2	64·3
	Agra	...	·309	·186	·123	·239	+·052	·742	100·2	74·6	25·6	110·3	65·7	44·6	91·6	97·0	87·0	+0·1	60·8	70·1	72·0	67·6
Deccan.	Belgaum	...	27·404	27·282	·122	27·346	+·023	·728	97·0	68·6	28·4	101·3	63·1	38·2	87·6	88·8	80·2	+1·0	63·8	67·2	71·0	67·3
	Sholapur	...	28·309	28·151	·158	28·229	+·026	·707	104·7	77·5	27·2	109·4	71·4	38·0	94·2	102·1	90·2	+1·3	64·8	69·9	71·2	68·7
	Poona	...	·075	27·935	·140	·011	+·022	·734	103·7	70·6	33·1	109·6	62·2	47·4	91·9	99·4	86·6	+1·7	61·3	66·3	68·6	65·4
	Akola	...	·946	28·791	·155	·863	+·030	·713	107·3	78·1	29·2	114·0	69·3	44·7	97·7	105·3	93·0	+2·5	61·4	71·0	72·8	68·4
	Buldana	2,132	27·784	27·649	·135	27·711	+·032	·710	101·5	77·5	24·0	105·9	71·5	34·4	92·3	99·2	89·7	+1·4	59·0	65·0	66·3	63·4

II.

at 84 Stations in India, Burma, etc., for April 1897.

Vapour Tension.					Humidity.				Cloud.				Wind Direction. Number to Winds from											Wind Steadiness.		Wind Velocity.		Rainfall.			
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.	Station.	Meteorological Province.
																									%	%						
·902	1·010	·985	·966	+·037	87	71	69	76	−1	3·7	4·9	4·3	0	2	1	11	23	14	2	2	4	1	S 84° E	N 89° E	59	41	80	116	...	...	Port Blair	Burma Coast and Bay Islands.
·798	·814	·780	·797	+·013	86	58	47	64	−2	2·8	3·9	3·4	0	...	1	...	3	17	18	9	8	4	S 4° W	S 25° W	55	58	122	136	...	...	Rangoon	
·893	·874	·890	·886	+·035	85	71	73	76	0	2·8	3·6	3·2	−0·2	...	1	...	1	1	...	1	5	51	N 49° W	N 60° W	90	73	376*	187	...	...	Diamond Island	
																															Cocos Island.	
·760	·962	1·039	·920	+·098	87	75	78	80	+7	4·8	4·6	4·7	+1·5	...	3	3	5	8	4	5	11	21	N 68° W	S 65° W	30	37	100	96	...	...	Akyab	
·649	·727	·695	·690	−·026	89	63	50	67	−9	3·5	2·9	3·2	−2·3	44	...	1	2	...	...	1	7	5	N 67° W	S 89° E	15	19	55*	80	...	...	Silchar	Assam.
·613	·653	·659	·642	−·032	97	72	59	76	−5	5·7	3·8	4·7	−1·9	7	1	43	1	4	...	2	1	1	N 48° E	N 56° E	70	54	174*	70	...	...	Sibsagar	
·613	·677	·624	·638	−·017	81	63	45	63	−6	2·2	1·0	1·6	−1·9	5	1	23	11	1	2	14	3	...	N 73° E	N 72° E	27	33	191*	209	...	...	Dhubri	
·757	·811	·814	·794	−·022	90	60	61	70	−4	3·5	2·6	3·1	−1·0	1	3	1	1	3	8	25	12	6	S 57° W	S 9° W	60	44	107*	165	...	...	Chittagong	Bengal and Orissa.
·714	·819	·749	·761	−·038	83	68	54	68	−5	3·9	3·5	3·7	−0·5	...	...	1	1	12	22	14	5	5	S 13° W	S 2° E	62	62	168	171	...	...	Narayanganj	
·678	·713	·602	·664	−·127	77	55	38	57	−11	3·1	2·3	2·7	0	...	1	2	1	2	15	24	8	7	S 45° W	S 7° W	61	71	161	169	...	...	Calcutta (Alipore).	
·829	·916	·941	·895	−·040	81	71	70	74	−5	4·5	3·2	3·8	−0·9	...	5	...	...	3	35	13	2	2	S 15° W	S 14° W	68	78	417	419	...	...	Saugor Island.	
·615	·637	·463	·572	−·080	71	45	25	47	−7	2·6	2·6	2·6	0	1	7	1	3	7	10	13	14	4	S 52° W	S 38° W	37	48	97*	120	...	...	Burdwan	
·519	·607	·452	·526	−·108	62	43	25	43	−15	1·8	1·9	1·9	−1·2	5	2	1	3	2	6	18	11	12	S 72° W	S 30° W	48	35	82*	122	...	...	Berhampore	
·886	·883	·946	·905	0	94	66	72	77	−6	2·7	3·6	3·2	−0·2	1	1	...	1	4	36	13	2	2	S 11° W	S 31° W	77	79	273*	341	...	...	False Point	
·751	·721	·589	·687	−·079	79	52	34	55	−6	2·0	3·4	2·7	0	7	8	4	1	7	8	19	6	...	S 34° W	S 19° W	32	55	88	124	...	...	Cuttack	
·316	·304	·270	·297	−·006	40	23	18	27	−1	2·9	4·1	3·5	+0·7	1	13	2	1	...	2	10	8	23	N 53° W	N 74° W	60	46	207	216	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·475	·561	·484	·507	+·035	56	38	25	40	−1	0·8	1·9	1·4	−0·4	2	4	3	9	2	1	5	24	10	N 72° W	N 32° W	38	26	114*	116	...	...	Patna	
·564	·592	·442	·533	−·039	72	45	26	48	−4	0·6	0·7	0·6	−0·4	...	3	2	15	14	1	3	13	9	S 64° E	S 46° E	8	15	129	142	...	...	Darbhanga	
·315	·299	·214	·276	−·108	38	18	11	22	−9	1·5	2·6	2·1	+0·7	...	7	5	4	3	2	5	15	19	N 54° W	N 54° W	46	35	140*	96	...	...	Allahabad	
·355	·355	·308	·339	−·067	46	24	16	29	−5	1·1	1·5	1·3	−0·7	1	7	3	...	1	1	4	36	7	N 77° W	N 52° W	70	40	78*	104	...	...	Lucknow	
·317	·321	·241	·293	−·029	56	30	19	35	−2	2·9	3·5	3·2	+0·4	7	5	6	3	4	5	7	16	7	N 85° W	N 82° W	27	28	51	54	...	...	Dehra Dun	
·350	·335	·256	·314	−·012	55	27	16	33	−1	1·6	2·7	2·2	+0·2	25	...	2	2	3	2	4	1	21	N 55° W	N 72° W	27	20	71	78	...	...	Roorkee	Upper Sub-Himalaya.
·374	·332	·274	·327	−·059	55	24	17	32	−5	1·8	2·5	2·2	+0·2	16	2	...	2	1	...	5	16	18	N 70° W	N 60° W	52	45	82*	60	...	...	Meerut	
·393	·432	·382	·403	+·019	60	39	26	42	+5	3·7	3·9	3·8	+1·4	4	11	1	10	5	2	...	14	13	N 31° W	N 23° W	30	27	79	77	...	...	Lahore	
·411	·429	·345	·395	−·017	61	37	24	41	−2	1·2	1·5	1·4	−1·6	27	10	6	...	2	...	...	1	14	N 13° W	N 54° W	38	28	41	54	...	...	Ludhiana	
·397	·467	·448	·437	+·027	80	58	49	62	+10	4·6	5·9	5·3	+0·9	13	5	7	7	4	4	5	7	8	N 14° W	N 8° E	8	25	82*	104	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·379	·409	·382	·390	−·089	55	35	24	38	−6	1·7	2·2	2·0	+0·4	16	1	20	2	3	1	10	1	6	N 31° E	N 11° W	18	16	54*	55	...	...	Mooltan	
·353	·321	·313	·329	−·034	51	23	18	31	−1	2·5	2·4	2·4	−0·1	12	3	2	14	12	1	7	2	7	S 67° E	S 65° E	22	13	138*	100	...	...	Jacobabad	
·695	·720	·784	·733	+·001	86	57	64	69	−1	1·8	1·9	1·9	+0·2	1	...	1	1	1	3	29	23	1	S 61° W	S 69° W	79	81	269*	329	...	...	Kurrachee	
·330	·364	·344	·346	+·020	44	26	19	29	+1	2·9	4·1	3·5	+1·2	...	3	4	2	2	2	12	20	15	N 82° W	N 52° W	55	52	114	124	...	...	Jeypore	E. Rajputana, C. India and Gujarat.
·360	·417	·444	·407	+·003	50	30	26	35	0	1·9	2·8	2·3	+0·4	5	2	5	1	4	2	5	24	12	N 79° W	S 86° W	48	55	116	140	...	...	Ajmere	
·318	·338	·240	·298	−·061	41	22	12	25	−3	1·0	0·9	1·0	−0·7	...	10	6	3	1	2	6	16	16	N 52° W	S 88° W	50	57	211	228	...	...	Deesa	
·291	·291	·250	·277	−·078	37	18	13	23	−8	1·9	2·8	2·4	+0·2	1	5	2	15	1	2	1	22	11	N 51° W	N 78° W	28	59	84*	70	...	...	Nowgong	
·357	·455	·459	·424	+·076	41	30	26	32	+4	0·9	1·4	1·2	−0·2	...	...	2	...	5	...	14	...	39	N 64° W	N 78° W	60	52	166*	118	...	...	Agra	
·539	·419	·543	·500	−·020	76	33	42	50	−1	2·4	4·8	3·6	+0·8	...	5	4	10	7	5	3	9	13	N 27° W	N 77° W	10	35	285	320	...	...	Belgaum	Deccan.
·461	·432	·380	·424	+·025	49	27	18	31	+1	2·4	5·9	4·2	+0·8	3	6	1	7	16	2	9	2	14	S 14° E	N 5° E	53	13	242*	213	...	...	Sholapur	
·433	·330	·317	·360	−·014	58	22	17	32	+1	1·8	3·9	2·9	+0·4	...	1	3	3	3	1	11	23	15	N 85° W	N 62° W	57	55	304*	234	...	...	Poona	
·276	·405	·371	·368	+·067	34	23	17	24	+1	2·4	4·9	3·6	+1·6	1	2	5	2	2	5	8	9	26	N 66° W	N 48° W	48	58	138*	139	...	...	Akola	
·328	·280	·237	·264	−·037	29	18	13	20	−4	1·6	3·5	2·6	+0·3	10	7	5	2	3	4	2	5	22	N 38° W	N 33° W	39	58	184	212	0·03	0·03	Buldana	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 84 Stations

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Deccan—*concluded.*	Khandwa	...	28·840	28·694	·146	28·762	+·034	29·726	106·3	76·4	29·9	112·9	63·6	49·3	96·9	104·8	92·0	+2·1	59·6	67·2	69·0	65·3
	Hoshangabad	...	·868	·719	·149	·789	+·032	·719	104·7	75·9	28·8	111·3	61·6	49·7	95·8	103·4	91·0	+1·4	60·0	70·5	72·8	67·8
	Nagpur	...	·842	·686	·156	·759	+·038	·705	106·3	78·6	27·7	113·0	66·5	46·5	95·6	103·2	92·5	+2·0	63·7	70·7	71·4	68·6
	Do. (Sanitary Commr.'s Office)	...	·863	·717	·146	·785	?	·721	107·4	78·3	29·1	113·6	67·0	46·6	97·3	104·5	92·1	?	65·7	72·4	73·4	70·5
	Jubbulpore	...	·553	·414	·139	·479	+·045	·721	101·9	71·3	30·6	108·1	59·1	49·0	93·6	99·2	87·0	+0·7	62·6	68·5	70·2	67·1
	Saugor	...	·075	27·945	·130	·005	+·036	·704	100·7	75·1	25·6	107·6	66·6	41·0	92·9	98·4	86·3	−0·6	62·5	72·0?	75·1?	69·9?
	Sutna	...	·822	28·681	·141	·747	+·048	·716	101·8	73·7	28·1	109·6	65·2	44·4	95·4	100·2	88·1	+1·5	57·9	66·8	68·3	64·3
	Raipur	...	·908	·754	·154	·826	+·048	·705	102·9	77·0	25·9	110·5	65·7	44·8	93·4	100·7	90·3	+0·2	65·3	70·8	70·3	68·8
	Hyderabad (Deccan).	...	·222	·082	·140	·149	+·043	·729	102·3	78·3	24·0	106·5	73·6	32·9	92·5	99·3	89·5	+1·4	69·3	74·8	74·8	73·0
West-Coast.	Bombay	...	29·893	29·774	·119	29·832	+·022	·808	88·7	77·6	11·1	93·5	71·0	22·5	84·7	85·6	82·3	−0·3	73·1	77·3	77·4	75·9
	Ratnagiri	...	·811	·702	·109	·754	+·028	·801	90·1	78·3	11·8	93·6	71·9	21·7	86·9	87·0	83·3	+0·5	74·0	77·7	78·1	76·6
	Karwar	...	·888	·775	·113	·829	+·019	·804	89·8	77·9	11·9	92·1	71·7	20·4	86·2	87·3	83·1	+0·1	75·0	77·3	78·3	76·8
	Cochin	...	·916	·814	·102	·863	+·011	·800	92·4	78·4	14·0	94·8	71·2	23·6	87·5	89·6	84·6	+0·4	75·9	80·0	81·2	79·0
South India.	Salem	...	·004	28·845	·159	28·934	+·017	·789	101·0	77·0	24·0	104·0	72·8	31·2	90·0	96·5	86·7	+0·6	73·6	77·3	77·6	76·2
	Mercara	...	26·262	26·154	·108	26·217	+·015	?	86·2	65·2	21·0	91·0	62·5	28·5	78·0	80·3	74·2	+1·5	61·4	67·0	68·1	65·5
	Chitaldroog	...	27·539	27·401	·138	27·469	+·030	·729	97·8	74·2	23·6	101·1	65·9	35·2	87·6	95·5	85·4	+2·2	63·5	70·1	70·0	67·9
	Bangalore	...	26·964	26·836	·128	26·904	+·024	·744	94·2	70·5	23·7	97·1	66·1	31·0	84·4	91·5	81·6	+1·5	63·6	68·7	66·6	66·3
	Hassan	...	·902	·781	·121	·846	+·027	·756	92·6	66·5	26·1	96·4	60·1	36·3	84·0	89·2	78·7	+1·1	63·1	67·7	66·9	65·9
	Mysore	...	27·448	27·305	·143	27·377	+·024	·751	95·0	71·2	23·8	98·2	66·4	31·8	84·3	93·0	82·6	+1·8	66·2	70·5	68·9	68·5
	Trichinopoly	...	29·672	29·518	·154	29·604	+·025	·786	100·3	78·0	22·3	104·2	73·6	30·6	91·4	96·6	87·0	−0·2	74·2	77·3	76·4	76·0
	Madras	...	·914	·799	·115	·863	+·041	·814	93·0	77·6	15·4	96·0	72·6	23·4	89·6	88·2	84·3	−0·4	?	79·3	79·7	78·7
	Bellary	...	28·438	28·286	·152	28·361	+·026	·736	104·0	78·0	26·0	107·2	72·9	34·3	92·0	99·6	89·6	+0·4	66·3	69·1	70·6	68·7
	Cocanada	...	29·910	29·775	·135	29·840	+·063	·801	94·0	80·0	14·0	100·8	76·0	24·8	88·3	92·2	86·6	+0·3	75·6	77·8	78·3	77·2
	Vizagapatam	...	·884	·766	·118	·822	+·036	·790	93·7	79·1	14·6	97·9	73·6	24·3	91·1	89·5	86·1	0	75·5	78·6	78·4	77·5
Hill Station, Baluchistan.	Quetta	...	24·683	24·618	·065	24·643	+·051	?	72·9	44·8	28·1	84·0	32·2	51·8	65·5	69·2	57·9	−1·6	40·2	51·2	52·6	48·0
Hill Stations, Punjab.	Leh	...	19·739	19·663	·076	19·707	+·020	?	53·5	29·8	23·7	63·7	22·5	41·2	44·3	49·6	42·0	−1·0	26·2	33·9	37·5	32·5
	Srinagar	...	24·969	24·899	·070	24·926	+·072	?	62·5	43·9	18·6	77·8	37·1	40·7	54·7	60·4	52·7	−4·6	43·5	51·9	56·6	50·7
	Murree	...	23·882	23·869	·013	23·868	+·044	?	64·3	45·9	18·4	80·1	35·5	44·6	58·4	59·9	54·0	−4·9	40·1	47·2	48·6	45·3
	Kailang	10,087	20·838	20·799	·039	20·831	+·017	?	47·5	27·5	20·0	55·2	19·5	35·7	38·7	42·0	36·0	−4·1	26·0	33·5	36·3	31·9
	Simla (Ridge)	...	23·173	23·127	·046	23·142	+·054	?	64·0	50·6	13·4	75·4	41·2	34·2	59·6	60·6	56·5	−3·3	42·4	47·6	48·0	46·0
Hill Stations, N.W.P.	Chakrata	...	·381	·328	·056	·348	+·039	?	67·0	50·9	16·1	80·1	38·2	41·9	62·0	63·1	58·0	−1·7	43·2	48·5	47·3	46·3
	Ranikhet	...	24·161	24·096	·065	24·117	+·054	?	73·8	56·8	17·0	85·4	44·1	41·3	68·4	69·8	64·3	−0·6	47·7	54·0	53·7	51·8
	Muktesar	...	22·914	22·874	·040	22·894	?	?	68·9	50·8	18·1	81·5	37·9	43·6	62·8	64·2	58·7	?	41·5	47·8	49·1	46·1
Hill Station, Nepal.	Katmandu	4,388	25·614	25·531	·083	25·571	+·022	?	85·5	52·4	33·1	93·2	43·3	49·9	76·2	79·2	67·4	+0·9	50·3	60·5	60·8	57·2
Hill Station, Bengal.	Darjeeling	...	23·037	22·952	·085	22·993	+·056	?	63·6	48·5	15·1	70·1	41·1	29·0	58·4	58·2	54·6	+0·7	46·0	53·3	53·9	51·1
Hill Stations, Central India.	Mount Abu	...	26·097	26·017	·080	26·052	+·024	?	85·0	68·1	16·9	94·2	61·8	32·4	79·6	82·9	76·0	−0·5	52·8	58·9	60·3	57·4
	Pachmarhi	...	·487	·387	·100	·432	+·035	?	93·2	70·6	22·6	99·7	56·2	43·5	85·7	90·8	82·8	+1·1	58·2?	67·0?	69·2?	64·8?
	Chikalda	3,642	·386	·279	·107	·328	+·044	?	93·4	73·6	19·8	99·0	68·3	30·7	85·2	91·1	84·4	+1·2	58·0	61·3	63·2	60·8

II—*continued.*

in India, Burma, etc., for April 1897—continued.

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.		
																									%	%						
·311	·299	·265	·292	−·047	34	17	12	21	−5	1·0	2·5	1·8	−0·1	...	6	13	2	4	...	5	10	20	N 31° W	N 49° W	43	62	157	148	...	...	Khandwa	Deccan—*undivided.*
·325	·435	·424	·395	+·038	36	26	19	27	−1	1·5	3·1	2·3	0	22	2	4	7	1	4	5	9	6	N 83° W	S 89° W	10	30	43	73	...	...	Hoshangabad	
·409	·442	·370	·407	+·022	42	28	18	29	+1	2·4	6·4	4·4	+1·4	11	4	4	3	4	10	12	4	8	S 47° W	N 65° W	22	22	149	138	...	...	Nagpur	
·481	·487	·433	·467	?	50	28	20	33	?	1·4	5·8	3·6	?	16	9	5	6	4	8	3	6	3	N 52° E	?	5	?	63*	?	...	...	Do. (Sanitary Commr.'s Office)	
·466	·387	·378	·410	+·071	61	25	21	36	+6	1·8	3·7	2·7	+0·6	4	5	7	1	8	6	9	8	12	N 88° W	N 71° W	19	34	83	79	...	...	Jubbulpore	
·414	·525?	·579?	·506?	?	48	34?	32?	38?	?	1·5	4·1	2·8	+1·4	4	8	9	8	2	2	6	9	12	N 22° W	N 80° W	27	46	214	94	...	...	Saugor	
·290	·301	·297	·296	+·036	35	18	16	23	0	0·9	1·3	1·1	−0·6	2	5	5	4	4	5	1	11	23	N 47° W	N 61° W	40	56	143*	163	...	...	Raipur	
·473	·454	·338	·422	+·021	52	30	18	33	+2	2·3	4·8	3·5	+1·0	18	1	4	2	2	3	24	3	3	S 46° W	N 89° W	37	42	182*	158	...	...	Sutna	
·607	·647	·558	·604	+·068	63	43	30	45	+1	2·3	3·1	2·7	+0·4	12	...	3	10	18	6	2	8	1	S 40° E	N 58° W	38	2	117*	113	...	...	Hyderabad (Deccan)	
·759	·842	·838	·813	−·003	80	70	68	73	−1	1·9	1·0	1·5	−0·7	...	1	...	2	1	3	6	17	30	N 70° W	N 57° W	70	55	242	264	...	...	Bombay	West Coast.
·789	·833	·846	·823	+·020	81	64	66	70	0	0·3	1·7	1·0	−0·4	...	4	...	...	...	...	11	21	24	N 74° W	N 76° W	79	62	224	220	...	...	Ratnagiri	
·832	·818	·850	·833	+·002	87	65	65	73	0	2·8	2·7	2·8	+0·3	...	6	...	...	...	...	16	16	22	N 76° W	N 84° W	73	76	150	98	...	...	Karwar	
·867	·923	·952	·914	+·028	89	71	68	76	0	5·3	4·6	5·0	+1·1	8	3	2	...	...	...	2	21	24	N 62° W	N 77° W	72	58	148	152	...	...	Cochin	
·785	·767	·695	·749	+·018	84	54	41	60	+1	3·8	5·0	4·4	+0·7	4	2	11	16	10	5	8	2	2	S 73° E	S	38	30	150	110	...	...	Salem	South India.
·506	·540	·549	·532	−·055	81	57	56	65	−9	5·6	6·5	6·1	+0·6	26	9	6	2	...	...	3	8	6	N 28° W	N 64° W	28	49	115	96	...	...	Mercara	
·458	·521	·415	·465	−·015	55	40	25	40	−5	3·3	4·4	3·9	+0·4	1	4	10	12	7	2	4	10	10	N 27° E	N 32° W	15	16	165*	178	...	...	Chitaldroog	
·512	·523	·367	·467	−·069	69	44	26	46	−7	2·8	4·3	3·6	+0·3	...	1	8	12	13	9	8	2	7	S 49° E	S 33° W	32	40	175*	101	...	...	Bangalore	
·549	·492	·404	·482	−·077	84	43	32	53	−8	5·0	6·7	5·8	+0·6	...	2	16	15	10	2	7	2	6	N 81° E	N 21° E	38	12	74*	95	...	...	Hassan	
·583	·578	·413	·525	−·043	77	49	27	51	−7	5·2	6·5	5·9	+1·4	17	4	13	10	7	2	3	2	2	N 73° E	S 79° E	32	2	185*	189	...	...	Mysore	
·796	·747	·640	·728	+·014	83	51	38	57	+2	3·5	5·0	4·2	0	33	1	3	10	11	1	...	1	...	S 73° E	S 57° E	33	18	91	96	...	...	Trichinopoly	
?	·865	·903	·906	+·036	?	62	68	77	+3	4·4	3·5	3·9	+0·9	...	...	...	5	31	20	4	...	...	S 28° E	S 37° E	85	83	159	185	...	...	Madras	
·501	·426	·386	·438	−·084	52	28	21	34	−5	5·3	7·4	6·3	+2·9	8	4	3	10	5	9	2	9	10	S 74° W	S 63° W	3	8	114	127	...	...	Bellary	
·830	·815	·784	·810	−·010	81	61	52	65	−2	1·7	1·8	1·8	+0·1	...	1	2	5	17	13	17	4	1	S 3° E	S 10° W	57	52	180*	186	...	...	Cocanada	
·839	·811	·822	·824	−·012	84	56	59	67	0	3·2	3·5	3·4	+0·6	...	...	2	...	4	18	24	7	5	S 40° W	S 45° W	67	68	50	97	...	...	Vizagapatam	
·208	·233	·228	·223	−·035	69	39	34	47	−3	3·3	4·0	3·6	+0·4	20	7	2	...	...	3	6	9	13	N 64° W	N 81° W	40	34	?	92	...	...	Quetta	Hill Station, Baluchistan.
·115	·108	·123	·115	+·005	70	41	36	49	+5	6·5	8·0	7·3	+1·1	...	5	5	2	...	11	18	11	8	S 68° W	S 62° W	42	25	87	70	...	...	Leh	Hill Stations, Punjab.
·281	·361	·426	·356	+·028	97	85	81	88	+17	6·0	6·5	6·2	+1·9	11	17	3	1	4	6	3	4	11	N 26° W	N 5° W	30	12	135*	96	...	...	Srinagar	
·191	·213	·231	·212	−·015	64	47	48	53	+6	6·0	6·4	6·2	+1·0	...	8	2	1	23	16	1	2	7	S 31° E	S 29° E	37	21	295*	223	...	...	Murree	
·131	·151	·168	·150	−·004	86	64	63	71	+10	5·0	7·1	6·1	+0·4	...	1	...	...	2	6	18	25	8	S 72° W	S 63° W	73	73	54	50	5·33	1·75	Kailang	
·189	·209	·208	·202	−·026	53	42	41	45	+1	4·9	6·6	5·7	+1·6	7	14	6	3	...	14	9	...	5	N 63° E.	S 67° W	5	28	140	138	...	...	Simla (Ridge)	
·205	·203	·165	·191	−·029	56	39	31	42	−1	3·7	5·6	4·7	+1·2	9	8	4	2	2	32	2	1	...	S 9° E	S 64° W	40	24	275	156	...	...	Chakrata	Hill Stations, N. W. P.
·242	·271	·248	·254	−·011	54	41	37	44	0	2·8	3·6	3·2	0	12	8	8	2	2	6	4	12	6	N 53° W	S 85° W	22	43	97*	89	...	...	Ranikhet	
·169	·182	·196	·182	?	48	33	35	39	?	2·1	3·3	2·7	?	...	2	16	1	19	1	3	1	17	N 50° E	?	23	?	62*	?	...	...	Muktesar	
·351	·349	·325	·342	−·031	87	39	34	53	−7	1·5	3·4	2·4	−1·9	...	...	2	12	11	...	4	26	5	S 64° W	N 86° W	22	44	38	36	0·85	0·46	Katmandu	Hill Station, Bengal, Nepal.
·289	·359	·381	·343	+·017	83	73	75	77	+1	4·7	5·8	5·3	−0·8	...	2	10	5	3	...	9	19	6	N 72° W	S 71° W	27	44	208	206	...	...	Darjeeling	
·228	·262	·267	·252	−·002	34	26	24	27	−1	1·1	1·3	1·2	−0·7	...	6	3	2	...	2	28	6	13	S 82° W	S 87° W	52	56	209*	193	...	...	Mount Abu	Hill Stations, Central India.
·351?	·455?	·471?	·426?	?	46?	37?	33?	39?	?	2·1	4·6	3·4	+1·2	16	4	3	3	4	4	6	10	10	N 81° W	N 62° W	23	43	209*	138	...	...	Pachmarhi	
·306	·269	·259	·278	0	37	23	18	26	0	1·7	5·2	3·5	+0·9	13	14	3	2	3	5	8	2	10	N 39° W	N 47° W	22	40	233*	194	0·22	0·22	Chikalda	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 84 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.
Hill Station, South India.	Wellington	...	24·282	24·212	·070	24·247	+·008	?	75·9	55·7	20·2	79·3	50·6	28·7	71·9	71·2	64·6	−0·2	53·9	60·1	61·7	58·6
Extra India.	Muscat	...	29·908	29·827	·081	29·868	+·034	29·835	83·9	78·6	5·3	92·3	72·3	20·0	82·1	83·3	81·1	−1·8	68·3	75·5	75·5	73·1
	Aden	...	·871	·748	·123	·801	+·017	·826	89·2	77·8	11·4	99·1	73·5	25·6	83·5	86·6	82·9	+0·1	70·5	75·8	74·3	73·5
	Perim	...	·729	·599	·130	·655	+·025	?	88·8	79·0	9·8	93·3	76·3	17·0	85·6	85·7	83·1	0	74·9	77·8	78·0	76·9
	Zanzibar	...	30·022	·900	·122	·961	+·076	·961	84·1	77·1	7·0	89·0	73·6	15·4	80·3	83·3	80·4	−0·1	74·5	77·0	78·0	76·5
	Port Victoria (Seychelles)	15	29·974	·877	·097	·926	+·020	·866	85·9	79·4	6·5	88·3	76·3	12·0	84·3	85·5	82·5	+1·8	74·7	77·8	78·0	76·8
	Mauritius	181	?	?	?	·874	+·037	30·003	?	?	?	90·3	58·9	31·4	?	?	75·4	+0·2	?	?	?	?

II—*concluded.*

in India, Burma, etc., for April 1897—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.		
																									%	%						
·401	·400	·454	·418	+·023	89	52	60	67	+3	5·1	6·0	5·6	+0·9	8	3	7	11	24	7	...	...	...	S 64° E	S 58° E	62	61	59	64	...	...	Wellington .	Hill Station, South India.
·558	·800	·783	·714	+·095	57	73	69	66	+10	0·5	1·1	0·8	−0·3	...	3	16	17	2	1	1	3	17	N 31° E	N 8° W	45	47	87	103	...	...	Muscat . .	Extra India.
·652	·792	·683	·709	−·043	69	69	54	64	−4	1·6	0·5	1·1	−1·2	2	1	5	42	2	5	1	...	2	S 89° E	N 86° E	75	62	444	363	...	...	Aden . .	
·814	·853	·856	·841	+·044	82	69	69	73	+3	3·0	1·9	2·4	+0·7	1	...	...	24	34	1	...	...	...	S 62° E	S 62° E	90	55	189	417	...	...	Perim . .	
·820	·885	·891	·865	+·018	88	85	78	84	+3	6·3	4·9	5·6	−0·1	...	...	...	2	17	31	10	...	...	S 8° E	S 5° E	84	81	156*	174	...	...	Zanzibar .	
·800	·869	·860	·843	+·022	80	74	70	75	−2	5·7	5·8	5·7	+0·6	6	2	1	2	20	7	...	7	15	S 6° W	S 69° E	13	10	136	?	5·17	1·20	Port Victoria (Seychelles).	
?	?	?	·619	?	?	?	?	72	−6	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	307	252	1·75	0·46	Mauritius .	

G. I. C. P. O.—No. 33 Meteo.—2-8-97.—385.

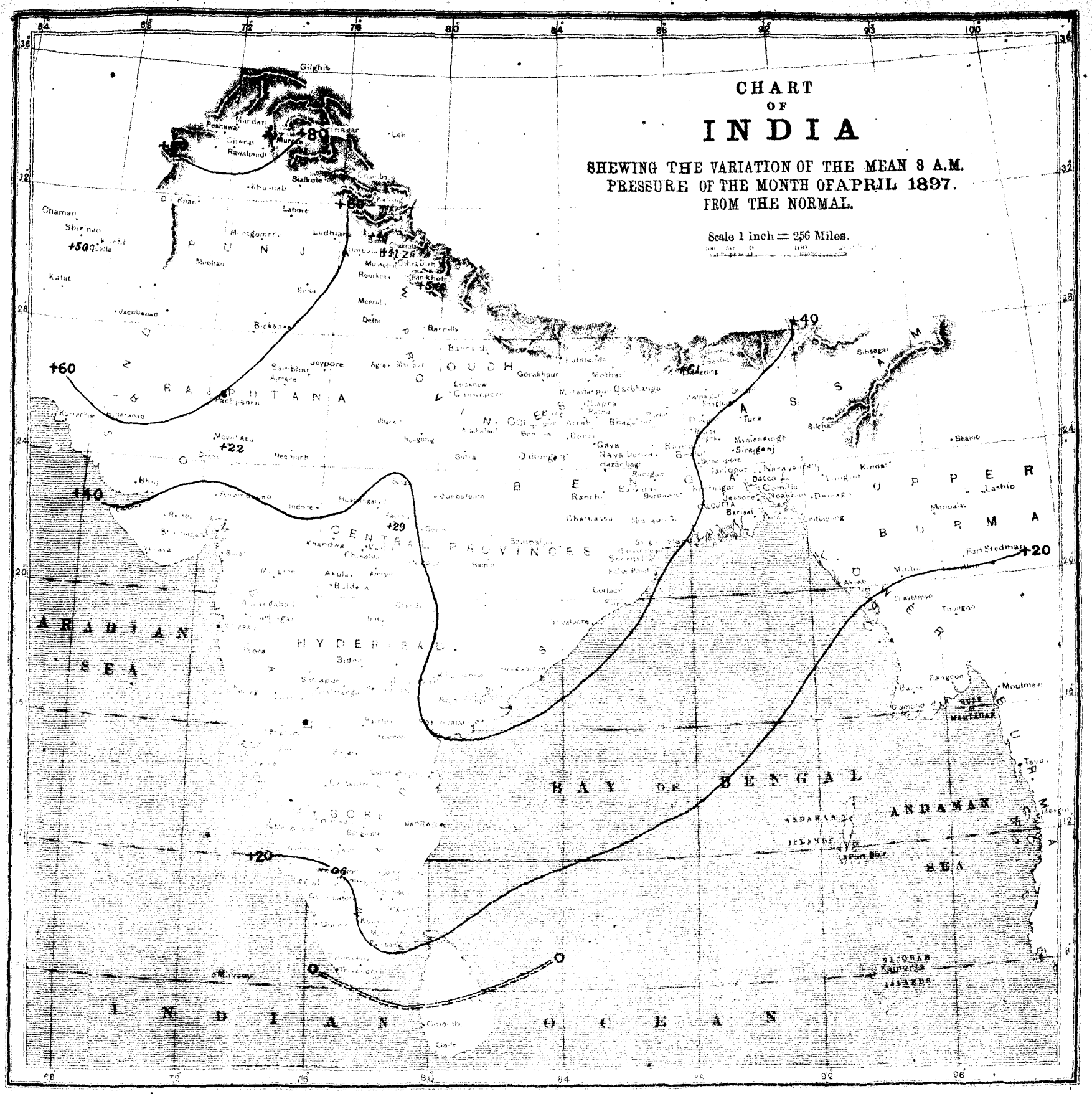
* Corrected.

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 shown 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.

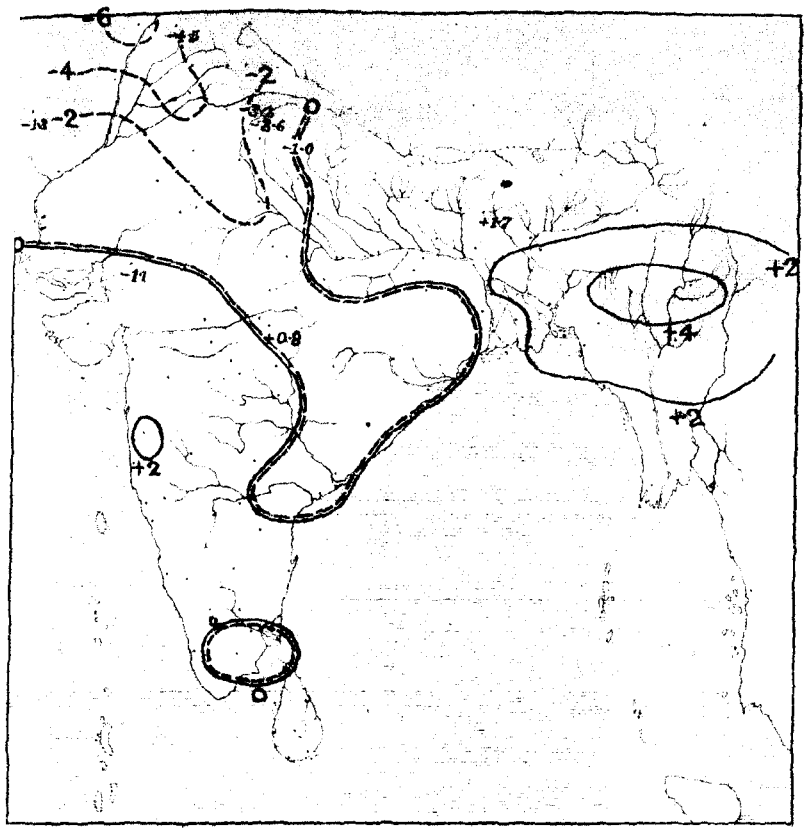
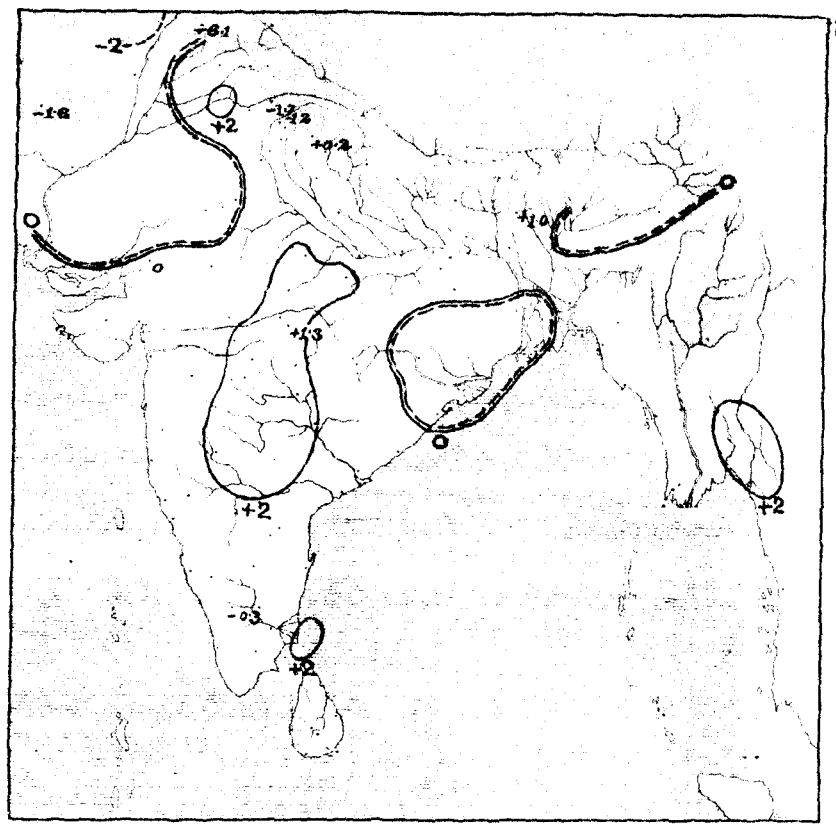


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

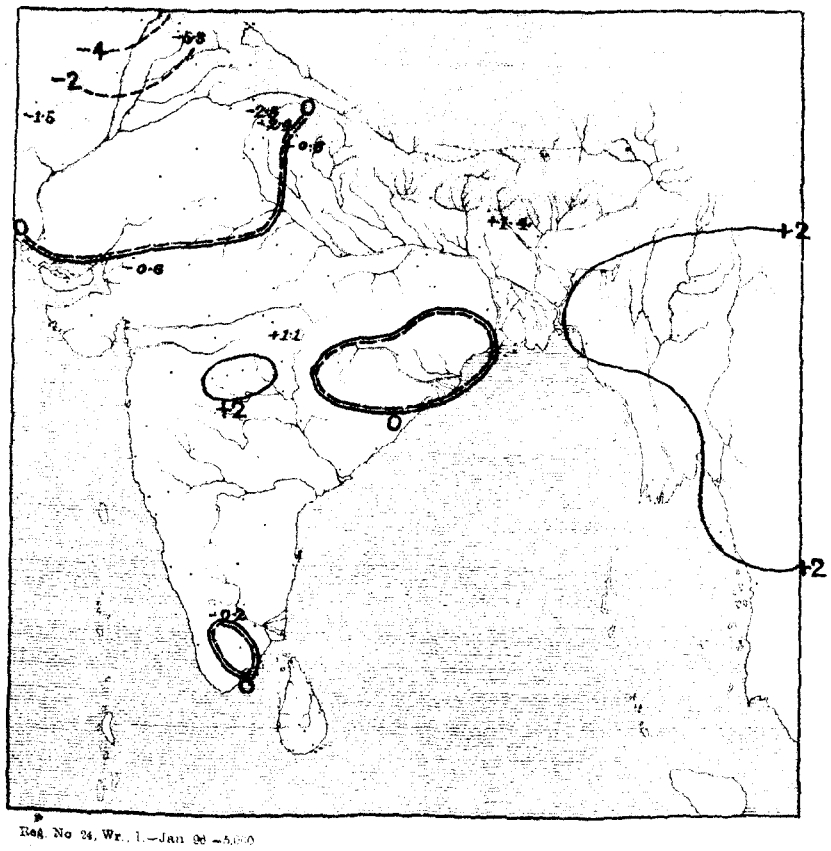
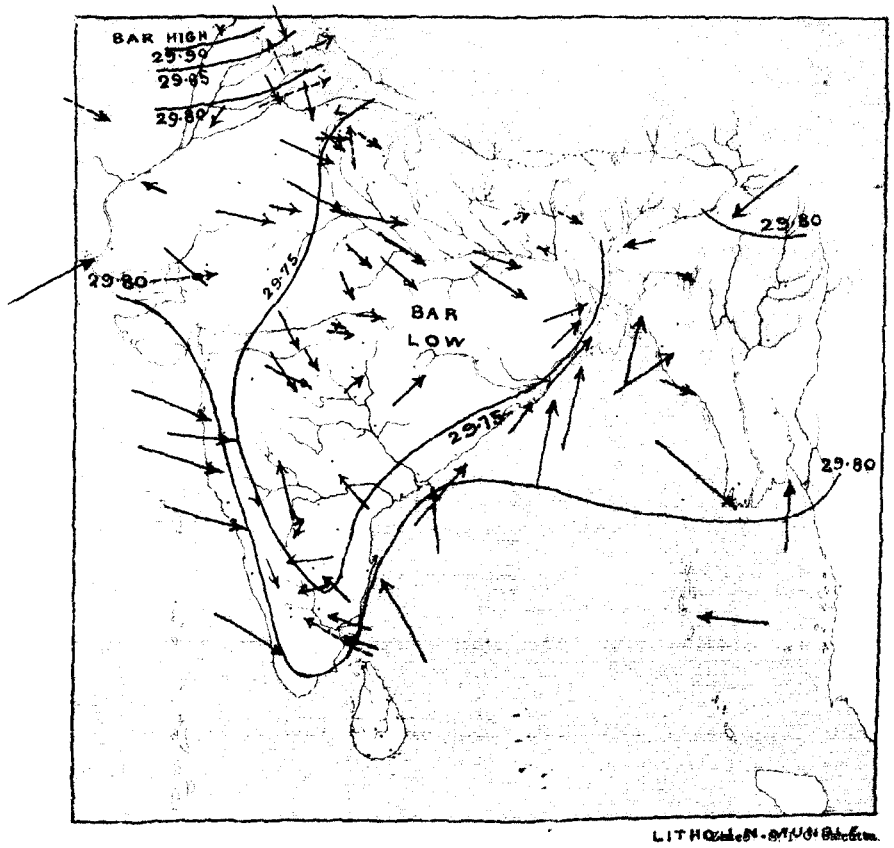


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF APRIL 1897.



Reg. No 24, Wr., 1.—Jan 98—5,000

LITHO. N. M. G. O. Calcutta.

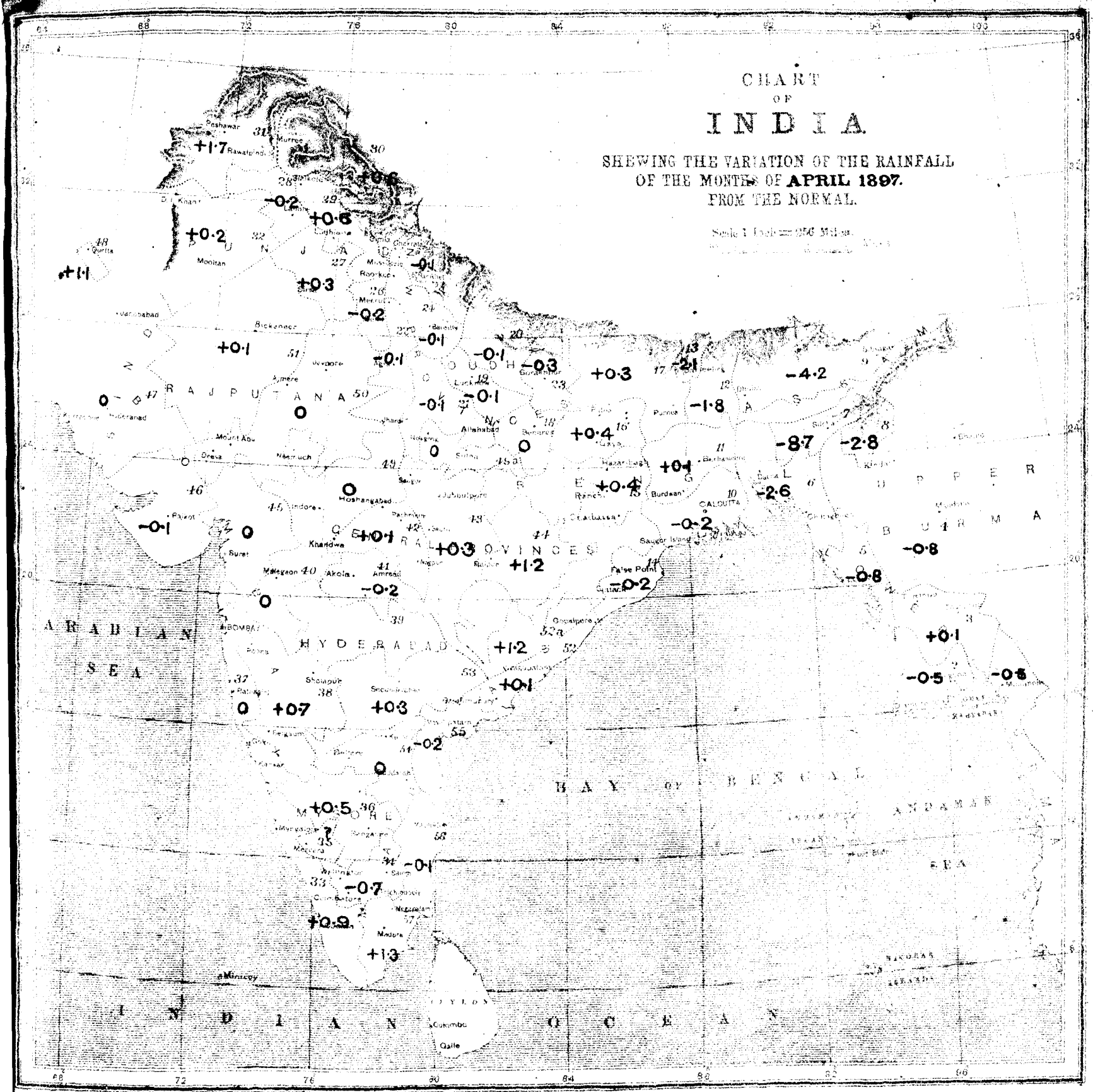
Explanation.

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

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value

Explanation.

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



LITHO. BY J. N. MUNDLE.

Explanation.

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

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

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, MAY, 1897.

INTRODUCTION.

THIS review of the weather in India during the month of May 1897 is based on observations taken daily at 8 A.M. at 212 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 85 stations. In the rainfall summary, the rainfall data of the meteorological observatories and the weekly rainfall telegrams received during the month from District Officers throughout India, 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 May 1897.

May is usually the last month of the hot weather season in India, and completes the temperature and pressure conditions essential to the establishment of the south-west monsoon. The area of maximum temperature at the commencement of the month usually includes the Central Provinces, Berar, and the southern districts of the North-Western Provinces. As temperature in May generally increases more rapidly in North-Western India than elsewhere, the area of maximum temperature (or the thermal focus as it has been termed) is usually transferred to Sind, the South-West Punjab and West Rajputana before the third week of the month. That area generally continues to be the area of maximum temperature in India during the rains (*i.e.*, until the third or fourth week of September). The maximum temperature of the year in India is usually observed in that area in the last week of May, or the first week of June.

Pressure is usually slightly lower on the average in Northern than in Southern India at the commencement of the month. It decreases rapidly in Upper India during the month, and the total range or difference of pressure between the Equatorial Belt and Upper India increases and establishes the baric gradients necessary for the extension of the south-east trade winds across the Equator and their continuance northwards into India as south-west monsoon winds.

This change takes place, it should be remembered, not by the concentration and intensification of the indraught to the hot area in Upper India, but by the advance of a vast mass of humid air impelled northwards by its own momentum and energy, and by pressure "*a tergo*".

Usually one or more advances of strongish humid winds, probably from the Equatorial Belt, occur in May, and give moderate to heavy rain to Ceylon, Malabar and Tenasserim, but the great permanent advance, which forms the setting in of the south-west monsoon proper, does not generally commence until the end of May or beginning of June.

Over the whole of North-Western, Central and Northern India (with the exception of Bengal and Assam), the air in May is very dry, the temperature excessive, and the skies clouded with dust raised by the strong hot land

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winds which usually prevail during the day hours at this period. The heat is occasionally mitigated for brief intervals by thunderstorms or duststorms. These hot weather storms occur during periods of slight barometric disturbance, and occasionally give very heavy rain, chiefly in Bengal and Assam, and in and near the hills in Bihar, the North-Western Provinces and the Punjab. Hence Assam and Bengal (more especially the northern and eastern districts) usually receive a large amount of rain, the average fall of the month in Bengal and Assam ranging from 4 inches in West Bengal to 51 inches at Cherra Poonjee in the Khasia Hills and averaging 10 inches for the whole area.

At the commencement of the month, weather was feebly disturbed in the Peninsula and North-Eastern India and series of thunderstorms gave light to moderate showers which reduced temperature considerably below the normal. The Central Provinces obtained light to moderate rain on the 1st, Southern India moderate rain on the 1st and 2nd, Bengal moderate to heavy rain from the 1st to the 4th, and Burma moderate rain on the 5th. Temperature was on the 1st in large defect in the Central Provinces. The area of deficient temperature was transferred eastwards through Bengal to Burma during the next five days, as is shown by the following data:—

Area.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	1st.	2nd.	3rd.	4th.	5th.	6th.
	°	°	°	°	°	°
Central Provinces and Berar.	−6·0	−6·6	−3·4	−0·5	+3·5	+5·2
Orissa	+0·1	−6·3	−6·9	−5·0	+0·5	+3·6
Chota Nagpur	−4·8	−13·3	−11·1	−7·5	−1·1	+3·4
Bihar	+2·0	−9·2	−4·1	−1·0	+3·0	+1·8
Bengal	+2·5	−2·1	−3·7	−0·2	+2·3	+1·8
Assam	−0·3	−0·4	+2·7	+3·0	+2·1	+1·5
Burma	+1·3	+1·5	+4·3	+1·4	−4·8	−1·6

A shallow low pressure area due to hot weather actions lay over Sind at the beginning of the month. It was practically stationary until the 5th and developed slightly. It was transferred rapidly eastwards to the foot of the Simla and Mussooree Hills on the 6th. Series of duststorms occurred on the 6th and 7th in North-Western India, and thunderstorms gave light to moderate showers in the North and East Punjab and Punjab Hills on the 6th and 7th. Whilst this depression was slowly intensifying from the 1st to the 5th, temperature steadily increased in Upper India and was excessive on the 4th and 5th. The following gives data in illustration:—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	1st.	2nd.	3rd.	4th.	5th.
	°	°	°	°	°
Baluchistan (Quetta)	+3·3	+6·0	+7·6	+7·6	+9·5
Punjab	−0·1	+2·0	+4·4	+6·2	+5·7
Upper Sind	+3·2	+5·0	+7·5	+9·5	+3·7
Rajputana	−1·8	+0·3	+2·7	+8·2	+7·6
North-Western Provinces and Oudh.	−1·2	−0·5	−2·4	+1·2	+4·6

Temperature was reduced for a brief period below the normal in Upper India by the disturbed weather of the 6th and 7th.

Pressure was lowest from the 7th to the 11th in the submontane districts of the North-Western Provinces and Bihar, and steeper gradients than usual obtained. Hence strong hot westerly winds, and very dry weather prevailed during that period in the Gangetic Plain, Rajputana and Central India. Thunderstorms gave moderate rain to Bengal on the 8th, and heavy rain fell in Tenasserim on the 8th and 9th. The area of minimum pressure was transferred to Sind on the 13th, and dry hot weather held steadily over the whole of the interior of India at this time. The following gives temperature variation data of nine political divisions for every second day from the 7th to the 15th:—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	7th.	9th.	11th.	13th.	15th.
	°	°	°	°	°
Burma	+·03	+1·6	+1·2	−0·1	−5·7
Bengal and Assam	+3·5	+6·0	+5·1	+3·4	+4·2
North-Western Provinces and Oudh.	+6·5	+1·0	+4·8	+4·2	+4·3
Punjab	−0·9	−2·4	+0·9	+0·9	+1·8
Sind and Rajputana	+1·0	−0·9	+4·0	+3·3	+3·3
Central India and Gujarat	+1·6	+1·2	+2·2	+3·2	+3·2
Central Provinces and Berar	+3·6	+1·8	+2·1	+3·9	+4·2
Bombay	+0·7	+1·5	+1·6	+1·6	+3·0
Madras	+3·1	+2·9	+4·0	+2·6	+4·0

The lowest humidities of the month were recorded during this very dry period extending from the 7th to the

15th. The following gives the most noteworthy examples :—

Station.	Relative Humidity.	Date and hour.	Station.	Relative Humidity	Date and hour.
	%			%	
Roorkee . .	5	8th—16hr.	Buldana . .	6	12th—16hr.
Raipur . .	6	ditto.	Sholapur . .	4	13th—16hr.
Nowgong . .	6	ditto.	Raipur . .	5	ditto.
Buldana . .	7	ditto.	Buldana . .	7	ditto.
Raipur . .	4	9th—16hr.	Raipur . .	7	14th—16hr.
Roorkee . .	4	ditto.	,, . . .	6	15th—16hr.
Nowgong . .	5	ditto.	Roorkee . .	6	ditto.
Sutna . .	5	ditto.	Sutna . .	6	ditto.
Lucknow . .	5	ditto.	Meerut . .	6	ditto.
Raipur . .	5	10th—16hr.			
Jubbulpore .	6	ditto.			
Raipur . .	6	11th—16hr.			

Humid westerly winds prevailed in the south of the Bay and of the Andaman Sea from the 7th, and began to give heavy rain to Tenasserim and the Bay Islands on that day. Squally weather with south-west winds prevailed over the Andaman Sea from the 9th to the 12th on which day a feeble cyclonic circulation was established in the north of the Andaman Sea. It failed to develop and passed northwards into Lower Burma on the early morning of the 14th and broke up during the day, but humid southerly winds extended into the interior, and the whole of Burma received moderate to heavy rain during the period from the 13th to 16th. This rainfall gave rise to a large reduction of temperature, as is shown by the following data :—

Division.	Variation from normal of mean temperature of 24 hours preceding 8 A. M. of			
	13th.	14th.	15th.	16th.
	°	°	°	°
Burma, Lower	— 6·2	— 6·3	— 6·7	—5·8
,, Central	— 2·2	— 8·6	—10·9	—10·5
,, Upper	+ 2·4	— 3·4	— 4·5	—1·7

Bengal received light to moderate thundershowers on the 16th. A shallow hot weather depression formed in the South-West Punjab and Upper Sind on the 17th and 18th, and was stationary during the next six days and practically filled up on the 24th and 25th.

Weather was generally disturbed in North-Eastern India during this period and more especially on the 18th, 19th, 23rd and 24th on which days Bengal received fairly general and moderate rain. Southern India had series of thunderstorms on the 20th, and the west coast districts on the 24th.

Very hot weather continued over the greater part of the interior during this period. The following gives the mean variations of temperature from the normal in nine political provinces day by day from the 17th to the 24th :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of							
	17th.	18th.	19th.	20th.	21st.	22nd.	23rd.	24th.
	°	°	°	°	°	°	°	°
Burma . . .	—2·7	—0·6	+0·5	+1·7	+2·8	+2·1	+1·9	+2·9
Bengal and Assam .	+4·0	+2·3	—1·8	—2·3	0	+0·6	—0·3	+0·3
N.-W. Provinces and Oudh.	+5·9	+8·2	+8·7	+6·6	+3·8	+4·2	+0·8	+1·1
Punjab . . .	+5·1	+7·1	+6·1	+8·1	+7·0	+5·0	+4·2	—0·4
Sind and Rajputana .	+2·6	+7·2	+4·8	+4·0	+3·7	+4·0	+3·8	+3·6
Central India and Gujarat.	+4·9	+4·4	+2·8	+2·3	+2·0	+1·5	+1·4	+1·9
Central Provinces and Berar.	+4·9	+5·8	+4·4	+2·6	+2·0	+2·0	+3·2	+4·5
Bombay . . .	+1·5	+2·0	+2·0	+1·8	+1·4	+1·6	+2·3	+1·0
Madras . . .	+3·9	+4·6	+2·8	+1·3	—0·1	+2·4	+1·4	+1·5

Very dry, hot weather continued during the remainder of the month and the highest temperatures of the month were recorded during this period. The most noteworthy were as follows :—

Station.	Highest maximum temperature recorded in May 1897.	Date on which recorded.
	°	
Jacobabad	121·0	17th.
Daltonganj	116·1	18th.
Dehri	116·3	18th.
Jhansi	116·2	18th.
Nagpur	116·7	18th.
Chanda	119·2	18th.
Jhansi	116·2	19th.
Cawnpore	116·6	20th.
Allahabad	117·2	20th.
Mainpuri	116·7	20th.
Hyderabad (Sind)	116·2	28th.
Montgomery	117·1	29th.
Mooltan	116·0	30th.
Jhansi	116·2	31st.
Lucknow	116·8	31st.

The following gives mean temperature variation data of North-West India for the last week of the month :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	25th.	26th.	27th.	28th.	29th.	30th.	31st.
	°	°	°	°	°	°	°
Baluchistan (Quetta).	+2·3	+6·6	+3·3	+3·2	+2·4	+9·6	—3·0
Punjab . .	—1·3	—0·3	+1·5	+4·4	+7·3	+6·6	+2·8
Sind and Rajputana.	+3·8	+2·6	+4·0	+6·2	+4·9	+4·7	+3·3
Central India and Gujarat.	+1·1	+2·0	+3·4	+3·7	+3·6	+3·9	+3·1
North-Western Provinces and Oudh.	—0·6	+2·0	+3·0	+2·0	+4·9	+6·9	+4·9

A hot weather depression formed on the 28th and 29th in Sind. It advanced eastwards into North Rajputana and South Punjab on the 31st. Its march gave rise to series of duststorms in Upper India.

Weather was slightly disturbed and squally in the south-east of the Arabian Sea from the 29th to the 31st. Series of thunderstorms gave moderate rain to Malabar, Mysore and the South Deccan during this period. Bengal and Burma also received frequent showers during the last week of the month.

Pressure.—The mean pressure of the month of the Indian land area was ·005″ below the normal of the month and was hence practically normal.

Pressure was, relatively to the general condition, in defect over the whole of Northern India. The deficiency was moderate in amount (ranging between ·02″ and ·03″) in Upper Sind, the South Punjab, the North-Western Provinces and South Bihar. It was absolutely greatest at Ludhiana (—·033″), Gaya (—·030″) and Patna (—·029″). Pressure was in relative excess in Burma and the Peninsula, but the anomalies were small except in the West Coast districts from Bhuj to Karwar, in which pressure was in local excess by amounts ranging from ·022″ at Bhuj to ·033″ at Ratnagiri and ·034″ at Goa.

Pressure was in considerable to large excess at the hill stations in Northern India relatively to the adjacent plains or the vertical pressure anomalies were large and positive, due to the unusually high temperature of the month.

The local variations were very similar in character to those of May 1892, 1894, 1895 and 1896, in each of which months temperature was more or less largely in excess in Northern India and the hot weather conditions were very pronounced. They were slightly less marked in May 1897 than in May 1892 and May 1895, in which months temperature was more largely in excess than in May 1897. The abnormal features of the mean pressure distribution of the month were hence mainly, if not solely, a result of the temperature conditions of the month.

The following gives a summary of the pressure variation data of the eleven meteorological provinces of India :—

METEOROLOGICAL PROVINCE.	Variation of mean 8 A.M. pressure of month from normal.	Pressure anomaly.
	″	″
Burma Coast and Bay Islands . . .	+·006	+·011
Burma Inland	+·006	+·011
Assam	—·005	0
Bengal and Orissa	—·009	—·004
Gangetic Plain and Chota Nagpur . . .	—·028	—·023
Upper Sub-Himalayas	—·024	—·019
Indus Valley and North-West Rajputana .	—·013	—·008
East Rajputana, Central India and Gujarat .	—·006	—·001
Deccan	+·004	+·009
West Coast	+·017	+·022
South India	0	+·005

Temperature.—The temperature conditions of the month were directly related to the rainfall distribution of the month. The month was drier than usual over the whole area with the exception of Lower and Central Burma and the Assam Valley. Temperature was hence in excess over the whole of India with the exceptions named above, and the night temperature was, as is the rule in the hot weather, almost as largely in excess as the day temperature.

The mean day or maximum temperature of the month was above the normal over the whole of India with the exception of Lower and Central Burma and the Assam Valley. The excess increased from the coast districts into the interior and exceeded 4° in two areas. The first area included Upper Sind, Rajputana, the greater part of the North-Western Provinces, Bundelkhand, Baghelkhand, South Bihar and Chota Nagpur, in which the excess ranged between 4° and 6°, and was greatest at Mooltan (+5°·8) and at Lucknow, Allahabad and Hazaribagh (each +5°·1). The second area in which temperature averaged more than 4° above the normal was defined by the stations of Poona (+4°·7) and Belgaum (+4°·2) and hence included the greater part of the Bombay Deccan.

The mean day temperature of the month averaged 2° below the normal in the Assam Valley and Lower and Central Burma.

The mean minimum temperature was above the normal over the whole area with the exception of the Assam Valley. The excess increased in amount from the coast districts to the interior, and was greatest in the Punjab, Rajputana, Bundelkhand, Baghelkhand and the adjacent districts of the North-Western Provinces. It averaged 5° in amount in this area and was absolutely greatest at Bickaneer (+6°·5), Jhansi (+5°·8) and Sutna and Ajmere (each +5°·3).

The mean temperature of the month was in very slight defect in the Assam Valley and Lower and Central Burma.

It was above the normal over the remainder of India, the excess increasing in amount from the Bombay and Bengal Coast districts into the interior. It was more than 4° in excess in the South Punjab, Upper Sind, Rajputana, Bundelkhand, Baghelkhand and the greater part of the North-Western Provinces, and locally at Gaya (+4°·6?) and Hazaribagh (+4°·3). The excess was greater than 5° at Bickaneer (+5°·5) and Jhansi and Mooltan (each +5°·2). These stations hence define the areas of greatest excess of temperature in May 1897. The hottest areas defined by the stations of greatest mean daily temperature included Jhansi (100°·0), Bickaneer (98°·1), Jacobabad (98°·0), Nagpur (97°·9) and Akola (97°·1).

The highest maximum temperatures during the month were registered at Jacobabad (121°·0), Chanda (119°·2), Allahabad (117°·2) and Montgomery (117°·1).

These temperatures are not quite as high as have been previously recorded at these stations. The last week of May is usually the hottest period of the year in Upper India, but in 1897, as in 1896, the greatest heat was experienced in the second week of June.

The following gives data for the meteorological districts in which the mean temperature of the month exceeded 95° :—

DISTRICT.	Mean daily temperature, May 1897.	Mean maximum temperature, May 1897.
	°	°
North-Western Provinces (East)	96·1	110·3
Do. Do. (Central)	97·5	111·0
Berar	96·9	110·8
Central Provinces (West)	97·0	110·6
Do. Do. (Central)	95·2	109·0
Do. Do. (East)	95·9	108·9
Rajputana East, Central India West	95·6	109·2
Rajputana West	96·1	110·3

The following table gives comparative temperature variation data of the month for the eleven meteorological provinces :—

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

Winds.—The chief feature of the air movement of the month was the strength of the winds in the interior, due to the strongly marked hot weather conditions of the period, which gave vigorous hot dry winds in the Gangetic Plain and strong local sea winds on the Bengal and North Bombay coasts. The mean winds of the month were hence generally stronger and steadier than usual, more especially in Bengal, the Gangetic Plain, Rajputana, Central India, the Central Provinces, the Deccan and Mysore. The following gives data showing the strength of the mean winds of the month in different parts of India and their variation from the normal:—

DIVISION.	VELOCITY IN MILES PER DIEM.		
	Mean actual, May 1897.	Mean normal, May.	Percentage variation from normal.
Burma	125	126	—1
Bengal	242	191	+27
Assam	144	106	+36
Bihar	186	141	+32
Chota Nagpur	251	222	+13
N.-W. Provinces and Oudh	98	95	+3
Punjab	77	80	—4
Sind	266	260	+2
Rajputana	254	228	+11
Central India	168	144	+17
Central Provinces	182	156	+17
Berar	268	255	+5
Bombay	280	257	+9
Madras	152	159	—4

A noteworthy feature of the month was the abnormal strength of the winds at the Bengal coast stations. Thus the mean wind velocity of the month at Saugor Island was 23 miles per hour.

The mean direction of the air movement did not differ much from the normal. Westerly winds prevailed to a much greater extent than usual in Chota Nagpur and West Bengal, and hence gave a very strong westerly component to the mean wind directions of the month. Wind was also more westerly than usual in Rajputana and Central India. Winds were unusually feeble at Port Blair and the Burma coast stations.

Humidity and Cloud.—The mean humidity of the month was slightly above the normal in Burma and Assam.

The amount of aqueous vapour present in the air was generally in slight excess in the coast districts and in defect in the interior, the deficiency being most marked in the Upper Sub-Himalayas and the Deccan.

In consequence of the prevailing high and excessive temperature of the month, humidity was more or less in

defect over the whole area (excepting Assam and Lower Burma). The deficiency was most pronounced in the Upper Sub-Himalayas (—6) and the Deccan (—5). It was absolutely greatest at Ludhiana and Mooltan (each —15?). The air was also much drier than usual at the lower hill stations in Upper India, but was abnormally damp at Srinagar, Kailang and Leh.

There was more cloud than usual at Port Blair and in Lower Burma, Assam, Baluchistan and the Punjab Hills. Cloud was, on the other hand, in general defect over the remainder of India. The deficiency was large and marked in the Deccan and West Bengal where skies were unusually free from cloud. The following stations registered the smallest amount of cloud during the month:—Deesa (0·1), Mount Abu (0·1) and Allahabad (0·7).

The following table gives variation data of the mean aqueous vapour pressure, mean humidity and mean cloud amount of ten meteorological provinces for the month of May 1897:—

Meteorological Province.	Variation from normal of		
	Mean aqueous vapour pressure.	Mean humidity.	Mean cloud amount.
	"		
Burma Coast and Bay Islands*	+·022	+4	+1·2
Assam	—·005	+2	+0·3
Bengal and Orissa	+·023	—4	—0·4
Gangetic Plain and Chota Nagpur	+·011	—3	—0·5
Upper Sub-Himalayas*	—·042	—6	—0·2
Indus Valley and North-West Rajputana.*	+·011	0	+0·2
East Rajputana, Central India and Gujarat.*	+·007	—3	—0·5
Deccan*	—·044	—5	—0·4
West Coast	+·007	—3	—0·1
South India	—·001	—2	—0·1

* The variation values of vapour pressure and humidity of the stations of Akyab, Ludhiana, Mooltan, Agra and Akola have not been included in preparing the table of variation data of ten Meteorological Provinces.

Rainfall.—The rainfall of the month was due to feeble hot weather disturbances of the ordinary type which gave series of thunderstorms, chiefly in Burma, Bengal, Assam and Southern India. Malabar usually receives heavy rain in the last week of the month from the advancing south-west monsoon but in May 1897 there was less rain than usual in that area due to the delay in the establishment of the monsoon.

Assam received almost daily rain during the month, and the total rainfall of the month was in considerable excess. Burma obtained a moderately heavy burst of rain between the 13th and 16th from a cyclonic disturbance and moderate rain from thunderstorms during the last three days of the month. The rainfall of the month was in moderate excess in that area. It was in defect over the remainder of India. It was very scanty in the interior and moderate in amount in Bengal. It was most largely in defect in the west coast districts, due to the delay in the establishment of the monsoon. The following table gives data for the eleven meteorological provinces of the empire:—

Meteorological Province.	Rainfall.		
	Mean actual, for May 1897.	Mean normal for May.	Variation from normal.*
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	16·63	13·29	+3·35
Burma Inland	6·18	5·27	+0·90
Assam	18·26	14·52	+6·10
Bengal and Orissa	5·96	6·87	—1·39
Gangetic Plain and Chota Nagpur.	0·95	1·66	—0·72
Upper Sub-Himalayas	0·52	1·07	—0·59
Indus Valley and North-West Rajputana.	0·28	0·47	—0·24
East Rajputana, Central India and Gujarat.	0·16	0·47	—0·30
Deccan	0·63	1·00	—0·45
West Coast	3·48	6·04	—2·40
South India	2·15	2·68	—0·37

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

Atmospheric Pressure.

The mean pressure of the Indian land area for the month of May was ·005″ below the normal. Pressure was, relatively to the general condition, in defect to the north of a curved line passing through Central Sind, Jodhpur, Jubbulpore, Raipur, Puri, Dacca and Silchar. The negative variations over the greater part of that area were small in amount and less than ·02″, but over a part of Bihar, the North-Western Provinces, the South Punjab and Upper Sind they were moderate in amount, ranging between ·02″ and ·033″.

The following gives data for stations in this area of moderate negative pressure anomalies:—

STATION.	Variation of mean 8 A.M. pressure of month from normal.	Pressure anomaly.
	"	"
Jacobabad	—·033	—·028
Mooltan	—·032	—·027
Sirsa	—·030	—·025
Ludhiana	—·038	—·033
Dehra Dun	—·035	—·030
Roorkee	—·032	—·027
Agra	—·028	—·023
Lucknow	—·028	—·023
Allahabad	—·033	—·028
Benares	—·025	—·020
Patna	—·034	—·029
Gaya	—·035	—·030

Pressure was in relative excess to the south and east of the line defined above. The positive anomalies exceeded ·02″ in the west coast districts and Berar and also locally at Khandwa, as is shown by the following data:—

STATION.	Variation of mean 8 A.M. pressure of month from normal.	Pressure anomaly.
	"	"
Bhuj	+·017	+·022
Rajkot	+·022	+·027
Bombay	+·019	+·024
Ratnagiri	+·028	+·033
Karwar	+·023	+·028
Khandwa	+·016	+·021
Amraoti	+·016	+·021
Akola	+·016	+·021

The abnormal features of the pressure distribution were such as invariably accompany strongly pronounced hot weather conditions in Northern India in April and May, and were hence chiefly related to the large excess of temperature of the period. They very strongly resemble the anomalies in the corresponding months of the years 1896, 1895, 1894 and 1892, but were less pronounced than in May 1896.

Pressure was in slight to moderate excess at the Himalayan stations, and hence the vertical anomalies were positive and large in amount. The following gives data for eight pairs of stations:—

HILL STATION.	Variation from normal pressure.	PLAIN STATION.	Variation from normal pressure.	Vertical pressure anomaly (Hill Plain).
	"		"	"
Leh	?	Lahore	—·024	?
Kailang	+·010	Do.	—·024	+·034
Quetta	+·017	Jacobabad	—·033	+·050
Murree	+·011	Peshawar	+·006	+·005
Simla	+·016	Ludhiana	—·038	+·054
Chakrata	+·026	Roorkee	—·032	+·058
Ranikhet	+·022	Bareilly	—·025	+·047
Darjeeling	+·016	Dhubri	—·009	+·025

The following is a summary of the abnormal features of the pressure conditions of the month:—

(1) Pressure was in very slight general defect in the Indian area.

(2) Pressure was, relatively to the general condition, in slight to moderate defect in Northern India, the deficiency being most marked in Central Bihar, the North-Western Provinces, the South Punjab and Upper Sind.

(3) Pressure was in local excess in the Peninsula and North Bombay, the excess being greatest in the West Coast districts from Kathiawar to Karwar (in which it ranged between ·02″ and ·04″).

(4) Pressure was in considerable excess at the hill stations in Northern India relatively to the adjacent plains. The relative excess of pressure was greatest at the Punjab hill stations.

Barometric depressions and cyclonic storms of the month.

Pressure was at the commencement of the month in moderate to considerable excess in North-Eastern India and Upper Burma and in slight defect in the west coast districts. Weather was slightly disturbed in Bengal and Southern India where series of thunderstorms were giving moderate rain. A shallow hot weather depression lay over Upper Sind. It intensified slightly, but was practically unchanged in position during the next four days. Showery weather continued in Bengal and Assam during this period from the 1st to the 5th. Southern India received moderate rain from thunderstorms on the 2nd, and Burma on the 5th.

Pressure had given way over the whole of India during the previous two days and was in general defect on the 5th,

the deficiency being greatest in the Sind depression where it was nearly two-tenths of an inch in amount.

The depression advanced eastwards across the South Punjab and North Rajputana during the next 24 hours, and filled up at the foot of the Simla and Mussooree Hills on the 7th. Numerous duststorms and thunderstorms (in some cases with hail) visited the North and Central Punjab and the Punjab Hills on the 6th and 7th and gave light local rain showers in these areas. Bengal received moderate to heavy rain from thunderstorms on the 6th, 7th and 8th.

The changes of pressure accompanying and following the eastward march of the Sind depression modified considerably the distribution of pressure. Pressure was from the 7th to the 11th lowest in the submontane districts of the North-Western Provinces and Bihar, and moderate gradients obtained to the south and east. Dry hot westerly winds prevailed during the period in Northern India. Moderate thunder showers were received in Bengal on the 8th, in Assam on the 9th, 10th and 11th, and in Burma from the 9th to the 11th.

Dry hot weather obtained over nearly the whole of India during the next five days, whilst a diffused storm was forming in the Andaman Sea. The following gives an account of this feeble cyclonic disturbance.

Cyclonic storm of the 11th to the 15th May in the Andaman Sea.—Weather was cloudy and squally in the south of the Bay, and of the Andaman Sea on the 8th and following days. Winds on the 8th ranged in direction between south and west, and in force between 4 and 5 in the Andaman Sea. Conditions were unchanged on the 9th except that the squalls were somewhat heavier and the rainfall excessive. Thus the S. S. *Shahjehan* in Lat. 16°¾ N., Long. 96°10′ E. at 8 A.M. had heavy continuous rain in the morning and the S. S. *Nadir* in Lat. 15° 42′ N. and Long. 95° 38′ E. at the same hour had continual rain during the day. Pressure gave way briskly on the 10th, and slightly on the 11th, in Lower Burma and the Andaman Sea, but weather was less disturbed and squally than during the previous two days. The following data for Port Blair show the character of the weather changes in the area of disturbance at this time:—

Date.	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.			
		"	"					Ins.	
8th May	Port Blair	29·843	+·087	+·020	WSW	8	10	0·51	Drizzling.
9th "	"	·823	—·020	0	SSE	8	9	0·57	Raining.
10th "	"	·819	—·004	—·004	WSW	9	10	2·03	Gloomy.
11th "	"	·757	—·062	—·066	WSW	4	5	1·56	

Rain fell steadily during this period from the 8th to the 11th in Tenasserim and on the Pegu coast, heavy in Tenasserim and light to moderate on the Pegu coast.

Pressure again fell in this disturbed area on the 12th, and winds increased at Port Blair and shifted round to directions in Lower Burma indicating a marked tendency to the establishment of a cyclonic whirl. The following gives 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.			
	"	"	"				Ins.	
Port Blair	29·757	0	—·066	WNW	9	9	2·08	
Tavoy	·764	—·031	—·068	SSW	3	10	2·76	Showery.
Rangoon	·722	—·023	—·097	NNE	1	10	0·18	"
Bassein	·731	—·009	—·070	calm	3	8	0·54	
Diamond Island	·713	—·034	—·098	N	8	10	1·33	Wind variable, and sea slight.

Moderate to strong south-west winds obtained in the south of the Bay, and light to moderate winds with showers and squalls in the Andaman Sea.

13th May.—The pressure changes in the disturbed area were again small. Pressure was now rising in the south of the Andaman Sea and continued to fall in Lower Burma, thus indicating the northward advance or extension of the disturbance.

The following gives 8 A.M. meteorological data of stations in the disturbed 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.	
Port Blair	29·788	+·031	—·035	WSW	11	9	...	
Tavoy	·798	+·034	—·026	calm.	1	10	1·00	Showery.
Moulmein	·736	+·011	—·089	SE	3	10	0·60	
Rangoon	·700	—·022	—·117	SSW	5	10	2·99	Showery.
Diamond Island.	·705	—·008	—·099	NW	14	10	0·76	Sea slight.

Winds had increased generally and were cyclonic in direction and of moderate intensity. The following

extracts from the logs of vessels indicate the character of the weather in the area of disturbance in the Bay :—

HOUR.	NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer corrected.	WIND. Direction.	Force.	WEATHER.
		° ′	° ′	″			
8 A. M.	S.S. *Sui Sang* .	10 52	95 58	29·808	SW	5	High sea, 4 P.M. overcast with rain.
,,	S.S. *Nerbudda* .	13 32	96 52	·778	SW	...	Dull and overcast. Noon, heavy rain squalls.
,,	S.S. *Okara* . .	15 32	94 28	·682	N	6	Dark, gloomy and occasional heavy squalls.
,,	S.S. *Nadir* . .	16 24	97 30	·720	var	2 to 4	Furious squalls and heavy rain.
,,	S.S. *Java* . .	16 56	92 38	·712	NNE	4	Cloudy. Midnight, heavy rain squalls.
,,	S.S. *Landaura* .	16 4	93 40	·705	NW by W	4	Cloudy, 4 A.M. frequent heavy rain.

Weather was now very disturbed with strong to furious squalls in the north of the Andaman Sea. The depression was, however, of slight intensity (pressure being not more than a sixth of an inch below the normal) and the winds (except in the squalls) only moderate to fresh in force.

14th May.—Pressure had decreased briskly in Lower Burma to which the storm had advanced during the previous 24 hours. The following gives data showing the position and character of the storm at 8 A.M.:—

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.	
Port Blair	29·802	+·014	?	WSW	6	10	0·10	
Diamond Island.	·686	—·019	—·106	NW	27	10	3·70	Squally and severe nor' wester.
Moulmein	·755	+·019	—·061	SE	8	10	0·20	
Rangoon .	·637	—·063	—·172	SSW	5	10	0·83	Showery.
Thayetmyo	·748	—·001	—·030	NW	3	10	1·25	Continuous rain.
Bassein .	·649	—·056	—·140	NW	7	10	1·46	Ditto.

The storm had increased slightly in intensity during the previous 24 hours, but the depression at the centre (a little to the west of Rangoon) was less than two-tenths of an inch.

Moderate to heavy rain had fallen in Lower Burma, and light to moderate showers in Upper and Central Burma. Winds had fallen off in the Andaman Sea, and weather was less squally than on the 13th, as is shown by the following marine data :—

Hour.	NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer corrected.	WIND. Direction.	Force.	WEATHER.
		° ′	° ′	″			
8 A.M. .	S.S. *Nerbudda* .	10 21	97 34	29·881	SW	...	Midnight occasional hard rain squalls.
,,	S.S. *Shahjehan* .	13 48	91 19	·744	W by S	4	Cloudy.
,,	S.S. *Sui Sang* .	13 58	93 37	·758	SW	...	Squally with much rain.
,,	S.S. *Java* . .	16 6	96 0	·682	W	2	Dull and cloudy.
,,	S.S. *Okara* .	17 59	91 30	·734	N	4	Confused sea and cloudy.

The cyclonic whirl and disturbance continued to advance northwards, but filled up rapidly during the day and there was no trace of its existence on the morning of the 15th.

The storm was of very feeble intensity throughout. It belonged to a class of common occurrence in April and May in the Bay, the most recent examples being the storms of April 1893, April 1894, and April 1895. It was of little importance except that it initiated a burst of humid winds in Burma which gave moderate to heavy rain to the whole province from the 13th to the 16th, after which dry weather set in again in Central and Upper Burma.

Pressure gave way briskly to rapidly on the 16th and 17th over nearly the whole of India, and was normal on the 17th in Southern India, and in large defect in the Gangetic Plain. Bengal and Assam received series of thunder-showers on the 16th.

A shallow depression appeared in the South Punjab and Upper Sind on the 17th, and was practically unchanged in position during the next week, varying, however, in intensity from day to day. North-Eastern India continued to receive moderate rain from frequent thunderstorms, more especially on the 18th and 19th and again on the 22nd, 23rd and 24th. The hot weather depression in Upper Sind and the South-West Punjab from the 18th to the 24th filled up temporarily on the 25th.

Pressure was in general excess from the 26th to the end of the month, the excess being most pronounced in Northern India. Weather was disturbed with numerous thunder showers in Bengal and the centre and south of the

Peninsula, from the 28th to the end of the month. The rainfall was most general in these areas on the 28th and 31st.

Pressure gave way locally in Baluchistan and Sind on the 29th, and a shallow depression was shown in Upper Sind on that day. It advanced eastwards across North Rajputana and the South Punjab to the foot of the Simla and Mussoorie Hills during the next 36 hours. It gave numerous duststorms in Upper India and thunder showers in the Kashmir and Punjab Hills.

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

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Kurram.*—The following special report of the snowfall during the past winter in this area has been received from the officer on special duty in Kurram:—

"The winter has this year undoubtedly been abnormally prolonged and severe in the Kurram Valley and the neighbouring hills of Afghanistan. The monthly snowfall reports show that the first fall of snow was recorded on the Sufed Koh range on the 2nd of October. Following this, on the 26th and 27th November, heavy snow fell, nine inches being recorded in the cantonments of Para Chinar. On the 28th of this month a further fall was recorded. During December no snow fell, and a large portion of the snow which had fallen had melted, but in January abnormally heavy snow fell on the 5th, 9th, 12th, 13th, 14th, 25th and 31st, snow lying in the valley for several days as low as 2,000 feet, while in the upper valley itself from two to three feet remained on the ground for over a week. During February further falls were reported on the 5th, 11th and 23rd, snow lying on all hills as low down as 4,000 feet. During March, although snow fell on the higher ranges of the Sufed Koh n several occasions, one inch only was recorded in the valley, on the 8th of March. During April no snow fell in the Kurram Valley, but falls were recorded on the Sufed Koh down to 8,000 feet on the 21st, 22nd, 24th and 25th, with corresponding storms of heavy and continuous rain in the valley. 7·24 inches of rain have been registered in Para Chinar from the 1st of April to date (15th May) in the valley, which considerably reduced the temperature. Roughly speaking, in the Kurram Valley itself 66·5 inches of snow fell during the year, while on the higher ranges it is impossible to estimate the actual snowfall; but even now from 14 to 19 feet of snow are, on reliable information, said to be lying on the higher passes.

"The opinion of all reliable natives is that such an abnormal and prolonged winter has not been known in Kurram for the last twenty years (this apparently, according to their account, was just before the Afghan War), and they all agree that they have never known such continuous and heavy rain at this season (*viz.*, from the end of April to the 15th May) in any previous year. These storms have melted and washed down a great deal of snow which was lying from 7,000 feet to 9,000 feet, but there is still a vast quantity even on the southern slopes. The season is an unusually late one in consequence, and the Kurram River has been in heavy flood for nearly a month.

"Heavy storm clouds and low temperature, with an occasional bright and very hot day, have been noted for the last fifteen or twenty days. Clouds have mostly come up from the west, but when accompanied by violent thunderstorms and hail they have come mostly from the south-east and south. In short, the weather can only be described as abnormally unsettled and unseasonable."

(2) *Kabul.*—No snow fell during the month at Kabul. The hills in the neighbourhood of Kabul were free from snow at the end of March. The winter was unusually cold, more especially the month of January. The snowfall was heavier than during the previous three winters.

(3) *Khyber Pass Districts.*—The following special report has been received from Lieutenant-Colonel Mohamad Aslam Khan, Political Officer, Khyber Pass, of the snowfall in that area during the period from the 16th December to the 15th May:—

"Snow fell first in the last week of December, but was of short duration. The fall was heavier in the middle of January, the depth varying from 5 inches to 3 feet.

"At the end of January the fall in Tirah and in the Shinwari hills was still heavier, the depth reported being from 1 to 4 feet.

"In February snow fell also, but not so heavily as in the preceding month. In Tirah the snow was reported 2 feet deep, while on the Shinwari hills the depth was some 8 or 9 inches.

"The fall in March and April was insignificant, only from 1 to 4 inches being reported. The snowfall, on the whole, in the year under report has been unusually heavy. This was due to the heavy though late snow and rain which kept on falling in the period under report. This is proved by the fact that the winter which generally ends at the end of March, this year dragged on till the first week of the month of May. The temperature was also low. The sky has been misty, overcast with clouds, and the weather in Tirah and at Landi Kotal has been remarkably cold, such as the people say they have not experienced during the past five or six years.

"In my opinion the unusual snowfalls of this year have been the chief cause in keeping the weather so far unusually cold and cloudy. Snow accumulations were observed during January and February, but none in April and May."

(4) *Chitral.*—The following statement of snowfall during the past winter in Chitral has been sent by Surgeon-Lieutenant F. H. Watling, Chitral:

The first fall of snow occurred on the 28th November. It snowed for thirty hours, the total fall measuring about 10 inches.

December was fine throughout.

The following gives the falls in January and February :—

January 3rd.—Snow fell about half an inch.

5th.—Weather was cloudy on the 4th, but it began to snow at 5 A.M. on the 5th and continued fitfully all day, the total fall of snow being 3½ inches.

9th.—It began to snow at 4-30 P.M. and continued till the 11th. The total fall measured about 15 inches.

12th.—It began to snow again at 5 P.M. and continued till 5 P.M. of the 15th. The total fall of snow was about 20 inches.

20th.—Half an inch of snow fell.

24th.—Snow began to fall at about 11-45 A.M. and continued till 8-45 A.M. of the 25th. The total fall of snow was about 6 inches.

26th.—Snow fell half an inch in depth during the night.

27th.—Snow began to fall at about 11-30 A.M. and ceased at about 5 A.M. of the 28th, the total fall being 4 inches.

February 2nd.—Snowfall half an inch.

6th.—Rainfall 0·30 inch.

23rd.—It began to snow at 8 P.M.; changed to rain at about 6 A.M. of the 24th. The total fall of snow was 6 inches and the total rainfall was 1·5 inches.

25th.—Snowfall 1 inch.

March.—Rain fell on fourteen days of the month and snow (to the depth of 2 inches) on the 10th. The total rainfall of the month was 4·50 inches.

April.—Rain fell on fourteen days, totalling 4·20 inches in amount.

May.—Rain fell on the 4th, 6th and 7th during the first week of the month.

"December was fine and clear and dry throughout. January, February, March and April were unusually damp, with frequent falls of rain or snow. The mean direction of the wind was—in December S, in January E. S. E., in February N. N. E., in March S. E. in April S. and in May N. E. Hence during January, March and April the wind blew chiefly from the south and east, and during these months the snowfall and rainfall were greatest.

"The total snowfall for the period from the 28th November to the 7th May was 71½ inches. The total rainfall for the same period was 11·17 inches, and hence the total rainfall, including snow, was 17·07 inches. The precipitation of the corresponding period last year was only 6·3 inches.

"The exact amount of snow on the higher passes cannot be accurately ascertained, but it is very considerable.

"The snowfall this last winter has been far in excess of the snowfall in the winters of 1894-95 and 1895-96, and the inhabitants maintain that the winter of 1896-97 was the coldest they have experienced during the past 20 years."

The following statement of the amount of snow on several of the passes in Chitral and Hunza was drawn up by Moulvie Pir Baksh, Hospital Assistant, Mustuj, at the instance of Colonel Davidson, and is given in the form in which it was prepared :—

Name of Pass.	Chief periods of snowfall.	The probable fall of snow on the pass.	The extent and depth of the winter accumulation.	Depth of snow on the higher passes in the beginning & middle of May.	Whether the lower passes were much later in being opened for traffic than usual.
Baroghil .	From 15th September to 10th May.	7 feet .	From Saryar Khan to Sarhad-i-Wakhan, about 25 miles long, depth 2½ yards.	4 feet on 15th May 1897.	One month later than last year.
Shundoor .	From 1st October to 20th April.	4 ,, .	From Sarsaspur to Ghizar, about 24 miles, depth 5 feet.	3 feet on 15th May 1897.	Twenty days later than last year.
Chumar Kund.	From 20th September to 1st May.	7 ,, .	From Chapari to Ghizar, about 20 miles, depth 8 feet.	4 feet .	One month later than last year.
Durah .	From 20th September to 1st May.	7½ ,, .	...	7 ,, .	Twenty days later than usual.
Thoi . .	From 1st September to 1st January.	12 ,, .	From Shah Salim to Singhills, 8 feet of snow.	9 feet on 15th May 1897.	Forty days later than last year.
Mustuj .	From 25th November to 10th April.	1½ ,, .	...	Nil on 1st May 1897.	Open for traffic throughout whole winter.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Kashmir.*—The following very interesting report on the snowfall in Kashmir during the past few months has been received from Dr. Mitra, Meteorological Reporter to the Kashmir Darbar :—

"The snowfall in and around the Kashmir Himalyas during the last winter has been more than in the six preceding years. In ordinary years snow usually falls on the higher passes during the first week of November and in the valley of Kashmir by the end of December. During this year the snow fell much earlier than usual on the higher passes. In the valley a good deal of snow fell in January. In Srinagar the frost lasted longer than in any previous year that I remember.

"The chief periods of snowfall on the higher passes have been from November to April and in Srinagar from 1st January to 28th February.

"On the higher ranges a good deal of snow has fallen. At this time of the year (last week of May) there is usually scarcely any snow on the Banihal Pass. This year at present there is 2 feet of snow over 4 miles on the top. At Gulmarg there is a foot of snow; on the Zojila pass (11,300 feet) there is about 6 feet of snow; and a traveller who recently crossed the Rajdangan Pass (11,800 feet) says that there is about 15 feet of snow on it. All the hills around Kashmir are covered with deep snow. Only a week ago fresh snow fell on hills above 2,000 feet above the valley.

"The lower passes were much later in being opened for traffic than usual.

"The general impression is that last winter we had a snowfall a little above the average in the valley, but from all accounts it appears that on the higher ranges snow fell earlier than usual and more than the average, and the snow is lying on the higher as well as the lower passes longer than usual. In the valley it is colder than usual, and there is much more rain and bad weather than in other years.

"On the Jhelum Valley road telegraphic communication was interrupted for days by heavy snow. There have been several avalanche accidents in several places on the Gilgit road, and now a vague rumour has just reached us that thirty coolies and a traveller have perished on the Leh route by an a lanche. These facts show that there has been exceptionally heavy snow on the higher ranges.

"The spring commenced in Kashmir with a good deal of rain. The river Jhelum is high and the western portion of the valley is flooded. The snow is not melting, otherwise with this rain we should have had a very big flood. I am afraid if it rains like this in June that we shall have as heavy a flood as in June 1893. We can see that while it is raining in Srinagar it is snowing over all the hills surrounding us. The prolonged cold and prolonged spring rains are the special features we notice this year. There was snowfall at Domel (2 feet) and Kohala (1 foot). Snow was hitherto almost unknown at the latter place."

The following notes have been supplied by Diwan Kashi Ram, Observer, Srinagar Observatory:—

"The weather during the past winter has been unusually cold, the air very damp and the amount of cloud greater than usual.

"Though the period of snowfall was longer than usual, yet the winter was not so severe as that of 1894-95.

"The most severe storm of the season was that of the 13th and 14th January. It was accompanied by unusually strong winds and heavy snow. The river rose suddenly on 15th January about 43 feet, a very unusual occurrence at that time of the year. The following is the snowfall return for the cold weather season of 1896-97:—

MONTH.	Ft.	In.
December 1896	0	7
January 1897	5	10
February "	1	2
March "	0	8
TOTAL	8	3

"A telegraphic inquiry on the 15th May elicited the information that the Tragbal Pass had then about 8 feet of snow and the Burzil much more. Both passes are at present closed for pony traffic"

(2) *Lahoul.*—The following gives a statement of the snowfall registered at the observatory at Kailang in Lahoul during the past winter:—

MONTH.	SNOWFALL, 1896-97.		SNOWFALL, 1895-96.		SNOWFALL, 1894-95.		SNOWFALL, 1893-94.	
	Number of days on which snow fell.	Total snowfall of month.	Number of days on which snow fell.	Total snowfall of month.	Number of days on which snow fell.	Total snowfall of month.	Number of days on which snow fell.	Total snowfall of month.
		Ft. In.		Ft. In.		Ft. In.		Ft. In.
December	?	1 9	...	...	7	4 0	2	0 3
January	?	5 8	?	1 2	11	3 6	17	3 6
February	?	1 2	?	3 1	6	2 0	14	4 3
March	?	6 10	?	0 10	13	3 6	11	5 4
April	?	?	...	...	4	1 6	3	2 1
TOTAL	...	15 5	...	5 1	41	14 6	47	15 5

The snowfall of the past winter was hence practically the same in amount as in the winters of 1893-94 and 1894-95, but considerably greater than during the winter of 1895-96.

The Superintendent describes the winter in the following terms:—

"The snowfall up to the middle of March on the higher ranges was probably about normal. The fall on the passes from 11,000 feet to 13,000 feet high is estimated at about 30 feet to 40 feet. A feature of the winter has been the very stormy winds which have frequently prevailed on the higher ranges, giving rise occasionally to clouds of driven snow. Skies were clouded to an unusual extent and were very seldom clear.

"The snowfall during the period 26th March to 15th May has, on the other hand, been most extraordinary, 11¾ inches of melted snow having been registered at Kailang, about equal to 11 feet of snow, 1 foot of snow giving about 1 inch of water. The fall on the higher elevations during this period probably exceeded 25 or 30 feet. Till the 10th of May the fields at Kailang were still covered with snow to some extent, and only since the 14th has the snow melted so far that the fields can be ploughed and sown. In normal spring weather ploughing commences always at the beginning of May. In several villages situated on the northern slopes, the fields are even now (16th May) still under snow at a height of about 10,500 feet above sea. Near Kailang, at exposed heights of about 12,500 feet, the snow lies still many feet deep.

"The maximum temperature during the first fifteen days in May averaged 52° as compared with an average of 64° for the corresponding period of 1896. This shows how much colder the first fifteen days of May of the present year have been than the first half of May last year. The weather was very snowy and wet during the whole period from the 26th March to the 15th May. On twenty-two days snow fell, whilst the remaining days were, with very few exceptions, cloudy and cold. For many years, the natives say, such a spring has not happened in Lahoul."

(3) *Chamba.*—The following special report (dated the 15th May) regarding the snowfall in the Chamba State has been received from the Deputy Conservator of Forests :—

Statement of the snowfall measured.

MONTH.	DALHOUSIE NEIGHBOURHOOD.			WEST OF STATE.	TISA RANGE, NORTH OF STATE.			VALLEY OF THE RAVI.					
	Kalatop, 8,000 feet.	Surkhi-galli, 5,000 feet.	Banikhet, 4,500. feet.	Bhandal, 6,000 feet.	Tisa, 5,000 feet.	Thanela, 7,000 feet.	Chanan, 6,500 feet.	Chamba, 3,000 feet.	Bassu, 5,500 feet.	Chitrar, 6,000 feet.	Olansa, 7,000 feet.	Barmaur, 7,000 feet.	Kelas, 8,000 feet.
	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
December 1896 .	1 10	0 5	*Nil*	1 0	0 4½	2 2	1 4	*Nil*	1 7	2 6	3 3	5 4	2 0
January 1897 .	3 8	0 11	0 6	2 0½	1 0	6 3	5 2	0 4	2 4	3 1	7 3	11 9	1 8
February „ .	4 6	1 9	*Nil*	2 8	0 3½	5 8	2 2	0 10	2 10	2 7	3 6	4 4	1 3
March „ .	1 10	*Nil*	*Nil*	0 4	0 1	1 2	0 6½	*Nil*	0 4	0 6	1 6	5 5	7 3
April „ .	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	1 1	1 11	1 5
May „ .	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*
TOTAL .	11 10	3 1	0 6	6 0½	1 9	15 3	9 2½	1 2	7 1	8 8	16 7	28 9	18 7

"The total snowfall of the recording stations during the winter of 1896-97 was in excess of that of the previous winter, but generally less than that of the winter of 1894-95. The snowfall on the higher ranges was, however, probably greater than that of the winter of 1894-95, that is to say, at elevations about 9,000 feet. This is borne out by the snowfall measured at Barmaur, a place at the extreme east of the state and nearly surrounded by high ranges.

"The principal storms which caused snow to fall generally over the state came from a westerly direction, and were preceded by high winds and rain at low elevations. These storms occurred on the 28th to the 30th December, the 12th to 14th, 19th, 20th, 27th, 30th and 31st January, the 12th and 13th February and the 21st and 28th March.

"The chief feature of the snowfall of the winter under report was the late fall in March at comparatively low elevations, and even in April at places at the foot of high ranges. The last fall of importance at elevations over 9,000 feet was as late as the 7th May.

"The heaviest general fall of snow occurred on the 12th and 13th February, when the snow line descended to 2,500 feet.

"The weather was unusually cold during March, April and up to the 15th of May, and the amount of cloud much greater than usual. This has resulted in the accumulation of snow in the middle of May being greater than in normal years, and its presence in large quantities at much lower elevations than usual. The accumulation of snow on the higher passes seems to be undoubtedly greater than is usual in the middle of May, and the Sach Pass (14,600 feet) is not open yet.

"Although the late snowfall and unusual accumulation in May no doubt have resulted in a lower temperature than usual, the real cause seems to be due to the series of storms accompanied by high winds which have reached this part of the country from the west. Between these storms, local ones of less importance have occurred, which are probably due to the snowfall, and the amount of cloud ensuing from the former and the falls of rain during April and May at low elevations have been above the normal for those months."

(4) *Kulu.*—The following gives the depth of snow at the end of each month from January to May 1897 and also on the 25th May of the past seven years on seven of the passes in this district for comparison :—

TAHSIL.	NAME OF PASS.	Elevation.	DEPTH OF SNOW IN					DEPTH OF SNOW ON THE 25TH MAY						
			January 1897.	February 1897.	March 1897.	April 1897.	May 1897.	1896.	1895.	1894.	1893.	1892.	1891.	1890.
		Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet	Feet.	Feet.
KULU . .	Hamta	14,500	14	13½	14½	11	6	1	3	6	7	½	12	6
	Rotang	13,000	14	12	12	11	7	8	6	9	9	1	9	5
	Bhubhu	10,000	6	6	5	2	1	*Nil*	*Nil*	1	1	?	*Nil*	*Nil*
PLACH . .	Gargarasan . . .	17,000	10	12	8	7	4	2	2	2	4	1	4	2
	Srikand	15,000	12	12	18	15	8	7	10	12	15	4	32	12
	Bashleo	11,000	9	9	4	3	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	1	*Nil*
	Jalori	10,500	9	8	4	3	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	1	*Nil*

The Assistant Commissioner, Kulu, writing on the 26th May, says :—

"The general opinion seems to be that the snowfall of the present year is in amount very little, if anything, above the normal, though it certainly exceeds last year's fall. I am inclined to think this opinion correct from my own observation. The snow is lying very late this year. I should say from what I have seen that the season is a full fortnight later than usual owing to the frequent rain and hailstorms in March and April. As to whether there is any connection between the depth of snow accumulation and the amount of cloud I am unable to say. Temperature has certainly been much lower throughout Kulu than is usual at this time of the year."

(5) *Simla Hill Districts and Upper Sutlej Valley.*—Snowstorms occurred on the 6th, 7th, 9th, 11th, 12th and 13th on the higher elevations above 10,000 feet.

The following gives the depth of accumulation of snow on the various passes in the district on the 15th of May :—

Name of Pass.	Elevation.	Approximate depth of snow.
		Feet.
Harung	13,000	6
Buldar	16,000	25 to 30
Rupin	15,000	15
Brinda	15,000	15 to 20
Runang	14,000	10 to 15
Moral Ridge	12,000	6

The following gives a comparative statement of the winter precipitation at Kalba in the Upper Sutlej Valley (height about 7,500 feet) during the past six years :—

Station.	Total rainfall from December to March in					
	1897.	1896.	1895.	1894.	1893.	1892.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Kilba	17·59	2·47	13·78	20·98	15·89	4·31

The following additional remarks have been sent as a special report for the season by the Deputy Conservator of Forests, Bushahr division :—

"The accumulation on the upper slopes appears to be very large, much more so than usual in normal years. The last heavy fall on the 24th March started several snow avalanches which descended into the valley, and on this date over the Sutlej below Mehbar, 6,000 feet, there is a snow bridge at least 10 feet thick, and another over the Baspa, 6,000 feet. Between Chargaon and Kilba snow avalanches descended down the Tikru, Phinla and Tempan Valleys and for some time bridged the Sutlej."

Summary of the snowfall data of the cold-weather season 1896-97.—The following summary is taken from a memorandum on the snowfall and meteorology of the cold weather period 1896-97 published in the *Gazette of India* of the 4th June 1897 :—

The winter commenced earlier than usual in Afghanistan and the Upper India hill districts. The first important snowfall of the season in that area occurred on the 26th to the 28th November, and was very heavy on the Sufed Koh mountains and in Chitral. December was finer than usual, on the whole, in these hills, and the snowfall in that month was moderate in amount.

A number of disturbances affected Northern India in January, but they were, with one exception, of slight intensity and somewhat abnormal in character. They gave normal to heavy snow on the higher elevations of the Western Himalayas, and slightly heavier rain than usual in the Punjab and lower elevations of the Western Himalayas. The snow did not fall to such low elevations as is frequently the case. February was less disturbed than usual. There was a very heavy fall in Chamba on the 12th and 13th, stated to be the heaviest of the whole season. The general character of the precipitation in the hills was similar to that of the preceding month.

The chief feature of the winter was the abnormally frequent and heavy snowfall in the months of March and April, and the winter did not terminate until the middle or end of May in the interior or higher valleys (as, for example, at Leh, Dras, Kailang, Poo, etc.).

There were abnormally general and heavy falls on the 21st and 28th of March and the 24th and 25th of April. The last week of March was unusually disturbed over the whole length of the Himalayas, and more or less heavy snow fell in the Assam and Sikkim Himalayas as well as the Punjab Himalayas during this period.

More or less heavy snow appears to have fallen over a part, if not the whole, of the Kashmir Himalayas in the fourth week of May, as the latest weather reports from Dras show that nearly 5 feet of snow fell during the stormy weather of the 21st to the 24th of May.

The chief features of the snowfall of the cold-weather season were as follows :—

(1) The winter commenced considerably earlier than usual in Afghanistan, Chitral and Kashmir.

(2) The number of cold weather disturbances from November to February was somewhat smaller than usual and the storms were of slight intensity, and the snowfall up to the end of February was probably below the normal on the whole and was nowhere excessive.

(3) The number of storms in March, April and May (and more especially in March) was unusually large, and the snowfall of this period was more or less considerably in excess over probably the whole Himalayan area, but more

especially in the Western Himalayas and North Afghanistan. The snowfall of the whole season was hence in considerable to perhaps large excess on the higher elevations of Afghanistan, Chitral, Kashmir and the Punjab Himalayas. The winter was severe and prolonged considerably beyond its normal date of closure.

(4) The total fall of the period was most largely in excess on the higher ranges and was probably in large excess on elevations above 15,000 feet. It was about normal in the Punjab Himalayas at elevations below 10,000 feet.

(5) The snowfall of the past season was, so far as can be judged from the data, normal in Baluchistan and in moderate to considerable excess in Afghanistan. A considerable amount of snow was still lying at the end of May on the higher ranges of the Sufed Koh and the higher ranges of North Afghanistan, but the extent is probably not much larger than usual. This snow accumulation is hence probably not an important factor.

(6) The fall in Chitral and Kashmir was much above the normal during the whole period from November to May, and unusually frequent and heavy snow has fallen during the past three months (March to May) in these regions, so that the winter has been prolonged at least a month beyond its normal date. The fall of the past winter has hence been much above the normal, and is, in the opinion of the natives of these districts, similar to that of the winters of 1876-77 and 1877-78. The snowfall of the two months of March and April occurred chiefly on the higher elevations, and hence, although there was a much greater depth at the end of May, there was probably no large and abnormal extension of snow-clad surface.

(7) The fall in the Punjab Himalayas has apparently been heavier than usual, chiefly due to the frequent snowstorms of March and April. So far as can be judged from the actual data received, the accumulation on the higher elevations in Chamba and Kulu at the end of May was not excessive, and was probably about normal. It was probably in slight to moderate excess in the Simla hill districts.

(8) The data for Garhwal and Kumaon show that the snowfall in these areas up to the end of February was considerably below the normal.

(9) The data for Sikkim are practically *nil*, as the observatory at Gnatong ceased to send daily weather telegrams in November.

(10) The information relative to the snowfall in the Assam Himalayas is, as usual, very scanty, but appears to indicate that the fall was larger than usual and that a heavy and late general fall was received in March.

The data hence establish that there has been more snow than usual during the past winter over the whole of the Western Himalayas and in North Afghanistan and Chitral. The winter commenced early and terminated much later than usual, and was characterized throughout by the occurrence of frequent light and moderate falls. Over the Eastern and Central Himalayas, it is almost certain that the snowfall was probably not above the normal and that there is no excessive accumulation. In the Western Himalayas, from Chamba to Kumaon and Garhwal, the information indicates that the snowfall in the early part of the winter was not above the normal, except perhaps on the highest ranges. Frequent snow fell in March and April, but the chief effect of this has been to increase the depth of the snow accumulation above the permanent snow line. It is hence probable that there was at the end of May no large extension of snow-clad surface, and hence the conditions in those mountain areas were not of the kind which exercise a large influence in modifying the strength and extension of the monsoon currents. On the other hand, there has been prolonged and heavy snow in the mountain area, including North Afghanistan, Chitral and Kashmir, more especially the northern districts, and the general consensus of opinion is that it is the most severe winter experienced in these areas since the severe winters of 1876-77 and 1877-78. It is hence the most important factor in the snowfall conditions of the past winter in the hill districts of Northern India.

Summary of special storm reports.

The following gives the chief local storms of which reports were received during the month. These storms were all of the ordinary hot weather type, *viz.*, thunderstorms or hailstorms in Bengal, the North-Western Provinces, the Deccan and Madras, and duststorms in the hottest and driest districts of Northern and Central India; more especially, the Punjab and Rajputana. They were apparently of slight to moderate intensity, and in no case do they appear to have caused much damage to property.

The following is a brief statement of the local storms, of which reports have been received from observers :—

1st May.—Severe thunderstorm at Salem, with a little hail at the beginning of the storm, from 3-15 P.M. to 5 P.M.

2nd.—Thunderstorm at Raipur. Pressure increased from 28·882″ at 4 P.M. to 28·978″ at 4-45 P.M. 9·6 miles of wind were registered between 4 P.M. and 4-10 P.M. Thunderstorm at Salem at 6 P.M. The greatest velocity of the wind was 37 miles per hour. Thunderstorm with heavy rain at False Point from 4 to 5 P.M.

3rd.—Thunderstorm at Raipur. Thunderstorm at Salonah (Assam) from 5-15 P.M. to 6-17 P.M.

4th.—Duststorm at Delhi from 7 P.M. to 11 P.M.

5th.—Duststorm at Ludhiana lasting from 2-22 P.M. to 4-4 P.M. Pressure increased from 28·926″ at 2-30 P.M. to 28·980″ at 3-30 P.M. and fell to 28·880″ at 4-30 P.M.

8th.—Thunderstorm at Salem from 7 P.M. to 8 P.M. and at Coimbatore from 6 P.M. to 7 P.M.

12th.—Duststorm at Delhi at 6-30 P.M.

13th.—Duststorm at Burdwan from 8 to 10 A.M.

Thunderstorm at Purnea from 5-25 A.M. to 6-10 A.M.

Severe nor'wester at Gopalpur from 5 to 5-30 P.M.

Severe duststorm at Delhi at 6 P.M.

15th.—North-west squall passed over the Ridge station at the entrance to the Hooghly at 7 P.M. The thermometer fell from 87°·5 to 76°·0 during the first gust.

Severe duststorm from north-west at Krishnagar from 5-18 P.M. to 5-38 P.M.

Duststorm at Gulbarga lasting from 3-15 P.M. to 4-20 P.M., 3·1 miles of wind were recorded by the anemometer in 3 minutes between 4 P.M. and 4-3 P.M. Thunderstorm at Jodhpur at 6-48 P.M.

17th.—Duststorm with heavy rain at Jodhpur beginning at 4-30 P.M. Thunderstorm at Salonah (Assam) beginning at 7-30 A.M.

18th.—Thunderstorm at Salem at 3 P.M.

19th.—Hard squall at the Ridge station near the mouth of the Hooghly at 5 A.M. from north-east.

Severe thunderstorm at Cocanada from north-east. The storm lasted from 10 P.M. to midnight.

20th.—Thunderstorm at Simla beginning at 10-30 P.M. and lasting until 11-50 P.M.

Duststorm at Jodhpur from 5 P.M. to 5-25 P.M. Temperature fell from 100°·1 at 5 P.M. to 90°·2 at 5-20 P.M.

Duststorm at Delhi at 5 P.M. and at Ajmere (from north-east) at 6-30 P.M.

21st.—Duststorm at Amraoti at 1-35 P.M.

22nd.—Hailstorm at Mussoorie (from north-east) lasting from 7 A.M. to 7-30 A.M.

Severe duststorm at Delhi from south-west at 0-30 P.M.

Thunderstorm (with a little hail) at Jeypore at 5 P.M. Thunderstorm at Bahraich from 3-30 P.M. to 5-30 P.M. Duststorm at Ludhiana at 5-50 A.M. and again at 6-30 A.M. and again at 5-50 P.M. Many trees in the station were uprooted during the last storm.

Severe duststorm at Allahabad from 2-45 to 3-15 P.M. and again from 5-55 to 7 P.M. The strongest winds were of velocity 37 miles per hour.

23rd.—Thunderstorm at Poona from 6-22 P.M. to 7-5 P.M.

Duststorm at Ludhiana from 3-5 P.M. to 6-30 P.M. Thunderstorm at Simla lasting from 4-8 P.M. to 5-30 P.M. Duststorm at Delhi at 3 P.M.

24th.—Severe thunderstorm during the afternoon and evening at Mussoorie.

Thunderstorm and hailstorm at Simla from 3-15 P.M. to 3-30 P.M. and series of thunderstorms during the evening.

Duststorm at Delhi during the evening.

25th.—Thunderstorm at Rajkot.

26th.—Thunderstorm at Belgaum from 4-20 P.M. to 4-50 P.M.

Thunderstorm at Sutna from 2 P.M. till 3-10 P.M.

Violent duststorm at Kurnool from north-east lasting from 2-10 P.M. to 2-35 P.M.

27th.—Thunderstorm and duststorm at Cawnpore at 4 A.M.

Thunderstorm at Salem from 4-20 P.M. to 4-50 P.M.

Thunderstorm at Gulbarga from 3-30 P.M. to 3-50 P.M. followed by a severe duststorm at 5-10 P.M.

28th.—Severe hailstorm and thunderstorm at Belgaum from 4-40 P.M. to 6-15 P.M. Temperature fell from 87°·4 at 4-23 P.M. to 74°·4 at 4-44 P.M.

Duststorm at Nagpur at 4 P.M.

Duststorm at Raipur during the evening.

Duststorm at Jodhpur from 5-55 P.M. to 8 P.M.

29th.—Thunderstorm at Salem from 3-40 P.M. to 4-10 P.M.

30th.—Thunderstorm at Simla from 9-50 A.M. to 10-5 A.M.

Duststorm at Ludhiana from 2 P.M. to 3-40 P.M.

Violent duststorm at Jocobabad at 7 P.M. The storm came from west and lasted four hours.

31st.—Thunderstorm at Simla from 1 P.M. to 5-30 P.M. and again from 7 P.M. to 10 P.M.

Duststorm at Ludhiana at 9-45 A.M. lasting until the afternoon when it was followed by a brief thunderstorm.

Duststorm and thunderstorm at Jeypore from 6-30 P.M. to 7-15 P.M.

Duststorm at Ajmere from 5-55 P.M. to 6-20 P.M. The storm came from north-west.

Duststorm at Jodhpur lasting from 5-30 P.M. to 7-30 P.M.

Violent duststorm at Raipur (6-30 P.M. to 6-40 P.M.)

The following hailstorms are reported by district officers in Assam, Madras and Rajputana :—

4th.—Hailstorm at Phulbari in the Cachar district. The storm was of very slight intensity and duration.

13th.—Hailstorm at Gauhati. The stones were very small.

16th.—Hailstorm at Salur and Singidi in the Vizagapatam district.

21st.—Hailstorm and duststorm at Thana Nib in the Jeypore State at 8 A.M.

22nd.—Hailstorm at Thana Nib in Jeypore at 4 P.M.

25th.—Hailstorm at Chirawa in Jeypore at 4-30 P.M.
28th.—Hailstorm at Pottinghi in the Vizagapatam district of Madras. The stones were of small size.

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

Arabian Sea.—Ordinary north-westerly winds obtained along the Indian coast during the first twenty-five days of the month, and very variable winds during the remainder of the month. Over the centre and west of the sea, on the other hand, the winds were unsteady, ranging in direction between south and north-west. Over the south of the sea, abnormal north-east winds prevailed with remarkable steadiness during the greater part of the month. Weather was fine and clear over the whole of the Arabian Sea throughout the month, except during the last five days when it was very feebly unsettled with occasional squalls and showers over the greater part of that area. The chief feature of the meteorology of the last fortnight of the month in the Arabian Sea was the almost total absence of the usual monsoon influence in the southern half and the consequent prevalence of much finer weather than usual over that region. The mean daily air movement ranged between 1·9 and 3·7 in force, and averaged 2·8 for the whole of the month or 0·6 below the normal intensity in May.

Bay of Bengal.—At the commencement of the month feeble winds of indraught to the land area obtained at the head of the Bay, abnormal north-east winds force 2 to 4 along the East Ceylon coast, and variable airs over the remainder of the Bay. The mean intensity of the air movement, as determined from the data of 20 vessels, was 2·2 or 0·8 below the normal strength in May. Weather was fine and clear over the whole of the Bay except in the neighbourhood of Ceylon, where it was cloudy with occasional rain squalls. Conditions changed rapidly at the head of the Bay during the day, where unsteady northerly winds set in and weather became showery. Very variable winds obtained generally over the Bay on the 3rd, at 8 A.M. of which day the air movement averaged 2·1 or 0·1 less than on the 1st. Winds returned to their normal directions at the head of the Bay on the 4th, but continued unsteady and variable over the remainder of the Bay.

An important change occurred in the south of the Bay on the 5th, where south-west winds set in. These intensified and extended northwards up the east of the Bay during the next three days. On the morning of the 8th south-west winds force 3 to 6 obtained over the whole of the south-east of the Bay. Weather was disturbed in the Andaman Sea, more especially over the southern half, where the S.S. *Palamcotta* experienced heavy squalls and a rough sea.

Weather became more unsettled during the next day in the Andaman Sea, and the majority of vessels in that area on the morning of the 9th experienced continuous rain and heavy squalls. Winds and weather moderated rapidly in the Andaman Sea during the next day so much so that on the morning of the 11th two vessels out of the three in that area experienced light variable airs and overcast skies. The mean air movement in the Bay had decreased to 3·4. This improvement in the weather conditions over the Andaman Sea was, however, only, temporary, as winds increased again in that region during the day, shifting to cyclonic directions at the same time. The strongest winds at 8 A.M. of the 12th in the Andaman Sea were of force 5, and the mean force for the whole of the Bay averaged 4·0 or 1·0 above the normal. Winds increased further in force during the next twenty-four hours, and the weather became more unsettled in the Andaman Sea. Thus on the morning of the 13th several vessels in that area experienced heavy to furious squalls and a high sea. The unsettled conditions advanced northwards and passed into Lower Burma during the succeeding twenty-four hours. The mean intensity of the air movement at 8 A.M. of the 14th was 4·2 or 40 per cent. stronger than the normal.

Conditions remained unsettled in the east of the Bay until the 17th, when fine weather set in. Fine weather with light to strong west to south-west winds prevailed generally on the 18th and ten succeeding days. The mean wind intensity during this period from the 18th to the 28th varied from 3·8 on the 21st to 2·2 on the 27th. Winds increased rapidly in the southern half of the Bay during the remaining three days of the month and averaged 3·5 at the end of the month or 0·5 above the normal strength in May. Weather was generally squally and showery on these days except in the north where it remained fine.

There are no data available for the eastern half of the equatorial region. In the western half of the belt fairly steady south-east winds obtained during the first half of the month, and very unsteady variable winds in the second half. The unusual character of the air movement during the second half of the month is shown clearly by the experience of the S.S. *Akbar* which passed across the belt from south to north during the last week of the month. She had fresh east-south-east winds in Lat. 8½° S. and Long. 59¼° E. on the 27th, light variable airs in Lat. 5¼° S. and Long. 60½° E. on the 28th, west-north-west airs force 1 in Lat. 2¼° S. and Long 62¼° E. on the 29th, and west-north-west winds in Lat. 1° N. and Long. 64¼° E. on the 30th.

The most noteworthy feature of the meteorology of the month in the Indian Seas and of the equatorial belt was the delay in the establishment of the monsoon conditions

Temperature of the Air.

May 1897 was characterized by higher temperature than usual over the whole of India with the exception of Assam and Lower and Central Burma. The hot weather conditions were in fact very strongly marked in India, and more especially in Rajputana, the North-Western Provinces and Central India, and, as usually happens under these conditions, the night temperature was almost as largely above the normal as the day temperature.

The mean maximum or day temperature of the month was above the normal over the whole of India, with the exception of the Assam Valley and Lower and Central Burma, which areas generally received more frequent rain than usual during the month, thus depressing temperature below the normal. The excess was more than 2° in amount over the whole of India with the exception of Cachar, North Bengal, Orissa, the North Punjab, a narrow belt along the west coast of India and the Madras coast districts. It was more than 4° in amount in a belt of country stretching from Upper Sind to South Bihar and Chota Nagpur and also in the West Deccan. The following gives comparative data for stations in these two areas:—

Province.	Station.	Mean maximum temperature		
		Actual, May 1897.	Normal, May.	Variation of actual from normal.
		°	°	°
Chota Nagpur	Hazaribagh	103·4	98·3	+5·1
	Ranchi	102·9	98·0	+4·9
Bihar	Gaya	108·7	104·1	+4·6
North-Western Provinces and Oudh.	Allahabad	111·4	106·3	+5·1
	Lucknow	109·2	104·1	+5·1
	Dehra Dun	98·7	93·7	+5·0
	Benares	109·2	104·6	+4·6
	Jhansi	111·9	107·4	+4·5
	Gorakhpur	104·6	100·5	+4·1
Punjab	Mooltan	110·5	104·7	+5·8
Central India	Sutna	108·9	104·7	+4·2
Rajputana	Sambhar	109·0	104·3	+4·7
	Bickaneer	110·8	106·4	+4·4
	Jeypore	109·6	105·5	+4·1
Sind	Jacobabad	114·6	110·4	+4·2
Bombay Deccan	Poona	103·2	98·5	+4·7
	Belgaum	97·3	93·1	+4·2

Chota Nagpur, the eastern districts of the North-Western Provinces and the South-West Punjab were hence the areas in which the day temperature was most largely in excess of the normal.

The mean maximum temperature was more than 2° below the normal in Assam and Burma at the stations for which comparative data are given below:—

Province.	Station.	Mean maximum temperature.		
		Actual, May 1897.	Normal, May.	Variation of actual from normal.
		°	°	°
Assam	Sibsagar	83·3	86·3	—3·0
Burma	Bassein	89·2	92·0	—2·8
	Toungoo	94·0	96·2	—2·2
	Moulmein	87·9	90·0	—2·1

The highest day temperatures of the month were generally recorded in North-Western India during the third week of the month from the 17th to the 20th. The following gives the most noteworthy:—

Station.	Highest maximum temperature recorded in May 1897.	Date on which recorded.	Highest maximum temperature recorded in May previous to 1897.	Year in which recorded.
	°		°	
Jacobabad	121·0	17th	123·0	1888
Allahabad	117·2	20th	117·2	1884
Montgomery	117·1	29th	121·9	1895
Lucknow	116·8	31st	119·0	1869
Mainpuri	116·7	20th	116·2	1895
Cawnpore	116·6	20th	114·1	1892 and 1895.
Nagpur	116·7	18th	117·7	1883
Jhansi	116·2	18th, 19th and 31st.	118·0	1869
Dehri	116·3	18th	114·5	1894
Hyderabad (Sind)	116·2	28th	121·0	1886
Mooltan	115·5	29th and 30th	120·5	1895

The highest maximum temperatures were not so high as have previously been recorded in Sind, Rajputana, and the Punjab. They were, on the other hand, excessive in the eastern and central districts of the North-Western Provinces, higher in some cases than have been recorded during the past 25 years in that area.

It may be noted that the absolute maximum temperatures of the year were in 1897, as in 1896, recorded in the second week of June and not in the fourth week of May, as is usually the case.

The mean minimum or night temperature of the month was in excess over the whole of India except the Assam

Valley where it was in very slight defect. The excess was more than 2° over nearly the whole of the interior and slightly exceeded 4° in two areas for which data are given below :—

AREA.	STATION.	MEAN MINIMUM TEMPERATURE.		
		Actual, May 1897.	Normal, May.	Variation of actual from normal.
		°	°	°
FIRST AREA	Bickaneer	85·3	78·8	+6·5
	Ajmere	83·0	77·7	+5·3
	Lahore	77·1	72·1	+5·0
	Ludhiana	78·6	73·8	+4·8
	Mooltan	80·5	75·9	+4·6
	Jacobabad	81·3	76·9	+4·4
	Sirsa	80·3	76·0	+4·3
SECOND AREA	Jhansi	88·1	82·3	+5·8
	Sutna	83·4	78·1	+5·3

and also locally at Bareilly (+4°·5) and Gaya (+4°·6).

The mean temperature of the month was in very slight defect in Lower and Central Burma and the Assam Valley, and was above the normal over the remainder of India. The mean temperature of the month was more than 2° in excess over by far the greater part of India, including nearly the whole of the interior and also South Bengal, and was 4° or upwards above it in three areas, for which data are given below :—

AREA.	STATION.	MEAN DAILY TEMPERATURE.		
		Actual, May 1897.	Normal, May.	Variation of actual from normal.
		°	°	
FIRST AREA	Bickaneer	98·1	92·6	+5·5
	Mooltan	95·5	90·3	+5·2
	Jacobabad	98·0	93·7	+4·3
	Ajmere	95·0	90·5	+4·5?
	Sambhar	95·6	91·2	+4·4
SECOND AREA	Jhansi	100·0	94·8	+5·2
	Nowgong	96·6	93·2	+3·4?
	Sutna	96·2	91·4	+4·8
	Allahabad	97·0	92·4	+4·6
	Lucknow	94·6	90·3	+4·3
	Bareilly	93·1	88·9	+4·2
THIRD AREA	Gaya	95·7	91·1	+4·6?
	Hazaribagh	90·6	86·3	+4·3
	Ranchi	90·4	86·1	+4·3

Temperature was almost as largely in excess at the Himalayan Hill stations in North-Western India as in the adjacent plains.

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, May 1897.	Normal, May.	Variation of actual from normal.
	°	°	°
Ranikhet	72·4	68·1	+4·3
Mussoorie	69·8	66·4	+3·4
Simla	66·7	64·5	+2·2
Darjeeling	58·6	56·6	+2·0
Chakrata	66·7	64·8	+1·9

The hot weather temperature conditions were hence strongly exhibited in Rajputana and Central India in May 1897.

The following gives a brief summary of the chief features of the mean temperature conditions of the month :—

1st.—Temperature both by day and night and hence also the mean temperature of the month was very slightly below the normal in the Assam Valley.

2nd.—The day temperature was in moderate defect in Lower and Central Burma and the night temperature was in slight excess. The mean temperature of the month was hence normal or slightly in defect in that area.

3rd.—The mean day and night temperatures and hence also the mean temperature of the month were more or less above the normal over the whole of India with the exceptions named above. The excess was least marked in the West Coast districts and was largest in amount in the greater part of the Punjab, Rajputana, the North-Western Provinces, South Bihar, and Baghelkhand in which it ranged between 4° and 5½°.

4th.—Temperature was almost as largely in excess at the hill stations in North-Western India as in the adjacent plains.

The following gives temperature data for 55 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 Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	88·4	75·9	82·2	12·5	23·2	—1·2	+0·7	—1·9
	Lower Burma (Deltaic)	89·5	78·2	83·9	11·4	24·4	—1·8	+1·0	—2·8
	Central do.	95·0	77·8	86·4	17·2	31·5	—2·2	+0·9	—3·1
	Upper do.	97·4	77·0	87·2	20·5	36·2	+1·1	+1·1	0
	Arakan	90·7	78·3	84·5	12·4	23·0	+0·2	+0·5	—0·3
Bengal and Assam	Eastern Bengal	90·5	75·0	82·8	15·5	28·5	+1·5	+0·9	+0·6
	Assam (Surma)	89·2	72·3	80·8	16·9	29·2	+1·2	+0·2	+1·0
	Do. (Brahmaputra)	85·5	71·7	78·6	13·7	27·1	—2·0	—0·6	—1·4
	Deltaic Bengal	96·4	78·8	87·6	17·6	32·1	+2·3	+2·1	+0·2
	Central do.	99·0	77·4	88·2	21·6	37·9	+2·2	+1·0	+1·2
	North do.	88·8	73·1	81·0	15·7	29·9	+0·7	+0·8	—0·1
	Bengal Hills	65·9	50·3	58·1	15·6	29·4	+2·7	+1·3	+1·4
	Orissa	94·8	81·1	87·9	13·7	27·5	+1·3	+2·3	—1·0
	Chota Nagpur	105·8	79·2	92·6	26·6	45·6	+5·0	+3·6	+1·4
	South Bihar	106·3	80·6	93·5	25·7	43·9	+2·8	+0·9	+1·9
	North Do.	98·9	77·0	87·9	21·9	42·3	+0·8	+1·6	—0·8
North-Western Provinces and Oudh.	North-Western Provinces (East)	110·3	81·8	96·1	28·5	44·2	+4·9	+3·3	+1·6
	Oudh (South)	109·2	80·0	94·6	29·2	43·5	+5·1	+3·4	+1·7
	Do. (North)	106·8	79·5	93·2	27·3	41·6	?	?	?
	North-Western Provinces (Central)	111·0	83·9	97·5	27·1	41·9	+4·5	+5·8	—1·3
	Do. do. (West)	107·0	80·4	93·7	26·6	40·4	+3·8	+2·0	+1·8
	Do. do. (East Submontane)	104·6	79·7	92·2	24·9	37·5	+4·1	+3·0	+1·1
	Do. do. (West do.)	103·5	76·2	89·9	27·2	43·1	+4·0	+3·1	+0·9
	Do. do. (Hills)	78·6	60·6	69·6	18·0	37·8	+3·2	+3·1	+0·1
Punjab	Punjab (South-East)	106·8	82·6	94·7	24·2	40·3	?	?	?
	Do. (South)	107·4	79·1	93·3	28·3	44·1	+3·5	+4·3	—0·8
	Do. (Central)	104·7	77·1	90·9	27·6	45·0	+1·9	+5·0	—3·1
	Do. (Submontane)	105·6	77·8	91·8	27·8	44·5	+2·4	+4·4	—2·0
	Do. (Hill Districts)	71·4	50·0	60·7	21·4	42·0	+1·8	+0·2	+1·6
	Do. (North)	98·3	67·2	82·7	31·0	47·1	+1·1	+0·6	+0·5
	Do. (West)	107·4	77·8	92·6	29·6	47·2	+4·2	+3·1	+1·1
Bombay and Malabar Coast Districts (Madras).	Malabar Coast	90·6	79·6	85·2	11·0	18·7	+2·0	+2·1	—0·1
	Madras (South Central)	97·7	75·3	86·5	22·5	32·1	+0·9	+0·8	+0·1
	Coorg	81·7	65·8	73·7	15·9	24·8	+0·8	+1·3	—0·5
	Mysore	94·4	70·7	82·6	23·7	36·1	+3·7	+1·7	+2·0
	Konkan	90·2	80·8	85·5	9·4	17·4	+0·6	+1·2	—0·6
	Bombay Deccan	103·3	73·0	88·2	30·3	39·2	+3·9	+0·8	+3·1
	Hyderabad (North)	Data	not	received					
	Khandesh	106·0	74·2	90·1	31·9	40·8	+3·7	+1·2	+2·5
Central Provinces and Berar.	Berar	110·8	82·9	96·9	28·0	43·5	+3·7	+3·0	+0·7
	Central Provinces (West)	110·6	83·2	97·0	27·5	43·7	+3·2	+2·8	+0·4
	Do. (Central)	109·0	81·4	95·2	27·6	45·0	+2·8	+2·9	—0·1
	Do. (East)	108·9	82·8	95·9	26·1	45·8	+3·1	+2·7	+0·4
Bombay (North)	Gujarat	103·5	79·2	91·3	24·3	35·2	—0·8	+1·7	—2·5
	Kathiawar and Cutch	101·4	77·0	89·2	24·4	33·6	+1·7	—0·1	+1·8
	Sind	105·1	80·1	92·6	25·0	36·6	+3·1	+2·7	+0·4
	Baluchistan Hills	91·3	58·4	74·9	32·9	51·6	+2·4	+2·0	+0·4
Rajputana and Central India.	Central India (East)	107·8	81·2	94·5	26·7	42·3	+3·4	+3·9	—0·5
	Rajputana (East), Central India (West)	109·2	82·0	95·6	27·2	41·1	+4·4	+3·8	+0·6
	Do. (West)	110·3	81·8	96·1	28·5	43·8	+4·4	+6·5	—2·1
Madras	East Coast (North)	97·2	82·0	89·6	15·3	33·5	—0·5	+0·2	—0·7
	Hyderabad (South)	107·1	81·0	94·1	26·1	40·7	+3·6	+3·9	—0·3
	Madras (Central)	106·9	82·4	94·7	24·5	40·8	+2·8	+2·3	+0·5
	East Coast (Central)	102·5	82·0	92·3	20·6	41·7	—0·5	+0·8	—1·3
	Do. (South)	99·9	80·9	90·4	19·1	31·4	+1·0	+1·1	—0·1
	Madras (South)	97·9	81·0	89·5	16·9	27·2	+0·9	+2·7	—1·8

At the commencement of the month temperature differed little from the normal over the whole of India with the exception of the Central Provinces, Central India and Chota Nagpur, in which it was in moderate to large defect. The following gives variation data for the 24 hours preceding 8 A.M. of the 1st :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+2·8	—0·3	+1·3
Bengal and Assam	+1·9	—0·3	+0·8
North-Western Provinces and Oudh	—0·8	—1·6	—1·2
Punjab	+0·1	—0·2	—0·1
Sind and Rajputana	+1·2	—2·1	—0·5
Central India and Gujarat	+0·7	—2·2	—0·8
Central Provinces and Berar	—4·7	—7·2	—6·0
Bombay	+2·5	+1·0	+1·8
Madras	—0·3	—0·5	—0·4

Weather was showery in Bengal from the 1st to the 5th, and the area of deficient temperature was transferred eastwards from the Central Provinces to Bengal. The following gives variation data for the Central Provinces and North-East India and Burma for the period from the 1st to the 5th :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	1st.	2nd.	3rd.	4th.	5th.
	°	°	°	°	°
Central Provinces and Berar	—6·0	—6·6	—3·4	—0·5	+3·5
Orissa	+0·1	—6·3	—6·9	—5·0	+0·5
Chota Nagpur	—4·8	—13·3	—11·1	—7·5	—1·1
Bihar	+2·0	—9·2	—4·1	—1·0	+3·0
Bengal	+2·5	—2·1	—3·7	—0·2	+2·3
Burma	+1·3	+1·5	+4·3	+1·4	—4·8

A shallow low pressure area lay over Upper Sind and North-West Rajputana from the 1st to the 5th. Temperature increased rapidly in that area from the 3rd to the 5th. The following gives daily variation data for North-West India during this period :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A. M. OF		
	3rd.	4th.	5th.
	°		°
Baluchistan (Quetta)	+7·6	+7·6	+9·5
Punjab	+4·4	+6·2	+5·7
Upper Sind	+7·5	+9·5	+3·7
Rajputana	+2·7	+8·2	+7·6

The depression in Upper India advanced eastwards on the 5th and 6th and gave light thundershowers in the North and Central Punjab, and Punjab Hills on the 6th and 7th. This rainfall gave a brief period of slightly cooler weather in Upper India lasting from the 7th to the 9th. The area of greatest excess of temperature which was in the Punjab on the 5th was hence transferred to the North-Western Provinces on the 7th and 8th, and to Bengal on the 9th. Heavy rain in Tenasserim on the 8th and 9th gave a brief large temporary reduction of temperature in that area.

Temperature increased briskly in Upper India on the 9th and 10th, and was in general excess in India during the next week. The following gives variation data for every second day from the 10th to the 18th :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	10th.	12th.	14th.	16th.	18th.
	°	°	°		°
Bengal and Assam	+6·2	+4·2	+2·3	+2·8	+2·3
North-Western Provinces and Oudh.	+2·8	+5·9	+3·9	+4·8	+8·2
Punjab	+1·4	+4·8	+0·9	+3·1	+7·1
Sind and Rajputana	+2·3	+6·0	+6·0	+5·9	+7·2
Central India and Gujarat	+1·5	+2·4	+2·1	+4·4	+4·4
Central Provinces and Berar	+1·4	+3·1	+3·9	+5·3	+5·8
Bombay	+1·4	+1·6	+1·0	+2·1	+2·0
Madras	+3·3	+2·8	+3·2	+3·3	+4·6

A feeble diffused disturbance passed up the Andaman Sea into Burma on the 14th, and moderate to heavy general rain was received in that area during the next four days. Temperature was hence reduced largely below the normal in that area from the 13th to the 17th as is shown below :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF								
	10th.	11th.	12th.	13th.	14th.	15th.	16th.	17th.	18th.
	°	°	°	°	°	°	°	°	°
Burma, Lower	—6·8	—1·7	—5·9	—6·2	—6·3	—6·7	—5·8	—0·7	°
„ Central	—2·1	+2·1	—1·5	—2·2	—8·6	—10·9	—10·5	—5·4	—2·2
„ Upper	+3·4	+4·6	+4·6	+2·4	—3·4	—4·5	—1·7	—2·9	—0·1

The area of greatest excess of temperature which was in Bengal on the 10th shifted westwards up the Gangetic Plain during this period, and was defined by the stations of Sirsa, Delhi, Jhansi and Jeypore on the 18th. Temperature was 11° above the normal on that day in the area including those stations.

Showery weather again diminished temperature below the normal in North-Eastern India. Temperature continued in large general excess from the 19th to the 23rd over the whole of the interior of India except Bengal. The following gives mean temperature variation data for the period 19th to the 23rd :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	19th.	20th.	21st.	22nd.	23rd.
	°	°	°	°	°
Burma	+0·5	+1·7	+2·8	+2·1	+1·9
Bengal and Assam	—1·8	—2·3	0	+0·6	—0·3
North-Western Provinces and Oudh.	+8·7	+6·6	+3·8	+4·2	+0·8
Punjab	+6·1	+8·1	+7·0	+5·0	+4·2
Sind and Rajputana	+4·8	+4·0	+3·7	+4·0	+3·8
Central India and Gujarat	+2·8	+2·3	+2·0	+1·5	+1·4
Central Provinces and Berar	+4·4	+2·6	+2·0	+2·0	+3·2
Bombay	+2·0	+1·8	+1·4	+1·6	+2·3
Madras	+2·8	+1·3	—0·1	+2·4	+1·4

Weather was slightly disturbed in Upper India from the 23rd to the 26th. Numerous duststorms occurred in the Punjab plains and thunderstorms in the hills. This caused a moderate reduction of temperature on the 24th and 25th in the Punjab. Temperature, on the other hand, increased in North-Eastern India, and was again in general excess on the 27th, as is shown by the following comparative data for the 24 hours preceding 8 A.M of that date :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF		
	Mean maximum temperature	Mean minimum temperature.	Meam temperature.
	°	°	°
Burma	+4·0	+2·5	+3·3
Bengal and Assam	+4·5	+3·5	+4·0
North-Western Provinces and Oudh	+4·4	+1·5	+3·0
Punjab	+2·0	+0·9	+1·5
Sind and Rajputana	+2·5	+5·5	+4·0
Central India and Gujarat	+4·4	+2·4	+3·4
Central Provinces and Berar	+4·3	+3·9	+4·1
Bombay	+2·7	+0·5	+1·6
Madras	+1·2	+1·1	+1·2

Light to moderate showers were received in North and East Bengal and Assam during the remainder of the month and temperature was below the normal to a slight extent in that area. Over the remainder of India it was more or less excessive, as is shown by the following data :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	28th.	29th.	30th.	31st.
	°	°	°	°
Burma	+2·5	+2·3	+0·4	+1·3
South Bengal	+0·2	+2·2	—1·6	+1·1
South Bihar	+6·6	+6·3	+4·4	+0·9
Chota Nagpur	+5·5	+5·4	+4·3	+3·7
North-Western Provinces and Oudh.	+2·0	+4·9	+6·9	+4·9
Punjab	+4·4	+7·3	+6·6	+2·8
Sind and Rajputana	+6·2	+4·9	+4·7	+3·3
Central India and Gujarat	+3·7	+3·6	+3·9	+3·1
Central Provinces and Berar	+5·0	+3·8	+5·2	+5·6
Bombay	+2·4	+2·3	+2·8	+2·4
Madras	+1·3	+1·2	+1·2	+1·4

The following gives corresponding data for the cool area in Bengal and Assam :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	28th.	29th.	30th.	31st.
	°	°	°	°
Assam	—0·9	—1·7	—3·4	—2·5
East Bengal	+1·9	+3·4	—0·1	+0·9
North „	—1·1	+1·2	+1·8	—4·5
North Bihar	+1·9	+4·1	+0·9	—5·2

The following gives temperature variation data for the 24 hours period ending at 8 A. M. of the 31st :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+1·9	+0·7	+1·3
Bengal and Assam	—1·4	—1·5	—1·5
North-Western Provinces and Oudh	+4·8	+4·9	+4·9
Punjab	+2·9	+2·6	+2·8
Sind and Rajputana	+2·8	+3·7	+3·3
Central India and Gujarat	+5·4	+0·7	+3·1
Central Provinces and Berar	+5·8	+5·4	+5·6
Bombay	+3·3	+1·5	+2·4
Madras	+1·2	+1·6	+1·4

The highest temperatures of the month were recorded in the Coromandel coast districts from the 14th to the 18th in the Deccan generally, Berar and the Central Provinces during the third week of the month, in Bihar and Chota Nagpur during the hot period of the third week

of the month, and in the North-Western Provinces and Punjab between the 18th and the 31st. The following gives the highest maximum temperatures of the month recorded at the hottest stations, arranged according to their date of occurrence :—

STATION.	Highest maximum temperature recorded in May 1897.	Date on which recorded.	Highest maximum temperature recorded in May previous to 1897.	Year in which recorded.
	°		°	
Jacobabad . . .	121·0	17th	123·0	1888 & 1895
Daltonganj . . .	116·1	18th	114·7	1894
Dehri	116·3	18th	114·5	1894
Jhansi	116·2	18th	118·0	1869
Nagpur . . .	116·7	18th	117·7	1883
Chanda . . .	119·2	18th	116·9	1896
Jhansi	116·2	19th	118·0	1869
Cawnpore . . .	116·6	20th	114·1	1892 & 1895
Allahabad . . .	117·2	20th	117·2	1884
Mainpuri . . .	116·7	20th	116·2	1895
Hyderabad (Sind) .	116·2	28th	121·0	1886
Montgomery . . .	117·1	29th	121·9	1895
Mooltan . . .	116·0	30th	120·5	1895
Jhansi	116·2	31st	118·0	1869
Lucknow . . .	116·8	31st	119·0	1869

The following gives the variations of the mean daily temperature from the normal, week by week during the month, in nine of the larger provinces or political divisions of the Empire :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE FOR WEEK ENDING				
	8th.	15th.	22nd.	29th.	For whole month.
	°	°	°	°	°
Burma	+0·1	−1·4	−0·2	+2·4	+0·3
Bengal and Assam . . .	0	+4·5	+0·8	+1·7	+1·5
North-Western Provinces and Oudh.	+3·2	+3·8	+6·0	+1·9	+3·9
Punjab	+2·1	+1·2	+5·9	+2·2	+2·9
Sind and Rajputana . .	+2·9	+3·7	+5·3	+4·1	+3·9
Central India and Gujarat .	+2·3	+2·3	+3·2	+2·4	+2·5
Central Provinces and Berar .	+0·5	+2·9	+3·9	+3·8	+3·1
Bombay	+1·2	+1·7	+1·8	+1·9	+1·7
Madras	+0·5	+3·3	+2·6	+1·5	+1·6

Winds.

Winds were unusually feeble at Port Blair and the Burma stations. They were on the average of the month much more westerly than usual at Port Blair, but slightly less westerly at Diamond Island. The following gives data in illustration :—

STATION.	WIND DIRECTION.		
	Mean actual, May 1897.	Mean normal, May.	Westerly deflection.
	°	°	°
Port Blair	S 60 W	S 38 W	+22
Rangoon	S 23 W	S 21 W	+ 2
Diamond Island	S 63 W	S 72 W	− 9

Winds were considerably steadier and much stronger than usual in Bengal and Orissa. The following gives data for four stations :—

STATION.	VELOCITY IN MILES PER DIEM.			STEADINESS.		
	Mean actual, May 1897.	Mean normal, May.	Percentage variation.	Actual percentage, May 1897.	Normal percentage, May.	Variation from normal.
False Point . .	384	338	+14	89	73	+16
Saugor Island . .	550	394	+40	85	73	+12
Calcutta . . .	203	172	+18	75	65	+10
Dacca . . .	212	157	+35	60	61	− 1

The mean velocity of the winds at Saugor Island during the month was 23 miles per hour. A noteworthy feature of the meteorology of the month was the strength of the sea-winds blowing across the Bengal Coast.

As might be expected from the abnormal pressure features of the month, winds were less easterly or more westerly than usual in the interior of Bengal and Orissa, and less westerly at Saugor Island and False Point, where winds almost invariably show an opposite deflection to

that of the inland stations. The following data illustrate this feature of May 1897:—

Station.		Wind direction. Mean actual, May 1897.	Wind direction. Mean normal, May.
		°	°
Coast stations	False Point	S 9 W	S 23 W
	Saugor Island	S 2 E	S 8 W
Inland stations	Cuttack	S 22 W	S 13 W
	Narayanganj	S 4 E	S 18 E
	Calcutta	S 10 W	S 7 E
	Burdwan	S 20 W	S 5 E

Winds were considerably above their normal strength in Bihar, Chota Nagpur and the eastern districts of the North-Western Provinces, and were also very steady. This is shown by the following data for four representative stations:—

Station.	Steadiness. Actual percentage, May 1897.	Steadiness. Normal percentage, May.	Steadiness. Variation from normal.	Velocity in miles per diem. Mean actual, May 1897.	Velocity in miles per diem. Mean normal, May.	Velocity in miles per diem. Variation from normal.
Hazaribagh	31	15	+16	251	222	+29
Patna	71	42	+29	181	129	+52
Allahabad	38	24	+14	187	115	+72
Agra	40	37	+ 3	173	145	+28

Easterly winds frequently extend in May across the northern districts of Bihar into the eastern districts of the North-Western Provinces, and give a well marked easterly component to the wind direction. In the present month this influence extended westwards as far as Bihar and was less marked than usual. The following gives data for two stations in North Bihar, and also for Hazaribagh, Allahabad and Lucknow:—

Station.	Wind direction. Mean actual, May 1897.	Wind direction. Mean normal, May.	Steadiness. Actual percentage, May 1897.	Steadiness. Normal percentage, May.	Steadiness. Variation from normal.
	°	°			
Darbhanga	S 74 E	S 82 E	74	60	+14
Patna	N 69 E	N 57 E	71	42	+29
Hazaribagh	N 60 W	S 83 W	31	15	+16
Allahabad	N 34 W	N 3 W	38	24	+14
Lucknow	N 23 W	N 25 W	18	16	+ 2

The preceding data hence indicate that there was a stronger westerly element than usual in the mean air movement of the month over the central districts of the Gangetic Plain.

Winds were very unsteady in the western districts of the North-Western Provinces, the East Punjab and Upper Sind. The following gives comparative data for stations at which this feature was most marked:—

Station.	Steadiness. Actual percentage, May 1897.	Steadiness. Normal percentage, May.	Steadiness. Variation from normal.	Velocity in miles per diem. Mean actual, May 1897.	Velocity in miles per diem. Mean normal, May.	Velocity in miles per diem. Variation from normal.
Roorkee	13	11	+ 2	60	90	—30
Meerut	11	22	—11	55	64	— 9
Ludhiana	11	11	0	74	58	+16
Jacobabad	8	10	— 2	136	112	+24

The following gives comparative wind data of the various provinces of Northern India for the month:—

Province.	Steadiness. Actual percentage, May 1897.	Steadiness. Normal percentage, May.	Steadiness. Variation from normal.	Velocity in miles per diem. Mean actual, May 1897.	Velocity in miles per diem. Mean normal, May.	Velocity in miles per diem. Variation from normal.
Bengal	68	55	+13	242	191	+51
Orissa	81	62	+19	273	232	+41
Bihar	73	51	+22	186	141	+45
Chota Nagpur	31	15	+16	251	222	+29
North-Western Provinces and Oudh.	24	23	+ 1	98	95	+ 3
Punjab	27	18	+ 9	77	80	— 3

Winds were slightly stronger and much steadier than usual and also more directly from the west in Rajputana and Central India. The following data for three stations illustrate these features:—

Station.	Steadiness. Actual percentage, May 1897.	Steadiness. Normal percentage, May.	Steadiness. Variation from normal.	Wind direction. Mean actual, May 1897.	Wind direction. Mean normal, May.	Wind direction. Westerly deflection.
				°	°	°
Ajmere	89	66	+23	S 88 W	S 76 W	+12
Deesa	88	68	+20	S 75 W	S 60 W	+15
Nowgong	69	53	+16	N 84 W	N 73 W	+11

The mean air movement of the month was unusually vigorous and practically normal in direction in Berar, the Central Provinces and the Deccan. The data of the following stations illustrate these features:—

STATION.	VELOCITY IN MILES PER DIEM.			WIND DIRECTION.		
	Mean actual, May 1897.	Mean normal, May.	Variation from normal.	Mean actual, May 1897.	Mean normal, May.	Westerly deflection.
				°	°	°
Akola	255	224	+31	N 49 W	N 50 W	— 1
Nagpur	218	186	+32	N 21 W	N 46 W	—25
Poona	422	342	+80	N 85 W	N 74 W	+11
Sholapur	302	255	+47	N 32 W	N 49 W	—17

The increased air-movement in this area was on the whole most strongly shown in the West Deccan.

Winds were much steadier and slightly stronger than usual at the West Coast stations. The variations were small and of no significance. Winds were slightly more westerly than usual at Bombay, Ratnagiri and Karwar. They were somewhat stronger in Mysore and feebler in the interior of Madras than usual. The following gives data for four stations in illustration:—

STATION.	VELOCITY IN MILES PER DIEM.			STEADINESS.		
	Mean actual, May 1897.	Mean normal, May.	Variation from normal.	Actual percentage May 1897.	Nomal percentage, May.	Variation from normal.
Madras	226	219	+ 7	66	65	+ 1
Trichinopoly	129	150	—21	56	58	— 2
Salem	98	98	0	50	55	— 5
Bangalore	197	178	+19	55	68	—13

The following gives comparative data of the air movement during the month in Central India and the Peninsula:—

PROVINCE.	VELOCITY IN MILES PER DIEM.		
	Mean actual, May 1897.	Mean normal, May.	Variation from normal.
Rajputana	254	228	+26
Central India	168	144	+24
Central Provinces	182	156	+26
Berar	268	255	+13
Deccan	309	273	+36
Bombay Coast	203	194	+ 9
Madras ,,	162	168	— 6

A reference to the wind section of the Weather Review of May 1896 will show that the abnormal features of the air-movement in India in May 1897 and May 1896 were very similar in character.

Humidity and Cloud.

The air contained slightly more aqueous vapour than usual in Burma, and humidity was hence above the normal to a moderate extent in that area, and also in Assam. The mean humidity percentage of the month was 6 in excess at Diamond Island, 5 at Akyab and Rangoon, and 4 at Sibsagar.

The mean absolute humidity of the month varied slightly and was generally above the normal in Bengal, but the relative humidity was in moderate defect due to the increased temperature of the month in that area. The decrease was largest at Calcutta (6 in defect) and at Berhampore and Cuttack (each 5 in defect).

The mean absolute humidity of the month was in slight to moderate excess in Bihar, and the relative humidity normal or in slight defect in Bihar and Chota Nagpur.

The following gives comparative data for the larger political divisions of North-Eastern India:—

PROVINCE.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.	Average actual, May 1897.	Average normal, May.	Variation from normal.
	"	"	"	%	%	
Burma	·942	·886	+·056	82	77	+5
Assam	·789	·794	—·005	83	81	+2
Bengal	·896	·875	+·021	72	76	—4
Bihar	·759	·729	+·030	59	59	0
Orissa	·928	·904	+·024	70	74	—4
Chota Nagpur	·452	·467	—·015	36	40	—4

The mean humidity percentage of the month was considerably to largely below the normal (in part due to actual

deficiency of aqueous vapour and in part to the excessive temperature of the period) in the North-Western Provinces, Punjab, Central India, Berar and the Central Provinces. Comparative data for these provinces and also for Sind and Rajputana are given in the following table :—

PROVINCE.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.	Average actual, May 1897.	Average normal, May.	Variation from normal.
	"	"	"	%	%	
North-Western Provinces and Oudh.	·450	·479	—·029	32	38	— 6
Punjab . . .	·415	·433	—·018	35	37	— 2
Sind	·697	·668	+ ·029	52	51	+ 1
Rajputana . . .	·535	·510	+ ·025	36	37	— 1
Central India . .	·366	·395	— ·029	23	30	— 7
Berar	·313	·425	—·112	23	34	—11
Central Provinces .	·406	·455	—·049	25	31	— 6

The humidity data of Agra, Mooltan, Akola and Ludhiana are almost certainly erroneous and have not been utilized in drawing up the preceding table.

The decreased humidity was most marked at the stations for which data are given below, which includes results of the two doubtful stations, Ludhiana and Mooltan :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.	Average actual, May 1897.	Average normal, May.	Variation from normal.
	"	"	"	%	%	
Ludhiana . . .	·360?	·495	—·135?	26?	41	—15?
Mooltan . . .	·419?	·592	—·173?	27?	42	—15?
Buldana . . .	·313	·425	—·112	23	34	—11

Humidity was as largely below the normal at the hill stations of Upper India as at the adjacent plains stations. The following gives data for four representative stations :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.	Average actual, May 1897.	Average normal, May.	Variation from normal.
	"	"	"	%	%	
Murree . . .	·240	·262	—·022	37	42	— 5
Simla	·234	·279	—·045	38	46	— 8
Chakrata . . .	·221	·276	—·055	36	48	—12
Ranikhet . . .	·307	·334	—·027	41	50	— 9

It was, on the other hand, in large excess in the Kashmir Valley and at the elevated stations of Leh and Kailang, due chiefly to the presence of a larger amount of aqueous vapour in the air than usual. This is shown by the following data :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.	Average actual, May 1897.	Average normal, May.	Variation from normal.
	"	"	"	%	%	
Srinagar . . .	·462	·431	+ ·031	85	71	+14
Kailang . . .	·194	·184	+ ·010	69	56	+13
Leh	·153	·128	+ ·025	57	39	+18

The air was drier than usual over the Peninsula with the exception of the Madras coast districts and South Madras The decreased humidity in these areas was almost solely a temperature effect. The following gives comparative data :—

DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.	Average actual, May 1897.	Average normal, May.	Variation from normal.
	"	"	"	%	%	
Bombay Coast . .	·869	·862	+ ·007	72	75	—3
Bombay Deccan . .	·471	·525	—·054	42	47	—5
Madras Coast . .	·919	·875	+ ·044	68	66	+2
Madras Central . .	·431	·577	—·146	32	44	—12
Madras South . .	·762	·744	+ ·018	60	59	+1
Mysore . . .	·580	·594	—·014	57	63	—6

The mean humidity of the month was normal at Quetta (representative of Baluchistan) and at the hill station of Wellington in Southern India.

The following gives a list of the stations at which the mean humidity of the month was below 30 per cent., showing the driest areas in India during the month :—

STATION.	RELATIVE HUMIDITY.	
	Mean daily, May 1897.	Mean 16 hours, May 1897.
	%	%
Sutna	22	13
Buldana	23	11
Nowgong	23	13
Nagpur	24	14
Khandwa	24	10
Raipur	24	12

STATION.	RELATIVE HUMIDITY. Mean daily, May 1897.	Mean 16 hours, May 1897.
	%	%
Ludhiana	26	16
Jacobabad	27	16
Jubbulpore	27	14
Mooltan	27	17
Hoshangabad	28	20
Chikalda	29	19

Hence in May 1897 the areas of greatest dryness of the air were defined by the stations of Buldana, Sutna and Nowgong.

The driest period of the month in North-Western and Central India was from the 7th to the 15th. The following were the lowest humidities recorded during the month at the driest stations :—

STATION.	Date.	Humidity at 4 P.M.
		%
Raipur	9th	4
Roorkee	9th	4
Nowgong	9th	5
Sutna	9th	5
Lucknow	9th	5
Raipur	10th	5
Jubbulpore	10th	6
Raipur	11th	7
Buldana	12th	6
Sholapur	13th	4
Raipur	13th	5
Buldana	13th	7

The humidity percentages during these very dry periods were not quite so low as are occasionally registered in May.

The following gives the most noteworthy examples of the very large changes in the amount of aqueous vapour present in the air at stations on or near the sea coast which experience the alternative influence of land and sea winds during the day :—

STATION.	Date	AMOUNT OF AQUEOUS VAPOUR. Early morning.	10 A. M.	4 P. M.
		"	"	"
Deesa	2nd	·431	·372	·197
"	29th	·408	·597	·220
Patna	9th	·311	·755	1·119
"	10th	·411	·786	·963
Calcutta	10th	·586	·950	·761
Aden	8th	·378	·860	·408
"	9th	·419	·958	·5·3
"	10th	·425	·968	·907
Muscat	3rd	·442	·991	·483
"	16th	·514	·931	·845

The air was slightly drier at Mauritius and Zanzibar. The mean humidity of the month was 3 below the normal at Aden.

The chief features of the mean humidity conditions of the month were—

(1) The air was very slightly damper in Burma and Assam.

(2) The mean humidity of the month was more or less below the average over the remainder of India with the local exceptions of the Madras coast districts, South Madras and Sind where it was in very slight excess.

(3) The deficiency was most marked in the North Western Provinces, Berar and Central India and the Upper India hill districts and was chiefly a temperature effect, but was also, as in the preceding months of April and March, in part a result of the presence of a smaller quantity of aqueous vapour than usual in the air.

(4) This condition of decreased humidity extended westwards as far as Aden and Bushire. It was the continuation of conditions established at the end of the previous south-west monsoon and remarkably persistent throughout the cold and hot weather periods of 1897.

The mean cloud amount of the month was in slight to considerable excess at Port Blair and in Burma and Assam and was normal or in slight defect in Bengal, Bihar and Chota Nagpur. The following gives comparative data :—

STATION OR PROVINCE.	MEAN CLOUD AMOUNT. Average actual, May 1897.	Average normal, May.	Variation from normal.
Port Blair	7·1	6·7	+0·4
Burma	7·7	6·3	+1·4
Assam	6·7	6·4	+0·3
Bengal	4·6	5·1	—0·5
Chota Nagpur	3·1	3·6	—0·5
Bihar	1·2	2·3	—1·1

There was less cloud than usual in the North-Western Provinces, Rajputana, Central India and the Central Provinces. The mean cloud amount was normal or in very slight defect in the Punjab, the Deccan and Southern India. The following gives mean data :—

PROVINCE.	MEAN CLOUD AMOUNT.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.
North-Western Provinces and Oudh	1·8	1·9	—0·1
Rajputana	1·0	1·8	—0·8
Central India	2·1	2·6	—0·5
Central Provinces	2·7	2·9	—0·2
Punjab	2·0	2·0	0
Mysore	4·9	4·9	0
Bombay Deccan	2·7	3·6	—0·9
Madras	4·2	4·3	—0·1

Skies were clouded to an unusual extent during the month at the hill stations in Upper India and in Baluchistan, and the mean cloud amount of the month was in largish excess at these stations. The following gives data :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, May 1897.	Normal, May.	Variation from normal.
Leh	7·3	6·3	+1·0
Kailang	6·9	5·9	+1·0
Murree	4·7	4·0	+0·7
Simla	4·4	3·8	+0·6
Chakrata	3·6	3·5	+0·1
Quetta	2·7	1·2	+1·5

Cloud was, on the other hand, considerably below the normal amount at Darjeeling and Mount Abu, and slightly below at Pachmarhi and also at Wellington in Southern India.

STATION.	MEAN CLOUD AMOUNT.		
	Actual, May 1897.	Normal, May.	Variation from normal.
Darjeeling	6·3	7·4	—1·1
Mount Abu	0·1	1·4	—1·3
Pachmarhi	2·7	2·8	—0·1
Chikalda	2·9	2·9	0
Wellington	5·2	5·8	—0·6

The mean cloud amount of the month was 1·0 or less at the stations for which data are given below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, May 1897.	Normal, May.	Variation from normal.
Allahabad	0·7	1·6	—0·9
Agra	1·0	1·3	—0·3
Sutna	1·0	2·0	—1·0
Mount Abu	0·1	1·4	—1·3
Deesa	0·1	1·5	—1·4
Ajmere	0·9	1·6	—0·7
Muscat	0·3	0·4	—0·1

Skies were hence, so far as is indicated by the observations, most serene throughout the whole month at Deesa and Mount Abu.

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

(1) Cloud was in considerable excess in Burma and in slight to moderate excess in the Bay Islands and Assam.

(2) Cloud was in slight to moderate defect in Bengal, the North-Western Provinces, Rajputana, Central India, the Central Provinces and the Deccan.

(3) The mean cloud amount of the month was largely above the normal in the Kashmir and Punjab Himalayan areas.

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 North-Western 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.—Arakan, Lower Burma and Tenasserim.

3rd.—Southern India, more especially Malabar.

The rainfall in the first of these areas is due to thunder showers, which are heaviest and most frequent in East Bengal and Assam and the northern districts of North Bengal. The average rainfall of the month in Bengal ranges from 4 inches in the western districts to 12 inches at Mymensingh in East Bengal, and 15 inches at Cooch Behar in North Bengal. In Assam it ranges from 9 inch in the Central Assam Valley districts to 51 inches at Cherrapunji.

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 the advance of the south-west monsoon humid currents.

The chief periods of disturbed weather and of rainfall during the month were as follows:—

1st.—From the 1st to the 8th. Bengal and Assam received daily rain from thunderstorms during this period, Burma on the 5th and Southern India on the 1st and 2nd. The North and East Punjab and Punjab hills obtained light to moderate showers from thunderstorms on the 5th, 6th and 7th.

2nd—From the 13th to the 16th, during which Burma received a general and moderately heavy burst of rain from a feeble cyclonic disturbance which passed into the province from the Andaman Sea. Bengal had numerous thundershowers on the 16th.

3rd.—The 18th and 19th, on which days series of thunderstorms gave moderate rain to Bengal.

4th.—The 23rd and 24th, on which days Burma, Bengal and Southern India obtained light to moderate thundershowers.

5th.—The 28th to the end of the month. Burma, Bengal and Southern India received moderate daily rain from series of thunderstorms.

Lower and Central Burma, North Bengal and Assam, and also South Central Madras and the northern coast districts of Madras obtained more frequent and heavier rain than usual, but the rainfall of the month was more or less in defect over the remainder of India. The chief feature of the month was the delay in the establishment of the monsoon in the Malabar Coast, and hence the rainfall of the month was in marked defect in Malabar, Konkan and Southern India generally.

The following table gives comparative rainfall data for the 58 meteorological or rainfull divisions of India.

Province.	Division.	Number of rainy days. Average actual, May 1897.	Number of rainy days. Average normal, May.	Rainfall. Average actual, May 1897.	Rainfall. Average normal, May.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	16·89	17·97	−1·08
	Lower Burma (Deltaic)*	?	?	11·80	10·41	+1·39
	Central do.*	?	?	9·16	5·09	+4·07
	Upper do.*	?	?	4·37	4·56	−0·19
	Arakan*	?	?	9·57	17·73	−8·16
Bengal and Assam	Eastern Bengal	8·7	10·7	9·28	10·28	−1·00
	Assam (Surma)*	?	?	21·90	18·73	+3·17
	Do. (Hill Tracts)*	?	?	28·13	17·25	+10·88
	Do. (Brahmaputra)*	?	?	15·51	11·69	+3·82
	Deltaic Bengal	6·7	7·9	4·26	6·13	−1·87
	Central do.	6·3	6·6	3·80	5·18	−1·38
	North do.	12·5	11·0	11·66	10·56	+1·10
	Bengal Hills	14·4	14·0	8·47	13·01	−4·54
	Orissa	3·2	5·3	1·71	4·52	−2·81
	Chota Nagpur	2·9	3·7	1·34	2·58	−1·24
	Bihar (South)	0·9	2·3	0·36	1·76	−1·40
	Do. (North)	3·5	4·3	2·21	3·22	−1·01
North-Western Provinces and Oudh.	North-Western Provinces (East)	0·2	1·0	0·07	0·51	−0·44
	Oudh (South)	0·1	1·2	0·07	0·57	−0·50
	Do. (North)	0·8	1·8	0·32	0·95	−0·63
	North-Western Provinces (Central)	0·1	0·9	0·02	0·36	−0·34
	Do. do. (West)	0·7	1·2	0·19	0·48	−0·29
	Do. do. (Submontane East)	0·9	1·9	0·41	1·19	−0·78
	Do. do. (do. West)	0·8	1·9	0·34	0·97	−0·63
	Do. do. (Hills)	2·3	5·1	0·91	2·23	−1·32
Punjab	Punjab (South-East)	1·2	1·4	0·51	0·59	−0·08
	Do. (South)	0·5	1·3	0·23	0·56	−0·33
	Do. (Central)	0·6	1·8	0·19	0·83	−0·64
	Do. (Submontane)	1·1	1·9	0·31	0·59	−0·28
	Do. (Hill Districts)	4·9	5·3	1·37	2·66	−1·29
	Do. (North)	3·6	2·0	1·11	1·10	+0·01
	Do. (West)	0·4	1·0	0·12	0·45	−0·33
Bombay and Malabar Coast Districts (Madras).	Malabar Coast	6·3	8·2	5·30	7·17	−1·87
	Travancore	5·3	?	3·11	?	?
	Madras (South Central)	7·5	5·9	4·61	4·03	+0·58
	Coorg	8·4	?	4·71	?	?
	Mysore*	?	?	2·75	3·32	−0·57
	Konkan	1·2	2·4	0·65	1·72	−1·07
	Bombay Deccan	2·8	3·4	1·56	1·79	−0·23
	Khandesh	0·3	1·7	0·13	1·07	−0·94

* NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

Province.	Division.	Number of rainy days. Average actual, May 1897.	Number of rainy days. Average normal, May.	Rainfall. Average actual, May 1897.	Rainfall. Average normal, May.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
Central Provinces and Berar.	Berar	0·2	?	0·05	0·38	−0·33
	Central Provinces (West)	0·5	1·0	0·23	0·48	−0·25
	Do. (Central)	0·7	1·3	0·29	0·57	−0·28
	Do. (East)	1·7	1·6	0·82	0·85	−0·03
Bombay (North)	Gujarat	0	0·5	0	0·30	−0·30
	Kathiawar	0	0·4	0	0·24	−0·24
	Sind	0·1	?	0·08	0·11	−0·03
	Baluchistan Hills	0·5	?	0·19	0·13	+0·06
Rajputana and Central India.	Central India (East)	0·2	?	0·08	0·39	−0·31
	Rajputana (East) and Central India (West)	0·6	?	0·20	0·51	−0·31
	Rajputana (West)	0·2	?	0·06	0·53	−0·47
Madras	East Coast (North)	3·7	3·4	2·30	2·29	+0·01
	Do. (do.) (a)	9·0	5·3	4·30	2·98	+1·32
	Hyderabad (South)*	?	?	0·75	1·63	−0·88
	Madras (Central)	2·7	3·0	1·44	1·90	−0·46
	East Coast (Central)	1·8	1·8	1·42	1·66	−0·24
	Do. (South)	2·5	3·4	1·93	3·22	−1·29
	Madras (South)	2·1	3·4	1·47	2·10	−0·63

* NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

No statement of rainfall for the month of May has been received from Assam. The data of the daily weather reports for the month show that rain was unusually frequent, falling almost daily in the Assam Valley and Cachar. The rainfall of the month was in considerable excess, more especially in the hill division. The following gives comparative data derived from the weekly rainfall telegrams received from the District Officers in Assam:—

Division.	Rainfall. Average actual, May 1897.	Rainfall. Average normal, May.	Rainfall. Variation from normal.
	Inches.	Inches.	Inches.
Assam Surma	21·90	18·73	+ 3·17
„ Hills	28·13	17·25	+10·88
„ Brahmaputra	15·51	11·69	+ 3·82

The northern districts of North Bengal received practically daily rain throughout the month, and the total rainfall was considerably above the normal in the districts of Cooch Behar, Rangpur, Pabna and Jalpaiguri. Series of thunderstorms gave frequent rain in the eastern, south-western (or deltaic) and central divisions. The periods of heavy and general rain in these divisions were the 2nd and 3rd, the 6th to the 8th, the 16th, 18th, 19th, the 22nd to the 24th, the 28th and the 30th. Falls in 24 hours exceeding three inches were received at a large number of stations. The most noteworthy falls were the following:—

District.	Station.	Date.	Rainfall in 24 hours preceding 8 A.M. of date.
			Inches.
Noakhali	Harishpur	19th	5·87
Mymensingh	Durgapur	21st	5·55
Cooch Behar	Cooch Behar	26th	5·88
Mymensingh	Netrokona	29th	7·50

Occasional series of thunderstorms gave rain in Bihar, Orissa and Chota Nagpur, but the rainfall was very irregularly distributed, more especially in Chota Nagpur and Orissa.

The rainfall of the month was in slight excess in North Bengal, but was more or less in defect in the remaining divisions of the province. The deficiency was more than 25 per cent. in Central Bengal (27 per cent.), Deltaic Bengal and North Bihar (each 31 per cent.), Chota Nagpur (48 per cent.), Orissa (62 per cent.), and South Bihar (80 per cent.).

The following table gives comparative data of the rain fall of the month for the nine divisions of the province:—

Division.	Number of rainy days. Average actual, May 1897.	Number of rainy days. Average normal, May.	Number of rainy days. Variation from normal.	Rainfall. Average actual, May 1897.	Rainfall. Average normal, May.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
Eastern Bengal	8·7	10·7	−2·0	9·28	10·28	−1·00
Deltaic „	6·7	7·9	−1·2	4·26	6·13	−1·87
Central „	6·3	6·6	−0·3	3·80	5·18	−1·38
North „	12·5	11·0	+1·5	11·66	10·56	+1·10

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.	Average actual, May 1897.	Average normal, May.	Variation from normal.
				Inches.	Inches.	Inches.
Bengal Hills . .	14·4	14·0	+0·4	8·47	13·01	—4·54
Orissa . . .	3·2	5·3	—2·1	1·71	4·52	—2·81
Chota Nagpur . .	2·9	3·7	—0·8	1·34	2·58	—1·24
South Bihar . .	0·9	2·3	—1·4	0·36	1·76	—1·40
North „ . . .	3·5	4·3	—0·8	2·21	3·22	—1·01

Comparative data are given in the following table showing the excess in certain districts of North and East Bengal :—

DIVISION.	District.	RAINFALL.		
		Average actual, May 1897.	Average normal, May.	Percentage variation from normal.
		Inches.	Inches.	
North Bengal . .	Cooch Behar . .	20·46	14·43	+42
	Mymensingh . .	15·14	11·11	+36
	Pabna . . .	8·83	7·75	+14
	Rangpur . .	11·33	10·51	+ 8
	Dacca . . .	10·33	9·57	+ 8

The rainfall of the month averaged less than a tenth of an inch in the eastern and central divisions of the North-Western Provinces and in South Oudh. Thundershowers were received chiefly during the period from the 22nd to the 25th in North Oudh and the west, submontane and hill divisions of the North-Western Provinces. The falls were very light, and the total rainfall of the month was small in amount and considerably below the normal of the period, as is shown by the following comparative data :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.	Average actual, May 1897.	Average normal, May.	Variation from normal.
				Inch.	Inches.	Inches.
North-Western Provinces, East.	0·2	1·0	—0·8	0·07	0·51	—0·44
South Oudh . .	0·1	1·2	—1·1	0·07	0·57	—0·50
North „ . . .	0·8	1·8	—1·0	0·32	0·95	—0·63
North-Western Provinces, Central.	0·1	0·9	—0·8	0·02	0·36	—0·34
North-Western Provinces, West.	0·7	1·2	—0·5	0·19	0·48	—0·29
North-Western Provinces, East Submontane.	0·9	1·9	—1·0	0·41	1·19	—0·78
North-Western Provinces, West Submontane.	0·8	1·9	—1·1	0·34	0·97	—0·63
North-Western Provinces Hills.	2·3	5·1	—2·8	0·91	2·23	—1·32

There were three periods of rainfall during the month in the Punjab.

The first period was from the 5th to the 8th. Thunderstorms gave moderate rain in the hill districts and in the submontane districts of the East Punjab and in the North Punjab. The largest amounts were received in the Peshawar, Kohat and Rawalpindi districts.

The second period extended from the 22nd to the 25th. The rainfall during this period was very irregularly distributed. The central division (except the district of Lahore) received light to moderate rain and the hill districts moderate rain. Local showers fell in parts of the north-western and western divisions.

The third period was the 30th and 31st. The hill districts and the north-west and submontane divisions obtained local scattered showers.

Comparative data of the rainfall of the month are given in the table below, which shows that the south-east and northern divisions obtained normal rain and that the precipitation of the month was considerably in defect in the remaining divisions :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.	Average actual, May 1897.	Average normal, May.	Variation from normal.
				Inches.	Inches.	Inches.
South-East Punjab .	1·2	1·4	—0·2	0·51	0·59	—0·08
South Punjab . .	0·5	1·3	—0·8	0·23	0·56	—0·33
Central „ . .	0·6	1·8	—1·2	0·19	0·83	—0·64
Punjab Submontane .	1·1	1·9	—0·8	0·31	0·59	—0·28
„ Hills . .	4·9	5·3	—0·4	1·37	2·66	—1·29
North Punjab . .	3·6	2·0	+1·6	1·11	1·10	+0·01
West „ . .	0·4	1·0	—0·6	0·12	0·45	—0·33

Practically no rain fell in Baluchistan, Central India and the western states of Rajputana (including Bickaneer, Jodhpur and Oodeypore) during the month. Central and East Rajputana received local thundershowers, chiefly from the 19th to the 23rd. They were most numerous in the Jeypore, Ulwar and Bhurtpore States. The average total rainfall of the month was small in amount and only averaged 0·37 inch in Jeypore where it was greatest.

The month was unusually disturbed and showery in Kashmir. Daily rain was received between the 4th and 7th, the 17th and 24th and the 29th and 31st. The total rainfall of the month was almost certainly in very large excess. The precipitation at Leh totalled 2·41 inches, the normal fall of the month being only 0·16 inch. Vantipore obtained the very large total fall of 21·72 inches and Dras the large fall of 9·2 inches.

Practically no rain fell in Berar, Gujarat, Kathiawar and Sind. Dry weather also prevailed over the Konkan and Bombay Deccan during the first three weeks of the month. The Konkan districts of North Kanara and Ratnagiri had light to moderate showers between the 24th and 29th, and the South Deccan or Karnatak districts, including Dharwar, Bijapur, Belgaum, Kolhapur, Satara and Sholapur, moderate to heavy showers between the 24th and 30th. A few light showers of little value were also received in the North Deccan or Khandesh districts. The rainfall of the month was practically normal in the Deccan division, but was scanty and in large defect, relatively to the normal, in the Konkan and Khandesh. The following table gives comparative data for the month :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.	Average actual, May 1897.	Average normal, May.	Variation from normal.
				Inches.	Inches.	Inches.
Konkan . . .	1·2	2·4	—1·2	0·65	1·72	—1·07
Bombay Deccan . .	2·8	3·4	—0·6	1·56	1·79	—0·23
Khandesh . . .	0·3	1·7	—1·4	0·13	1·07	—0·94
Gujarat . . .	0	0·5	—0·5	0	0·30	—0·30
Kathiawar . . .	0	0·4	—0·4	0	0·24	—0·24
Sind	0·1	?	?	0·08	0·11	—0·03

The Central Provinces, with the exception of the districts of Nimar, Narsinghpur, Saugor and Damoh received moderate rain from thundershowers on the 1st and 2nd. Some light showers fell in the most easterly districts including Sambalpur, Raipur, Chanda and Bilaspur on the 28th, 29th, 30th and 31st. The rainfall of the month was about half of the small normal fall of the month in the central and western divisions, and normal in the eastern division, as is shown by the following statement :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, May 1897.	Average normal, May.	Variation from normal.	Average actual, May 1897.	Average normal, May.	Variation from normal.
				Inch.	Inch.	Inch.
Central Provinces, East.	1·7	1·6	+0·1	0·82	0·85	—0·03
" " Central.	0·7	1·3	—0·6	0·29	0·57	—0·28
" " West .	0·5	1·0	—0·5	0·23	0·48	—0·2

The commencement of the monsoon was considerably delayed on the Malabar Coast. Coorg, Travancore and the Malabar division of Madras received daily thundershowers from the 21st to the end of the month. The rainfall of the month was in considerable defect in these areas. The south-central districts, including Salem and Coimbatore, obtained unusually frequent rain from thunderstorms, and the precipitation of the month was in moderate excess in these districts. Occasional local showers fell in the southern and the Coromandel coast districts, but the rainfall was very scanty, more especially in the Chingleput, North and South Arcot and Tanjore districts.

The Deccan or central districts obtained occasional rain, chiefly on the 1st and 2nd, the 19th and 20th and the 27th to the 29th. The rainfall of the month was normal in Bellary and Kurnool and in moderate defect in Cuddapah and Anantapur.

The northern coast districts of Vizagapatam and Godavari obtained more frequent rain than usual. The chief periods of thunderstorms in these two districts were the 1st to the 3rd, the 14th to the 20th and the 28th. The rainfall of the month was in moderate excess in Vizagapatam and Godavari and in moderate defect in Ganjam and Kistna.

The following table gives a summary of the rainfall data for each district or collectorate of the Madras Presidency :—

District.	Number of rainy days.		Rainfall.		
	Average actual, May 1897.	Average normal, May.	Average actual, May 1897.	Average normal, May.	Variation from normal.
			Inches.	Inches.	Inches.
Ganjam . . .	2·7	4·3	1·30	2·54	—1·24
Vizagapatam . .	4·8	4·2	3·07	2·70	+0·37
Godavari . . .	4·6	2·8	2·88	2·00	+0·88
Kistna . . .	2·3	2·6	1·54	1·73	—0·19
Nellore . . .	1·8	1·8	1·42	1·66	—0·24
Chingleput . . .	0·8	2·1	0·84	2·56	—1·72
Madras . . .	1·0	1·1	0·18	2·21	—2·03
North Arcot . .	3·4	3·5	1·89	2·95	—1·06
South " . .	2·6	3·4	1·87	3·30	—1·43
Tanjore . . .	2·0	3·5	1·56	3·34	—1·78
Trichinopoly . .	4·4	4·6	4·46	4·02	+0·44
Madura . . .	2·8	3·8	2·03	2·33	—0·30
Tinnevelly . . .	1·3	2·9	0·77	1·79	—1·02
Malabar . . .	7·0	9·0	6·16	8·39	—2·23
South Canara . .	5·1	7·1	3·77	5·40	—1·63
Salem . . .	7·9	6·2	4·75	4·31	+0·44
Coimbatore . .	6·8	5·5	4·42	3·69	+0·73
Nilgiris . . .	8·4	9·8	5·20	6·31	—1·11
Cuddapah . . .	2·2	2·8	1·17	1·92	—0·75
Anantapur . . .	2·3	3·2	1·25	2·39	—1·14
Bellary . . .	3·7	3·5	1·88	1·94	—0·06
Kurnool . . .	2·7	2·4	1·53	1·30	+0·23

Table

Abstract of Observations taken at 8 A.M. at 212

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	I.—Burma Coast and Bay Islands.		...	...	+·006	...	...	...	...	...	...	...	89·7	−1·2	77·4	+0·8	83·6	−0·3	12·3	...	...	...	...	24·3
1	Tenasserim and Bay Islands.	Port Blair	61	29·809	?	29·801	29·859	19th	29·719	5th	·140	83·3	88·7	?	79·1	?	83·9	?	9·6	96·2	2nd	74·8	11th & 12th	21·4
		Mergui	96	29·797	?	29·825	29·817	15th	29·730	5th	·117	80·9	89·1	?	75·5	?	82·3	?	13·6	96·5	4th	73·1	9th	23·4
		Tavoy	26	29·870	−·001	29·827	29·912	18th	29·807	12th	·105	80·6	88·2	−0·2	75·5	+0·4	81·9	+0·1	12·7	98·2	2 days	73·2	2 days	25·0
		Moulmein	94	29·780	+·012	29·813	29·833	19th	29·693	12th	·140	79·9	87·9	−2·1	76·7	+1·0	82·3	−0·6	11·2	95·5	1st	74·3	2 days	21·2
2	Lower Burma	Rangoon	41	29·805	?	29·783	29·854	19th	29·659	11th	·195	81·1	91·1	−1·4?	77·2	0	84·2	−0·7?	13·9	102·1	3rd	73·9	25th	28·2
		Bassein	27	29·819	+·006	29·781	29·883	19th	29·687	13th	·196	81·6	89·2	−2·8	77·4	+0·5	83·3	−1·2	11·8	99·7	3rd	73·8	3 days	25·9
		Diamond Island	41	29·802	0	29·778	29·871	19th	29·710	14th	·161	83·6	88·3	−0·7	79·9	+1·4	84·1	+0·4	8·4	93·6	3rd	74·4	14th	19·2
5	Arakan	Akyab	20	29·803	+·007	29·766	29·866	23rd	29·725	7th	·141	84·2	91·1	+0·6	78·3	+0·5	81·7	+0·6	12·8	94·6	10th	70·7	14th	24·1
3	Central Burma	Toungoo	183	29·654	+·009	29·779	29·710	30th	29·581	7th	·129	82·3	94·0	−2·2	77·3	+0·9	85·7	−0·7	16·7	104·2	3rd	74·2	12th	30·0
	II.—Burma Inland		...	...	+·006	...	...	...	...	...	...	...	97·2	+1·1	77·2	+1·1	87·2	+1·1	20·0	...	...	...	...	35·6
3	Central Burma	Thayetmyo	134	29·687	+·003	29·763	29·747	1st	29·607	7th	·140	83·9	95·9	?	78·3	+0·8	87·1	?	17·6	106·1	3rd	73·1	2 days	33·0
4	Upper Burma	Minbu	?	29·640?	+·007	?	29·736	1st	29·550	7th	·186	83·7	98·4	+1·1	79·3	?	88·9	?	19·1	106·6	3rd	74·1	3 days	32·5
		Yamethin	645	29·167	?	29·761	29·251	1st	29·086	7th	·165	81·9	95·1	−0·5	76·2	?	85·7	?	18·9	107·0	12th	71·7	25th	35·3
		Mandalay	249?	29·540?	0	29·736?	29·642	1st	29·430	7th	·212	86·0	99·7	+0·3	80·2	+1·6	90·0	+1·0	19·5	107·1	2 days	72·1	30th	35·0
		Kindat	?	29·351?	?	?	29·506	1st	29·242	7th	·264	82·8	98·5	+3·6?	76·0	+2·5	87·3	+3·1?	22·5	106·2	2 days	62·5	1st	43·7
		Bhamo	?	29·419	+·015	?	29·539	1st	29·261	7th	·278	79·5	95·4	+1·9	73·1	+0·5	84·3	−1·2	22·3	102·1	3rd	67·8	2 days	34·3
5(a)	Burma Hill Stations.	Taunggyi	?			Not recorded.						70·6	80·5	?	63·4	?	72·0	?	17·1	86·7	31st	59·0	2 days	27·7
		Lashio	?	27·096	?	?	27·250	27th	27·004	8th	·246	73·2	89·6	+2·9	67·7	+1·6	78·7	+2·3	21·9	99·5	12th	64·0	6th	35·5
	III.—Assam		...	...	−·005	...	...	...	...	...	...	...	86·4	−0·9	71·9	−0·3	79·2	−0·6	14·5	...	...	...	...	27·6
7	Surma	Silchar	104	29·709	+·004	29·766	29·828	1st	29·610	7th	·218	77·6	89·2	+1·2	72·3	+0·2	80·8	+0·7	16·9	95·0	2 days	65·8	2nd	29·2
9	Brahmaputra	Sibsagar	333	29·469	−·011	29·763	29·557	1st	29·306	9th	·281	74·6	83·3	−3·0	70·9	−0·6	77·1	−1·8	12·4	93·2	16th	67·0	1st	26·2
		Dhubri	115	29·656	−·009	29·727	29·734	1st	29·505	7th	·289	75·8	84·9	−1·0	72·3	−0·5	78·6	−0·8	12·6	93·2	10th	66·2	11th	27·0
		Salonah	?	29·549	?	29·752	29·738	1st	29·420	7th	·318	77·1	88·2	?	72·0	?	80·1	?	16·2	95·6	15th	67·5	13th	28·1
	IV.—Bengal and Orissa		...	...	−·009	...	...	...	...	...	...	...	94·4	+1·6	77·1	+1·5	85·7	+1·6	17·3	...	...	...	...	31·9
6	East Bengal	Chittagong	87	29·704	−·004	29·738	29·777	1st	29·600	7th	·177	85·3	92·7	?	77·9	+2·8	85·4	?	14·8	98·2	14th	69·1	19th	29·1
		Lungleh	?			Not recorded.						72·8	82·5	?	66·0	?	74·3	?	16·5	88·6	14th	58·2	19th	30·4
		Noakhali	43	29·727	?	29·716	29·820	25th	29·601	7th	·219	85·3	92·2	?	78·2	?	85·2	?	14·0	100·0	14th	68·8	19th	31·2
		Comilla	36	29·735	?	29·719	29·823	1st	29·602	7th	·221	82·6	91·9	?	75·8	?	83·9	?	16·1	96·3	3 days	66·8	19th	29·5
		Sirajganj	49	29·691	?	29·690	29·824	1st	29·517	7th	·307	80·1	90·0	?	74·2	?	82·1	?	15·8	98·3	10th	68·2	3rd	30·1
		Narayanganj	26	29·734	−·010	29·708	29·834	1st	29·575	7th	·259	82·9	92·5	+1·7	77·3	+1·8	84·9	+1·8	15·2	95·6	2 days	71·2	2 days	24·4
		Barisal	13	29·747	+·001	29·705	29·835	1st	29·624	7th	·211	85·5	93·7	+2·6	78·6	+2·0	86·2	+2·3	15·1	98·3	1st	71·4	2 days	26·9
		Mymensingh	59	29·708	−·013	29·719	29·827	1st	29·598	7th	·229	78·1	88·6	+0·3	72·3	−1·2	80·4	−0·5	16·3	94·7	18th	68·1	14th	26·6
10	Deltaic Bengal	Faridpur	46	29·717	?	29·711	29·841	1st	29·556	7th	·285	83·0	94·7	?	76·5	?	85·6	?	18·2	99·8	10th	71·4	19th	28·4
		Jessore	33	29·709	−·009	29·688	29·811	2nd	29·567	7th	·244	86·0	97·1	+2·9	78·9	+2·5	88·0	+2·7	18·2	102·0	10th	67·7	19th	34·3
		Calcutta	21	29·705	−·012	29·672	29·837	2nd	29·588	7th	·249	85·6	95·8	+2·3	79·0	+2·1	87·4	+2·2	16·8	104·4	10th	70·2	30th	34·2
		Saugor Island	25	29·702	−·015	29·671	29·846	2nd	29·596	7th	·250	86·8	93·2	+1·7	82·2	+1·7	87·7	+1·7	11·0	95·9	2 days	74·0	3rd	21·9
		Krishnagar	47	29·674	?	29·669	29·781	2nd	29·545	7th	·246	84·9	97·4	?	77·7	?	87·6	?	19·7	103·3	10th	69·7	19th	33·6
		Midnapore	149	29·564	?	29·659	29·707	2nd	29·454	7th	·253	85·4	100·1	?	78·5	?	89·3	?	21·6	109·4	12th	69·2	3rd	40·2

NOTE.—When a query is inserted against any reading or in the variation returns from any station, the data for that station are not utilized in calculating the provincial variations.

I.

Stations in India, Burma, etc., in May 1897.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 March to 31st May 1897.	Normal rainfall for period, from 1st March to 31st May.	Variation from normal of period, 1st March to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16·63	13·29	+ 3·35	...	...	...	...	**I.—Burma Coast and Bay Islands.**		
9	1	1	1	2	2	6	8	1	4·7	7·3	−36	86	·985	6·2	16	?	?	13·44	15·74	− 2·30	14·33	18·39	− 4·06	2·43	Port Blair	TENASSERIM AND BAY ISLANDS.	1
...	5	1	2	5	4	3	3	8	2·1	2·1	0	90	·948	4·6	19	?	?	26·03	16·86	+ 9·17	32·54	24·80	+ 7·74	3·76	Mergui.		
28	...	...	...	..	1	1	...	1	1·1	?	?	88	·914	3·8	14	?	?	28·19	25·15	+ 3·04	28·57	30·43	− 1·86	5·36	Tavoy.		
...	2	2	7	4	9	2	2	3	3·3	3·1	+ 6	88	·896	8·5	20	15·45	+ 4·55	17·16	17·45	− 0·29	19·11	20·81	− 1·70	4·30	Moulmein.		
...	...	2	1	1	7	13	6	1	3·5	3·9	−10	87	·922	7·0	17	9·36	+ 7·64	13·03	9·42	+ 3·61	13·17	11·53	+ 1·64	3·36	Rangoon	LOWER BURMA.	2
9	...	3	...	...	2	11	2	4	4·3	5·0	−14	88	·958	6·0	12	12·27	− 0·27	15·32	8·33	+ 6·99	15·42	9·83	+ 5·59	4·85	Bassein.		
...	1	3	4	1	2	12	4	4	8·1	4·5	+80	80	·911	7·5	11	11·18	− 0·18	17·35	8·55	+ 8·80	18·17	9·72	+ 8·45	4·06	Diamond Islands.		
...	3	13	4	5	2	3	...	...	2·9	7·0	−59	87	1·022	8·1	11	10·18	+ 0·82	8·79	12·30	− 3·51	14·70	13·80	+ 0·90	2·60	Akyab	ARAKAN.	5
2	1	1	2	15	8	1	...	1	5·6	3·5	+60	84	·936	7·4	9	10·09	− 1·09	10·37	5·77	+ 4·60	12·73	7·91	+ 4·82	2·29	Toungoo.	CENTRAL BURMA.	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·18	5·27	+ 0·90	...	...	...	...	**II.—Burma Inland.**		
...	...	...	...	7	19	1	...	4	3·7	7·3	−49	71	·822	5·1	7	6·64	+ 0·36	8·79	3·72	+ 5·07	10·27	4·57	+ 5·70	5·03	Thayetmyo.	CENTRAL BURMA.	3
...	1	...	5	18	4	...	1	2	10·7	?	?	75	·855	5·5	6	?	?	3·32	5·73	− 2·41	3·62	6·86	− 3·24	1·47	Minbu	UPPER BURMA.	4
2	2	...	..	21	5	...	...	1	9·1	?	?	77	·841	5·0	9	?	?	10·98	5·56	+ 5·42	14·90	6·72	+ 8·18	3·84	Yamethin.		
1	1	1	1	4	22	1	...	...	7·7	?	?	69	·847	4·1	8	?	?	6·24	5·01	+ 1·23	6·71	6·74	− 0·03	2·53	Mandalay.		
11	5	2	...	2	1	3	2	5	?	?	?	79	·889	4·3	6	?	?	2·22	5·52	− 3·30	2·80	7·82	− 5·02	0·70	Kindat.		
18	2	2	1	1	...	4	2	1	2·7	?	?	80	·802	4·9	8	?	?	5·52	6·10	− 0·58	6·56	8·80	− 2·24	1·74	Bhamo.		
9	...	...	...	2	6	9	3	2	?	?	?	79	·593	9·0	13	?	?	7·83	?	?	9·95	?	?	1·32	Taunggyi	BURMA HILL STATIONS.	5(a)
			Not	rec	orded.	...	...		?	?	?	82	·675	8·5	14	?	?	6·22	5·50	+ 0·72	7·63	9·57	− 1·94	1·25	Lashio.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18·26	14·52	+ 6·10	...	...	...	...	**III.—Assam.**		
23	1	1	1	...	1	1	...	3	3·2	3·4	− 6	85	·805	8·1	17	16·46	+ 0·54	12·94	16·95	− 4·01	26·68	40·00	−13·32	3·10	Silchar	SURMA	1
11	...	14	2	3	...	1	...	...	5·6	2·9	+93	92	·792	8·7	20	16·26	+ 3·74	14·04	12·63	+ 1·41	28·54	27·07	+ 1·47	3·06	Sibsagar	BRAHMAPUTRA.	
3	1	13	5	4	1	1	1	2	9·0	7·0	+29	88	·782	7·5	23	15·20	+ 7·80	34·88	13·97	+20·91	40·52	20·73	+19·79	6·05	Dhubri.		9
17	2	5	3	...	...	2	1	1	?	?	?	87	·808	7·6	16	?	?	11·17	?	?	19·26	?	?	2·50	Salonah.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·96	6·87	−1·39	...	...	...	...	**IV.—Bengal and Orissa.**		
...	1	2	5	12	8	2	...	1	8·5	6·4	+33	77	·940	5·0	8	10·69	− 2·69	4·04	10·48	− 6·44	7·14	16·85	− 9·71	1·25	Chittagong	EAST BENGAL.	6
			Not	rec	orded.				?	?	?	77	·622	?	10	?	?	6·28	?	?	11·02	?	?	1·62	Lungleh.		
...	...	2	3	5	7	13	...	1	6·6	?	?	81	·991	4·8	6	10·46	− 4·46	5·53	10·31	− 4·78	9·24	18·63	− 9·39	2·72	Noakhali.		
...	1	2	1	19	8	...	...	...	7·8	?	?	82	·919	5·2	11	12·09	− 1·09	10·41	11·46	− 1·05	16·39	20·23	− 3·84	2·04	Comilla.		
6	...	1	5	7	9	3	...	...	4·6	?	?	86	·885	6·1	10	10·23	− 0·23	10·57	8·04	+ 2·53	15·72	12·47	+ 3·25	4·27	Sirajganj.		
2	2	1	2	9	9	5	...	1	8·8	6·2	+42	84	·953	5·7	7	10·85	− 3·85	9·75	10·28	− 0·53	16·75	18·12	− 1·37	2·20	Narayanganj.		
13	...	...	...	...	17	1	...	...	5·2	?	?	82	1·007	6·1	7	10·08	− 3·08	6·15	8·09	− 1·94	8·70	13·84	− 5·14	4·35	Barisal.		
4	...	3	13	8	3	...	...	...	4·4	?	?	85	·813	6·4	17	13·35	+ 3·65	13·92	11·75	+ 2·17	20·79	18·21	+ 2·58	3·30	Mymensingh.		
9	...	2	3	3	11	2	1	...	3·1	?	?	85	·965	4·2	8	10·73	− 2·73	4·20	8·74	− 4·54	8·90	15·54	− 6·64	1·79	Faridpur	DELTAIC BENGAL.	10
11	...	1	1	5	11	2	...	...	4·0	4·9	−18	79	·981	5·3	6	9·58	− 3·58	4·27	7·62	− 3·35	7·63	13·48	− 5·85	1·66	Jessore.		
1	...	...	2	2	15	11	...	...	8·4	7·1	+18	77	·952	5·2	6	7·24	− 1·24	3·78	5·43	− 1·65	5·98	8·74	− 2·76	1·65	Calcutta.		
...	1	...	...	2	20	8	...	...	22·8	15·3	+49	79	1·015	6·4	5	6·73	− 1·73	1·99	4·62	− 2·63	4·67	6·99	− 2·32	1·10	Saugor Island.		
...	...	...	4	7	18	1	1	...	8·4	?	?	79	·919	4·4	8	7·62	+ 0·38	5·16	5·76	− 0·60	10·84	9·47	+ 1·37	2·18	Krishnagar.		
2	1	1	...	3	24	...	...	...	6·2	?	?	76	·925	2·3	7	7·00	0	6·02	5·07		10·77	8·09	+ 2·68	1·77	Midnapore.		

Table

Abstract of Observations taken at 8 A.M. at 212 Stations

Number of Districts.	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.
11	Central Bengal.	Bankura	298	29·378	P	29·624	29·521	2nd	29·253	7th	·268	85·4	103·2	P	79·4	P	91·3	P	23·8	112·1	12th	70·6	3rd	41·5
		Raniganj	334	29·366	P	29·646	29·515	2nd	29·242	7th	·273	85·3	104·0	P	79·5	P	91·8	P	24·5	112·3	12th	68·4	3rd	43·9
		Burdwan	99	29·614	−·021	29·660	29·750	2nd	29·487	7th	·263	85·3	99·7	+2·5	77·9	+0·7	88·8	+1·6	21·8	110·5	10th	70·8	16th	39·7
		Naya Dumka	489	29·210	P	29·652	29·352	2nd	29·079	7th	·273	85·6	100·8	P	78·5	P	89·7	P	22·3	109·9	9th & 18th.	70·8	2nd	39·1
		Berhampore	67	29·655	−·013	29·670	29·780	13th	29·508	7th	·272	82·8	97·6	+1·9	77·2	+1·2	87·4	+1·6	20·4	105·0	11th	72·3	2 days	32·7
		Rampur Boalia	70	29·652	P	29·671	29·791	1st	29·490	7th	·301	83·3	96·4	P	76·5	P	86·4	P	19·9	104·0	10th & 11th.	68·1	3 days	35·9
		Malda	72	29·643	P	29·667	29·777	2nd	29·521	8th	·256	82·4	98·6	P	76·3	P	87·5	P	22·3	106·1	9th	68·0	13th	38·1
		Bogra	61	29·671	P	29·685	29·796	1st	29·538	7th	·258	79·5	91·8	−0·4?	74·2	0	83·0	−0·2?	17·6	101·3	10th	69·2	3rd	32·1
12	North Bengal	Dinajpur	123	29·618	−·003	29·696	29·771	13th	29·479	7th	·292	78·3	91·8	+0·7	73·8	+0·1	82·8	+0·4	18·0	101·8	10th	66·8	13th	35·0
		Rangpur	123	29·635	P	29·713	29·794	13th	29·489	7th	·305	78·4	88·7	P	73·3	P	81·0	P	15·4	98·2	10th	67·7	13th	30·5
		Jalpaiguri	284	29·478	−·017	29·723	29·610	2nd	29·343	7th	·267	77·2	88·2	+0·6	72·6	+1·5	80·5	+1·1	15·6	93·9	2 days	66·1	11th	27·8
		Cooch Behar	?	29·589	P	29·695?	29·729	1st & 2nd	29·457	7th	·272	7·4	86·5	P	72·8	P	79·6	P	13·7	93·3	10th	67·0	11th	26·3
17	North Bihar	Purnea	125	29·604	−·008	29·683	29·757	1st	29·485	7th	·272	87·4	95·8	+1·3	75·6	+2·0	85·6	+1·7	20·2	106·3	11th	65·3	13th	41·0
14	Orissa	Balasore	56	29·673	+·002	29·665	29·783	2nd	29·576	7th	·207	86·4	99·0	+3·4	79·5	+1·6	89·3	+2·5	19·5	106·5	7th	70·9	2 days	35·6
		False Point	21	29·722	+·002	29·685	29·818	2nd	29·605	7th	·213	86·5	91·2	+0·1	81·6	+2·4	86·4	+1·3	9·6	92·5	6 days	69·6	4th	22·9
		Cuttack	80	29·638	−·017	29·659	29·749	1st	29·535	7th	·214	87·2	101·8	+0·4	82·5	+3·0	92·2	+1·7	19·3	108·3	10th	73·2	2nd	35·1
		Shortt's Island	P	29·732	P	?	29·852	2nd	29·616	7th	·236	86·2	90·8	P	80·9	P	85·8	P	9·9	95·6	14th	74·2	5th	21·4
		Puri	20	29·723	P	29·686	29·835	1st	29·637	7th	·198	85·1	91·0	P	81·0	P	86·0	P	10·0	92·7	3 days	70·1	2nd	22·6
	V.—Gangetic Plain and Chota Nagpur.		...	...	−·028	...	...	...	...	...	...	...	105·5	+4·0	79·6	+2·8	92·6	+3·4	25·8	...	...	...	...	43·5
15	Chota Nagpur	Hazaribagh	2,007	27·701	−·022	29·614	27·815	2nd	27·605	18th	·210	86·8	103·4	+5·1	77·7	+3·4	90·6	+4·3	25·7	110·6	18th	62·3	3rd	48·3
		Ranchi	2,128	27·613	?	29·644†	27·712	2nd	27·538	17th	·174	87·2	102·9	+4·9	77·6	+3·7	90·4	+4·3	25·3	110·3	19th	64·9	2nd	45·4
		Daltonganj	730?	28·951	P	29·619	29·097	2nd	28·841	18th	·256	91·4	110·4	P	82·2	P	96·3	P	28·2	116·1	18th	71·0	3rd	45·1
		Chaibassa	760?	28·931	P	29·630	29·064	2nd	28·845	18th	·219	86·9	106·6	+3·2	79·4	P	93·0	P	27·2	114·7	18th & 19th.	71·0	3 days	43·7
16	South Bihar	Gaya	375	29·285	−·035	29·607	29·450	2nd	29·174	18th	·276	91·2	108·7	+4·6	82·7	+4·6?	95·7	+4·6	26·0	115·5	18th	71·8	2nd	43·7
		Dehri	351	29·313	P	29·611	29·500	2nd	29·200	17th	·300	92·0	109·6	P	81·8	P	95·7	P	27·8	116·3	18th	71·5	2nd	44·8
		Patna	183	29·491	−·034	29·625	29·678	2nd	29·372	18th	·306	85·6	102·4	+2·8	78·1	+0·9	90·3	+1·9	24·3	111·1	9th	66·3	13th	44·8
		Arrah	190	29·488	P	29·628	29·678	2nd	29·371	17th	·307	86·8	105·2	P	79·6	P	92·4	P	25·6	112·4	9th & 17th.	68·5	13th	43·9
		Buxar	239	29·426	P	29·617	29·620	2nd	29·329	17th	·291	88·9	105·8	P	80·8	P	93·3	P	25·0	112·9	18th	70·8	13th	42·1
17	North Bihar	Bhagalpur	160	29·531	P	29·643	29·687	2nd	29·412	17th	·275	84·9	101·0	P	77·4	P	89·2	P	23·6	110·8	11th	66·1	13th	44·7
		Darbhanga	166	29·538	−·023	29·657	29·710	2nd	29·413	7th	·297	83·2	95·6*	+0·2	77·0	+1·2	86·2*	+0·7	18·6	104·5	2 days	66·4	13th	38·1
		Muzaffarpur	178	29·516	P	29·647	29·684	2nd	29·415	7th	·269	83·3	98·1	P	77·2	P	87·7	P	20·9	108·7	9th	68·2	13th	40·5
		Motihari	224	29·472	P	29·654	29·640	2nd	29·364	17th	·276	81·7	99·3	P	76·0	P	87·7	P	23·3	106·0	9th & 10th	61·8	13th	44·2
		Chapra	181	29·485	P	29·628	29·685	2nd	29·383	17th	·302	86·1	103·7	P	78·7	P	91·2	P	25·0	112·2	9th	67·1	13th	45·1
18	N.-W. P., East	Benares	267	29·395	−·025	29·612	29·588	2nd	29·295	17th	·293	89·6	109·2	+4·6	81·0	+2·5	95·1	+3·6	28·2	115·3	18th & 20th.	71·8	3rd	43·5
		Allahabad	309	29·243	−·033	29·600	29·504	2nd	29·246	17th	·258	92·9	111·4	+5·1	82·6	+4·0	97·0	+4·6	28·8	117·2	20th	72·3	1st	44·9
23	N.-W. P. (East Submontane).	Gorakhpur	256	29·416	−·024	29·628	29·614	2nd	29·319	17th	·295	85·8	104·6	+4·1	79·7	+3·0	92·2	+3·6	24·9	111·3	27th	73·8	2nd	37·5
19	South Oudh	Lucknow	368	29·287	−·028	29·608	29·440	2nd	29·175	17th	·265	90·2	109·2	+5·1	80·0	+3·4	94·6	+4·3	29·2	116·8	31st	73·3	28th	43·5
20	North Oudh	Bahraich	403	29·260	P	29·617	29·430	2nd	29·152	17th	·278	89·0	106·8	P	79·5	P	93·2	P	27·3	113·6	18th	72·0	13th	41·6
21	N.-W. Provinces (Central).	Cawnpore	416	29·231	P	29·592	29·365	2nd	29·123	17th	·242	92·2	110·7	P	82·3	P	96·5	P	28·4	116·6	20th	75·5	3rd	41·1
		Mainpuri	516	29·125	P	29·588	29·240	2nd	29·030	18th	·210	91·6	110·4	P	81·3	?	95·9	P	29·1	116·7	20th	70·0	1st	46·7

* Mean of 30 days.

† Mean of 17 days.

1—*continued.*

in India, Burma, etc., in May 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 March to 31st May 1897.	Normal rainfall for period from 1st March to 31st May.	Variation from normal of period 1st March to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Districts.
2	1	1	6	7	8	1	4	1	7·2	P	P	77	·934	2·3	5	6·54	−1·54	3·06	4·41	− 1·35	8·96	6·93	+ 2·03	1·28	Bankura	Central Bengal.	11
5	...	1	4	7	10	3	...	1	3·6	P	P	72	·873	2·3	5	5·23	− 0·23	2·73	3·68	− 0·95	5·60	5·77	− 0·17	1·12	Raniganj.		
4	1	...	1	2	12	11	...	...	6·1	5·5	+11	78	·850	4·9	10	7·31	+ 2·69	7·47	5·73	+ 1·74	13·90	9·37	+ 4·53	1·55	Burdwan.		
1	1	2	7	10	7	2	...	1	2·3	P	P	61	·740	4·2	5	5·16	− 0·16	1·58	3·59	− 2·01	4·65	5·40	− 0·75	0·68	Naya Dumka		
5	1	...	8	5	11	1	...	...	4·8	5·5	−13	82	·920	5·7	10	7·82	+ 2·18	6·87	5·36	+ 1·51	9·10	7·91	+ 1·19	2·25	Berhampore.		
1	1	3	6	10	6	3	1	...	6·1	P	P	80	·907	4·6	8	7·61	+ 0·39	4·92	5·25	− 0·33	7·96	7·87	+ 0·09	1·53	Rampur Boalia.		
...	...	6	9	10	5	...	1	...	3·6	P	P	75	·826	3·1	4	5·61	− 1·61	2·56	4·08	− 1·52	5·00	6·00	− 1·00	1·43	Malda.		
5	...	1	5	18	...	...	1	1	4·6	P	P	84	·851	5·7	16	9·42	+ 6·58	7·84	8·08	− 0·24	12·06	11·59	+ 0·47	1·26	Bogra.		
...	1	9	13	3	3	1	...	1	8·5	P	P	82	·799	6·8	9	7·96	+ 1·04	6·71	7·46	− 0·75	10·90	10·41	+ 0·49	1·57	Dinajpur .	North Bengal.	12
...	...	12	10	5	2	1	...	1	3·2	P	P	83	·814	6·5	11	10·69	+ 0·31	9·83	9·83	0	15·24	14·44	+ 0·80	2·06	Rangpur.		
...	2	5	12	8	...	...	1	3	4·3	P	?	83	·773	5·2	17	12·20	+ 4·80	10·05	11·90	− 1·85	12·71	17·51	− 4·80	2·25	Jalpaiguri.		
5	...	3	16	5	2	...	...	...	5·1	P		91	·854	7·7	18	P	P	23·39	?	P	27·73	P	?	5·88	Cooch Behar		
...	3	7	17	3	...	1	...	...	7·6	3·4	+124	74	·793	8·1	5	5·08	− 0·08	2·22	4·49	− 2·27	5·23	6·32	− 1·10	0·78	Purnea .	North Bihar.	17
1	...	1	1	...	8	19	1	...	9·5	P	P	85	1·078	3·0	4	7·92	− 3·92	2·58	5·36	− 2·78	10·01	9·08	+ 0·93	1·16	Balasore .	Orissa.	14
...	1	1	...	2	13	13	1	...	15·4	12·6	+22	83	1·046	6·5	3	4·24	− 1·24	2·98	4·83	− 1·85	7·04	7·53	− 0·49	2·00	False Point.		
...	...	...	1	...	7	19	4	...	6·6	5·1	+29	70	·899	4·5	1	5·31	− 4·31	0·13	4·41	− 4·28	7·08	6·97	+ 0·11	0·10	Cuttack.		
...	1	1	...	...	14	14	1	...	8·7	P	P	82	1·031	3·7	7	P	P	2·36	P	P	6·27	P	P	0·94	Shortt's Island.		
1	...	...	1	...	2	21	5	1	17·2	P	P	85	1·030	3·7	2	3·19	− 1·19	1·40	3·02	− 1·62	4·03	4·08	− 0·05	0·86	Puri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·95	1·66	−0·72	...	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**		
...	...	...	2	2	10	13	2	2	10·5	8·8	+19	46	·558	1·5	3	4·20	− 1·20	1·80	2·26	− 0·46	4·26	3·42	+ 0·84	1·27	Hazaribagh.	Chota Nagpur.	15
...	...	...	1	2	6	15	4	3	9·4	P	P	41	·514	0·7	2	5·00	− 3·00	1·58	2·89	− 1·31	3·97	4·91	− 0·84	0·98	Ranchi.		
...	3	...	7	2	5	7	4	3	7·0	P	P	40	·581	0·6	1	2·32	− 1·32	0·40	1·15	− 0·75	2·46	2·09	+ 0·37	0·35	Daltonganj.		
...	...	...	...	3	3	20	5	...	2·5	P	P	68	·879	1·6	6	5·80	+ 0·20	4·16	3·86	+ 0·30	7·52	6·00	+ 1·52	1·18	Chalbassa.		
5	1	5	9	3	3	3	2	...	8·0	3·9	+105	44	·624	0·8	0	2·11	− 2·11	0	1·13	− 1·13	1·37 (a)	1·97	− 0·60	0	Gaya . .	South Bihar.	16
...	...	1	7	9	5	4	4	1	9·5	P	P	44	·650	0·5	0	1·67	− 1·67	0	0·98	− 0·98	0·39	1·75	− 1·36	0	Dehri.		
2	...	10	16	1	...	...	2	...	7·5	4·8	+56	68	·832	1·0	1	2·88	− 1·88	0·23	1·97	− 1·74	2·03	2·51	− 0·48	0·19	Patna.		
...	...	5	20	3	...	1	1	1	5·4	P	P	59	·749	0·6	1	2·53	−1·53	0·28	1·63	− 1·35	1·89	2·26	− 0·37	0·26	Arrah.		
...	...	1	20	5	1	...	2	2	6·3	P	P	55	·736	0·8	1	2·03	− 1·03	0·13	0·91	− 0·78	0·68	1·39	− 0·71	0·11	Buxar.		
2	...	7	10	6	2	3	...	1	6·2	P	P	64	·766	3·0	4	4·26	− 0·26	1·90	2·31	− 0·91	5·19	4·11	+ 1·08	0·85	Bhagalpur.	North Bihar.	17
...	...	3	15	12	...	...	...	1	8·0	5·9	+36	69	·774	2·5	4	3·96	+ 0·04	3·63	2·52	+ 1·11	6·31	3·35	+ 2·96	1·56	Darbhanga.		
2	...	8	14	6	...	...	...	1	7·8	P	P	71	·813	1·5	3	3·42	− 0·42	2·34	2·35	− 0·01	3·72	3·23	+ 0·49	1·06	Muzaffarpur.		
...	...	3	26	1	...	...	1	...	7·4	P	P	82	·894	1·0	3	4·26	− 1·26	0·84	2·81	− 1·97	3·75	3·92	− 0·17	0·34	Motihari.		
...	...	2	19	7	...	2	1	...	6·3	P	P	69	·858	0·9	1	2·19	− 1·19	0·29	1·45	− 1·16	0·74	2·04	− 1·30	0·29	Chapra.		
8	1	4	6	4	1	3	3	1	5·4	5·2	+ 4	45	·612	0·5	0	1·45	− 1·45	0	0·72	− 0·72	0·76	1·08	− 0·32	0	Benares .	N.-W. P. East.	18
3	...	2	12	3	1	2	5	3	6·8	3·8	+79	40	·606	0·7	0	1·18	− 1·18	0	0·39	− 0·39	0·17	0·82	− 0·65	0	Allahabad.		
3	1	14	9	2	1	...	1	...	2·9	3·9	−26	65	·796	0·9	1	2·64	− 1·64	1·34	1·37	− 0·03	1·93	2·22	− 0·29	1·34	Gorakhpur .	N.-W. P. (East Submontane).	23
1	...	5	14	1	1	2	3	4	2·6	4·3	−40	41	·576	2·7	1	1·91	− 0·91	0·66	1·10	− 0·44	1·49	1·49	0	0·61	Lucknow .	South Oudh.	19
1	1	1	11	13	1	...	1	2	4·9	P	P	55	·757	0·4	1	P	P	0·24	1·42	− 1·18	1·35	2·23	− 0·88	0·24	Bahraich .	North Oudh.	20
2	1	2	7	4	2	3	7	3	5·0	P	P	36	·532	0·2	0	1·10	− 1·10	0·06	0·56	− 0·50	0·06	0·91	− 0·85	0·06	Cawnpore .	N.-W. Provinces (Central).	21
2	3	...	4	2	4	1	15	...	3·8	P	P	30	·445	1·9	0	P	P	0	0·66	− ·66	0	1·02	− 1·02	0	Mainpuri.		

(a) For April and May.

Table

Abstract of Observations taken at 8 A.M. at 212 Stations

Number of Districts.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	VI.—Upper Sub-Himalayas		...	...	−·024	...	...	...	...	...	...	..	104·9	+3·1	77·2	+3·5	91·1	+3·3	27·7	...	...	...	...	43·9
24	N.-W. Provinces, West (Submontane).	Bareilly	568	29·080	−·025	29·603	29·239	2nd	28·953	17th	·286	88·5	106·3	+3·8	79·9	+4·5	93·1	+4·2	26·4	113·5	18th	71·6	9th	41·9
		Dehra Dun	2,233	27·473	−·035	29·624	27·585	2nd	27·373	17th	·212	80·6	98·7	+5·0	72·3	+2·3	85·5	+3·7	26·4	106·5	19th	63·5	1st	43·0
		Roorkee	887	28·759	−·032	29·596	28·899	2nd	28·651	18th	·248	88·2	105·4	+3·3	76·5	+2·6	91·0	+3·0	28·9	112·7	18th & 20th.	68·2	9th	44·5
22	N.-W. P., West	Meerut	738	28·913	−·019	29·605	29·044	2nd	28·807	17th	·237	88·0	105·6	+3·8	77·0	+2·0	91·3	+2·9	28·6	111·7	18th	69·0	1st	42·7
26	South-East Punjab.	Delhi	718	28·933	−·019	29·602	29·047	2nd	28·827	18th	·220	89·5	106·8	+2·5?	82·6	+3·5	94·7	+3·0?	24·2	114·2	18th	73·9	3rd	40·3
28	Central Punjab.	Lahore	702	28·920	−·025	29·583	29·052	25th	28·764	18th	·288	86·2	104·7	+1·9	77·1	+5·0	90·9	+3·5	27·6	112·1	20th	67·1	8th & 9th,	45·0
27	South Punjab	Sirsa	662	28·964	−·030	29·576	29·073	26th	28·833	18th	·240	91·5	109·7	+3·5	80·3	+4·3	95·0	+3·9	29·4	115·3	3 days	69·3	8th	46·0
		Patiala	818	28·815	?	29·586	28·952	2nd	28·706	18th	·246	88·5	105·1	?	77·9	?	91·5	?	27·2	111·8	18th	69·7	25th	42·1
29	Punjab (Submontane).	Ludhiana	812	28·816	−·038	29·583	28·936	2nd	28·689	18th	·247	88·4	106·3	+2·4	78·6	+4·8	92·5	+3·6	27·7	113·9	20th &	71·1	9th	42·8
		Sialkot	830	28·812	−·011	29·599	28·935	25th	28·667	18th	·268	88·0	104·8	+2·3	77·8	+4·0	91·3	+3·2	27·0	112·9	20th	68·5	1st	44·4
		Umballa	892	28·754	?	29·595	28·876	25th	28·651	17th	·225	86·2	105·8	?	77·1	?	91·5	?	28·7	112·9	20th	66·5	1st	46·4
31	North Punjab	Rawalpindi	1,643	28·006	−·006	29·607	28·102	25th	27·890	18th	·212	81·8	99·3	+2·0	69·1	+1·6	84·2	+1·8	30·2	109·0	29th	61·1	14th	47·9
	VII.—Indus Valley and N.-W. Rajputana.		...	...	−·013	...	...	...	...	...	...	...	105·9	+3·2	77·5	+3·0	91·7	+3·1	28·4	...	...	...	...	43·5
31	North Punjab	Peshawar	1,110	28·604	+·006	29·639	28·709	26th	28·486	18th	·223	83·1	97·9	+0·2	69·3	−0·1	83·6	+0·1	28·6	106·5	29th	60·0	8th	46·5
		Mardan	?	28·804	?	?	28·970	9th	28·604	22nd	·366	81·2	97·6	?	63·9	?	80·7	?	33·7	107·0	23rd	60·0	4th	47·0
32	West Punjab	Khushab	612	29·032	?	29·605	29·158	25th	28·866	18th	·292	89·4	105·1	?	76·2	?	90·7	?	28·9	112·9	29th	63·0	7th	49·9
		Montgomery	558	29·059	?	29·572	29·185	26th	28·890	18th	·295	91·8	109·2	?	79·5	?	94·4	?	29·7	117·1	29th	67·0	8th	50·1
		D. I. Khan	593	29·077	−·022	29·610	29·177	26th	28·936	18th	·241	87·5	104·7	+2·5	75·1	+1·6	89·9	+2·1	29·6	112·2	29th	67·0	9th & 13th,	45·2
		Mooltan	420	29·203	−·032	29·585	29·323	26th	29·054	18th	·269	88·9	110·5	+5·8	80·5	+4·6	95·5	+5·2	30·0	115·5	29th & 30th.	73·0	4 days	42·5
47	Sind	Jacobabad	186	29·430	−·033	29·572	29·531	8th	29·319	5th	·212	93·3	114·6	+4·2	81·3	+4·4	98·0	+4·3	33·3	121·0	17th	73·1	8th & 10th.	47·9
		Hyderabad	96	29·584	−·001	29·631	29·679	9th	29·514	29th & 30th	·165	87·1	108·8	+2·0	79·3	+0·9	94·1	+1·5	29·5	116·2	28th	75·0	1st	41·2
		Kurrachee	12	29·727	+·003	29·689	29·834	9th	29·654	5th	·180	84·5	91·5	?	79·6	?	85·6	?	11·9	94·8	29th	75·0	1st	19·8
51	West Rajputana	Bickaneer	771?	28·873	?	29·591	28·978	26th	28·774	18th	·204	93·5	110·8	+4·4	85·3	+6·5	98·1	+5·5	25·5	115·8	18th & 29th,	75·0	9th	40·8
		Pachpadra	380?	29·285?	?	29·617?	29·420	8th	29·196	17th	·224	86·3	110·5	?	79·3	?	94·9	?	31·2	115·5	4th	68·0	1st	47·5
		Jodhpur	810	28·903	?	29·662	28·980	9th	29·836	17th	·144	88·4	109·7	?	80·9	?	95·3	?	28·8	114·3	28th & 29th.	71·1	1st	43·2
	VIII.—East Rajputana, Central India and Gujarat.		...	...	−·006	...	...	...	...	...	...	...	106·3	+2·7	80·6	+2·7	93·5	+2·7	25·7	...	...	...	...	38·2
50	East Rajputana	Jeypore	1,431	28·280	−·011	29·640	28·354	26th	28·202	17th & 18th	·152	90·1	109·6	+4	79·7	+3·5	94·7	+3·8	29·9	114·5	18th & 29th.	72·0	9th	42·5
		Kotah	?	...			Not	recorded.				96·4	111·1	?	87·9	?	99·5	?	23·2	115·6	29th	77·6	2nd	38·0
		Sambhar	1,254	28·434	−·015	29·621	28·509	9th	28·336	18th	·173	91·6	109·0	+4·7	82·1	+4·0	95·6	+4·4	26·9	113·0	18th	70·5	1st	42·5
		Ajmere	1,611	28·108	−·015	29·647	28·180	9th	28·030	18th	·150	89·9	106·9	+3·7?	83·0	+5·3	95·0	+4·5?	23·9	110·4	17th	67·6	1st	42·8
		Deesa	466	29·294	+·004	29·713	29·366	9th	29·245	18th	·121	84·9	109·2	+3·0	77·3	?	93·3	?	31·9	113·5	29th	74·0	6th & 18th	39·5
46	Kathiawar and Cutch.	Bhuj	395	29·372	+·017	29·717	29·470	9th	29·322	30th	·148	85·9	102·9	+1·4	76·8	+0·1	89·9	+0·8	26·1	109·6	29th	72·4	12th	37·2
		Rajkot	429	29·368	+·022	29·746	29·447	9th	29·313	30th	·134	85·3	107·3	+1·9	74·9	−0·3	91·1	+0·8	32·4	114·8	4th	70·8	1st	44·0
		Veraval	?	29·811	?	29·771	29·873	11th	29·757	30th	·116	81·8	85·9	?	78·3	?	82·1	?	7·6	87·6	26th	73·3	2nd	14·3
		Ghadechi	35	29·773	?	29·752	29·827	8th	29·723	5th	·104	87·5	109·4	?	78·1	?	93·8	?	31·3	113·7	16th & 18th.	74·8	1st	38·9
49	Central India	Nowgong	757	28·920	−·018	29·612	28·985	26th	28·830	17th	·155	94·1	110·2	+2·9?	83·0	+3·9	96·6	+3·4?	27·2	115·0	31st	74·0	9th	41·0
		Indore	1,823	27·969	+·020?	29·704	28·017	9th	27·920	29th	·097	87·9	105·8	+3·4	78·8	+3·4	92·3	+3·4	27·0	110·5	28th	67·6	1st	42·9
		Neemuch	1,630	28·142	?	29·699	28·200	9th	28·090	5th & 17th	·110	89·2	106·4	+2·5	79·4	+3·0	92·9	+2·8	27·0	111·2	28th	69·6	1st & 2nd	41·6
45	Gujarat	Surat	39	29·787	+·003	29·768	29·838	13th	29·741	18th	·097	86·7	97·4	−0·8	79·3	+1·7	88·3	+0·5	18·1	109·6	1s	76·0	12th	33·6
		Ahmedabad	164	29·636	?	29·746	29·694	9th	29·591	5th	·103	87·2	109·5	?	79·1	?	94·3	?	30·4	112·8	17th	76·1	18th	36·7
22	N.-W. P., West	Agra	555	29·097	−·028	29·599	29·193	2nd	29·000	18th	·193	92·1	108·3	?	83·7	+3·0	96·0	?	24·6	114·0	18th & 19th,	75·9	1st & 24th.	38·1
21	N.-W.P., Central	Jhansi	858	28·829	−·021	29·616	28·895	26th	28·745	17th	·150	96·5	111·9	+4·5	88·1	+5·8	100·0	+5·2	23·8	6·2	3 days	78·4	1st	37·8

I—continued,

in India, Burma, etc., in May 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 March to 31st May 1897.	Normal rainfall for period from 1st March to 1st May.	Variation from normal of period 1st March to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Districts.
...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	0·52	1·07	−0·59	...	...	...	...	VI.—Upper Sub-Himalayas.		
6	1	2	2	11	...	1	2	6	2·6	5·2	− 50	36	·487	0·9	3	2·27	+0·73	0·66	0·84	− 0·18	1·14	1·95	− 0·81	0·43	Bareilly .	N.-W. Provinces, West (Submontane).	24
25	...	3	1	1	...	...	1	...	1·7	2·5	− 32	39	·410	2·5	1	4·09	−3·09	0·74	1·95	− 1·21	2·27	3·55	− 1·28	0·71	Dehra Dun.		
19	...	1	1	8	1	...	1	...	2·3	3·7	− 38	33	·432	1·7	2	2·00	0	0·59	0·86	− 0·27	1·74	2·00	− 0·26	0·31	Roorkee.		
18	...	...	4	5	...	1	2	1	2·0	2·6	− 23	37	·489	1·7	1	1·64	−0·64	0·18	0·69	− 0·51	0·56	1·70	− 1·14	0·15	Meerut.	N.-W. P., West	22
10	1	2	...	6	1	1	7	3	5·2	4·5	+ 16	31	·418	3·9	1	1·64	−0·64	0·52	0·78	− 0·26	0·96	1·58	− 0·62	0·45	Delhi .	South-East Punjab.	26
9	7	4	5	6	...	...	...	...	3·0	3·3	− 9	39	·482	2·0	1	2·00	−1·00	0·41	1·03	− 0·62	0·96	2·22	− 1·26	0·32	Lahore .	Central Punjab.	28
3	2	...	4	10	2	3	7	...	8·2	4·8	+ 71	23	·343	5·0	0	1·82	−1·82	0	0·81	− 0·81	0·49	1·49	− 1·00	0	Sirsa.	South Punjab.	27
12	...	14	1	...	...	4	...	...	4·1	P	P	46	·623	0·7	2	P	P	0·94	P	P	1·52	P	P	0·75	Patiala.		
13	1	4	1	7	3	1	...	1	3·0	2·2	+ 36	33	·428	1·2	0	1·91	−1·91	0·02	0·78	− 0·76	1·71	2·62	− 0·91	0·02	Ludhiana .	Punjab (Submontane).	29
2	10	10	3	2	...	...	1	3	4·5	2·5	+ 80	35	·454	1·5	1	2·73	−1·73	0·35	1·23	− 0·88	1·74	3·32	− 1·58	0·18	Sialkot.		
19	...	...	1	6	...	...	1	4	1·9	P	P	39	·432	0·7	2	P	P	0·76	0·97	− 0·21	1·33	2·23	− 0·90	0·46	Umballa.		
19	...	8	2	...	1	...	2	4	4·0	2·8	+ 43	41	·447	3·0	2	3·00	−1·00	1·06	1·80	− 0·74	6·00	5·51	+ 0·49	0·46	Rawalpindi.	North Punjab.	31
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·28	0·47	−0·24	...	...	...	...	VII.—Indus Valley and N.-W Rajputana.		
16	2	...	...	2	2	3	2	4	4·7	4·3	− 2	43	·477	2·9	3	2·09	+0·91	1·44	0·75	+ 0·69	6·22	4·29	+ 1·93	0·77	Peshawar .	North Punjab.	31
			Not	rec	orde	d.			P	P	P	78	·817	1·7	2	P	P	1·00	P	P	7·16	P	P	0·80	Mardan.		
4	3	6	10	3	2	1	1	1	8·0	P	P	30	·407	1·4	1	1·00	0	0·32	0·41	− 0·09	1·91	1·57	+ 0·34	0·15	Khushab .	West Punjab.	32
4	2	7	10	4	2	1	...	1	7·5	P	P	26	·377	1·8	1	1·10	−0·10	0·35	0·45	− 0·10	0·48	0·97	− 0·49	0·35	Montgomery.		
10	7	8	...	1	1	...	...	4	3·2	2·3	+ 39	47	·606	0·3	0	0·82	−0·82	0·02	0·40	− 0·38	1·36	1·80	− 0·44	0·02	D. I. Khan		
10	3	10	2	3	1	...	...	2	1·4	2·9	− 52	37	·494	0·9	0	0·82	−0·82	0	0·42	− 0·42	0·80	0·87	− 0·07	0	Mooltan.		
5	1	...	10	8	1	...	...	6	5·6	4·7	+ 19	32	·495	0·9	0	0·45	−0·45	0	0·10	− 0·10	0·25	0·44	− 0·19	0	Jacobabad	Sind.	47
...	...	...	...	...	1	30	...	...	21·5	12·7	+ 69	56	·717	0·3	0	0·45	−0·45	0	0·25	− 0·25	0·87	0·43	− 0·06	0	Hyderabad.		
1	...	...	...	...	...	12	15	2	14·0	17·5	− 20	79	·932	3·2	0	0	0	0	0	0	0	0·56	− 0·56	0	Kurrachee.		
...	1	...	2	1	3	14	9	1	9·7	6·5	+ 49	39	·605	0·5	0	P	P	0·12	1·08	− 0·96	0·44	1·45	− 1·01	0·08	Bickaneer .	West Rajputana	51
...	...	...	1	...	20	9	...	1	18·5	8·8	+ 110	61	·763	0·3	0	P	P	0	0·83	− 0·83	0·05	0·91	− 0·86	0	Pachpadra.		
1	1	...	...	...	7	16	5	1	6·7	P	P	42	·557	0·5	1	P	P	0·13	P	P	0·29	0·55	− 0·26	0·13	Jodhpur.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·16	0·47	−0·30	...	...	...	...	VIII.—East Rajputana C. India and Gujarat.		
5	2	...	...	2	1	7	11	3	6·1	6·9	− 12	40	·532	0·7	3	1·20	+1·80	0·66	0·45	+ 0·21	0·82	0·93	− 0·11	0·32	Jeypore .	East Rajputana.	50
...	3	2	...	...	...	4	16	6	8·2	P	P	29	·499	0·8	1	P	P	0·48	P	P	P	P	P	0·46	Kotah.		
3	3	...	...	...	1	2	22	...	10·7	9·9	+ 8	36	·530	0·5	0	1·27	−1·27	0·14	0·80	− 0·66	0·32	1·24	− 0·92	0·07	Sambhar.		
3	...	...	...	...	1	8	19	...	10.0	7·1	+ 41	42	·561	0·6	2	2·09	−0·09	0·27	0·75	− 0·48	0·61	0·98	− 0·37	0·15	Ajmere.		
...	...	...	...	1	...	17	10	3	14·0	13·4	+ 4	64	·765	0·9	0	0·55	−0·55	0	0·25	− 0·25	0·05	0·31	− 0·26	0	Deesa.		
...	...	...	...	...	...	14	17	...	21·5	15·4	+ 39	60	·737	0·5	0	P	P	0	0·13	− 0·13	0	0·40	− 0·40	0	Bhuj .	Kathiawar and Cutch.	46
...	...	...	...	...	...	8	20	3	15·1	14·6	+ 3	65	·783	0·2	0	0·36	−0·36	0	0·25	− 0·25	0	0·28	− 0·28	0	Rajkot.		
...	...	...	...	...	3	8	17	3	7·5	P	P	86	·928	4·1	0	P	P	0	P	P	0	P	P	0	Veraval.		
2	1	...	...	...	2	12	10	4	12·8	P	P	51	·667	0·1	0	P	P	0·03	P	P	0·04	P	P	0·03	Ghadeo hi		
...	1	...	...	...	1	4	23	2	5·1	3·4	+ 50	27	·427	2·2	0	1·09	−1·09	0·12	0·42	− 0·30	0·36	0·75	− 0·39	0·07	Nowgong .	Central India.	49
1	3	...	...	...	...	2	15	10	5·9	6·1	− 3	37	·486	0·1	0	1·36	−1·36	0	0·75	− 0·75	0·02	0·83	− 0·81	0	Indore.		
...	...	1	...	...	...	14	11	4	10·6	12·4	− 15	46	·634	0·4	0	1·18	−1·18	0	0·59	− 0·59	0·04	0·76	− 0·72	0	Neemuch.*		
...	...	...	...	2	14	12	2	1	8·4	12·7	− 34	69	·874	3·1	0	0·45	−0·45	0	0·19	− 0·19	0	0·20	− 0·20	0	Surat .	Gujarat.	45
...	...	...	...	...	1	19	7	4	9·8	P	P	58	·745	1·0	0	P	P	0·01	P	P	0·01	0·54	− 0·53	0·01	Ahmedabad.		
...	...	4	...	6	...	15	...	6	6·1	5·9	+ 3	42	·628	0·7	3	1·91	+1·09	0·76	0·60	+ 0·16	0·85	1·05	− 0·20	0·30	Agra .	N.-W. P., West.	23
2	...	...	...	4	1	5	9	10	3·0	4·8	− 38	22	·381	0·5	1	1·36	−0·36	0·14	0·49	− 0·35	0·16	0·97	− 0·81	0·14	Jhansi.	N.W.P., Central	21

* Wind observations of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 212 Stations

Number of Districts.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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 recorded month.	Date.	Total range of pressure during month.	Temperature of Air. 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.
	IX.—Deccan		...	...	+·004	...	...	...	...	...	...	...	107·1	+3·4	79·5	+2·7	93·3	+3·1	27·6	...	...	...	...	41·7
38	Bombay (Deccan)	Belgaum	2,524	27·343	+·015	29·779	27·411	13th	27·300	29th	·111	77·4	97·3	+4·2	68·1	+0·2	82·7	+2·2	29·2	104·2	19th	65·3	3rd	38·9
		Sholapur	1,590	28·232	+·009	29·746	28·302	13th	28·189	18th	·113	86·4	107·9	+3·6	77·4	+1·4	92·7	+2·5	30·5	112·2	15th	72·0	24th	39·2
		Poona	1,840	28·015	+·014	29·778	28·052	26th	27·973	5th	·079	83·7	103·2	+4·7	71·7	−0·2?	87·5	+2·3?	31·5	108·5	15th	66·4	14th	42·1
		Bijapur	1,946	27·895	?	29·756	27·956	13th	27·865	29th	·091	83·4	104·7	?	74·6	?	89·7	?	30·1	108·7	16th & 19th.	70·0	24th	38·7
40	Khandesh	Malegaon	1,430	28·382	+·013	29·733	28·418	24th	28·334	5th	·084	90·6	107·4	+3·7	75·9	+1·2	91·7	+2·5	31·5	110·8	15th	70·2	5th	40·6
		Ahmednagar	2,152	27·692	?	29·738	27·742	24th	27·632	5th	·110	87·0	104·6	?	72·4	?	88·5	?	32·2	107·8	17th	66·9	9th	40·9
41	Berar	Akola	930	28·846	+·016	29·702	28·893	26th	28·768	5th	·125	92·5	111·0	+3·9	83·2	+2·6	97·1	+3·3	27·8	114·5	16th	72·2	2nd	42·3
		Amraoti	1,215	28·549	+·016	29·692	28·598	1st & 24th.	28·494	5th	·104	91·3	110·6	+3·4	82·5	+3·3	96·6	+3·4	28·1	115·5	29th	70·8	1st	44·7
42	Central Provinces (West).	Khandwa	1,044	28·730	+·016	29·712	28·773	26th	28·672	29th	·101	89·9	109·7	+3·6	83·2	+3·7	96·9	+3·7	25·8	113·2	3 days	71·1	st	42·1
		Hoshangabad	1,006	28·737	+·003	29·677	28·780	9th	28·688	5th	·092	92·9	110·2	+2·7	82·0	+2·3	96·1	+2·5	28·2	114·1	29th	73·2	2nd	40·9
		Nagpur	1,025	28·706	+·005	29·656	28·780	1st	28·636	17th	·144	93·9	112·0	+3·3	83·6	+2·5	97·9	+2·9	28·4	116·7	18th	68·6	1st & 2nd.	48·1
43	Central Provinces (Central).	Chanda	634	29·133	?	29·696	29·199	2nd	29·072	5th	·127	93·2	111·8	+2·6	82·3	?	97·1	?	29·5?	119·2	18th	69·4	1st	49·8
		Seoni	2,033	27·731?	+·007	29·647?	27·784	2nd	27·670	6th	·114	91·3	105·2?	+2·0?	77·3	+0·7?	91·3?	+1·4?	27·9	110·1	3 days	63·9	2nd	46·2
		Jubbulpore	1,827	28·405?	+·007	29·656?	28·465	2nd	28·336	5th	·129	91·9	108·0	+3·1	80·2	+1·8	94·1	+2·5	27·8	112·0	31st	67·7	1st	44·3
		Saugor	1,807	27·921	−·002	29·628	27·978	9th	27·864	5th	·114	91·9	107·1	+2·4	81·6	+4·0	94·4	+3·2	25·5	110·9	4 days	70·4	1st	40·5
49	Central India	Sutna	1,040	28·638	−·014	29·609	28·723	2nd	28·536	5th	·187	95·1	108·9	+4·2	83·4	+5·3	96·2	+4·8	25·5	113·6	3 days	69·6	1st	44·0
44	Central Provinces (East).	Raipur	970	28·746	−·004	29·640	28·843	2nd	28·659	18th	·184	93·2	109·6	+3·1	83·7	+2·7	96·7	+2·9	25·9	115·5	19th	68·2	2nd	47·3
		Sambalpur	486	29·223	−·021	29·648	29·358	2nd	29·119	18th	·239	90·8	108·2	?	81·9	?	95·1	?	26·3	114·5	19th	70·2	1st	44·3
39	Hyderabad (North).	Aurangabad	1,865?	27·973	?	29·738	28·064	12th	27·920	5th	·144	90·1	107·6	?	76·5	?	92·0	?	31·1	111·1	16th	71·4	2nd	39·7
		Indur				Not	recorded					91·3	108·2	?	83·1	?	95·6	?	25·1	111·5	16th & 17th.	76·8	1st	34·7
		Bidar	2,165?	27·651	?	29·705	27·718	16th	27·555	18th	·163	87·3	95·9	?	76·7	?	86·3	?	19·2	101·3	20th	69·7	13th	31·6
53	Hyderabad (South).	Gulbarga	1,502	28·325	?	29·752	28·382	13th	28·242	5th	·140	86·7	108·0	?	79·5	?	93·7	?	28·5	111·8	19th	72·5	24th	39·3
		Raichur	1,309	28·494	?	29·731	28·539	2nd	28·443	5th	·096	86·2	106·2	?	80·5	?	93·4	?	25·7	110·9	15th	70·1	23rd	40·8
		Hyderabad (Deccan).	1,690	28·110	−·002	29·710	28·166	2nd	28·055	18th	·111	88·5	106·5	+3·6	81·8	+3·9	94·2	+3·8	24·7	111·9	15th	72·2	1st	39·7
		Secunderabad	1,787	28·023	−·011	29·720	28·077	26th	27·962	18th	·115	87·3	107·2	+4·3?	80·9	+3·0	94·0	+3·7?	26·3	112·3	15th	67·4	1st	44·9
		Khamamet	373	29·400	?	29·713	29·481	26th	29·322	7th	·159	88·7	107·5	?	82·3	?	95·0	?	25·2	114·2	4 days	75·3	3 days	38·9
	X.—West Coast		...	...	+·017	...	...	...	...	...	...	...	90·4	+1·3	80·3	+1·7	85·3	+1·5	10·1	...	...	...	...	18·0
37	Konkan	Bombay	37	29·832	+·019	29·808	29·891	13th	29·778	23rd	·113	84·5	90·7	+0·7	80·7	+0·3	85·7	+0·5	10·0	93·5	29th	78·0	1st & 2nd.	15·5
		Ratnagiri	110	29·756	+·028	29·803	29·824	16th	29·706	25th	·118	85·3	91·5	+0·6	80·8	+1·8	86·2	+1·2	10·7	92·9	28th	78·4	2nd	14·5
		Mormugao	60	29·820	?	29·815	29·894	12th	29·754	29th	·140	85·2	89·9	?	81·1	?	85·5	?	8·8	94·0	1st & 2nd.	73·4	27th	20·6
		Goa	199	29·669	+·029	29·804	29·758	13th	29·620	25th	·138	84·8	88·5	?	80·5	?	84·5	?	8·0	90·0	2nd	72·0	15th	18·0
		Karwar	44	29·834	+·023	29·809	29·911	13th	29·766	29th	·145	84·1	90·2	+0·5	80·8	+1·6	85·5	+1·1	9·4	92·3	1st	74·0	27th	18·3
33	Malabar	Cochin	11	29·870	+·002	29·808	29·936	15th	29·831	23rd	·105	83·5	91·3	+2·1	79·6	+2·4	85·5	+2·3	11·7	93·8	2nd	72·2	3rd	21·6
		Calicut	27	29·848	+·002	29·804	29·919	16th	29·795	29th	·124	84·1	91·9	+2·1	79·0	+1·7	85·5	+1·9	12·9	93·9	19th	73·5	2nd	20·4
		Mangalore	65	29·819	+·013	29·816	29·888	16th	29·762	29th	·126	84·0	91·6	+1·8	80·5	+2·1	86·1	+2·0	11·1	93·8	1st	74·4	31st	19·4
		Trivandrum	198	29·665	?	29·793	29·726	15th	29·619	7th	·107	82·6	87·6	?	79·3	?	83·5	?	8·3	89·5	18th & 19th	76·0	30th	13·5
	XI.—South India		...	...	0	...	...	...	...	...	...	...	98·4	+1·3	78·5	+1·4	88·5	+1·3	20·0	...	...	...	...	33·7
57	Madras (South)	Pamban	37	29·801	?	29·764	29·857	15th	29·754	6th	·103	86·5	92·2	?	82·9	?	87·6	?	9·3	95·3	8th	80·2	9th	15·1
		Tinnevelly	168	29·670	?	29·767	29·729	15th	29·604	7th	·125	87·4	100·6	?	80·7	?	90·7	?	19·9	105·0	21st	69·9	27th	35·1
		Madura	447	29·383	−·004	29·762	29·424	15th	29·314	7th	·110	86·3	101·0	+0·9	79·5	+2·7	90·2	+1·8	21·5	104·5	10th	73·0	2nd	31·5

I—*continued.*

in India, Burma, etc., in May, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 March to 31st May 1897.	Normal rainfall for period 1st March to 31st May.	Variation from normal of period, 1st March to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Districts.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·63	1·00	−0·45	...	...	...	...	**IX.—Deccan.**		
7	2	1	...	...	...	1	8	12	17·4	18·1	− 4	63	·583	2·8	6	4·36	+ 1·24	4·21	2·62	+ 1·59	6·37	4·69	+ 1·68	1·30	Belgaum	Bombay (Deccan).	38
...	4	...	...	1	...	2	4	20	13·4	10·0	+ 34	36	·444	2·4	3	2·18	+ 0·82	0·62	1·15	− 0·53	0·71	2·06	− 1·35	0·29	Sholapur.		
...	...	1	...	...	...	5	20	5	16·9	14·2	+ 19	41	·474	1·6	0	2·00	− 2·00	0·04	1·65	− 1·61	0·32	2·24	− 1·92	0·03	Poona.		
...	...	...	1	...	...	5	15	10	7·8	P	P	56	·631	2·5	2	3·10	− 1·10	1·76	P	P	3·03	2·18	+ 0·85	1·47	Bijapur.		
1	3	...	...	...	...	5	12	10	20·2	10·4	+ 94	53	·757	1·3	0	1·27	− 1·27	0	0·95	− 0·95	0·37	1·08	− 0·71	0	Malegaon	Khandesh.	40
...	13	...	...	3	...	...	2	13	26·0	P	P	52	·660	1·7	1	P	P	0·20	P	P	0·42	1·81	− 1·39	0·20	Ahmednagar.		
...	...	1	...	1	...	1	10	18	10·4	8·6	+ 21	43	·643	2·1	0	0·91	− 0·91	0	0·48	− 0·48	0·04	1·19	− 1·15	0	Akola	Berar.	41
...	...	...	1	1	1	3	17	8	7·1	6·0	+ 18	41	·605	2·3	1	1·73	− 0·73	0·22	0·75	− 0·53	0·22	1·40	− 1·18	0·20	Amra		
...	...	...	...	...	...	2	12	17	11·0	9·1	+ 21	36	·508	0·5	0	1·09	− 1·09	0	0·45	− 0·45	0·01	0·75	− 0·74	0	Khandwa	Central Provinces (West).	42
5	...	...	...	...	5	13	3	3	3·2	3·8	− 16	34	·552	0·8	0	1·18	− 1·18	0	0·73	− 0·73	0·04	1·12	− 1·08	0	Hoshangabad.*		
2	9	4	...	...	1	4	4	7	9·2	7·0	+ 31	29	·441	2·7	1	2·09	− 1·09	0·18	0·80	− 0·62	0·89	1·75	− 0·86	0·12	Nagpur.		
8	2	1	1	2	4	1	7	5	3·8	4·9	− 22	31	·471	2·1	2	P	P	0·33	0·89	− 0·56	4·14	2·76	+ 1·38	0·11	Chanda	Central Provinces (Central).	43
...	10	3	...	...	4	5	1	8	4·4	4·6	− 4	31	·440	1·2	3	2·36	+ 0·64	0·73	0·76	− 0·03	1·60	1·81	− 0·21	0·26	Seoni.		
2	...	...	...	1	3	11	8	6	4·5	4·5	0	28	·420	1·1	1	1·45	− 0·45	0·23	0·71	− 0·48	1·12	1·40	− 0·28	0·21	Jubbulpore.		
...	...	2	...	1	1	4	16	7	8·0	4·4	+ 82	47	·698	1·1	0	1·27	− 1·27	0	0·69	− 0·69	0·09	1·05	− 0·96	0	Saugor.		
...	...	...	4	2	3	5	15	2	10·2	8·1	+ 26	23	·371	0·6	1	1·64	− 0·64	0·40	0·39	+ 0·01	0·73	1·01	− 0·28	0·40	Sutna	Central India	48
7	1	...	...	1	5	15	2	...	10·2	7·4	+ 38	32	·466	2·3	3	2·91	+ 0·09	0·63	1·04	−0·41	1·95	2·32	− 0·37	0·29	Raipur	Central Provinces (East).	44
...	1	3	2	7	12	3	...	3	5·4	3·0	+ 80	50	·709	3·1	3	P	P	1·31	2·05	− 0·74	5·93	3·76	+ 2·17	0·90	Sambalpur.		
8	3	3	...	...	2	4	5	6	5·0	?	P	27	·375	1·0	0	P	P	0·04	0·75	− 0·71	0·11	0·99	− 0·88	0·04	Aurangabad.	Hyderabad (North).	39
2	6	...	...	2	3	...	2	16	8·5	P	P	49	·740	1·4	0	P	P	0	0·33	− 0·33	1·49	0·91	+ 0·58	0	Indur.		
...	15	2	...	...	1	4	3	6	8·8	P	P	60	·770	0·1	2	P	P	1·74	1·07	+ 0·67	2·29	2·24	+ 0·05	0·91	Bidar.		
5	4	7	...	...	...	4	3	7	11·9	P	P	39	·477	3·7	2	P	P	0·59	1·39	− 0·80	1·32	2·31	− 0·99	0·34	Gulbarga	Hyderabad (South).	53
...	4	2	...	...	4	5	8	8	13·3	P	P	51	·626	3·1	2	P	P	1·60	P	P	2·76	1·95	+ 0·81	1·30	Raichur.		
3	4	1	3	1	4	...	12	3	5·4	P	P	51	·668	2·2	2	P	P	0·47	1·15	− 0·68	0·51	2·57	− 2·06	0·13	Hyderabad (Deccan).		
...	...	...	3	2	2	3	6	15	8·3	7·4	+ 12	46	·594	2·4	2	P	P	0·33	1·15	− 0·82	0·43	2·57	− 2·14	0·13	Secunderabad.		
18	...	...	...	9	3	1	...	...	9·5	P	P	70	·949	0·5	2	P	P	0·85	P	P	1·91	2·44	− 0·53	0·48	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·48	6·04	−2·40	...	...	...	...	**X.—West Coast.**		
...	4	1	1	1	6	3	8	7	8·6	9·9	− 13	74	·890	4·1	0	1·00	− 1·00	0	0·94	− 0·94	0	0·98	− 0·98	0	Bombay	Konkan.	37
2	5	1	...	1	...	2	7	13	7·4	11·2	− 34	69	·838	2·6	0	1·64	− 1·64	0·08	1·89	− 1·81	0·10	1·97	− 1·87	0·07	Ratnagiri.		
...	11	1	...	1	...	1	1	16	12·5	P	P	76	·922	4·4	3	P	P	2·16	P	P	2·17	P	P	1·31	Mormugao.		
3	5	...	1	1	...	2	7	12	P	P	P	73	·875	5·7	3	P	P	2·40	2·81	− 0·41	2·40	2·88	− 0·48	1·20	Goa.		
...	13	...	...	...	...	2	3	13	7·5	P	P	72	·833	3·9	3	4·09	− 1·09	0·85	3·85	− 3·00	1·23	4·26	− 3·03	0·47	Karwar.		
7	6	10	...	...	...	2	1	5	6·8	P	P	81	·928	6·7	9	13·45	− 4·45	6·52	13·30	− 6·78	17·18	20·11	− 2·93	2·66	Cochin	Malabar.	33
2	3	6	2	3	...	1	1	13	16·2	P	P	77	·896	5·4	8	9·00	− 1·00	13·01	8·05	+ 4·96	17·42	11·74	+5·68	2·16	Calicut.		
8	4	...	6	4	...	...	1	8	4·0	4·6	− 13	74	·863	5·2	5	6·80	− 1·80	1·89	7·67	− 5·78	2·81	8·86	− 6·05	0·78	Mangalore.		
11	13	2	1	...	...	...	...	4	6·0	P	P	79	·892	6·2	6	P	P	4·40	9·80	− 5·40	7·73	15·95	− 8·22	2·14	Trivandrum		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·15	2·68	−0·37	...	...	...	...	**XI.—South India.**		
1	...	...	3	1	8	16	2	...	13·4	P	P	78	·991	2·4	0	2·30	− 2·30	0	2·21	−2·21	2·49	7·13	− 4·64	0	Pamban	Madras (South).	57
...	2	4	...	2	3	6	6	8	5·1	P	P	67	·877	4·1	3	3·80	− 0·80	0·80	P	P	6·42	5·18	+ 1·24	0·43	Tinnevelly.		
5	5	1	...	...	...	...	2	18	4·4	3·7	+ 19	66	·838	2·2	3	4·00	− 1·00	0·90	2·87	−1·97	2·91	5·36	− 2·45	0·63	Madura.		

* Wind observations of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 212 Stations

Number of Districts.	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.
34	Madras (South Central).	Salem	940	28·924	−·002	29·796?	28·969	16th	28·881	7th	·088	84·0	99·7	+0·9	76·7	+1·2	88·2	+1·1	23·0	102·4	3 days	71·5	13th	31·9
		Coimbatore	1,348	28·502	+·002	29·789	28·543	16th	28·471	29th	·072	80·4	95·7	+0·9	73·8	+0·3	84·8	+0·6	21·9	99·9	24th	67·6	9th	32·3
35	Coorg	Mercara	3,781	26·206	+·019	?	26·261	15th	26·158	29th	·103	70·8	81·7	+0·8	65·8	+1·3	73·7	+1·1	15·9	86·5	4th	61·7	30th	24·8
36	Mysore	Chitaldroog	2,405	27·475	?	29·783	27·522	13th	27·434	5th	·088	78·6	97·5	?	72·8	?	85·2	?	24·7	103·0	15th	66·4	29th	36·6
		Bangalore	3,021	26·897	+·009	29·781	26·938	16th	26·864	3 days	·074	77·5	94·9	+3·7	70·8	+1·7	82·9	+2·7	24·1	100·8	15th	66·3	31st	31·5
		Hassan	3,091	26·841	?	29·813	26·889	16th	26·806	29th	·083	76·1	91·2	?	68·2	?	79·7	?	23·0	96·6	15th	64·5	30th	32·1
		Mysore	2,518	27·396	?	29·811	27·441	15th	27·352	29th	·089	78·2	94·8	?	70·9	?	82·8	?	23·9	98·9	9th	63·0	30th	35·9
56	Madras (East Coast, South).	Negapatam	31	29·795	−·001	29·754	29·835	26th	29·739	7th	·096	88·4	99·3	?	81·5	+1·6	90·4	?	17·8	105·7	7th	73·9	14th	31·8
		Cuddalore	12	29·801	?	29·742	29·861	2nd	29·735	7th	·126	87·7	99·5	?	80·8	?	90·2	?	18·7	105·3	12th & 17th,	76·7	13th	28·6
		Trichinopoly	255	29·573	−·007	29·759	29·616	15th	29·519	5th & 7th.	·097	85·6	102·3	+1·2	79·1	+0·9	90·7	+1·1	23·2	106·2	30th	70·9	13th	35·3
		Madras	22	29·784	−·005	29·736	29·860	2nd	29·716	7th	·144	88·3	98·6	+0·8	82·1	+1·3	90·4	+1·1	16·5	107·0	17th	77·0	2nd	30·0
55	Madras (East Coast, Central).	Nellore	71	29·704?	?	29·707?	29·806	1st	29·618	7th	·188	90·3	106·3	?	81·9	?	94·1	?	24·4	113·3	10th & 14th.	72·1	1st & 20th,	41·2
		Masulipatam	15	29·768	?	29·717	29·846	2nd	29·668	7th	·178	88·8	98·7	−0·5	82·0	+0·8	90·4	+0·2	16·7	114·2	18th	72·1	20th	42·1
54	Madras (Central)	Cuddapah	433	29·367	−·015	29·730	29·454	1st	29·311	5th	·143	91·5	108·0	+2·8	85·6	+2·3	96·9	+2·6	22·4	113·3	9th & 15th.	72·7	19th	40·6
		Kurnool	923	28·882	−·007	29·734	29·936	1st & 16th.	28·830	18th	·106	87·5	107·6	+3·3	82·2	+1·8?	94·9	+2·6?	25·4	113·3	15th	71·9	1st	41·4
		Bellary	1,475	28·358	+·013	29·758	28·395	2nd	28·306	7th	·089	86·3	105·2	+2·8	79·5	+2·3	92·4	+2·6	25·7	111·2	15th	70·7	29th	40·5
52	Madras (East Coast, North).	Rajahmundry	112			Not re	corded.					87·0	102·0	−0·5	81·5	+0·2	91·8	−0·2	20·5	112·1	17th	68·2	3rd	43·9
		Cocanada	26	29·761?	?	29·722?	29·849	1st	29·678	7th	·171	87·9	100·3	?	82·5	+0·3	91·4	?	17·8	110·5	17th	73·5	3rd	37·0
		Vizagapatam	31	29·730	−·004	29·698	29·809	1st	29·639	7th	·170	88·5	94·7	+0·8	82·2	+2·4?	88·5	+1·6?	12·5	99·7	14th	71·9	5th	27·8
		Gopálpur	21	29·718	?	29·678	29·836	2nd	29·605	7th	·231	86·4	91·9	?	81·7	?	86·8	?	10·2	98·2	14th	73·1	2nd	25·1
	XII.—Hill Stations.																							
48	Baluchistan	Sharigh	?	25·745 (a)	?	?	25·840	26th	25·660	5th	·180	(a) 85·1	(a) 97·4	?	(a) 61·3	?	83·3	?	28·1	105·0	29th	56·0	1st	49·0
		Pishin	?	...		Not re	corded.					[illegible]	93·0	?	54·3	?	73·7	?	38·7	102·4	30th	45·9	7th	56·5
		Quetta	5,502	24·594	+·017	?	24·663	2nd	24·484	5th	·179	71·9	85·3	+2·4	54·1	+2·0	69·7	+2·2	31·2	92·1	30th	44·9	7th	47·2
		Kalat	?	...		Not re	corded.					(a) 73·4	86·9	?	47·5	?	67·2	?	39·4	97·1	28th	37·6	8th	59·5
		Chaman	4,311	25·614	?	?	25·690	10th	25·539	30th	·151	81·3	94·1	?	67·0	?	80·6	?	27	101·7	30th	56·1	7th	45·6
30	Punjab	Leh	11,503	?	?	?	?	...	?	...	?	40·2	55·8	?	34·4	?	45·1	?	21·4	68·7	4th	28·0	8th	40·7
		Srinagar	5,204	24·862	?	?	24·953	26th	24·783	7th & 17th,	·170	59·0	72·1	?	50·1	?	61·1	?	22·0	81·3	28th	44·2	24th	37·1
		Skardu (Kashmir).	?	22·888	?	?	23·070	27th	22·735	6th	·335	54·1	67·0	?	47·6	?	57·3	?	19·4	76·4	31st	32·7	24th	43·7
		Dras	?	20·821	?	?	20·996	27th	20·668	6th	·328	39·0	51·7	?	26·9	?	39·3	?	24·8	62·8	31st	14·1	2nd & 12th,	48·7
		Gilgit	?	24·675	?	?	24·830	26th	24·530	6th	·300	66·2	83·2	?	58·7	?	70·9	?	24·5	97·4	21st	51·9	7th	45·5
		Chitral	?	...		Not re	corded.					67·9	81·8	?	54·0	?	67·9	?	27·8	91·8	31st	46·4	8th	45·4
		Killa Drash	?	...		Di	tto.					71·1	83·9	?	57·8	?	70·9	?	26·1	95·2	27th	49·3	7th	45·9
		Cherat	?	25·589	?	?	25·695	26th	25·496	18th	·199	72·9	86·4	?	66·6	?	76·5	?	19·8	97·4	28th	51·5	7th	45·9
		Murree	6,344	23·792	+·011	?	23·895	26th	23·707	7th	·188	66·6	76·9	+1·0	57·4	−1·4	67·2	−0·2	19·5	84·7	27th	43·0	7th	41·7
		Poo	?	...		Not re	corded.					?	65·1	?	44·7	?	54·9	?	20·4	75·2	29th	38·0	25th	37·2
		Simla	7,224	23·086	+·016	?	23·138	2nd & 15th.	23·016	7th	·120	65·8	74·2	+2·6	59·1	+1·8	66·7	+2·2	15·1	82·1	30th	48·3	6th	33·8
25	North-Western Provinces.	Chakrata	6,977	23·295	+·026	?	23·344	14th	23·193	16th	·151	64·3	75·2	+1·4	58·2	+2·3	66·7	+1·9	17·0	84·3	19th	47·2	25th	37·1
		Mussooree	6,705	23·498	?	?	23·554	15th	23·426	9th	·128	67·2	79·1	+3·5	60·4	+3·2	69·8	+3·4	18·7	87·8	19th	50·0	25th	37·8
		Ranikhet	6,069	24·064	+·022	?	24·129	25th	23·978	9th	·131	70·2	81·5	+4·6	63·3	+3·9	72·4	+4·3	18·2	88·1	3 days	49·5	25th	38·6
		Mukteswar	?	22·844	?	?	22·910	31st	22·761	9th	·149	65·4	78·8	?	56·8	?	67·9	?	22·0	85·6	19th & 30th.	44·8	25th	40·8
13	Bengal	Yatung	10,430?	...		Not re	corded.					?	59·5	?	51·2	?	55·3	?	8·3	65·0	26th	42·9	2nd & 13th.	22·1

(a) Uncorrected.

I—*continued.*

in India, Burma, etc., in May, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 March to 31st May 1897.	Normal rainfall for period, 1st March to 31st May.	Variation from normal of period 1st March to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Districts.
3	1	...	...	...	3	11	9	4	4·1	4·4	− 7	71	·832	2·5	11	8·64	+ 2·36	5·63	5·20	+ 0·43	6·89	7·66	− 0·77	1·08	Salem	Madras (South Central).	34
...	...	...	...	...	4	23	3	1	3·3	5·3	− 38	80	·843	3·6	5	6·45	− 1·45	2·08	2·61	− 0·53	3·13	4·91	− 1·78	0·64	Coimbatore.		
18	2	...	...	...	...	...	...	11	3·9	5·3	− 26	85	·643	6·5	9	10·00	− 1·00	5·94	6·59	− 0·65	6·07	10·18	− 4·11	1·46	Mercara	Coorg.	35
2	1	...	...	...	...	14	12	2	10·8	?	?	68	·671	5·2	3	?	?	1·08	?	?	2·96	5·13	− 2·17	0·73	Chitaldroog	Mysore.	36
...	1	...	...	...	1	10	14	5	8·3	5·5	+ 51	70	·660	3·3	7	7·55	− 0·55	6·84	4·02	+ 2·82	7·54	5·71	− 0·17	3·70	Bangalore.		
...	...	...	...	...	...	6	18	7	4·4	?	?	72	·641	5·3	5	?	?	2·79	?	?	5·35	6·71	− 1·36	0·73	Hassan.		
...	1	...	1	...	2	11	14	2	10·8	?	?	71	·682	5·6	5	?	?	4·43	?	?	7·47	8·66	− 1·19	1·36	Mysore.		
...	...	...	...	1	8	21	4	2	9·8	7·4	+ 32	68	·910	2·7	0	2·18	− 2·18	0	1·94	− 1·94	0·22	2·83	− 2·61	0	Negapatam	Madras (East Coast, South).	56
...	1	...	...	1	12	14	3	...	2·1	?	?	71	·934	0·7	0	1·50	− 1·50	0	?	?	0·43	2·66	− 2·23	0	Cuddalore.		
3	...	...	1	...	...	5	17	5	5·4	6·0	− 10	66	·808	4·3	4	3·91	+ 0·09	4·62	3·04	+ 1·58	5·92	5·12	+ 0·80	1·86	Trichinopoly.		
...	...	...	...	...	19	6	5	1	9·4	9·2	+ 2	67	·893	4·1	1	1·45	− 0·45	0·18	2·12	− 1·94	0·31	3·13	− 2·82	0·18	Madras.		
7	...	...	...	8	7	2	2	5	8·2	?	?	65	·919	5·4	1	2·10	− 1·10	1·07	?	?	1·07	1·55	− 0·48	1·05	Nellore	Madras (East Coast, Central).	55
...	1	...	...	7	12	4	4	3	10·6	8·9	+ 19	81	1·099	4·9	2	2·73	− 0·73	0·97	1·55	− 0·58	1·78	1·82	− 0·04	0·85	Masulipatam		
...	...	3	1	...	...	4	9	14	?	?	?	52	·768	3·7	3	3·40	− 0·40	1·22	1·60	− 0·38	1·30	2·04	− 0·74	0·67	Cuddapah	Madras (Central)	54
4	...	...	2	...	1	2	17	5	?	?	?	52	·665	3·7	3	2·67	+ 0·33	0·83	1·16	− 0·33	2·05	2·35	− 0·30	0·29	Kurnool.		
4	...	1	1	1	...	...	13	11	8·1	8·4	− 4	36	·456	5·3	2	3·36	− 1·36	1·07	1·70	− 0·63	1·14	2·50	− 1·36	0·94	Bellary.		
5	6	...	...	1	13	4	2	...	?	?	?	70	·907	6·2	5	4·20	+ 0·80	3·50	2·75	+ 0·75	6·14	3·69	+ 2·45	1·30	Rajahmundry	Madras (East Coast, North).	52
...	2	1	...	1	5	17	5	...	8·1	?	?	71	·945	3·1	4	3·60	+ 0·40	0·83	1·22	− 0·39	4·09	1·96	+ 2·13	0·28	Cocanada.		
6	...	...	...	1	...	12	9	3	3·2	3·8	− 16	71	·966	5·5	6	4·36	+ 1·64	4·14	2·62	+ 1·52	5·61	3·50	+ 2·11	2·15	Vizagapatam.		
...	2	...	1	...	6	22	...	...	23·4	13·3	+ 76	78	·978	1·6	2	3·44	− 1·44	0·47	2·35	− 1·88	1·56	3·80	− 2·24	0·33	Gopalpur.		
																									XII.—Hill Stations.		
...	2	...	...	1	...	3	18	7	10·4	?	?	22	·274	0·6	0	?	?	0	?	?	1·89	1·86	+ 0·03	0	Sharigh	Baluchistan.	48
			Not	rec	orde	d.			?	?	?	?	?	?	0	?	?	0	?	?	0	2·74	− 2·74	0	Pishin.		
28	1	...	1	...	...	...	...	1	3·4	4·7	− 28	49	·382	1·0	0	1·18	− 1·18	0·04	0·41	− 0·37	3·69	3·31	+ 0·38	0·04	Quetta.		
...	2	1	1	...	15	3	8	1	?	?	?	38	·311	0·9	0	?	?	0·03	?	?	1·31	2·22	− 0·91	0·03	Kalat.		
...	...	3	4	8	6	6	1	3	9·0	?	?	26	·276	0·3	0	?	?	0	?	?	1·96	2·36	− 0·40	0	Chaman.		
...	...	4	2	2	13	4	3	3	3·4	?	?	57	·138	6·6	6	?	?	2·17	?	?	2·99	0·60	+ 2·39	0·65	Leh	Punjab.	30
5	3	3	4	7	7	...	1	1	6·9	?	?	90	·451	5·0	10	?	?	4·53	?	?	15·15	?	?	0·88	Srinagar.		
18	...	4	1	...	...	2	5	1	4·7	?	?	70	·291	5·0	7	?	?	3·26	?	?	6·12	?	?	1·42	Skardu (Kashmir).		
31	...	...	...	...	...	...	...	...	1·0	?	?	87	·213	5·9	15	?	?	9·20	?	?	19·32	?	?	1·80	Dras.		
			Not	rec	orde	d.			?	?	?	47	·292	4·5	2	?	?	0·59	?	?	2·13	?	?	0·28	Gilgit.		
1	7	8	4	4	4	1	...	2	?	?	?	43	·289	1·0	2	?	?	0·67	?	?	9·52	?	?	0·33	Chitral.		
...	2	...	8	...	1	9	10	1	?	?	?	36	·261	2·1	2	?	?	0·81	?	?	0·81(a)	?	?	0·61	Killa Dras.		
5	14	2	...	...	1	...	...	9	13·1	?	?	35	·285	1·8	3	?	?	1·13	?	?	9·37	?	?	0·41	Cherat.		
4	10	4	2	5	2	...	...	4	7·7	8·3	− 7	36	·236	3·8	4	5·55	− 1·55	2·79	3·50	− 0·71	13·58	10·55	+ 3·03	1·30	Murree.		
17	1	2	3	...	1	3	2	2	?	?	?	?	?	4·0	8	?	?	3·56	?	?	13·34	?	?	0·78	Poo.		
10	9	3	2	1	3	1	...	...	6·2	2·9	+ 114	36	·228	2·5	3	6·18	− 3·18	0·95	3·64	− 2·69	4·87	7·78	− 2·91	0·54	Simla.		
11	13	3	...	...	3	...	...	1	11·3	6·0	+ 88	39	·235	2·4	3	?	?	1·19	2·62	− 1·43	7·72	6·49	+ 1·23	0·59	Chakrata	North-Western Provinces.	25
...	3	3	11	1	...	...	3	10	?	12·3	?	41	·265	2·4	3	4·55	− 1·55	1·82	?	?	5·11	6·51	− 1·40	1·17	Mussooree.		
13	2	4	4	...	1	2	4	1	4·0	3·3	+ 21	45	·322	1·1	4	6·00	− 2·00	1·16	2·71	− 1·55	4·90	6·06	− 1·16	0·55	Ranikhet.		
...	...	7	1	7	1	4	...	11	1·2	?	?	40	·242	1·2	3	?	?	0·85	?	?	4·16	?	?	0·42	Maktesar.		
...	...	...	Not	rec	orde	d.	...	...	?	?	?	?	?	?	15	?	?	5·96	?	?	12·39	?	?	0·90	Yatung	Bengal.	13

(a) For the month of May only.

Table

Abstract of Observations taken at 8 A.M. at 212 Stations

Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal of month.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
Bengal—*contd.*	Darjeeling	7,421	22·958	+·016	?	23·035	14th	22·859	7th	·176	57·8	65·4	+2·7	52·0	+1·3	58·6	+2·0	13·4	72·1	11th	45·7	2nd	26·4
	Gantok	5,660?			Not recorded.						63·4	72·8	?	47·8	?	60·3	?	25·0	81·6	15th	42·0	10th	39·6
Central India	Mount Abu	3,945	25·977	+·002	?	26·040	25th	25·919	20th	·121	81·7	90·3	+1·7	73·8	+2·9	82·1	+2·3	16·5	95·2	3rd	62·9	7th	32·3
	Pachmarhi	3,528	26·375	+·015	?	26·427	26th	26·329	5th	·098	85·0	98·2	+3·6	77·5	+2·9	87·9	+3·3	20·7	103·7	29th	66·2	3rd	37·5
South India	Wellington	6,200	24·231	−·005	?	24·267	15th	24·199	29th	·068	69·0	77·2	+1·6	58·2	−0·1	67·7	+0·8	19·0	81·7	18th	54·8	2nd	27·1
XIII.—Extra India.																							
Ceylon	Trincomalee	12	29·826	?	29·764	29·873	15th	29·766	7th	·107	83·8	93·4	?	79·8	?	86·6	?	13·6	97·5	22nd	77·0	3rd & 4th.	20·5
	Colombo	40	29·846	−·008	29·812	29·907	15th	29·778	7th	·129	83·7	89·7	?	79·6	?	84·7	?	10·1	92·0	1st & 6th.	75·0	26th	17·0
Persia	Meshed	3,104			Not recorded.						69·2	?	?	58·4	?	?	?	?	?	...	44·9	6th	?
	Teheran	?	*25·933 *25·439	?	?	26·075 25·580	11th 11th	25·800 25·340	27th 27th	·275 ·240	73·5	85·0	?	60·7	?	72·8	?	24·3	96·7	23rd	47·1	5th	49·6
	Ispahan	?	*24·415 *24·721	?	?	24·540 24·840	11th 5th	24·320 24·620	28th 28th	·220 ·220	71·3	86·5	?	55·6	?	71·0	?	30·9	94·0	24th	47·3	4th	46·7
	Bushire	14	29·7	+·011	29·748	29·965	3rd	29·662	21st	·303	82·3	89·4	−0·4	76·3	+1·0	82·9	+0·3	13·1	102·5	2nd	57·7	3rd	44·8
	Jask	?	29·729	?	29·681	29·848	9th	29·637	5th	·211	85·9	93·4	?	79·0	?	86·2	?	14·4	102·2	22nd	72·7	10th	29·5
Arabia	Muscat	20	29·737	?	29·704	29·841	11th	29·646	25th	·195	80·6	93·6	?	83·9	?	88·7	?	9·7	99·1	16th & 26th.	79·1	23rd	20·0
	Baghdad	220?	29·715	+·003	29·910	29·957	3rd	29·590	26th	·367	77·0	92·7	+1·2	63·3	+0·3	80·5	+0·8	22·4	101·6	22nd	53·4	3rd	48·2
	Aden	94	29·777	+·007	29·802	29·849	17th	29·719	31st	·130	85·5	93·8	+0·1	81·9	+1·2	87·9	+0·7	11·9	102·3	9th	77·8	6th & 18th.	24·5
	Perim	?	29·651	?	?	29·712	4th	29·586	9th	·126	86·3	92·0	?	81·5	?	86·8	?	10·5	94·5	12th	72·2	28th	22·3
Afghanistan	Kabul	?			Not recorded.						64·5	80·6	?	52·4	?	66·5	?	28·2	90·1	28th	46·4	23rd	43·7
Central Asia	Kashgar	?	†25·557	?	?	25·792	14th	25·296	31st	·496	64·8	77·9	?	55·6	?	66·7	?	22·3	97·5	30th	39·3	15th	58·2
Africa	Zanzibar	73½	30·028	?	30·028	30·065	28th & 29th.	29·993	19th	·072	78·3	83·4	?	76·3	?	79·8	?	7·1	86·0	5th & 12th.	71·1	25th	14·9

NOTE.—When a query is inserted against any reading or in the variation returns for any stations, the data for that station are not utilized in calculating the Provincial variations.

* Aneroid uncorrected. † Aneroid corrected.

I —*concluded.*

in India, Burma, etc., in May, 1897—concluded.

Wind Direction. Number of winds from									Wind Velocity.			Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.											
Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean velocity in miles per hour.	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 March to 31st May 1897.	Normal rainfall for period, from 1st March to 31st May.	Variation from normal of period, 1st March to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
3	...	3	5	2	...	7	11	...	8·7	6·2	+ 40	85	·410	5·1	13	13·56	−0·56	5·41	8·50	−3·09	10·97	14·76	−3·79	0·93	Darjeeling.	Bengal—*contd.*
12	1	2	1	1	1	...	6	6	3·4	?	?	81	·474	?	24	?	?	33·88	?	?	46·40	?	?	4·15	Gantok.	
...	...	1	...	...	2	23	2	3	12·9	9·4	+ 37	31	·329	0·1	0	1·45	−1·45	0	1·18	− 1·18	0·08	1·36	−1·28	0	Mount Abu	Central India.
3	...	...	...	1	...	6	14	7	13·7	6·8	+101	38	·461	2·0	0	2·09	−2·09	0·06	0·66	− 0·60	0·15	1·21	−1·06	0·06	Pachmarhi.	
17	9	1	...	2	...	...	1	1	4·0	3·0	+ 33	67	·473	3·8	10	8·48	+1·52	4·49	3·95	+ 0·54	11·54	9·54	+2·00	1·00	Wellington.	South India.
																									XIII.—Extra India.	
...	...	...	...	...	...	31	...	...	6·4	?	?	81	·939	2·8	4	?	?	1·37	2·46	−1·09	6·68	5·42	+1·26	0·48	Trincomalee	Ceylon.
...	...	...	...	5	6	13	6	1	11·1	8·5	+31	82	·955	6·2	10	?	?	7·35	11·79	−4·44	21·98	28·76	−6·78	2·33	Colombo.	
						Not recorded.			?	?	?	65	·462	4·3	4	?	?	1·45	?	?	6·64	?	?	0·80	Meshed	Persia.
20	1	1	1	...	3	2	3	...	4.5	?	?	?	?	2·4	1	?	?	0·35	?	?	4·01	?	?	0·16	Teheran.	
1	5	3	...	...	...	5	6	11	4·9	?	?	62	·475	1·9	0	?	?	0	?	?	1·49	?	?	0	Ispahan.	
...	4	1	1	...	...	1	1	23	10·0	8·9	+12	69	·766	2·1	0	?	?	0	?	?	0·37	1·47	−1·10	0	Bushire.	
...	3	...	11	1	3	...	4	8	6·0	?	?	68	·852	0·7	0	?	?	0	?	?	0·12	?	?	0	Jask.	
...	2	2	2	3	3	2	6	11	4·3	?	?	56	·776	0	0	?	?	0	?	?	0·03	1·14	−1·11	0	Muscat.	Arabia.
13	7	5	2	...	1	...	1	2	3·1	?	?	62	·579	0	0	?	?	0·27	?	?	1·37	3·38	−2·01	0·08	Baghdad.	
2	1	3	19	3	...	3	...	...	10·2	10·6	− 4	75	·915	3·8	1	?	?	0·16	0·21	−0·05	0·16	2·03	−1·87	0·16	Aden.	
4	..	...	14	4	3	...	3	1	16·0	?	?	78	·973	4·7	0	?	?	0	?	?	0	0·31	?	0	Perim.	
...	4	...	12	...	4	1	7	3	?	?	?	47	·285	0	1	?	?	0·32	?	?	9·12	?	?	0·10	Kabul	Afghanistan.
28	...	1	...	...	...	...	1	...	3·6	?	?	51	·309	4·1	1	?	?	0·28	?	?	?	?	?	0·16	Kashgar	Central Asia.
...	...	...	...	2	17	12	...	...	6·5	?	?	86	·833	4·9	12	?	?	12·21	?	?	40·35	25·83	+14·52	3·41	Zanziba	Africa.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 85

Meteorological Province.	Station.	Elevation of barometer above sea-level in feet.	Pressure. Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
Burma Coast and Bay Islands.	Port Blair	...	29·821	29·728	·093	29·773	+ ·020	29·764	88·2	79·1	9·1	96·2	74·8	21·4	85·9	84·5	82·4	+ 0·2	76·8	81·0	80·0	79·3
	Rangoon	...	·816	·699	·117	·762	+ ·007	·739	90·8	77·2	13·6	102·2	73·8	28·4	85·0	84·4	81·5	− 1·0	75·3	79·1	79·8	78·1
	Diamond Island	...	·821	·724	·097	·771	+ ·005	·746	87·9	79·9	8·0	93·5	74·4	19·1	85·1	84·2	82·7	0	77·0	79·2	78·5	78·2
	Cocos Island	111	·785	·702	·083	742	+ ·085	·783	90·7	79·7	11·0	95·6	72·9	22·7	87·2	86·4	83·8	− 1·7	75·8	80·8	80·0	78·9
	Akyab	...	·814	·708	·106	·765	+ ·007	·727	91·0	78·5	12·5	94·6	70·5	24·1	88·2	89·1	84·2	+ 1·0	75·6	83·5?	84·1?	81·1?
Assam.	Silchar	...	·715	·588	·127	·652	+ ·006	·707	89·1	72·3	16·8	95·0	65·7	29·3	81·5	85·7	79·6	+ 0·1	70·8	76·0	77·1	74·6
	Sibsagar	...	·484	·366	·118	·424	+ ·008	·714	83·2	70·9	12·3	93·2	67·2	26·0	77·3	82·2	76·3	− 1·2	70·6	74·1	75·9	73·5
	Dhubri	...	·668	·538	·130	·598	0	·668	84·5	72·3	12·2	93·1	66·2	26·9	77·9	83·8	76·8	− 0·6	70·3	74·0	77·0	73·8
Bengal and Orissa.	Chittagong	...	·714	·607	·107	·662	− ·007	·695	92·6	77·9	14·7	98·2	69·1	29·1	88·5	88·5	84·1	+ 3·1	75·8	80·5	80·5	78·9
	Narayangunge	...	·743	·626	·117	·687	+ ·001	·660	92·5	77·3	15·2	95·9	71·2	24·7	87·3	89·1	84·3	+ 1·7	73·8	80·8	80·5	78·4
	Calcutta (Allpore)	...	·713	·596	·117	·656	− ·002	·621	95·6	79·0	16·6	104·6	70·2	34·4	89·9	93·2	87·1	+ 1·7	75·1	80·7	80·3	78·7
	Saugor Island	...	·714	·605	·109	·662	− ·005	·630	93·1	82·2	10·9	95·7	73·9	21·8	89·8	90·1	83·6	+ 1·4	78·2	83·1	83·1	81·5
	Burdwan	...	·622	·483	·139	·556	− ·012	·599	99·7	77·9	21·8	110·7	70·8	39·9	89·9	97·2	87·3	+ 1·1	73·9	80·9	81·9	78·9
	Berhampore	...	·658	·523	·135	·594	− ·005	·607	97·5	77·2	20·3	104·9	72·1	32·8	88·9	95·4	86·0	+ 0·1	72·1	80·2	80·3	77·5
	False Point	...	·733	·622	·111	·680	− ·004	·642	91·2	81·5	9·7	92·5	69·6	22·9	89·1	88·8	85·5	+ 1·5	78·8	82·9	82·6	81·4
	Cuttack	...	·646	·516	·130	·591	− ·011	·610	101·8	82·5	19·3	108·3	73·2	35·1	98·1	98·6	90·0	+ 2·1	77·2	80·5	80·5	79·4
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·708	27·600	·108	27·658	− ·025	·528	103·6	77·7	25·9	110·6	62·3	48·3	94·7	100·2	89·7	+ 4·1	66·0	71·1	70·8	69·3
	Patna	...	29·499	29·367	·132	29·431	− ·030	·560	102·3	78·1	24·2	111·1	66·1	45·0	92·9	100·6	89·4	+ 1·9	72·2	78·8	79·7	76·9
	Darbhanga	...	·550	·416	·134	·482	− ·017	·596	95·4	77·0	18·4	105·0	66·2	38·8	88·4	95·1	85·7	+ 1·1	72·2	77·4	78·8	78·1
	Allahabad	...	·349	·224	·125	·286	− ·031	·534	111·3	82·7	28·6	117·0	72·5	44·5	102·1	109·9	97·1	+ 4·7	67·9	76·9	80·5	75·1
	Lucknow	...	·303	·174	·129	·235	− ·028	·545	109·4	80·1	29·3	117·0	73·3	43·7	98·5	106·7	94·7	+ 3·6	67·5	74·6	75·2	72·4
Upper Sub-Himalayas.	Dehra Dun	...	27·491	27·397	·094	27·434	− ·026	·546	99·1	72·3	26·8	106·5	63·5	43·0	89·7	95·0	86·8	+ 2·4	59·8	66·2	67·0	64·3
	Roorkee	...	28·771	28·663	·108	28·711	− ·023	·528	105·7	76·5	29·2	113·0	68·2	44·8	96·8	103·2	90·8	+ 2·9	64·3	70·1	70·9	68·4
	Meerut	...	·928	·814	·114	·863	− ·015	·537	105·8	77·0	28·8	111·5	68·9	42·6	97·3	103·1	91·0	+ 2·5	65·8	72·1	72·5	70·1
	Lahore	...	·932	·848	·084	·883	− ·024	·526	104·8	77·2	27·6	112·1	67·3	44·8	95·1	103·7	91·0	+ 3·6	63·8	71·5	73·2	69·5
	Ludhiana	...	·825	·736	·089	·774	− ·028	·521	106·5	78·7	27·8	113·9	71·3	42·6	97·1	102·8	92·0	+ 4·1	64·0	69·7	70·6	68·1
Indus Valley and N.-W. Rajputana.	Peshawar	...	·611	·519	·092	·558	+ ·015	·623	98·0	69·4	28·6	106·5	60·0	46·5	90·6	95·1	83·3	− 0·1	59·7	67·6	69·6	65·6
	Mooltan	...	29·220	29·113	·107	29·160	− ·021	·529	110·4	80·5	29·9	115·5	73·0	42·5	98·5	108·4	95·3	+ 4·4	64·8	72·4	74·6	70·6
	Jacobabad	...	·448	·327	·121	·380	− ·028	·514	114·5	81·3	33·2	119·2	72·9	46·3	103·9	113·3	97·9	+ 3·7	66·4	74·2	77·2	72·6
	Kurrachee	...	·741	·659	·082	·699	+ ·005	·661	91·6	79·6	12·0	94·7	74·9	19·8	88·4	88·5	83·9	− 0·1	76·7	80·8	81·7	79·7
E. Rajputana, Central India, and Gujarat.	Jeypore	...	28·290	28·176	·114	28·232	− ·013	·559	109·8	79·5	30·3	114·5	71·8	42·7	99·1	106·2	93·9	+ 3·3	65·0	74·2	74·3	71·2
	Ajmere	...	·119	·013	·106	·064	− ·019	·568	106·9	83·0	23·9	110·3	67·9	42·5	97·5	105·2	94·5	+ 4·4	68·9	74·5	76·7	73·4
	Deesa	...	29·295	29·157	·138	29·225	− ·009	·627	109·2	77·3	31·9	113·4	74·1	39·3	93·0	108·1	92·7	+ 1·5	70·1	75·8	74·5	73·5
	Nowgong	...	28·926	28·815	·111	28·871	− ·016	·544	110·5	83·1	27·4	115·0	74·0	41·0	102·8	109·0	96·8	+ 3·8	65·8	72·4	72·7	70·3
	Agra	...	29·112	·987	·125	29·041	− ·033	·531	108·7	83·7	25·0	114·0	75·9	38·1	99·2	106·0	95·9	+ 2·9	69·1?	77·4?	79·9?	75·5?
Deccan.	Belgaum	...	27·348	27·236	·112	27·296	− ·003	·676	97·1	68·1	29·0	104·1	65·2	38·9	86·9	88·4	79·2	+ 1·5	65·2	68·9	73·9	69·3
	Sholapur	...	28·226	28·073	·153	28·151	− ·001	·620	107·9	77·4	30·5	112·1	72·0	40·1	96·1	104·5	91·4	+ 2·2	66·2	69·7	69·6	68·6
	Poona	...	·007	27·898	·109	27·960	+ ·011	·678	103·1	71·8	31·3	108·4	66·4	42·0	93·4	98·7	86·6	+ 2·2	64·4	68·7	70·5	67·9
	Akola	...	·842	28·692	·150	28·766	+ ·007	·606	111·1	83·1	28·0	114·3	72·2	42·1	100·5	109·9	97·1	+ 3·3	68·4?	77·3?	78·9?	74·9?
	Buldana	2,132	27·693	27·569	·124	27·630	+ ·012	·612	104·5	79·8	24·7	108·2	72·4	35·8	93·9	102·5	92·0	+ 3·3	62·3	68·2	67·1	65·9
	Khandwa	...	28·733	28·590	·143	28·661	+ ·012	·616	109·9	83·9	26·0	113·2	71·1	42·1	98·2	108·6	96·5	+ 4·0	65·9	71·9	70·4	69·4

II.

Stations in India, Burma, etc., for May, 1897.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from											Wind steadiness.		Velocity.		Rainfall.			
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.	Station.	Meteorological Province.
																									%	%						
·892	·996	·967	·952	+·015	90	81	81	84	+1	6·7	7·4	7·1	+0·4	...	2	2	2	8	7	14	22	5	S. 60° W.	S. 38° W.	50	41	113	171	...	...	Port Blair	Burma Coast and Bay Islands.
·855	·918	·961	·911	+·041	91	77	82	63	+5	7·5	8·6	8·1	+1·2	...	2	3	2	8	19	16	9	3	S. 23° W.	S. 21° W.	52	58	87	113	...	...	Rangoon	
·893	·918	·896	·902	+·011	87	76	77	80	+6	7·5	8·1	7·8	+1·5	...	1	2	1	5	5	24	14	10	S. 63° W.	S. 72° W.	58	47	215*	177	...	...	Diamond Island,	
·839	·970	·943	·917	+·027	83	75	75	78	−3	7·0	6·6	6·8	+0·3	...	2	3	3	5	13	17	9	8	S. 44° W.	S. 51° W.	43	58	?	?	12·71	5·52	Cocos Island	
·851	1·085?	1·103?	1·013?	+·115?	87	81?	80?	83?	+5?	7·4	6·8	7·1	+1·6	...	1	7	6	8	7	18	11	4	S. 31° W.	S. 24° W.	31	30	73	89	...	...	Akyab	
·740	·828	·821	·796	−·002	93	78	68	80	0	7·1	5·9	6·5	+0·1	35	3	3	5	2	...	2	5	7	N. 20° W.	N. 72° E.	13	10	74*	77	...	...	Silchar	Assam.
·749	·802	·812	·788	−·006	99	86	75	87	+4	8·1	7·5	7·8	+0·3	6	1	38	5	3	1	8	...	...	N. 56° E.	N. 58° E.	55	38	136*	67	...	...	Sibsagar	
·718	·798	·839	·783	−·008	90	83	73	82	+1	7·1	4·4	5·8	+0·5	3	3	25	14	7	2	6	1	1	N. 71° E.	N. 72° E.	52	27	222*	175	...	...	Dhubri	
·869	·920	·935	·908	+·037	91	67	69	76	−4	5·9	4·2	5·1	−0·3	...	1	...	2	5	19	25	8	2	S. 30° W.	S. 1° E	69	42	207*	150	...	...	Chittagong	Bengal and Orissa.
·794	·969	·932	·898	+·015	84	75	68	76	−4	6·0	5·2	5·6	0	...	2	3	2	14	27	8	4	2	S. 4° E.	S. 18° E.	60	61	212	157	...	...	Narayan-gunge,	
·827	·929	·868	·875	−·008	83	66	56	68	−6	4·9	2·7	3·8	−0·5	...	1	3	2	2	36	16	2	...	S. 10° W.	S. 7° E.	75	65	203	172	...	...	Calcutta (Alipore).	
·917	1·046	1·043	1·002	+·015	83	74	73	77	−3	6·7	5·7	6·2	+0·4	...	1	1	...	10	42	8	...	...	S. 2° E.	S. 8° W.	85	73	550	394	...	...	Saugor Island,	
·791	·938	·858	·862	+·049	82	67	50	66	0	2·8	3·5	3·2	−1·0	3	1	...	3	11	28	11	3	2	S. 20° W.	S. 5° E.	66	52	150*	141	...	...	Burdwan,	
·727	·920	·841	·829	+·018	78	67	52	66	−5	3·5	4·0	3·8	−1·4	5	...	2	11	9	23	8	3	1	S. 16° E.	S. 33° E.	55	39	131*	129	...	...	Berhampore	
·959	1·045	1·033	1·012	+·042	88	76	76	80	−2	5·4	4·3	4·9	+0·1	...	1	...	1	2	42	16	...	...	S. 9° W.	S. 23° W.	89	73	384*	338	...	...	False Point	
·876	·874	·802	·851	+·014	79	56	44	60	−4	3·7	3·7	3·7	−0·2	...	2	1	1	6	21	27	4	...	S. 22° W.	S. 13° W.	72	50	162	125	...	...	Cuttack	
·499	·470	·387	·452	−·015	54	31	22	36	−4	1·4	4·7	3·1	−0·5	...	13	1	5	4	6	10	6	17	N. 60° W.	S. 83° W.	31	15	251	222	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·720	·798	·729	·749	+·056	75	52	39	55	0	1·0	1·2	1·1	−1·4	...	...	19	34	1	...	...	4	4	N. 69° E.	N. 57° E.	71	42	181*	129	...	...	Patna	
·735	·799	·770	·768	+·003	79	60	48	62	0	2·2	0·4	1·3	−0·7	...	...	5	29	22	2	...	2	2	S. 74° E.	S. 82° E.	74	60	190	152	...	...	Darbhanga	
·488	·590	·634	·571	+·045	44	29	25	33	−4	0·4	1·0	0·7	−0·9	3	8	6	8	3	1	2	14	17	N. 34° W.	N. 3° W.	38	24	187*	115	...	...	Allahabad	
·513	·541	·459	·504	−·034	50	30	21	34	−6	2·9	2·9	2·9	+1·0	6	5	7	11	2	5	3	11	12	N. 23° W.	N. 25° W.	18	16	72*	100	...	...	Lucknow	
·365	·352	·313	·343	−·064	46	26	20	31	−8	1·7	3·2	2·5	−0·2	4	11	4	4	4	4	11	13	5	N. 79° W.	S. 80° W.	25	25	43	54	...	...	Dehra Dun	Upper Sub-Himalayas.
·448	·381	·328	·386	−·042	49	23	17	30	−5	1·0	2·4	1·7	+0·1	19	...	2	4	9	4	8	3	13	S. 48° W.	S. 53° W.	13	11	60	90	...	...	Roorkee	
·493	·453	·393	·446	−·048	53	26	19	33	−7	1·6	1·8	1·7	0	22	...	2	5	10	...	5	11	7	S. 54° W.	N. 54° W.	11	22	55*	64	...	...	Meerut	
·420	·457	·411	·429	−·012	45	28	20	31	−2	2·1	2·4	2·3	+0·1	5	18	3	14	2	5	...	8	7	N. 14° E.	N. 11° E.	31	17	74	79	...	...	Lahore	
·405	·360	·319	·361	−·134?	42	21	16	26	−15?	0·6	1·9	1·3	−0·8	11	5	10	...	17	1	4	2	12	N. 50° E.	N. 61° W.	11	11	74	58	...	...	Ludhiana	
·398	·393	·408	·400	−·023	57	29	27	38	−1	2·2	4·6	3·4	+0·5	12	8	10	12	1	2	5	4	8	N. 24° E.	N. 17° E.	26	29	113*	116	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·407	·446	·405	·419	−·173?	39	25	17	27	−15?	1·0	1·1	1·1	+0·1	17	1	24	2	10	...	2	...	6	N. 56° E.	N. 85° W.	40	15	47*	65	...	...	Mooltan	
·458	·451	·452	·454	+·006	43	22	16	27	−3	1·0	1·6	1·3	+0·2	14	2	2	12	9	4	3	5	11	S. 75° E.	S. 40° E.	8	10	136*	112	..	...	Jacobabad	
·881	·950	·989	·940	+·051	87	71	73	77	+4	1·4	2·5	2·0	−0·1	...	...	...	...	...	1	32	28	1	S. 66° W.	S. 66° W.	91	86	396*	407	...	...	Kurrachee	
·443	·525	·447	·475	+·039	43	28	19	30	−2	0·6	3·2	1·9	−0·3	...	3	1	...	1	3	24	27	3	S. 72° W.	N. 66° W.	76	49	146	156	...	...	Jeypore	East Rajputana, Central India and Gujarat.
·541	·572	·562	·558	+·031	47	32	25	35	−3	0·4	1·4	0·9	−0·7	...	...	...	1	1	...	7	48	5	S. 88° W.	S. 76° W.	89	66	260	204	...	...	Ajmere	
·646	·663	·406	·572	+·006	69	43	17	43	+3	0·1	0·1	0·1	−1·4	...	...	...	...	...	1	23	33	5	S. 75° W.	S. 60° W.	88	68	349	325	...	...	Deesa	
·409	·388	·317	·371	−·049	36	19	13	23	−8	2·0	4·1	3·1	+0·1	...	4	2	2	...	4	4	37	9	N. 84° W.	N. 73° W.	69	53	108*	88	...	...	Nowgong	
·526?	·652?	·679?	·619?	+·167?	45?	35?	30?	37?	+6?	0·7	1·3	1·0	−0·3	...	...	8	...	7	...	17	1	29	N. 69° W.	N. 72° W.	40	37	173*	145	...	...	Agra	
·587	·485	·656	·576	−·019	85	39	49	58	−3	1·7	2·4	2·1	−1·5	...	16	7	4	2	1	1	7	21	N. 21° W.	S. 88° W.	59	60	427	424	...	...	Belgaum	Deccan.
·509	·397	·295	·400	−·071	54	23	14	31	−6	2·0	5·9	4·0	−0·1	1	17	3	...	1	1	3	1	35	N. 32° W.	N. 49° W.	76	55	302*	155	...	...	Sholapur	
·517	·396	·396	·436	−·072	66	26	22	38	−6	1·8	2·2	2·0	−1·0	...	...	...	1	1	...	6	41	13	N. 85° W.	N. 74° W.	85	78	422*	342	...	...	Poona	
·500?	·627?	·572?	·566?	+·158?	44?	32?	22?	33?	+5?	1·7	3·5	2·6	+0·2	...	6	..	...	...	1	1	9	45	N. 49° W.	N. 50° W.	89	75	255	224	...	...	Akola	
·345	·372	·223	·313	−·112	34	23	11	23	−11	1·1	2·1	1·6	−0·9	2	4	1	...	...	1	...	26	28	N. 62° W.	N. 49° W.	82	69	281	286	0·22	0·22	Buldana	
·417	·456	·266	·380	−·086	36	25	10	24	−9	0·7	1·7	1·2	−0·9	...	1	4	...	...	...	2	20	35	N. 58° W.	N. 62° W.	82	72	264	241	...	...	Khandwa	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 85

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature Wet-bulb. Mean minimum.	Temperature Wet-bulb. Mean 10 hours.	Temperature Wet-bulb. Mean 16 hours.	Temperature Wet-bulb. Mean daily.
Deccan—*concld.*	Hoshangabad	...	28·737	28·589	·148	28·662	−·009	29·579	110·7	82·0	28·7	114·4	73·3	41·1	100·7	109·3	95·9	+ 2·7	64·2	75·8	76·3	72·1
	Nagpur	...	·705	·564	·141	·634	+·002	·565	112·4	83·4	29·0	117·0	68·6	48·4	101·8	107·8	97·1	+ 2·5	65·4	72·5	72·5	70·1
	Nagpur (Sanitary Commissioner's Office).	...	·715	·579	·136	·646	?	·566	112·7	85·3	27·4	116·8	69·6	47·2	103·3	109·7	98·2	?	67·4	72·5	73·6	71·2
	Jubbulpore	...	·402	·271	·131	·336	−·002	·556	108·3	80·2	28·1	112·2	67·7	44·5	100·2	106·3	93·7	+2·6	66·1	71·4	71·5	69·7
	Saugor	...	27·931	27·804	·127	27·867	−·012	·534	107·3	81·6	25·7	111·1	70·4	40·7	99·6	104·8	93·7	+3·7	69·8	?	?	?
	Sutna	...	28·638	28·519	·119	28·579	−·017	·528	109·2	83·3	25·9	113·6	69·6	44·0	102·9	107·6	96·1	+4·5	64·6	71·9	71·2	69·2
	Raipur	...	·746	·599	·147	·672	−·007	·533	110·0	83·8	26·2	115·6	68·3	47·3	100·8	107·6	96·6	+2·7	67·1	71·2	71·0	69·8
	Hyderabad (Deccan).	...	·110	27·977	·133	·044	−·003	·605	106·7	81·8	24·9	112·2	72·4	39·8	96·2	103·8	93·6	+2·5	70·4	76·2	75·8	74·1
West Coast.	Bombay	...	29·837	29·740	·097	29·787	+·018	·763	90·7	80·7	10·0	93·3	77·8	15·5	86·8	87·6	84·8	+0·1	76·1	78·9	79·7	78·2
	Ratnagiri	...	·762	·671	·091	·714	+·020	·761	91·5	80·8	10·7	92·8	78·6	14·2	88·4	88·6	85·3	+0·9	75·3	78·7	79·3	77·8
	Karwar	...	·842	·747	·095	·792	+·013	·767	90·1	80·7	9·4	91·6	74·0	17·6	87·5	87·9	84·7	+0·8	76·0	78·0	78·2	77·4
	Cochin	...	·881	·801	·080	·839	+·001	·776	91·1	79·6	11·5	93·9	72·2	21·7	86·7	89·1	84·8	+2·2	76·7	80·0	80·8	79·2
	Salem	...	28·921	28·781	·140	28·863	−·012	·720	99·3	76·7	22·6	103·5	71·5	32·0	89·3	93·8	85·2	+0·3	73·8	78·2	78·6	76·9
South India.	Mercara	...	26·218	26·127	·091	26·185	+·003	?	81·5	65·8	15·7	86·4	61·5	24·9	76·3	75·7	72·2	+0·9	64·5	68·9	70·0	67·8
	Chitaldroog	...	27·478	27·341	·137	27·411	−·011	·669	97·3	72·8	24·5	103·0	66·4	36·6	85·8	95·6	84·6	+3·3	67·1	71·7	70·2	69·7
	Bangalore	...	26·899	26·773	·126	26·843	−·002	·680	94·7	70·8	23·9	100·8	66·3	34·5	84·4	90·0	81·6	+3·0	66·2	71·1	70·2	69·2
	Hassan	...	·846	·740	·106	·800	−·011	·716	90·9	68·2	22·7	96·6	64·5	32·1	83·1	86·3	78·4	+3·0	66·0	70·1	70·6	68·9
	Mysore	...	27·393	27·261	·132	27·327	−·015	·705	94·4	70·9	23·5	99·2	63·2	36·0	84·0	90·2	81·6	+2·5	67·9	71·9	72·4	70·7
	Trichinopoly	...	29·580	29·426	·154	29·515	−·015	·695	102·4	79·2	23·2	106·3	71·1	35·2	91·5	99·5	88·7	+1·0	73·9	77·1	78·0	76·3
	Madras	...	·788	·665	·123	·737	+·002	·686	98·6	82·0	16·6	107·1	76·5	30·6	93·4	91·0	88·3	+0·9	?	80·3	81·5	80·2
	Bellary	...	28·361	28·199	·162	28·281	−·009	·649	105·1	79·5	25·6	111·0	70·8	40·2	92·3	102·1	91·1	+2·5	67·0	69·0	70·9	69·0
	Cocanada	...	29·767	29·625	·142	29·695	?	·656	100·4	82·5	17·9	110·5	73·5	37·0	92·8	95·1	90·1	−1·2	77·1	80·9	81·9	80·0
	Vizagapatam	...	·741	·623	·118	·681	−·002	·650	94·9	82·2	12·7	99·7	71·8	27·9	92·0	90·6	87·3	−0·4	77·4	81·6	82·0	80·4
Hill Stations, Baluchistan.	Quetta	...	24·605	24·539	·066	24·564	+·017	?	85·2	53·9	31·3	92·3	44·7	47·6	78·8	82·0	68·8	+1·7	47·2	60·1	60·0	55·8
Hill Stations, Punjab.	Leh	...	?	?	?	?	?	?	55·4	34·3	21·1	68·7	28·0	40·7	46·9	51·6	44·2	−4·2	31·4	37·8	40·3	36·5
	Srinagar	...	·874	·797	·077	·827	+·023	?	71·8	50·1	21·7	81·3	44·2	37·1	63·4	69·8	60·4	−4·2	49·4	59·9	64·9	58·1
	Murree	...	23·804	23·790	·014	23·788	+·002	?	76·7	57·6	19·1	84·7	43·0	41·7	70·0	73·6	66·7	−0·5	46·4	54·1	55·8	52·1
	Kailang	10,087	20·806	20·764	·042	20·797	+·010	?	55·3	35·1	20·2	64·3	28·5	35·8	46·8	50·1	43·6	−4·6	33·0	40·6	42·3	38·6
Hill Station N.W.P.	Simla (Ridge)	...	23·105	23·060	·045	23·074	+·013	?	74·4	58·7	15·7	82·1	48·3	33·8	68·7	70·7	66·0	+0·9	48·0	53·1	53·4	51·5
	Chakrata	...	·314	·265	·049	·281	+·017	?	75·7	58·2	17·5	84·1	47·3	36·8	69·8	71·2	66·2	+1·4	47·9	53·2	52·4	51·2
	Ranikhet	...	24·078	24·011	·067	24·033	+·019	?	81·8	63·3	18·5	88·2	49·5	38·7	75·9	77·9	72·0	+3·8		58·5	59·0	56·9
	Muktesar	...	22·841	22·811	·030	22·826	?	?	78·8	56·8	22·0	85·6	44·8	40·8	70·8	72·5	66·2	?	47·2	55·2	56·5	53·0
Hill Station, Nepal.	Katmandu	4,388	25·528	25·463	·065	25·492	−·001?	?	86·5	61·0	25·5	92·6	54·2	38·4	79·2	80·1	72·2	+1·5	59·2	66·4	65·7	63·8
Hill Station, Bengal.	Darjeeling	...	22·972	22·893	·079	22·929	+·017	?	65·3	52·5	12·8	72·1	45·7	26·4	60·5	62·4	58·2	+1·9	51·2	58·0	58·3	55·8
Hill Stations, Central India.	Mount Abu	...	25·993	25·928	·065	25·959	−·001	·694	90·3	73·8	16·5	95·0	62·9	32·1	85·1	88·9	81·7	+2·7	56·7	64·0	67·8	62·8
	Pachmarhi	...	26·385	26·291	·094	26·337	+·008	?	98·5	77·5	21·0	103·7	66·4	37·3	90·4	96·8	87·7	+3·4	62·6?	68·9?	71·5?	67·7?
	Chikalda	3,642	·296	·199	·097	·246	+·026	·699	96·5	75·5	21·0	100·4	68·5	31·9	87·4	95·0	85·7	+2·8	61·1	64·0	66·0	63·7

II—*continued.*

Stations in India, Burma, etc., for May, 1897—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind steadiness.		Wind velocity.		Rainfall.			
														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 direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.	Station.	Meteorological Province.
																									%	%						
·380	·582	·499	·487	+·013	35	30	20	28	− 4	0·4	3·4	1·9	−0·6	17	3	...	...	...	3	20	10	5	S. 69° W.	S. 87° W.	52	59	64	100	...	...	Hoshangabad.	Deccan—*contd.*
·407	·433	·356	·399	−·049	36	21	14	24	− 5	2·5	5·7	4·1	+0·3	6	20	8	...	1	1	3	5	18	N. 21° W.	N. 46° W.	60	41	218	186	...	...	Nagpur.	
·449	·415	·376	·413	?	38	20	14	24	?	1·6	4·8	3·2	?	15	12	5	2	...	4	5	13	6	N. 51° W.	?	31	?	91*	?	...	...	Nagpur (Sanitary Commissioner's Office).	
·470	·410	·336	·405	−·015	46	21	14	27	− 3	0·7	4·5	2·6	−0·3	...	3	1	...	1	2	15	20	20	N. 84° W.	N. 69° W.	70	48	112	102	...	...	Jubbulpore.	
·589	?	?	?	?	54	?	?	?	?	1·2	4·6	2·9	+0·9	17	4	1	...	...	...	7	20	13	N. 75° W.	N. 89° W.	55	59	193	114	...	...	Saugor.	
·381	·393	·310	·361	−·008	34	19	13	22	− 5	0·2	1·8	1·0	−1·0	...	2	2	2	1	6	3	25	21	N. 76° W.	N. 55° W.	63	55	211*	199	...	...	Sutna.	
·444	·368	·271	·361	−·107	40	21	12	24	− 8	1·4	4·9	3·2	−0·3	7	7	3	...	1	5	17	8	14	N. 87° W.	N. 80° W.	43	45	243*	193	...	...	Raipur.	
·606	·659	·544	·603	+·042	57	40	26	41	0	2·0	2·6	2·3	−0·6	15	10	6	3	4	3	1	17	13	N. 44° W.	N. 57° W.	39	50	132*	173	...	...	Hyderabad (Deccan).	
·840	·885	·907	·877	0	80	69	69	73	− 1	3·1	3·0	3·1	−0·7	...	...	...	...	...	3	11	30	18	N. 88° W.	N. 83° W.	82	70	207	247	...	...	Bombay.	West Coast.
·806	·850	·877	·844	+·016	77	63	65	68	− 1	2·0	3·3	2·7	+0·4	...	...	...	...	...	...	6	34	22	N. 78° W.	N. 69° W.	89	67	264	254	...	...	Ratnagiri.	
·836	·835	·837	·836	−·017	80	64	64	69	− 4	2·9	3·4	3·2	0	...	...	...	...	...	...	12	15	35	N. 71° W.	N. 67° W.	82	82	178	128	...	...	Karwar.	
·882	·933	·942	·919	+·027	87	73	69	76	− 4	6·0	5·1	5·6	0	3	5	3	...	...	...	3	18	30	N. 56° W.	N. 80° W.	76	54	163	148	...	...	Cochin.	
·798	·817	·778	·798	+·036	87	59	51	66	+ 3	1·9	5·3	3·6	−1·0	4	2	2	4	1	7	19	16	7	S. 66° W.	S. 47° W.	50	55	98	98	...	...	Salem.	South India.
·593	·622	·668	·628	+·019	93	69	76	79	− 1	5·8	7·7	6·8	+0·2	28	3	...	...	...	1	...	9	21	N. 55° W.	N. 68° W.	47	69	97	129	...	...	Mercara.	
·594	·601	·423	·539	−·028	73	49	26	49	− 7	4·2	4·4	4·3	+0·1	1	5	4	2	1	1	4	22	22	N. 62° W.	N. 80° W.	64	75	223*	232	...	...	Chitaldroog.	
·590	·607	·515	·571	−·023	79	52	39	57	− 5	2·2	5·6	3·9	−0·5	1	7	4	1	2	1	13	17	16	N. 73° W.	S. 78° W.	55	68	197*	178	...	...	Bangalore.	
·616	·587	·569	·591	−·019	89	53	47	63	− 7	4·1	7·0	5·6	+0·2	...	2	2	2	...	...	10	21	25	N. 72° W.	N. 85° W.	72	72	107*	109	...	...	Hassan.	
·645	·635	·579	·620	+·015	85	54	41	60	− 4	4·5	6·7	5·6	+0·2	3	4	3	2	2	2	11	22	13	N. 83° W.	S. 83° W.	55	64	259*	271	...	...	Mysore.	
·768	·739	·670	·726	−·001	77	49	36	54	− 1	3·5	4·9	4·2	−1·0	9	...	1	2	1	4	10	23	12	S. 86° W.	S. 78° W.	56	58	123	150	...	...	Trichinopoly	
?	·860	·950	·925	+·048	?	56	66	69	+ 1	4·3	2·7	3·5	−0·3	...	...	1	...	22	20	11	6	2	S. 2° E.	S. 13° E.	66	65	226	219	...	...	Madras.	
·509	·418	·367	431	−·146	51	28	18	32	−12	5·3	7·7	6·5	+1·6	5	8	4	1	2	1	4	7	30	N. 44° W.	N. 73° W.	60	55	195	201	...	...	Bellary.	
·869	·899	·920	·896	+·015	78	58	55	64	+ 2	3·4	1·8	2·6	−0·3	1	...	...	2	8	23	19	8	1	S. 19° W.	S. 21° W.	71	48	193*	206	...	...	Cocanada.	
·884	·944	·981	·936	+·069	80	63	68	70	+ 4	4·8	4·2	4·5	+0·2	...	...	1	1	2	6	44	7	1	S. 44° W.	S. 40° W.	83	69	68	80	...	...	Vizagapatam	
·260	·327	·290	·292	+·016	62	33	27	41	0	1·5	3·8	2·7	+1·5	28	7	2	1	1	1	2	9	11	N. 49° W.	N. 68° W.	32	47	56	91	...	...	Quetta.	Hill Station, Baluchistan.
·153	·151	·15	·153	+·025	77	49	44	57	+18	7·0	7·5	7·3	+1·0	...	1	6	...	4	15	17	13	6	S. 48° W.	S. 71° W.	48	31	82	73	...	...	Leh.	Hill Stations, Punjab.
·349	·482	·556	·462	+·031	95	82	78	85	+14	4·3	5·2	4·8	+1·3	11	14	5	3	9	8	1	1	10	N. 25° E.	S. 78° E.	16	11	124*	95	...	...	Srinagar.	
·200	·258	·263	·240	−·022	43	36	33	37	− 5	3·9	5·5	4·7	+0·7	...	9	...	4	11	16	4	6	12	S. 30° W.	S. 9° E.	18	18	207*	196	...	...	Murree.	
·172	·203	·206	·194	+·010	84	64	59	69	+13	6·3	7·4	6·9	+1·0	...	1	...	...	3	6	31	12	9	S. 59° W.	S. 58° W.	71	69	61	56	6·16	1·03	Kailang.	
·227	·244	·231	·234	−·045	48	36	32	38	− 8	3·4?	5·4	4·4	+0·6	3	20	10	3	...	10	7	3	5	N. 5° W	S. 68° W.	26	33	148	143	...	...	Simla (Ridge).	Hill Stations, N.-W. P.
·228	·234	·202	·221	−·065	48	33	28	36	−12	2·1	5·1	3·6	+0·1	19	5	3	...	1	32	1	1	...	S. 2° E.	S. 65° W.	42	33	279	164	...	...	Chakrata.	
·300	·313	·307	·307	−·027	53	36	33	41	− 9	1·6	3·2	2·4	−1·0	8	2	2	2	5	11	8	15	9	S. 63° W.	S. 65° W.	37	46	113*	94	...	...	Ranikhet.	
·228	·278	·296	·267	?	50	38	38	42	?	1·4	1·9	1·7	?	...	...	9	2	18	...	15	...	18	S. 29° W.	?	8	?	26*	?	...	...	Muktesar.	
·487	·503	·467	·486	−·010	90	51	48	63	− 5	3·3	5·2	4·3	−1·1	...	1	9	12	4	...	3	25	7	N. 54° W.	S. 88° W.	19	49	47	43	4·60	1·66	Katmandu.	Hill Station, Nepal.
·366	·459	·448	·424	+·016	92	87	80	88	−1	6·4	6·2	6·3	−1·1	...	1	8	4	3	...	9	19	10	N. 76° W.	S. 74° W.	38	38	210	170	...	...	Darjeeling.	Hill Station, Bengal.
·267	·355	·441	·354	0	32	30	32	31	− 6	0·1	0	0·1	−1·3	...	2	...	...	...	2	44	7	7	S. 59° W.	S. 67° W.	81	71	312*	247	...	...	Mount Abu	Hill Stations, C. India.
·402?	·464?	·486?	·451?	+·102?	43?	33?	28?	35?	+3?	1·3	4·0	2·7	−0·1	5	2	...	1	...	1	6	27	20	N. 77° W.	N. 66° W.	74	58	277*	170	...	...	Pachmarhi.	
·375	·328	·304	·336	−·037	43	25	19	29	− 6	1·8	3·9	2·9	0	8	36	1	...	1	...	1	...	15	N. 12° W.	N. 36° W.	76	65	289*	239	Nil.	Nil.	Chikalda.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 85

Meteorological Province.	Station.	Elevation of barcistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Hill Station, S. India.	Wellington	...	24·240	24·162	·078	24·201	—·004	?	77·1	58·2	18·9	81·6	54·6	27·0	73·5	72·2	66·4	+0·7	55·9	63·1	62·8	60·6
Extra India.	Muscat	...	29·750	29·682	·068	29·716	+·003	29·683	93·1	83·9	9·2	99·1	79·1	20·0	91·0	91·8	88·2	+0·2	71·8	80·1	80·0	77·8
	Aden	...	·785	·668	·117	·724	+·007	·747	93·8	81·8	12·0	102·3	77·7	24·6	87·4	91·0	87·3	+1·2	74·2	79·5	78·3	77·3
	Perim	...	·661	·539	·122	·597	+·011	?	92·1	81·5	10·6	94·5	72·2	22·3	89·2	88·9	86·0	—0·6	77·4	81·4	81·6	80·1
	Zanzibar	...	30·041	·928	·113	·984	+·009	·984	83·4	76·3	7·1	86·0	71·1	14·9	79·5	82·4	79·6	+1·6	73·4	75·8	75·2	74·8
	Port Victoria (Seychelles).	15	29·956	·873	·083	·915	—·026	·858	84·8	78·1	6·7	86·8	74·4	12·4	83·6	84·3	81·3	+0·4	73·9	77·0	77·4	76·1
	Mauritius	181	?	?	?	·919	+·012	30·049	?	?	?	89·2	53·0	36·2	?	?	72·8	0	?	?	?	?

II—*concluded.*

Stations in India, Burma, etc., for May, 1897—concluded.

Vapour tension.					Humidity.					Cloud.				Wind direction.											Wind steadiness.		Wind velocity.		Rainfall.			
														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.	Station.	Meteorological Province.
																									%	%						
·426	·474	·477	·459	+·020	88	58	61	69	0	4·3	6·1	5·2	−0·6	1	23	9	...	13	5	1	...	10	N. 20° E.	N. 87° E.	37	19	94	71	...	...	Wellington.	Hill Station, S. India.
·622	·893	·876	·799	−·013	55	62	59	59	− 3	0·2	0·3	0·3	−0·1	...	5	12	16	1	1	...	2	25	N. 11° E.	N. 12° E.	48	45	103	96	...	...	Muscat.	Extra India.
·750	·901	·800	·818	−·026	69	69	56	65	− 3	2·2	1·3	1·8	+0·2	4	...	4	29	6	9	7	3	...	S. 61° E.	S. 60° E.	52	40	311	266	...	...	Aden.	
·889	·966	·980	·945	+·070	82	70	72	75	+ 6	3·2	3·6	3·4	+1·8	2	...	...	25	14	4	1	5	6	S. 67° E.	S. 82° E.	43	32	382	337	...	...	Perim.	
·786	·843	·780	·803	+·008	87	84	71	81	− 1	4·5	5·1	4·8	−1·0	...	...	1	...	20	31	10	...	...	S. 8° E.	S. 5° E.	84	85	156*	194	...	...	Zanzibar.	
·784	·841	·849	·825	+·013	82	74	72	76	0	5·7	6·2	6·0	+0·9	15	..	2	...	28	14	3	...	...	S. 29° E.	S. 44° E.	63	58	151	173	2·72	0·90	Port Victoria (Seychelles).	
?	?	?	·554	?	?	?	?	71	− 5	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	281	245	0·66	0·48	Mauritius.	

* Corrected.

G. I. C. P. O.—No. 48 Meteor—31-8-97.—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 shown 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.

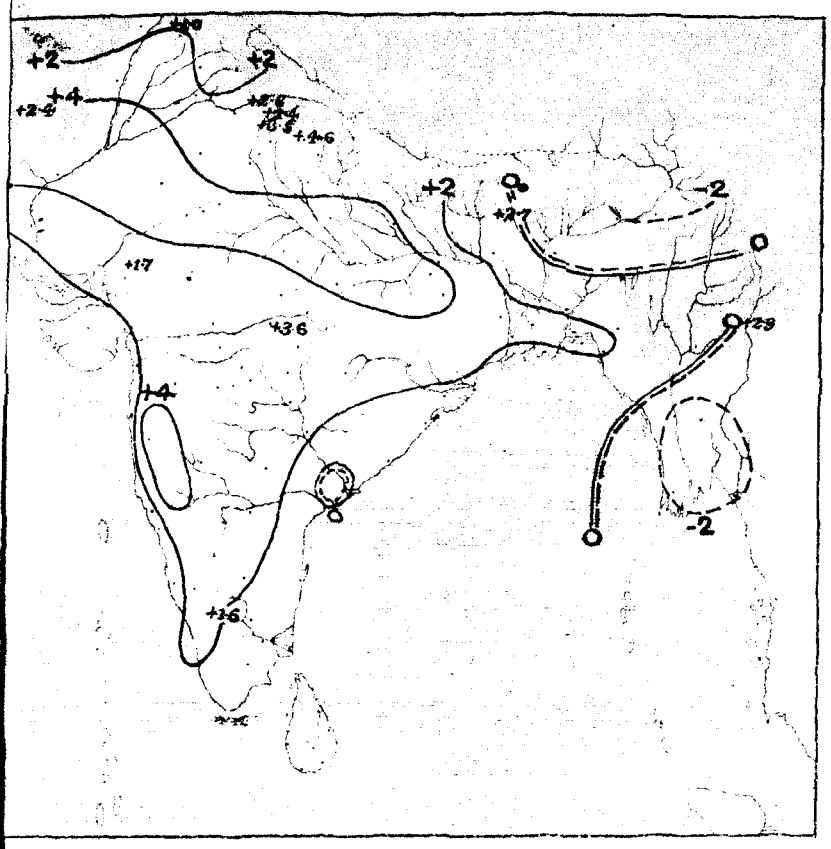
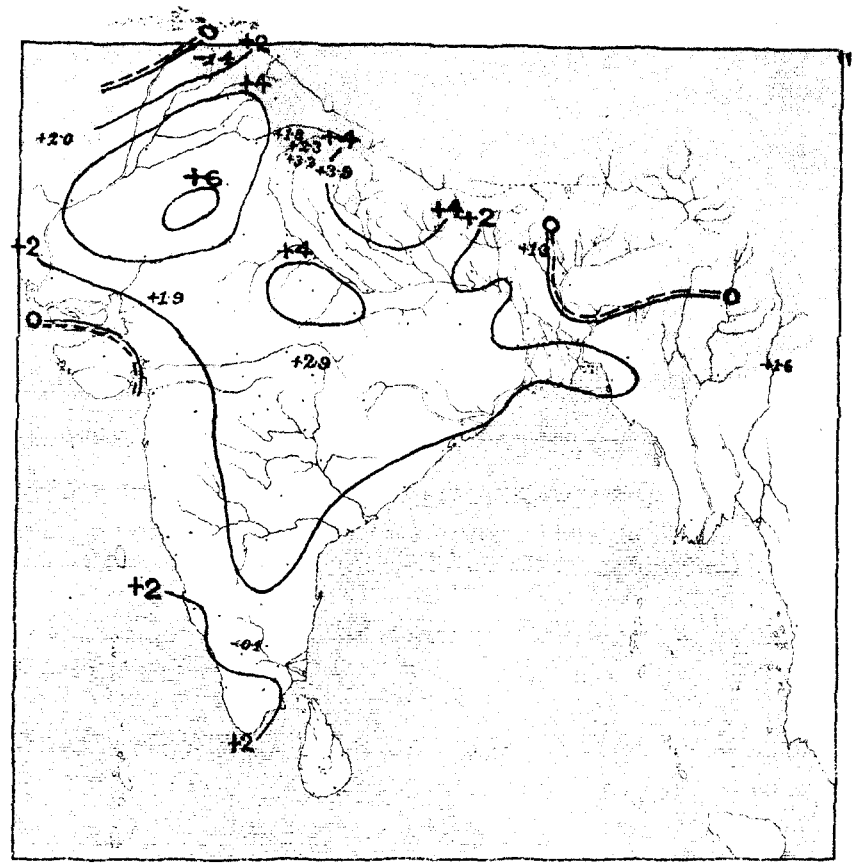


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

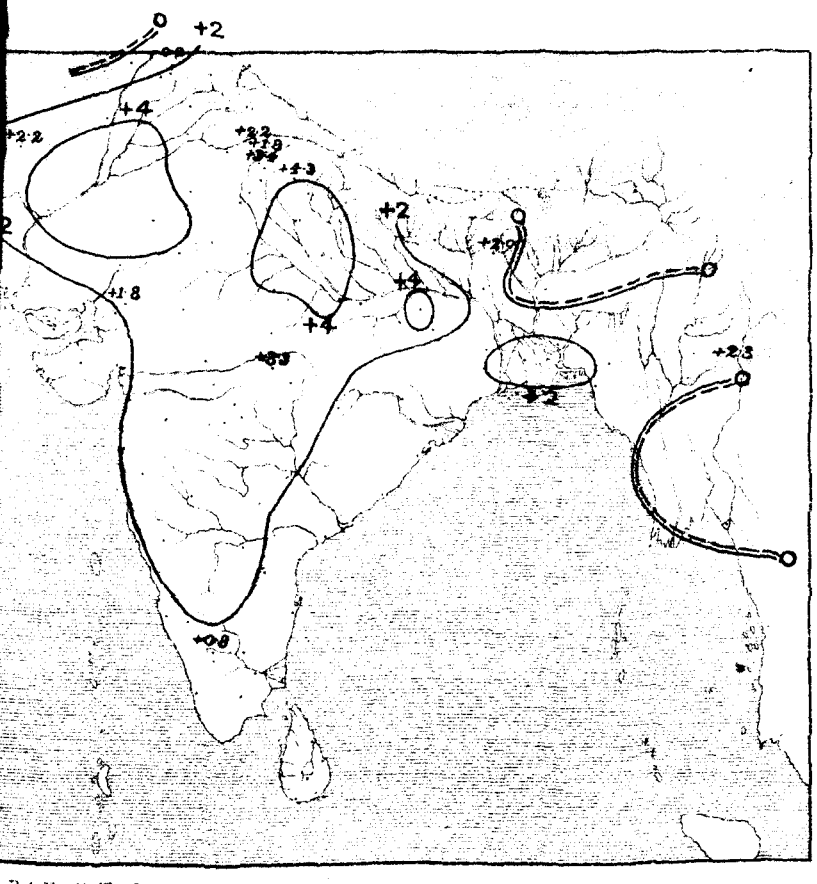
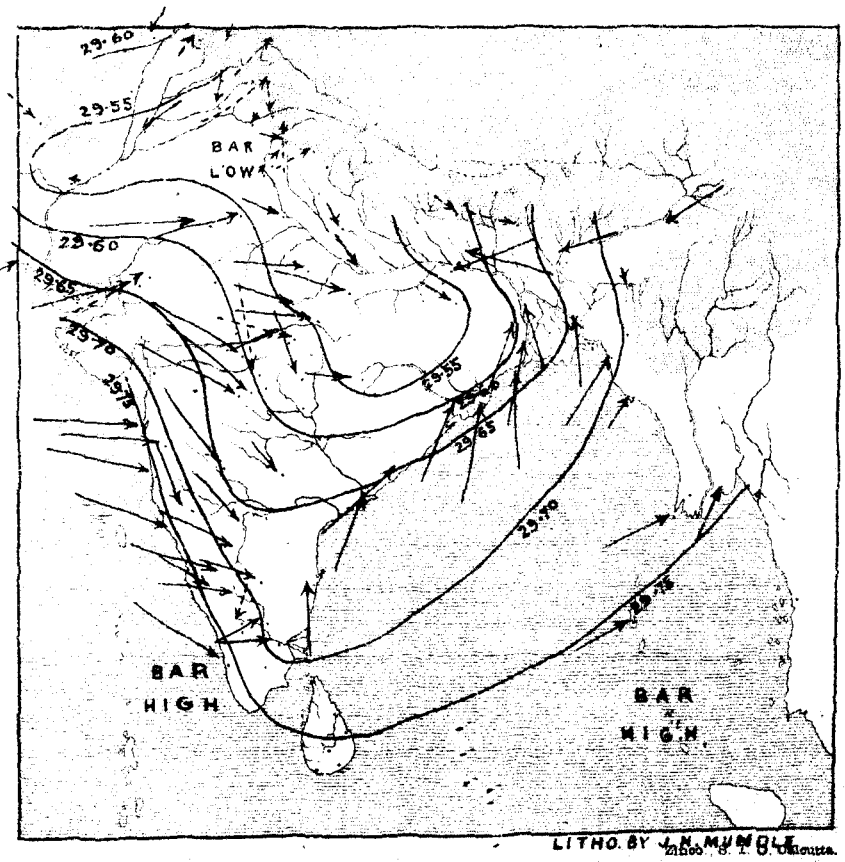


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF MAY 1897.



LITHO. BY J. N. MUMBLE

Reg. No. 24, Wr. I.—Jan. 91—6,

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

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant [illegible] of 5th of an inch being equal to 100 per cent.

No. 94 Wr, I—Jan 90—,000

Explanation.

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

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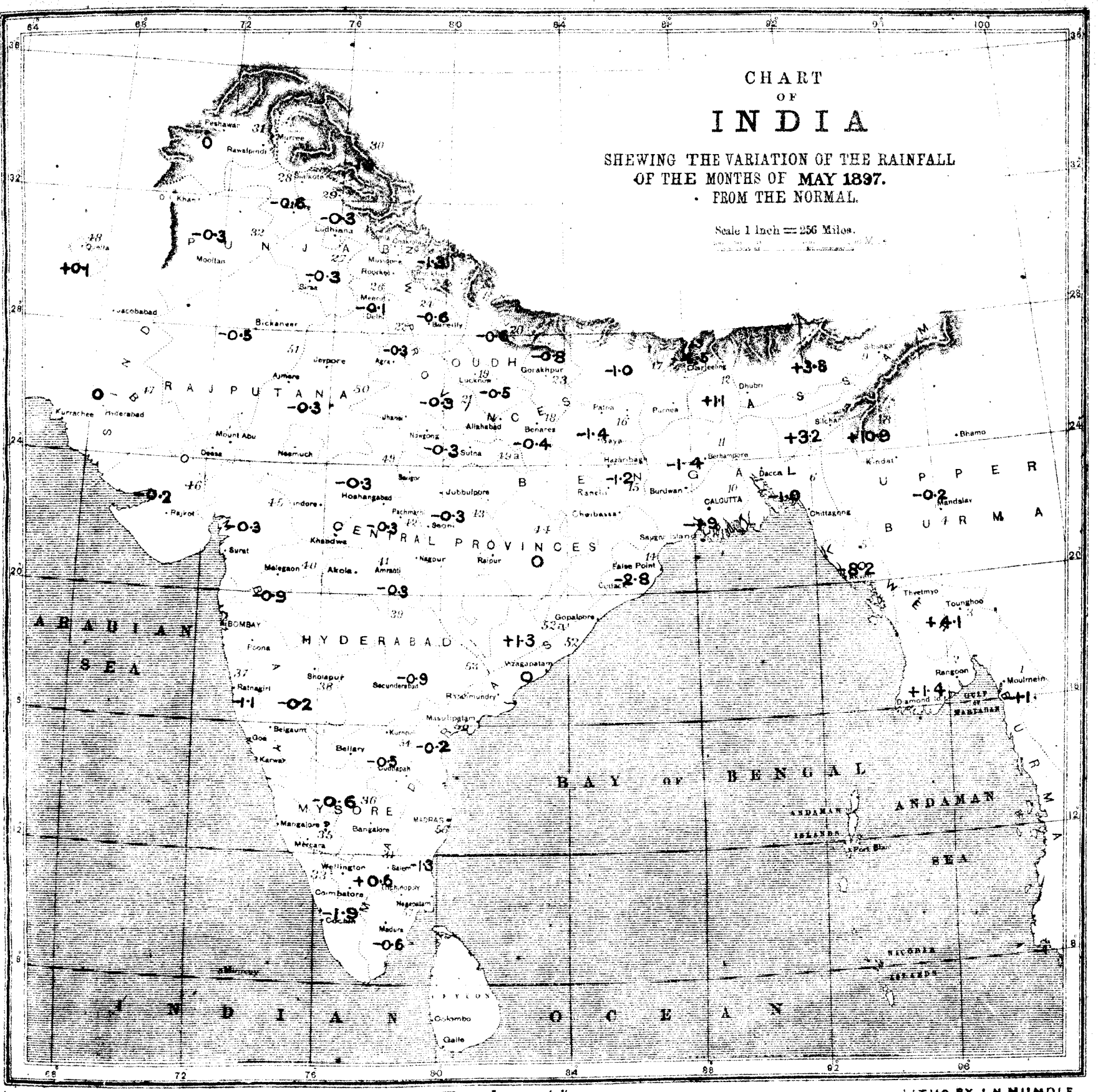

LITHO. BY J. N. MUNDLE

Explanation.

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

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

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, JUNE, 1897.

INTRODUCTION.

THIS Review of the weather in India during the month of June 1897 is based on observations taken daily at 8 A.M. at 213 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 85 stations. In the rainfall summary the rainfall data of the meteorological observatories and the weekly rainfall telegrams received during the month from District Officers throughout India, 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 June, 1897.

The most important feature of the meteorology of the month (and also of the year) is the advance of the south-west monsoon currents over the Arabian Sea and the Bay of Bengal into India and their establishment in the latter area. Brief and partial advances of these currents occur occasionally in the month of May, but it is not until the last week of May or the first and second weeks of June that the great advance occurs which culminates in the establishment of the "rainy season" in Central and Northern India.

Judging solely from the land observations, there are very considerable differences from year to year in the character of the advance of the monsoon currents over the Indian Seas towards Northern India. The manner of advance of the currents over India depends very largely upon the pressure and other weather conditions prevailing at the time in India, and hence differs very considerably from one year to another.

Temperature is usually excessive over the whole of Upper and Central India at the commencement of the month. The advance of the monsoon currents over the interior increases humidity rapidly and brings up much cloud and is followed by frequent rain showers; hence temperature falls rapidly with their advance, and the area of excessive temperature retreats northwards to Upper Sind, the North and West Punjab and North-West Rajputana. The highest maximum temperatures of the year in that area are hence occasionally recorded in June or July.

The change from great heat and dryness of the air to moderate heat, excessive humidity and frequent rain is usually not completed over Northern India until the third or fourth week of June, by which time the south-west monsoon currents usually penetrate into the East and North Punjab.

There is always much disturbance and squally weather

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in front of the advancing monsoon. This squally weather, if conditions are favourable, may develop in either sea area into a cyclonic storm. Hence cyclonic storms frequently accompany the great advance of the monsoon currents in the Arabian Sea and Bay of Bengal.

After the south-west monsoon currents are fully established in Northern India, small cyclonic storms form at short intervals in the Bay of Bengal or in Bengal. These storms constitute one of the more important and characteristic features of the rains. In June and July they usually march in a west or west-north-west direction along the trough of low pressure, which generally stretches from Orissa to Sind or the South-West Punjab, and which in its eastern half separates the area in which easterly winds from the Bay of Bengal prevail from the area in which westerly winds from the Bombay coast obtain. These storms not only give heavy rain to the areas they traverse, but draw rain away for the time being from other districts to concentrate it on the comparatively narrow belt over which they pass. They are hence one of the most important of the causes of the irregular distribution of the monsoon rainfall.

The following is a brief sketch of the chief features of the meteorology of the month :—

At the commencement of the month weather was slightly disturbed in Southern India, Bengal and Burma, and series of thunderstorms gave light to moderate rain. Temperature was hence generally below the normal in these areas. Weather was also unsettled in the Punjab and adjacent hills, and series of duststorms and thunderstorms occurred in that area on the 1st, 2nd and 3rd. Snow probably fell on the higher elevations in Kashmir. Temperature was largely reduced below the normal in that area, and weather was unusually cool from the 1st to the 7th, as is shown by the following variation data :—

Province.	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.	7th June.
	°	°	°	°	°	°	°
Baluchistan (Quetta)	−2·0	−4·2	−6·6	−6·4	−3·9	−0·5	−0·1
Punjab	−2·7	−6·6	−10·1	−9·1	−5·7	−3·7	−1·2
Kashmir (Srinagar)	−6·4	−6·4	−6·9	−8·4	−6·9	−3·2	−1·5

Temperature was excessive during the same period over the greater part of the interior of India, including Rajputana, the North-Western Provinces, Central India, Berar, Khandesh, the Central Provinces and Deccan. The following gives data in illustration :—

Division or Area.	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.	7th June.
	°	°	°	°	°	°	°
Madras Deccan	+3·2	+3·7	+1·3	+1·5	+2·8	+1·2	+2·8
Bombay Deccan	+5·2	+5·3	+5·1	+5·3	+7·6	+5·2	+3·9
Khandesh	+5·5	+6·8	+3·1	+6·5	+4·8	+9·7	+9·6
Central Provinces	+5·2	+6·6	+3·9	+5·5	+6·4	+4·6	+4·1
Berar	+7·3	+8·6	+6·1	+5·5	+8·4	+8·8	+4·3
Central India	+5·7	+5·3	+3·6	+3·4	+3·7	+4·0	+4·5
Rajputana	+0·9	0	+0·9	+1·1	+1·3	+2·6	+5·1
Kathiawar and Cutch	+2·7	+2·2	+1·3	+0·6	+2·5	+7·1	+8·0
Sind	+0·7	+1·5	+0·6	0	+1·9	+3·3	+6·4

Temperature increased rapidly over Upper India on the 6th and 7th, and was more or less above the normal on the 8th over the whole of India, except Bengal and Assam.

Pressure during the period from the 1st to the 7th was more or less above the normal in Northern and Central India. The excess was large and pronounced in the Punjab and Bengal where it exceeded a tenth of an inch on the mean of the period.

A wave of low pressure, such as usually accompanies the early advances of south-west monsoon winds along the West Coast, was shown in the extreme south-east of the Arabian Sea (in the latitude of Colombo) on the 3rd. It was transferred slowly northwards, and was in the latitude of Mangalore on the 6th and of Karwar on the 7th and 8th. The wave was very feeble, but its progress was accompanied by light to moderate rain in Malabar and the South Konkan, chiefly accompanying series of thunderstorms. This low pressure wave was one feature of large changes in progress in the Arabian Sea. South-west monsoon winds had advanced northwards up that sea, chiefly in the western half or in the neighbourhood of the African coast, between the 3rd and 7th. The S. S. *Goa* in that area experienced heavy winds and very severe squalls on the 6th and 7th, 300 to 500 miles to the south of Socotra. So far as can be judged from the scanty data available there was a strong tendency shown on the 7th and 8th for the stormy weather in front of the advance of monsoon winds to develop into a cyclonic storm. A cyclonic circulation with strong but somewhat irregular winds and stormy weather formed near Socotra on the 8th. It lay to the north of Socotra on the 9th and 10th. Vessels passing through this depression on the 10th experienced winds of force 6 to 9 with heavy to hard squalls and a high sea. The depression filled up rapidly during the next 48 hours, and fresh to strong monsoon winds prevailed on the 12th over the centre and south of the Arabian Sea.

The S. S. *Sultan* and *Aden* were wrecked off the east coast of Socotra during this stormy weather.

Malabar received moderate to heavy thundershowers on the 7th, 8th and 9th. Series of thunderstorms gave light rain in the Deccan on the 11th. Weather was less disturbed than usual from the 7th to the 12th in Bengal. The chief feature of this period was the excessive heat which prevailed in the interior, and more especially in Sind and Rajputana, culminating on the 13th in higher temperatures in Sind and West Rajputana than have been previously recorded. The following gives temperature variation data of this period for the area of excessive heat:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A. M. OF					
	8th June.	9th June.	10th June.	11th June.	12th June.	13th June.
	°	°	°	°	°	°
North-Western Provinces and Oudh.	+3·5	+5·6	+6·4	+6·6	+2·0	—0·6
Punjab	+2·3	+5·3	+5·9	+6.3	+7·6	+4·7
Sind and Rajputana .	+6·4	+7·6	+10·2	+6·6	+5·9	+8·6
Central India and Gujarat	+6·9	+8·7	+7·9	+5·3	+5·2	+5·2
Central Provinces and Berar. . . .	+7·2	+9·7	+8·6	+6·7	+3·4	+4·2

The area of greatest excess of temperature which included Berar and the western states of Central India on the 8th and 9th was transferred to Central Rajputana on the 10th and to the South-West Punjab and West Rajputana on the 12th and 13th. The highest temperatures of the year were recorded during this period in North-Western India. The following gives the absolute maximum temperatures recorded at stations where maximum temperatures above 120° were registered :—

STATION.	Highest maximum temperature recorded in June, 1897.	Date on which recorded.	Highest maximum temperature in June previous to 1897.	Year in which recorded.
	°		°	
Jacobabad . . .	126·0	13th	123·7	1889
Pachpadra . . .	122·1	10th	116·0	1896
Jodhpur . . .	121·3	10th	?	?
Hyderabad (Sind) . .	121·2	10th	116·2	1883-89-96
Mooltan . . .	121·0	12th	120·3	1890-92
Montgomery . . .	120·6	12th	121·4	1890
Khushab . . .	120·4	12th	120·4	1896

At Jacobabad the phenomenally high maximum temperature of 126° was recorded, 2°·3 higher than has been experienced at any station in India during the past 25 years. The temperature of that station at 8 A. M. of the 12th was 103°·3, at 10 A. M. was 119°·8 and at 4 P. M. 124°·8 and temperature was above 120° for at least seven hours on that day.

The following gives variations of the maximum and minimum temperatures from the normal at the hottest stations :—

STATION.	Maximum temperature recorded on the 13th June, 1897.	VARIATION FROM NORMAL OF TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF 13TH JUNE 1897.		
		Maximum.	Minimum.	Mean.
	°	°	°	°
Jacobabad . . .	126·0	+13·1	+4·1	+8·6
Mooltan . . .	120·5	+13·2	+9·2	+11·2
Montgomery . . .	118·1	?	?	?
Bickaneer . . .	117·3	+10·7	+11·4	+11·1
Jeypore . . .	116·5	+13·4	+11·7	+12·6

Winds strengthened on the Malabar and Konkan coasts on the 11th and 12th, and began to give general and heavy rain over the whole coast between Bombay and Cochin. The rainfall was especially heavy in the district of South Kanara. The following table gives the average daily rainfall from the 13th to the 20th in the coast districts of Malabar and the Konkan :—

DISTRICT.	AVERAGE ACTUAL RAINFALL DURING 24 HOURS PRECEDING 8 A. M. OF								Total rainfall of period 13th to 20th June, 1897.
	13th June.	14th June.	15th June.	16th June.	17th June.	18th June.	19th June.	20th June.	
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Malabar . .	3·59	2·06	0·93	2·48	5·48	3·62	3·96	2·62	24·74
South Kanara .	2·68	2·91	2·42	5·38	7·52	5·95	2·87	2·14	31·87
North Kanara .	1·90	2·21	2·18	6·72	5·27	1·26	1·01	0·84	21·39
Ratnagiri . .	2·86	1·40	1·22	0·81	2·09	2·06	2·18	0·50	13·12
Kolaba . .	1·11	0·86	0·24	0·28	1·38	3·90	0.94	1·58	10·29
Thana . .	0·15	0·03	0·06	0·09	0·64	2·79	1·54	0·17	5·47

The following excessive downpours were received in North Kanara and Savantvadi on the 16th and 17th :—

DISTRICT.	STATION.	HEAVIEST RAINFALL IN 24 HOURS PRECEDING 8 A. M. OF		Total rainfall of 48 hours.
		16th June.	17th June.	
		Inches.	Inches.	Inches.
NORTH KANARA .	Karwar . .	13·17	8·88	22·05
	Ankola . .	13·73	7·93	21·66
	Kumta . .	14·87	14·70	29.57
	Honavar . .	13·30	12·20	25·50
	Bhatkal . .	10·79	12·31	23·10
SAVANTVADI .	Savantvadi .	7·70	12·10	19·80
	Bauda . .	11·36	7·75	19·11

The extension of the strong humid winds which were established on the West Coast on the 12th and 13th into the interior gave a large increase of humidity and very disturbed weather over nearly the whole of the Deccan and Central and North-Western India. Series of dust-storms and thunderstorms of unusual intensity visited the Central Provinces and Central India, and duststorms (followed by rain) of moderate intensity visited Rajputana, the North-Western Provinces and the East Punjab. These districts hence received the first burst of monsoon rain during this period.

Whilst these changes were in progress in the West Coast districts and North-Western and Central India, south-west monsoon winds were advancing up the east of the Bay. Weather was very squally in front of this advance off the Arakan coast on the 14th, and the first indications of the formation of a cyclonic storm (which initiated the establishment of monsoon conditions in Bengal) were exhibited at the head of the Bay on the 15th. The storm increased slightly in intensity on the 15th and 16th and the centre crossed the Orissa coast a little to the north of False Point early on the morning of the 17th. The storm advanced by a west-north-west track through Orissa and Chota Nagpur on the 17th and 18th, into Baghelkhand on the 19th. It recurved on that day and advanced westwards during the next 24 hours into Bundelkhand where it filled up slowly during the next 48 hours. It gave heavy rain to Orissa on the 16th and 17th, and moderately heavy rain to Chota Nagpur, West Bengal, Bihar and the eastern districts of the North-Western Provinces from the 16th to the 20th.

It gave excessive rain to Bhopal and Bundelkhand on the 20th and 21st. The most noteworthy fall was 18·22 inches in 24 hours at Nowgong in Bundelkhand, registered at 8 A. M. of the 20th.

The North-Western Provinces, Central India and the Central Provinces continued to receive light to moderate rain from the 21st to the 23rd, during which period the Bombay current was rapidly falling off in strength. A break in the rains set in on the 24th over the whole of North-Western and Central India and the Deccan, and the Bombay current gave no rain over its usual area of extension during the remainder of the month, with the exception of light showers in the West Coast districts chiefly in Malabar.

A shallow depression formed in Central Bihar on the 23rd, the origin of which was due to localized heavy rainfall. The depression shifted slowly eastwards through Central Bengal on the 26th into East Bengal on the 27th, where it filled up during the next 48 hours. The depression gave an excessive downpour of rain to Central Bihar on the 25th and 26th and moderately heavy rain to South and Central Bengal on the 26th, 27th and 28th. The following gives examples of the excessive rain in Central Bihar :—

District.	Station.	Heaviest rainfall during 24 hours preceding 8 A.M. of		Total rainfall of period.
		25th June.	26th June.	
		Inches.	Inches.	Inches.
Patna	Patna	13·80	2·31	16·11
	Dinapur	19·64	2·37	22·01
	Bikram	11·20	3·62	14·82
Gaya	Rajauli	0·71	8·99	9·70
	Gaya	1·18	7·08	8·26
	Nawada	0·32	7·11	7·43
Shahabad	Ageaon	14·00	5·40	19·40
Saran	Chapra	8·39	1·69	10·08
	Amnour	7·50	2·00	9·50
Muzaffarpur	Hajipur	10·70	2·51	13·21

The easterly movement of the storm accompanied a decrease in the strength of the Bay current. The indraught to the depression gave dry westerly winds to the North-Western Provinces on the 23rd and following days. These westerly winds advanced into Bihar on the 27th and into West Bengal on the 29th. The break in the rains hence extended over North-Eastern India during this period, and weather was practically rainless over the whole of India on the 29th and 30th. A rapid increase of temperature hence occurred during the last week of the month. The following gives comparative data for the 12th when temperature was excessive over the whole of the interior, the 18th when it was most largely reduced below the normal by the establishment of the monsoon currents, and the 30th when the break in the rains of the last week of the month had extended over the whole of India :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	12th June.	18th June.	30th June.
	°	°	°
Burma	+1·1	+0·8	+0·6
Bengal and Assam	+1·1	−2·0	+4·7
North-Western Provinces and Oudh	+2·0	−4·5	+6·8
Punjab	+7·6	−2·6	+3·1
Sind and Rajputana	+5·9	+1·3	+1·9
Central India and Gujarat	+5·2	+2·1	+3·6
Central Provinces and Berar	+3·4	+2·0	+7·5
Bombay	+0·5	−1·0	+4·0
Madras	−0·4	−1·4	+4·5

The conditions at the end of the month were very abnormal. Temperature was excessive, pressure was in

slight to moderate excess in the Peninsula but was in large defect in the submontane districts of Northern India and the trough of low pressure lay along the foot of the hills in Northern India. Dry westerly winds prevailed over the whole of the interior of Northern and Central India and the conditions generally resembled those of a very dry hot period in May. The humidity at Roorkee at 4 P.M. of the 29th was only 7 per cent., an example of the great dryness obtaining at the end of the month in the Gangetic Plain.

Pressure.—The mean pressure of the Indian land area for the month of June was ·011″ below the normal. Relatively to this condition pressure was in local defect in Burma (except Tenasserim) and North-Eastern India. The deficiency was nowhere large and was greatest in South Bihar and Chota Nagpur at Gaya (—·023″) and Hazaribagh (—·020″). Pressure was locally in excess in the western half of the Peninsula and North-Western and Central India. The excess was greatest in the North Punjab. It was absolutely greatest at Peshawar (+·046″) and Rawalpindi (+·030″). The vertical pressure anomalies were positive in Upper India but were small in amount and of little importance.

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

METEOROLOGICAL PROVINCE.	Variation of mean 8 A.M. pressure of June 1897 from normal.	Pressure anomaly June 1897.
	″	″
Burma Coast and Bay Islands	—·014	—·003
Burma Inland	—·024	—·013
Assam	—·017	—·006
Bengal and Orissa	—·017	—·006
Gangetic Plain and Chota Nagpur	—·027	—·016
Upper Sub-Himalayas	—·003	+·008
Indus Valley and North-West Rajputana	+·014	+·025
East Rajputana, Central India and Gujarat	—·006	+·005
Deccan	—·010	+·001
West Coast	—·006	+·005
South India	—·011	0

Temperature.—Was in general excess, in part due to the delay in the establishment of the Bombay monsoon current and its weakness throughout the month and in part to the break in the rains which commenced in North-Western India on the 23rd and extended over the whole of India on the 29th.

The mean maximum temperature of the month was above the normal over the whole of India with the exception of Baluchistan, the North and Central Punjab and the Punjab and Kashmir hill districts, and a small area including a part of West Bengal in which it was practically normal. The deficiency in the first district exceeded 2° at Srinagar (—5°·8), Kailang (—5°·2), Quetta (—3°·2), Leh (—7°·2), Murree (—2°·5) and Peshawar (—3°·2). The deficiency in this area was in part a result of the accumulation of snow on the higher mountain ranges and in part of more showery weather than usual in the hills. The mean day temperature was above the normal in Burma and the interior of India, over the greater part of which the excess was more than 2° in amount. It exceeded 4° in the Central Provinces, North Deccan, Khandesh, and the greater part of Rajputana, Cutch and Kathiawar, and was more than 6° at Chanda (+6°·9), Akola (+6°·7), Amraoti (+6°·2), Nagpur (+6°·1), and Hyderabad (Sind) (+6°·9), which stations define the central area of greatest excess of day temperature.

The mean night temperature was above the normal over the whole of India except Baluchistan, the North Punjab and Kashmir and the western districts of the North-Western Provinces and of West Bengal. The variations were generally smaller than those of the maximum temperature but exceeded 2° over the greater part of the interior. The excess was absolutely greatest in Berar at Akola (+5°·0) and Amraoti (+4°·1).

The mean temperature of the month was below the normal in two small areas, *viz*:—

(1) North and East Punjab, Baluchistan, and Kashmir. The variations were generally small, but exceeded 2° at Srinagar (—4°·8), Kailang (—3°·4), Quetta (—3°·4), Peshawar (—3°·0) and Leh (—2°·6).

(2) A small part of West Bengal. The deficiency in this area was very small in amount.

The mean temperature of the month was in excess over the remainder of India. The excess was more than 2° over the greater part of the interior and slightly exceeded 4° in the area defined by the following stations:—Akola, Amraoti, Malegaon, Nagpur, Secunderabad, Chanda, Raipur, Indore and Rajkot.

The following table gives temperature variation data of the month for the eleven meteorological provinces of India:—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean daily temperature.
	°	°	°
Burma Coast and Bay Islands	+1·1	+0·9	+1·0
Burma Inland	+1·8	+1·5	+1·6
Assam	+2·1	+0·6	+1·4

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

Winds.—Winds were of normal intensity on the mean of the month at Port Blair and the Burma Coast stations and were slightly more westerly than usual. Winds were stronger and less easterly (or more westerly) in Bengal except at the coast stations of False Point and Saugor Island where they were less westerly than usual. The mean air movement of the month was in moderate excess over the whole of Northern India except the Punjab where it was slightly below the normal. The Arabian Sea current set in on the west coast on the 12th and 13th, and was moderately strong until the 22nd, when it fell off considerably and was weak on the Konkan Coast during the remainder of the month. The mean winds of the month were little below their normal strength on the Konkan coast, and were stronger than usual on the Malabar Coast and in the Deccan and Central Provinces.

Winds were less southerly and more westerly than usual at the West Coast stations and were normal in directions in the Deccan. Winds were very steady at Zanzibar, but were very unsteady and variable both in direction and force at the Seychelles.

Humidity and Cloud.—The air was slightly drier than usual in Burma, Assam and North-Eastern and Southern India due to somewhat higher temperature than usual. The humidity conditions were practically normal in West Bengal and South Bihar. The air was considerably drier than usual over nearly the whole of the interior, including the North-Western Provinces, Sind, the South Punjab, Rajputana, Central India, the Central Provinces, Gujarat, Khandesh, Berar and the Deccan. Humidity was most largely in defect in Upper Sind, Central India, Berar and the greater part of the Central Provinces over which it was more than 10 below the normal. The deficiency was absolutely greatest at Buldana (—21) and Khandwa (—16). It may be noted that for various reasons, chiefly alterations in the exposure of the instruments and shed, the humidity data of Agra, Saugor and Akyab are doubtful, and the variations given in Table II probably erroneous.

The air was generally slightly drier than usual in the Bombay and Madras coast districts and in Mysore.

There was more cloud than usual in Burma, the Bengal coast districts, the central and eastern districts of the North-Western Provinces and the North and Central Punjab, and also in Malabar, Mysore and South Madras, but over the remainder of India cloud was in more or less general defect. The deficiency was most marked in the area of greatest deficiency of humidity, *viz.*, in Sind, the South Punjab, Rajputana, Central India, Berar, North Bombay, the Central Provinces and the greater part of the Deccan. The deficiency was absolutely greatest at Deesa and Mount Abu (each—2·6).

The following table gives variation data of the mean aqueous vapour pressure, mean humidity and mean cloud amount of ten meteorological provinces :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean aqueous vapour pressure June 1897.	Mean humidity, June 1897.	Mean cloud amount, June 1897.
	"		
Burma Coast and Bay Islands	+·039	0	+1·0
Assam	+·017	−1	−0·9
Bengal and Orissa	+·018	−2	−0·1
Gangetic Plain and Chota Nagpur	+·011	−1	+0·4
Upper Sub-Himalayas	−·067	−6	−1·3
Indus Valley and North-West Rajputana.	−·082	−6	−0·3
East Rajputana, Central India and Gujarat.	−·019	−5	−1·4
Deccan	−·040	−9	−0·6
West Coast	+·012	−4	−0·3
South India	−·001	−3	−0·2

Rainfall.—The chief feature in the meteorology of the month was the delay in the establishment of the Bombay or west coast monsoon current. Malabar received heavy rain from thundershowers during the period from the 5th to the 11th. Burma and Bengal also obtained moderately heavy rain during the first twelve days of the month. The monsoon rains proper commenced on the Malaber Coast on the 12th. The wave of rainfall advanced rapidly along the coast as far as Bombay on the 13th. It also extended rapidly into the interior during the same period, and Berar, the Central Provinces, Central India, East Rajputana, the western districts of the North-Western Provinces, and the South-East Punjab received heavy thundershowers between the 13th and 15th. A small storm formed in front of the ad-

vancing monsoon in the west of the Arabian Sea which gave stormy weather near Socotra on the 8th, 9th and 10th. After this depression had filled up, the first burst of heavy monsoon rain occurred on the Konkan Coast. The monsoon current advanced up the Bay during the period from the 12th to the 15th. A storm formed in front of the advancing current in the north-west angle on the 14th. It increased in intensity on the 15th and 16th and crossed the Orissa Coast on the morning of the 17th. It advanced west-north-westwards across Orissa and Chota Nagpur into Baghelkhand and Bundelkhand, and gave heavy rain to the belt of country through which it passed, and moderate rain to the Central Provinces, Bengal and Bihar, and the North-Western Provinces. The rainfall was exceptionally heavy in Bundelkhand on the 20th. The depression filled up in Bundelkhand on the 21st. This was followed by the withdrawal of the Bombay humid current from Rajputana and Central India from the Central Provinces and the Deccan on the 24th. This break in the rains in these areas, which usually receive their monsoon rainfall from the Bombay current, lasted throughout the remainder of the month.

A depression formed in Bihar on the 23rd. It shifted slowly eastwards through Central Bihar on the 24th, into Central Bengal on the 26th, and East Bengal on the 27th, and filled up there on the 28th. This disturbance gave an excessively heavy downpour in Central Bihar on the 24th, 25th and 26th, and moderately heavy rain from the 26th to the 28th in East, South and Central Bengal. As this depression moved eastwards, dry westerly winds slowly extended eastwards from the North-Western Provinces across Bihar into West Bengal, and on the 29th the break in the rains prevailed over the whole of India. Showers fell in Lower Burma and Malabar on the 29th and 30th.

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

METEOROLOGICAL PROVINCE.	RAINFALL.		
	Mean actual for June, 1897.	Mean normal for June.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	36·72	27·47	+5·99
Burma Inland	6·85	8·35	—1·50
Assam	16·33	19·65	—2·03*
Bengal and Orissa	12·26	12·81	—0·63
Gangetic Plain and Chota Nagpur	9·17	6·56	+2·61
Upper Sub-Himalayas	1·71	3·65	—1·82*
Indus Valley and North-West Rajputana.	0·40	0·76	—0·42*
East Rajputana, Central India and Gujarat.	2·88	4·11	—0·89*
Deccan	3·84	6·41	—2·57
West Coast	31·59	27·73	+3·86
South India	3·57	3·92	—0·34

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

Atmospheric Pressure.

The mean pressure of the Indian area averaged ·011″ below the normal in June.

The pressure anomalies were generally similar in character to those of the preceding month. As a usual rule when the monsoon currents are of normal strength or stronger than usual, the pressure anomalies of June are inverse to those of May. This temporary inversion or change did not occur in June 1897, due to the peculiar features of the month, more especially the delay and weakness of the Bombay current.

Pressure was, relatively to the general condition, in defect to the east and south of a line joining Bareilly, Jeypore, Nagpur, Vizagapatam, Cuddapah and Karwar, except in Tenasserim, where it was in very slight local excess. The anomalies were small in amount and exceeded ·02″ at one station only, *viz.*, Gaya (—·023″).

Pressure was, relatively to the general condition, in excess to the west and north of the line defined above. The excess was greatest in a part of the area characterized by greatest excess of pressure in May, including Cutch and Kathiawar, and also in the North and Central Punjab. The following gives data for the stations in these areas at which the excess of pressure was greatest :—

DIVISION.	STATION.	Variation of mean 8 A.M. pressure of June 1897, from normal.	Pressure anomaly, June 1897.
		″	″
PUNJAB	Peshawar	+·035	+·046
	Rawalpindi	+·019	+·030
	Dera Ismail Khan	+·016	+·027
	Mooltan	+·009	+·020
	Sialkot	+·009	+·020
CUTCH	Bhuj	+·014	+·025
KATHIAWAR	Rajkot	+·013	+·024

Pressure was generally in excess at the lower hill stations in Northern India and Baluchistan. It was, on the other hand, in defect at the most elevated stations (Leh and Kailang) and at Darjeeling and Wellington. The vertical pressure anomalies were positive, but small in amount in Northern India, as is shown by the following data for nine pairs of stations :—

HILL STATION.	Variation of pressure from normal. (a)	PLAIN STATION.	Variation of pressure from normal. (b)	Vertical pressure anomaly or (a)-(b).
	"		"	
Quetta	+·023	Jacobabad	+·006	+·017
Murree	+·016	Peshawar	+·035	−·019
Leh	?	Lahore	+·006	?
Kailang	−·010	Lahore	+·006	−·016
Simla	+·008	Ludhiana	−·007	+·015
Chakrata	−·010	Roorkee	−·007	−·003
Ranikhet	+·018	Bareilly	−·013	+·031
Darjeeling	−·008	Dhubri	−·015	+·007
Mount Abu	0	Deesa	−·002	+·002

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

(1) Pressure was in defect in the Indian area by amounts averaging ·011″.

(2) Pressure was in relative defect in North-Eastern India and also in South India. The deficiency was generally small in amount and was most marked in South Bihar.

(3) Pressure was in relative excess over the greater part of the Peninsula, Central India, Rajputana, North Bombay, the Punjab and Baluchistan. The excess was greatest in the North Punjab at Peshawar where it was ·046″ in amount.

(4) Pressure was relatively in excess or the vertical pressure anomalies were positive in the Himalayan area.

Barometric depressions and cyclonic storms of the month.

Pressure at the commencement of the month was in general excess. It was in slight local defect in Bihar. The excess was large and marked in the North Punjab. The following gives variation and anomaly data of the larger divisions for the 1st :—

PROVINCE.	Variation from normal of mean 8 A.M. pressure of 1st June 1897.	Pressure anomaly, 1st June 1897.
	"	"
Burma	+·035	−·007
Bengal and Assam	+·026	−·016
North-Western Provinces and Oudh	+·017	−·025
Punjab	+·070	+·028
Sind and Rajputana	+·048	+·006
Central India and Gujarat	+·056	+·014
Central Provinces and Berar	+·055	+·013
Bombay	+·057	+·015
Madras	+·043	+·001

Pressure increased unequally but generally by small to moderate amounts on the 2nd. Weather was slightly disturbed in the Punjab and adjacent hills and series of dust-storms and thunderstorms on the 1st, 2nd and 3rd gave light rain to that area. This rainfall caused a very large reduction of temperature in the Punjab. The mean temperature of that area on the 3rd averaged 10° below the normal, on the 4th 9° below, and on the 5th 6° below.

Pressure gave way generally on the 3rd and 4th, but recovered briskly on the 5th, on which day pressure was very uniform for the season over India and in excess, except in Southern India. The following gives data showing the conditions on that day :—

PROVINCE.	Variation from normal of mean 8 A.M. pressure of 5th June 1897.	Pressure anomaly, 5th June 1897.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 5th June 1897.
	"	"	°
Burma	+·055	−·014	+4·0
Bengal and Assam	+·111	+·042	+1·3
North-Western Provinces and Oudh	+·103	+·034	+0·7
Punjab	+·161	+·092	−5·7
Sind and Rajputana	+·120	+·051	+1·3
Central India and Gujarat	+·064	−·005	+3·2
Central Provinces and Berar	+·051	−·018	+6·8
Bombay	−·023	−·092	+5·1
Madras	−·016	−·085	+1·6

No important change occurred in the pressure distribution during the next 48 hours. Numerous thunder-

storms occurred in Malabar and gave heavy showers. Light to moderate showers, due also to moderate thunderstorms, were received in Lower Burma and Bengal in this period.

Meanwhile an advance of monsoon winds was in progress in the Arabian Sea which gave rise to very stormy weather near Socotra. The following gives a brief history of this storm :—

Disturbance and cyclonic storm in the Arabian Sea.—At the commencement of the month fine weather with light variable winds prevailed over the north and west of the Arabian Sea. Winds were generally from east in the centre between Socotra and Bombay. Moderate to fresh westerly winds with occasional squalls obtained in the extreme south (to the south of Lat. 8° N.) and in the south-west near the African coast where weather was showery and squally. No change of importance occurred during the next four days except that winds strengthened slightly in the south-west and extended northwards as far as Socotra. The following extracts from the logs of the S. S. *Goa* proceeding from Aden to Zanzibar show clearly the character of the weather and the rapid transition from the area of light winds :—

Date.	Hour.	Name of Vessel.	8 A.M. Position.		Barometer corrected (Bombay office).	Wind.		Weather.
			Lat. N.	Long. E.		Direction.	Force.	
			° ′	° ′	″			
4th	4 A.M.	S.S. *Goa*	...	...	...	Calm	0	Overcast.
,,	Noon	,,	12 6	49 56	...	Var,	1	,,
,,	8 P.M.	,,	...	...	...	E by N	2	Slight sea and cloudy.
,,	Midnight	,,	...	...	...	SSW	5	Rising sea and cloudy.
5th	8 A.M.	,,	10 9	51 27	29·709	SSW	6	,, ,,
,,	4 P.M.	,,	...	...	...	SW by S	7	Tremendous sea and swell; cloudy.
,,	8 ,,	,,	...	...	...	SW by S	8 to 10	Overcast with high wind and swell.
,,	Midnight	,,	...	...	...	SW	8	Overcast, heavy sea and swell.
6th	4 A.M.	,,	...	...	...	SW	7	Violent gusts and cloudy.
,,	8 ,,	,,	7 28	52 48	·705	SW	9	High sea and cloudy.
,,	4 P.M.	,,	...	...	...	SW	9	Heavy sea and cloudy.
,,	8 ,,	,,	...	..	...	SW	9	High monsoon sea and cloudy.

The position of the *Goa* at noon of the 4th was Lat. 12° 6′ N and Long. 49° 56′ E, at noon of the 5th Lat. 9° 46′ N, Long. 51° 45′ E, and at noon of the 6th Lat. 7° N, Long. 53° E.

So far as can be judged from the data the *Goa* passed in the course of a few hours from a region of light variable airs near Socotra into the front of the advancing south-west monsoon winds. The suddenness of the change and the direction of the winds taken in connection with the position of the vessel indicate clearly that there was as yet no cyclonic storm in existence to the south of Socotra.

The following gives data for the area of disturbed weather in front of the advancing monsoon on the 6th :—

Hour.	Name of Vessel.	8 A.M. Position.		Barometer corrected (Bombay office).	Wind.		Weather.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	″			
8 A.M.	S.S. *R. Rubattino.*	13 34	49 50	...	ESE	1	Midnight heavy rain.
,,	S.S *Clan Macarthur.*	12 46	52 7	29·639	E	2	Moderate sea and overcast.
,,	S.S. *Naseri*	15 18	58 45	·527	ESE	2	Cloudy.
,,	S.S. *City of Bombay.*	12 14	56 39	·636	WSW	6	High sea and heavy squalls of wind and rain.

The log of the *City of Bombay* for the 5th and 6th is instructive, as it also shows the sudden transition from an area of light winds into the region of disturbed squally weather in front of the advance of monsoon winds. The following gives extracts :—

Date.	Hour.	Name of Vessel.	8 A.M. Position.		Barometer corrected (Bombay office).	Wind.		Weather.
			Lat. N.	Long. E.		Direction.	Force.	
			° ′	° ′	″			
5th	4 A.M.	S.S. *City of Bombay.*	...	...	...	Var.	3	Heavy rain with thunder and lightning.
,	Noon	,,	12 48	53 15	...	Var.	3	Cloudy and heavy swell.
,,	4 P.M.	,,	...	...	...	Var.	3	Cloudy.
,,	8 ,,	,,	...	...	...	SW	5	Increasing wind and heavy rain.
6th	4 A.M.	,,	...	...	...	WSW	6	Heavy SW sea.
,,	8 ,,	,,	12 14	56 39	29·636	WSW	6	Heavy squalls of wind and rain and high sea.
,,	Noon	,,	12 6	57 18	...	WSW	6	,, ,,

The easterly winds recorded in the logs of the *Naseri* and *Clan Macarthur* were the continuation of the winds which had prevailed to the east and north-east of Socotra during the previous week and were not due to a cyclonic disturbance.

The strong south-west winds and stormy weather experienced by the S.S. *Goa* and *City of Bombay* were hence due to the northward extension of the monsoon, and it is clear that there was no cyclonic storm in existence on the 6th.

The following gives data for the same part of the Arabian Sea on the morning of the 7th :—

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer corrected (Bombay office).	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′	″			
8 A.M.	S.S. *City of Bombay.*	10 54	61 3	29·746	SW	5	High sea and cloudy, 4 P.M., squally and heavy rain.
,,	S.S. *Clan Macarthur.*	12 22	56 58	·608	Var.	...	Squally, with heavy rain.
,,	S.S. *Naseri* .	16 17	61 54	·541	S	2	4 P.M. cloudy.
,,	S.S. *Shannon*	15 38	58 38	·567	SW	4	SW swell and cloudy, 8 P.M., heavy squalls of wind and rain.
,,	S.S. *R. Rubattino.*	14 28	54 18	...	SW	3	Heavy continuous rain.
,,	S.S. *Senator* .	12 11	49 37	...	S	2	Smooth sea and fine. 4 P.M. overcast.

The data indicate that over the whole of the sea area in the neighbourhood of Socotra south to west-south-west winds prevailed. Winds were fresh to strong with frequent squalls and heavy rain to the south of the latitude of Socotra and light to moderate with occasional rain to the north.

8th June.—Conditions were apparently unchanged in the West Arabian Sea near Socotra as is shown by the following 8 A.M. data extracted from the logs of ships :—

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer corrected (Bombay office).	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′	″			
8 A.M.	S.S. *Goa* .	1 48	50 29	29·780	SW	6	Following sea. Midnight light rain.
,,	S.S. *Clan Macarthur*	10 42	61 30	·656	SSW	5	Slight sea. Fine.
,,	S.S. *R. Rubattino.*	15 22	58 41	...	SSW	2	Heavy rain.
,,	S.S. *Senator* .	12 30	54 11	...	SW	6	Squally and dark gloomy.
,,	S.S. *Shannon*	14 21	53 50	·417	NW	5	Overcast.

The S S. *Senator* (advancing eastwards) had a strong south-west gale with frequent squalls and a heavy sea during the afternoon. Her data indicate that she experienced to the east of Socotra stormy weather and strong winds similar to those through which the S.S. *Goa* passed on the 5th, 250 miles to the south-west of Socotra. The wind direction of the S.S. *Shannon* (NW) is the only indication that a cyclonic storm was probably forming to the north of Socotra.

9th June.—The only information throwing light upon the character of the weather near Socotra on this day is given in the log of the mail steamer *Thames.* She was passing eastwards to the north of Socotra on her voyage from Aden to Bombay. The following gives extracts from her log :—

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer corrected (Bombay office).	Wind. Direction.	Wind. Force.	Weather.
		° ′	°	″			
8 A.M.	S. S. *Thames* .	13 48	51 19	29·575	Var.	2 to 0	Southerly swell and overcast.
Noon	,, .	13 56	52 10	·545	SE	2 to 3	,, ,,
4 P.M.	,, .	...	...	...	WNW	2 to 3	Confused swell from NE to S.
8 ,,	,, .	...	...	·500	NNW	6 to 7	Cross sea and overcast.
Midnight.	,, .	...	...	·450	N by W	4 to 5	Confused sea and overcast.

The *Thames* passed out of the Gulf of Aden about 9 A.M. She had light winds until 5 P.M., when she was probably in Long. 53°E. She had after that hour increasing winds from north-north-west with a confused sea, evidently due to a cyclonic disturbance which she was approaching. It is hence very probable that a cyclonic storm of some intensity had formed to the north-east of Socotra.

10th June.—The mail steamer *Thames* passed through the southern quadrant of the storm during the day. The following gives the more important data contained in her log :—

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer corrected (Bombay office).	Wind. Direction.	Wind. Force.	Weather.
			° ′	″			
4 A.M.	S. S. *Thames* .	...	...	29·409	NNE	6 to 7	Hard gusts and confused sea.
8 ,,	,, .	14 42	55 41	·419	N	7	Hard squall and heavy rain.

HOUR.	NAME OF VESSEL.	8 A.M. POSITION.		Barometer corrected (Bombay office).	WIND.		WEATHER.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	″			
Noon.	S. S. Thames .	14 50	56 23	·379	NE	5 to 6	Rain squalls and considerable SW swell.
4 P.M.	,, .	...	...	·279	NNE	6	Frequent hard squalls of wind and rain.
6 ,,	,, .	...	...	·299	Var.	...	Heavy SW swell.
8 ,,	,, .	...	...	·379	WSW	6 to 5	Rainy and lightning.
Midnight.	,, .	...	...	·509	WSW	6 to 9	Frequent heavy squalls and high SW sea.

The data indicate that the cyclonic storm was of moderate intensity, and that its centre in the afternoon was in about Lat. 15° N and Long. 56½° E and was advancing along a north or north-north-west track.

11th June.—So far as can be gathered from the scanty information, the storm appears to have advanced northwards to the Arabian Coast and was probably breaking up. The following gives data for the part of the Arabian Sea affected by the storm on the 11th :—

HOUR.	NAME OF VESSEL.	8 A.M. POSITION.		Barometer corrected (Bombay office).	WIND.		WEATHER.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	″			
8 A.M.	S.S. *Manila* .	12 55	54 31	29·637	SSW	6	Considerable SW swell and cloudy.
,,	S.S. *Kt. Templar*	12 18	58 1	...	SW	6	Confused sea and cloudy. 4 P.M., squally with heavy rain.
,,	S.S. *Thames* .	16 3	60 17	·647	SW	6	High swell and cloudy.
,,	S.S. *Maria Valerie.*	15 58	54 11	...	SSW	2	

The data show that light to strong south-west winds prevailed over the whole area affected by the storm on the previous day.

This advance of monsoon conditions in the Arabian Sea was shown very clearly by the pressure data of the Malabar and Konkan Coast stations. It has been shown in previous monthly weather reviews for June that the advance of the monsoon up the Arabian Sea accompanies the march of a low pressure wave northwards from the West Ceylon Coast to Malabar and the Konkan and that the depression of the wave usually intensifies with its northward advance. Frequently, but not invariably, it developes when off the Konkan coast into a cyclonic storm. It is probable this belt of low pressure or low pressure wave extends westwards over a large portion of the Arabian Sea, but the exact data necessary to establish this are yet wanting. The following shows the progress of the low pressure wave which preceded the burst of the monsoon on the west coast in June 1897 :—

STATION.	VARIATION FROM NORMAL OF 8 A.M. PRESSURE OF DATE.					
	2nd June.	4th June.	6th June.	8th June.	10th June.	12th June.
	″	″	″	″	″	″
Colombo . . .	+·025	—·067	—·010	—·060	—·033	—·027
Cochin . . .	+·027	—·066	—·057	—·071	+·028	—·044
Calicut . . .	+·040	—·074	—·073	—·039	+·069	—·034
Mangalore . . .	+·063	—·064	—·108	—·074	+·115	—·032
Karwar . . .	+·062	—·042	—·088	—·112	+·114	—·032
Ratnagiri . . .	+·102	—·032	—·013	—·079	+·114	0
Bombay . . .	+·102	+·001	—·008	—·050	+·119	+·023

The trough of the low pressure wave was in the latitude of Calicut on the 4th, in that of Mangalore on the 6th, and in that of Karwar on the 8th.

It should be noted that pressure was during this period from the 2nd to the 8th or 9th in large excess over the whole of Northern and Central India, and hence that the pressure conditions in that area were the opposite of those which would be required if the advance of the monsoon currents were a mere indraught to a region of excessive temperature and low pressure. The following gives data for Northern and Central India :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN 8 A.M. PRESSURE OF DATE			
	2nd June.	4th June.	6th June.	8th June.
	″	″	″	″
Punjab	+·118	+·138	+·131	+·065
Rajputana	+·085	+·051	+·111	+·036
North-Western Provinces .	+·078	+ 044	+·086	+·065
Central India	+·082	+·034	+·077	+·012
Bihar	+·076	+·020	+·100	+·111
Chota Nagpur . . .	+·058	+·030	+·085	+·066
Bengal and Orissa . . .	+·116	+·062	+·094	+·117
Central Provinces . . .	+·061	+·012	+·083	+·042

A remarkable change of pressure conditions occurred on the 10th and 11th. Pressure increased rapidly in Western India on the 10th and fell rapidly in Northern India on the 11th.

The following gives mean pressure and temperature conditions on these days:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN 8 A.M. PRESSURE OF DATE		VARIATION FROM NORMAL OF AVERAGE MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF DATE	
	10th June.	11th June.	10th June.	11th June.
	"	"	°	°
Burma	+·080	+·064	+ 2·1	+1·9
Bengal and Assam	+·132	+·079	+ 2·9	+3·0
North-Western Provinces and Oudh.	+·065	—·015	+ 6·4	+6·6
Punjab	+·096	—·009	+ 5·9	+6·3
Sind and Rajputana	+·122	+·094	+10·2	+6·6
Central India and Gujarat	+·106	+·082	+ 7·9	+5·3
Central Provinces and Berar	+·064	+·053	+ 8·6	+6·7
Bombay	+·101	+·092	+ 4·2	+2·1
Madras	+·070	+·055	+ 3·9	+2·0

Pressure gave way rapidly over nearly the whole of India during the next two days. This period was the culmination of the hot weather in North-Western India, higher temperatures being recorded in Sind and West Rajputana than have been previously registered. Concurrently with this condition heavy continuous rain began to fall in the Konkan and Malabar, forming the commencement of the monsoon rains on the West Coast.

The following gives pressure and temperature variation data for the 12th and 13th, showing the general conditions obtaining during the establishment of the monsoon current on the West Coast of India:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN 8 A.M. PRESSURE OF DATE		VARIATION FROM NORMAL OF AVERAGE MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF DATE	
	12th June.	13th June.	12th June.	13th June.
	"	"	°	°
Burma	+·036	+·019	+1·1	+1·5
Bengal and Assam	+·052	+·030	+1·1	—2·3
North-Western Provinces and Oudh.	—·002	—·008	+2·0	—0·6
Punjab	—·052	—·056	+7·6	+4·7
Sind and Rajputana	—·016	—·098	+5·9	+8·6
Central India and Gujarat	—·007	—·053	+5·2	+5·2
Central Provinces and Berar	—·028	—·022	+3·4	+4·2
Bombay	—·013	—·017	+0·5	+2·0
Madras	—·023	—·003	—0·4	+1·6

A depression due to thermal actions formed in Sind on the 13th and steepish gradients obtained in the monsoon area. Heavy rain had fallen along the West Coast between Cochin and Bombay and a rapid increase of humidity had occurred in the interior indicating the extension of humid winds. Conditions were hence generally unsettled and series of thunderstorms and duststorms occurred over the greater part of North-Western and Central India and the Deccan on the 13th and following two days.

Whilst these changes were in progress in Western and North-Western India, the monsoon current was advancing up the Bay and giving squally weather with much rain.

Weather was showery over the entrance to the Bay at the beginning of the month and was fine with light to strong winds in the centre and north. No change occurred during the next week when light unsteady winds from south-east to south-west and fine weather held steadily at the Nicobars and Port Blair. Winds increased in force on the 12th and squally weather advanced up the east of the Bay as far as Lat. 12° N. Winds strengthened very considerably during the next 48 hours *pari passu* with the establishment of the monsoon on the Malabar and Konkan Coasts. Fresh to strong south-west winds obtained on the 14th over the south and centre of the Bay and also off the Orissa and Circars Coasts. The monsoon winds advancing up the east of the Bay had apparently reached the Arakan Coast where weather was disturbed with frequent squalls and very irregular winds. The following gives 8 A.M. data of the 13th extracted from the logs of ships for this area and also for the north-west angle of the Bay:—

HOUR.	NAME OF VESSEL.	8 A.M. POSITION.		Barometer corrected.	WIND.		WEATHER.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	"			
8 A.M.	S.S. *Pentakota*	15 50	93 44	29·699	NE	2	Con'used sea, overcast with rain, 4 A.M. heavy rain squalls.
,,	S.S. *Roma*	16 25	93 28	·695	Var.	...	Overcast and light rain.
,,	S.S. *Shahzada*	18 41	93 07	·698	Var.	4	Fine, 4 A.M.; squally with rain.
,,	S.S. *Ceres*	18 47	87 0	...	SSW	6	Strong head sea. Overcast.
,,	S.S. *Java*	20 25	88 56	·575	SW	4	Fine, 4 A.M.; rain squalls.
,,	F.L.V. *Hesperus*	Eastern Channel.		·549	SW	4	
,,	F.L.V. *Torch*	Mutlah.		·564	SSW	5	Rough sea from SSW.

The fresh to strong south-west winds in the north-west of the Bay were local sea winds due to the pressure and temperature conditions in North-Eastern India and were as yet uninfluenced by the advancing monsoon. The front of the monsoon current, which was as usual an area of very irregular and variable but strongish winds and of squally weather, was at 8 A.M. off the Arakan Coast between Lat. 16°N and Lat. 20°N.

It continued to advance during the day and was about 300 miles further north at 8 A.M. of the 14th. The following gives data for this area of irregular winds and squally weather in front of the monsoon current at 8 A.M. of the 14th :—

HOUR.	NAME OF VESSEL.	8 A.M. POSITION.		Barometer corrected.	WIND.		WEATHER.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	″			
8 A.M.	S.S. *Madura* .	19 56	89 26	29·497	WNW	4	Slight swell, overcast, 4 A.M., squally with heavy rain.
,,	S.S. *Ceres* .	17 7	86 27	...	SW	6	Heavy head sea. Overcast.
,,	S.S. *Pentakota* .	18 40	90 23	·575	S	4	Frequent sharp squalls, 4 A.M. thunderstorm with vivid lightning.
,,	S.S. *Africa* .	15 49	94 39	·658	WSW	6	High sea, squally.
,,	S.S. *Shahzada*	Madras.		·664	...	...	4 P.M., fine and clear.

The data of the *Pentakota* indicate that weather was now disturbed in the north-east of the Bay, and the wind data of the *Madura* and other vessels that there was a tendency to the establishment of a cyclonic circulation in the area of disturbed weather in front of the monsoon current.

The following data show that in the north west angle of the Bay winds were as yet unchanged in direction, but were decreasing in force, due to the initiation and extension of the indraught to the disturbance :—

HOUR.	NAME OF VESSEL.	8 A.M. POSITION.		Barometer corrected.	WIND.		WEATHER.
		Lat. N.	Long. E.		Direction. SW	Force.	
		° ′	°	″			
8 A.M.	S.S. *Karagola*.	Saugor	Island	29·474	SW	2	Overcast, 4 A.M.; showery.
,,	F.L.V. *Hesperus*.	Eastern Channel.		·491	S	2	...
,,	F.L.V. *Torch*	Mutlah.		·495	S	3	Heavy S. swell, passing rain, squalls.

The observations taken at 8 A.M. of the 15th indicate that a shallow depression and feeble cyclonic circulation (the development of the disturbance in front of the advancing monsoon on the 13th and 14th) was established at the head of the Bay.

The following gives an account of the cyclonic storm, the origin of which has been described above.

Cyclonic storm of the 15th to the 20th June.—The origin of this storm has been fully stated. On the morning of the 15th the area of depression and cyclonic circulation lay over the head of the Bay. The following gives data fixing its position approximately :—

HOUR.	NAME OF VESSEL.	8 A.M. POSITION.		Barometer corrected.	WIND.		WEATHER.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	″			
8. A.M.	S.S. *Kut Sang*	16 57	91 15	29·547	WSW	5	Rough sea and squally.
,,	S.S. *Africa* .	18 01	91 14	·479	WSW	6	High sea, 4 A.M.; squally.
,,	S.S. *Malda* .	19 6	90 22	·451	SSE	2	Heavy SW swell and squally.
,,	S.S. *Katoria* .	20 4	92 40	·462	SE	5	Heavy S swell and frequent showers.
,,	S.S. *Shahzada*	Chittagong		·491	...	...	Midnight heavy rain squalls.
,,	F.L.V. *Hesperus*	Eastern Channel.		·441	NNW	2	...
,,	F.L.V. *Torch* .	Mutlah.		·447	N	2	...

The weather was now squally with increasing sea, winds and rain over the north of the Bay. Pressure was probably about an eighth of an inch below the normal in the central depression, and the centre of the circulation was approximately in Lat. 20°N and Long. 88½°E or 89°E. Winds were shifting round to cyclonic directions in South Bengal. Skies were clouded and weather was showery in that area.

16th June.—The depression had increased in intensity slightly and had begun to move west-north-westwards. The following data fix its position at 8 A.M. :—

HOUR.	NAME OF VESSEL.	8 A.M. POSITION.		Barometer corrected.	WIND.		WEATHER.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	″			
8 A.M.	S.S. *Malda* .	15 45	93 43	29 587	SW	5	Fresh sea and squally.
,,	S.S. *Katoria* .	17 18	93 40	·545	SSW	5	Heavy SW swell, noon violent squalls of wind and rain.

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction.	Force.	Weather.
		° ′	° ′	″			
8 A.M.	S.S. *Kut Sang*	19 31	88 44	29·387	SSE	5	Rough sea and rainy.
„	S.S. *Africa* .	20 57	88 32	·352	SE	2	Smooth sea and fine, 4 P.M. squally.
„	S.S. *Shahzada*	21 6	89 42	·373	S	5	Noon, occasional rain squalls.
„	S.S. *Mecca* .	Saugor Island.		·366	S by E	4	Cloudy and occasional rain squalls.
„	F.L.V. *Hesperus.*	Eastern Channel.		·350	SE	4	...
„	F.L.V. *Torch* .	Mutlah.		·351	ESE	5	High confused sea and heavy passing rain squalls.

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.	
Saugor Island .	29·368	—·069	—·136	ENE	10	10	1·20	Sea smooth.
Balasore .	·381	—·081	—·107	NNE	5	7	0·24	Drizzling.
False Point.	·320	—·137	—·203	NW	7	10	2·63	...
Puri . .	·387	—·091	?	N	11	10	2·21	Overcast with rain.

The data when charted indicate that the centre of the depression was in Lat. 20½°N and Long. 87½°E. and that it had hence advanced about 80 miles during the previous 24 hours.

Pressure at the centre was now about a quarter of an inch below the normal. Heavy rain had fallen in Orissa and South-West Bengal and light rain in East Bengal, but the indraught to the storm was giving fine weather to North Bengal and Assam.

The weather at the entrance to the Hooghly during the day is thus described by Captain Woolward, Commanding the F. L. V. *Hesperus*, Ridge Station :—

"From 8 hours to noon, wind backing and hauling frequently from ESE to ENE. Cumulus cloud in usual motion to east, pallio-cumulus in large masses from same quarter, with fracto-cumulus travelling slowly west. Cumulus and Pallium forming a high bank to south-west, cumulus in slow motion to east and from off top of this bank. Cirrus and cirro-stratus rising up slowly and vanishing in mid-heaven. Since 8 hours slight squalls at long intervals with showers, and cyclonic-looking weather from sunrise to sunset. Squalls ceased shortly after 8 P.M. and sky cleared considerably and at midnight only in south-west quarter; there is a very ugly bank of cumulus and pallium in which cumulus is in great motion, together with high faint occasional lightning. From 6 P.M. to 8 P.M. during intervals of squalls the wind lulled as if about to fall calm and the sea became agitated or confused, a slight swell from south."

Heavy rain continued to fall in the West Coast districts and weather was disturbed with numerous violent dust and thunderstorms in the Deccan and Central Provinces.

17th June.—The storm observations received indicate that the centre of the storm crossed the Orissa Coast a little to the north of False Point slightly after 2 A.M. Pressure at that hour at False Point was 29·24″, about a third of an inch below the normal.

The depression had hence increased during the previous 24 hours and was now of moderate intensity. The following observations give the position of the storm at 8 A.M. :—

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	
Puri . .	29·337	—·050	?	W	9	10	1·12	Sea rising.
False Point .	·292	—·028	—·234	SW	15	10	2·24	...
Balasore .	·273	—·108	—·223	ESE	7	6	1·75	Drizzling.
Saugor Island.	·309	—·059	—·202	SSE	18	10	0·21	Sea slight.
Chaibassa .	·322	—·099	?	ENE	5	10	0·95	Showery.
Sambalpur .	·359	—·065	—·161	NW	8	10	1·21	...

The centre of the depression at 8 A.M. was in about Lat. 21½° N. and Long 86¼° E. and was hence approaching the North Orissa Hills.

Strong monsoon winds force 6 to 8 obtained over the northern half of the Bay and weather was squally with heavy rain. Weather was more squally and winds stronger at the head of the Bay during the afternoon than in the morning as is shown by the following remarks extracted from Captain Woolward's meteorological log :—

"From beginning to 6 A.M. Cirrus and cirro-stratus moving up from south off bank of pallium and cumulus. From 6 A.M. to 4 P.M. moderate squalls at long intervals with slight rain. After 4 P.M. squalls became stronger and more frequent and sea and swell rose rapidly. Sunset very yellow, pallio-cumulus coming up from wind direction and massive white cumulus in great commotion to south-west with pallium as a background. Squalls continued frequent up till 10 P.M., when sky cleared rapidly. There was a high swell and sea from wind direction since 4 P.M."

Moderate to heavy rain had been received during the previous 24 hours in Chota Nagpur and Orissa and light showers in South Bengal.

18th June.—The passage of the storm across the North Orissa Hills had transformed its character to some extent. At 8 A.M. of the 18th the storm covered a much larger area than hitherto and the depression was practically uniform in amount (about ·15″) over a circular area of nearly 350 miles in diameter.

The following gives 8 A M. data for this 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 .	29·401	+·128	—·108	SW	6	4	0·31	Fine.
Chaibassa .	·368	+·046	?	SE	7	10	0·22	
Ranchi .	·372	...	—·145	ENE	17	10	1·11	Showery.
Hazaribagh	·373	—·023	—·149	ESE	18	10	0·95	
Benares .	·418	—·017	—·074	NE	8	10	1·35	
Jubbulpore .	·435	+·011	—·102	WNW	4	10	0·07	
Raipur .	·430	+·031	—·119	SSW	11	10	0·24	
Sambalpur .	·376	+·017	—·154	S	6	10	2·46	

The direction of wind at Sambalpur is doubtful. So far as can be judged from the data the centre of the storm was to the south of Ranchi in about Lat. 22⅓° N. and Long. 85¼° E.

The Bombay current continued to give heavy rain in the west coast districts, chiefly Malabar and the South Konkan.

19th June.—The storm had advanced in a west-north-westerly direction about 315 miles during the previous 24 hours and now lay over Baghelkhand and the neighbouring districts of the North-Western Provinces, Central Provinces and Central India. The depression at the centre had increased slightly and the storm was more vigorous and well-marked than on the 18th. The following observations indicate its position and character at 8 A.M :—

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.	29·407	—·028	—·143	WSW	3	10	1·37	
Raipur .	·408	—·022	—·142	SW	11	4	1·50	Distant lightning.
Chaibassa .	·434	+·066	?	WSW	2	10	0·04	
Benares .	29·385	—·033	—·116	E	11	10	1·60	Showery.
Allahabad .	·330	—·107	—·166	ENE	18	10	2·53	Squally.
Sutna .	·307	—·131	—·208	N	8	10	3·60	Continuous rain for upwards of 12 hours.
Cawnpore .	·386	—·085	?	ENE	8	10	0·61	Showery.
Nowgong .	·388	—·085	—·137	NW	3	10	0·98	Raining.

The centre of the disturbance was probably in about Lat. 24½° N. and Long. 81° E. at 8 A.M.

The storm had given moderately heavy rain during the previous 24 hours to the greater part of the North-Western Provinces and the eastern districts of Central India and of the Central Provinces.

20th June.—The storm had recurved during the previous 24 hours and its centre at 8 A.M. was about 130 miles to the west of its position on the previous day. The following gives 8 A.M. data of 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	
Hoshangabad.	29·465	+·027	—·133	WSW	9	10	0·31	Showery.
Saugor .	·313	—·087	—·237	WSW	7	8	1·80	Fine.
Jubbulpore.	·423	+·016	—·140	SW	6	10	0·06	Gale.
Sutna. .	·386	+·079	—·133	S	10	8	0·08	Fine.
Nowgong .	·368	—·020	—·165	E	7	10	18·22	Continuous rain for upwards of 12 hours.
Jhansi .	·389	—·034	—·151	NNE	3	9	2·75	Continuous rain.

The centre was in Lat. 24½° N or 24¾° N and Long. 79¼° E, and the depression at the centre was slightly greater than on the 19th. Gradients were steep to the west and south of the centre where strong westerly winds were blowing. The most noteworthy feature of the storm during the previous twenty-four hours was the very heavy rain which had fallen over a part of the storm area, more

especially in Bundelkhand and Bhopal. The following gives the more remarkable falls:—

STATE.	Station.	Date.	Rainfall in 24 hours preceding 8 A.M. of date.
			Inches.
BUNDELKHAND . .	Nowgong	20th	18·22
BHOPAL . . .	Sironj	"	6·74

21st June.—The storm had been stationary during the previous 24 hours. Pressure had given way briskly to rapidly in Northern India, except in the storm area, where it had fallen slightly. The storm had hence filled up so that only a shallow residual depression lay over Bundelkhand at 8 A.M. of the 21st, as is shown by the following data:—

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	
Saugor .	29·364	+·051	—·199	WSW	13	10	2·02	Continuous rain.
Jubbulpore.	·406	—·017	—·170	WSW	8	10	0·31	Gale.
Sutna .	·364	—·022	—·164	S	9	7	...	Fine.
Nowgong .	·346	—·022	—·194	NE	7	9	0·09	Showery.
Cawnpore .	·362	—·047	?	E	5	3	...	Fine.
Jhansi .	·366	—·023	—·175	NE	1	7	0·38	...

Light to moderate showers had fallen in the Central Provinces and Central India. The rainfall due to the Bombay current was now steadily decreasing and was light in the Konkan but moderately heavy in Malabar.

The depression filled up during the day, and there was no trace of its existence shown in the chart of the 22nd.

The storm formed in the usual manner in front of the advancing humid current of the south-west monsoon on the 14th and 15th in the Bay. It developed slightly on the 15th and 16th, but was of moderate intensity only when the centre crossed the Orissa Coast a little to the north of False Point on the early morning of the 17th It advanced west-north-westwards through North Orissa and Chota Nagpur on the 17th and 18th into Baghelkhand on the 19th and then recurved to west passing into Bundelkhand to which it gave a deluge of rain during the next 24 hours. The indraught to the storm gave heavy rain to Orissa, and moderate rain to Chota Nagpur as well as to Bihar, the North-Western Provinces and the Central Provinces.

The following gives data showing the track and rate of motion of the storm centre:—

DATE.	HOUR.	POSITION OF CENTRE.		Distance travelled during interval.	Average hourly rate of motion.
		Lat. N.	Long. E.		
		°	°		Miles.
15th . . .	8 A.M.	20	88½	...	...
16th . . .	"	20½	87½	80	3⅓
17th . . .	"	21½	86¼	100	4
18th . . .	"	22½	85¼	100	4
19th . . .	"	24½	81	315	13
20th . . .	"	24½	79¼	130	5⅓

Pressure had given way on the whole during the previous four or five days in India and was in general defect.

The following gives data for the morning of the 22nd:—

PROVINCE.	VARIATION FROM NORMAL OF	
	Mean 8 A.M. pressure of 22nd June.	Mean temperature of 24 hours preceding 8 A.M. of 22nd June.
	"	°
Burma	—·126	+1·1
Bengal and Assam	—·128	+1·1
North-Western Provinces and Oudh . .	—·186	—1·2
Punjab	—·232	+7·7
Sind and Rajputana	—·194	+3·6
Central India and Gujarat . . .	—·168	—2·3
Central Provinces and Berar . . .	—·158	—2·5
Bombay	—·103	+1·3
Madras	—·085	+0·7

Gradients were much steeper than usual and a deepish depression lay over the South Punjab. It shifted westwards into Upper Sind on the 23rd and then filled up. The Central Provinces received moderate rain on the 23rd.

The Bombay current which had been decreasing in strength during the previous four days ceased to give rain in the interior on the 24th. Light local showers fell in the West Coast districts, chiefly in Malabar, during the remainder of the month. A complete break in the rains hence set in over North-Western and Central India, and the Peninsula on the 24th which lasted throughout the month.

A shallow local depression formed in Bihar on the 23rd which was the chief feature of the meteorology of North-Eastern India during the next four days.

The following gives a brief history of the depression.

Land formed storm of the 23rd to the 28th June.—It formed during the twenty-four hours preced-

ing 8 A.M of the 23rd at a time when the Bay current was of moderate strength and the Bombay current falling off rapidly. Its origin was apparently due to heavy local rain in Central Bihar. The following shows its position and character on the 23rd :—

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.	
Gaya .	29·349	—·002	—·188	SSE	5	4	...	Fine.
Patna .	·359	—·010	—·189	E	6	10	0·27	Showery.
Chapra .	·368	+·001	?	ENE	3	9	0·05	...
Benares .	·309	+·007	—·216	NW	4	8	0·31	Showery.
Arrah .	·365	—·002	?	E	2	10	0·11	Dark, gloomy.
Dehri .	·346	—·007	—·181	ESE	4	2	0·14	Dark, gloomy.

24th June.—The pressure changes were small in Bihar, but a considerable local increase of pressure in the eastern districts of the North-Western Provinces accompanied the eastward transfer of the depression into East Bihar on the morning of the 24th. The following gives data of the depression area at 8 A.M. :—

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	
Hazaribagh	29·393	+·023	—·162	NW	12	10	3·61	Showery.
Gaya .	·3[illegible]3	+·034	—·158	W	7	10	1·06	"
Patna .	·370	+·011	—·179	E	6	10	5·87	
Darbhanga	·399	+·019	—·159	ENE	10	10	3·65	Raining.
Arrah .	·360	—·005	?	NW	3	10	2·75	"
Chapra .	·386	+·018	?	E	3	10	3·77	"

Very heavy rain had fallen in Central Bihar during the previous 24 hours. The following gives the most noteworthy falls :—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 24th.
		Inches.
PATNA	Patna	5·87
	Dinapur	3·66
	Bikram	1·50
SHAHABAD	Arrah	10·27
	Ageaon	2·80
SARAN	Amnour	6·75
MUZAFFARPUR	Hajipur	2·98

25th June.—Pressure had risen slightly in Bihar and fallen briskly in East Bengal, and a large area of nearly uniform depression now covered the whole of Bengal. The air movement was very irregular in direction and there was now no definite centre of cyclonic circulation. Excessively heavy rain had fallen in the central districts of Bihar. The following gives the more remarkable falls :—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 25th.
		Inches.
PATNA	Patna	13·80
	Dinapur	19·64
	Bikram	11·20
SHAHABAD	Arrah	2·52
	Ageaon	14·00
SARAN	Amnour	7·50
MUZAFFARPUR	Hajipur	10·70

26th June.—Pressure was now increasing generally over India and most rapidly in North-Eastern India. The depression in Bengal was more localized on the morning of the 26th than on the 25th. The following data show its position :—

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	
Calcutta .	29·507	+·131	—·053	WSW	10	10	2·29	Showery.
Jessore .	·448	+·066	—·133	W	1	10	3·82	
Dacca .	·443	+·056	—·161	SSW	9	10	1·38	
Mymensingh	·472	+·050	—·141	SE	?	9	0·17	Showery.
Bogra .	·441	+·057	?	?	?	9	0·08	Drizzling.
Burdwan .	·475	+·099	—·085	W	5	10	0·08	

Heavy rain had again fallen in Central Bihar and also South Bengal. The more noteworthy falls were :—

DISTRICT.	STATION.	Rainfall of 24 hours preceding 8 A.M. of 26th.
		Inches.
GAYA	Rajauli	8·99
	Nawada	7·11
	Gaya	7·08
SONTHAL PARGANAS	Katikund	5·85
MONGHYR	Jamui	5·69
CHITTAGONG	Kutubdia	5·65
SHAHABAD	Ageaon	5·40

The indraught down the Gangetic Plain to the storm area was giving very strong dry westerly winds in the North-Western Provinces.

27th June.—Pressure continued to increase locally in North-Eastern India. The depression in Bengal was unchanged in position but was now filling up, as is shown by the following data :—

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	
Calcutta	29·529	+·022	—·029	SW	8	10	1·37	Showery.
Berhampore	·509	+·083	—·057	Calm	6	10	2·33	Do.
Bogra	·491	+·050	?	...	...	9	0·09	
Mymensingh	·507	+·035	—·105	SE	...	10	0·20	Showery.
Dacca	·452	+·009	—·156	NNE	6	9	0·24	
Jessore	·510	+·062	—·069	NNW	3	10	5·70	Nor'-wester with rain.

Fine dry weather had extended during the previous 24 hours from the North-Western Provinces to Bihar and Chota Nagpur. Moderate to heavy rain had fallen in Arakan and South and Central Bengal.

The depression filled up during the next 24 hours and the break in the rains extended into Bengal on the 28th and 29th and fine dry weather obtained over the whole of India on the 29th and 30th.

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

The information relating to the snowfall in the Himalayan area is always small for June, as it is very unusual for heavy snow to fall even on the higher ranges in that month.

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Chitral.*—The medical officer in charge of the hospital, Chitral, has forwarded the following account of the snowfall on the Chitral mountains from the 15th May to the 15th July :—

"Snow fell to a slight depth on the 23rd June, on the hills above the height of about 12,000 feet and upwards to 25,000 feet. It extended over an extent of about 20 miles from Chitral northwards.

"The weather was rainy and cloudy in the valley of Chitral. It extended 20 miles from Chitral northwards. Since the 27th June the weather has been clear with now and then cloudy afternoons and windy evenings. The amount of snow accumulation on the neighbouring hills is very small, but the depth is not known. The inhabitants inform me that there is nothing unusual in the snow accumulation on the neighbouring mountains."

II.—HIMALAYAS—(A). THE PUNJAB AND KASHMIR HIMALAYAS.

(1) *Kashmir.*—Dr. Mitra, Meteorological Reporter to the Jammu and Kashmir States, has sent the following snowfall report for the period 15th May to 15th July :—

"Since the 15th May there has not been any snow in the valley of Kashmir or on the lower ranges of hills. There have been several snowfalls on the hills near Minimarg, the last fall occurring on the 3rd June. At Burzil there is now lying between 5 and 6 feet of snow. In Minimarg itself there has been a considerable amount of rain.

"The observer at Dras reports that the snowfall from 15th May up to date at that station was as follows :—

	Depth of melted snow-water. Inches.
21st May	·52
22nd "	·70
23rd "	1·62
24th "	1·80
TOTAL	4·64

"No fresh snow has fallen lately. There is much snow on the higher passes, but differing greatly in depth on different passes.

"The observer at Skardu reports :—'There has been no snow at Skardu station since the 15th May, but it fell heavily on the high passes on the 19th, 20th, 21st, 23rd, 24th, 30th and 31st May, the 3rd, 6th, 24th and 25th June, and the 10th and 11th July. At present there is about three feet of snow lying on them.

"The conditions may be thus summarized :—

(a) Winter snow continues to remain in places, where it is usually melted before this time of the year.

(b) Lower temperature in Kashmir and on the higher ranges than is usual at this time of the year.

(c) In June the Jhelum is usually in flood, but this year, though the river has kept high for a long period, there have been no floods, showing that the snow has not melted to any large extent on the higher ranges, and that there has not been much rain on the lower ranges in June."

North-East Kashmir.—The following extract from a letter (dated the 17th July) received from A. M. Markham, Esq., C.S., gives interesting details of the unusual accumulation of snow at the present time in North Kashmir :—

"The accumulations of snow on and around the higher mountains of North-East Kashmir (near the Ladakh border) are something enormous, and the people here say, unprecedented. Almost the whole of the journey of some 12 miles I made yesterday (16th July) was over deep snow. There are 10 feet of snow on the Waw-bal pass (14,000 feet), which is usually at this time of the year free, or nearly free, from snow. Even as low as 10,000 feet the river is completely bridged with deep snow; in one place estimated to be 70 feet thick. (This was of course avalanche snow). This state of things held for most of the route between 10,000 feet and 14,000 feet and down again on the other side to, say, 12,000 feet. On the night of the 14th instant heavy snow fell on all the neighbouring peaks down to 14,000 feet. I am writing this (with nearly frozen fingers) near the holy cave of Amarnath (13,500 feet) with the thermometer 45° at 9 A.M."

(2) *Chamba.*—The Deputy Conservator of Forests, Chamba Division, writes as follows :—"No snow fell in the Chamba State from the 15th May to 15th July at altitudes where measurements are taken.

"There were frequent and unusual storms from the 15th May to about the 20th June, which brought snow to the high ranges and heavy hail down to 6,000 feet.

"From personal observation I believe the 4th June was the last date on which snow fell down to a comparatively low altitude, as it then fell down to from 9,000 to 10,000 feet over and near the snowy ranges, but of course it soon melted."

(3) *Simla Hill districts.*—The following report for the period, 16th May to the 15th June, has been received from the Conservator of Forests :—"During the period snowfalls occurred above 10,000 feet elevation on the 21st, 23rd, 24th, 25th and 31st May, and the 1st, 3rd, 5th and 14th June. The falls were slight and of short duration and accompanied by rain on the lower elevations. The following gives brief details of these storms :—

21st May 1897.—The fall occurred at night time above 10,000 feet elevation with clouds from the south.

23rd „ „ The fall occurred at night time above 10,000 feet elevation with clouds from the south.

24th „ „ The fall occurred in the evening with the wind from east and with rain on the lower slopes.

25th May 1897.—The fall was accompanied by heavy rain and at the time of its occurrence the wind and clouds were from the south-east.

31st „ „ This fall occurred during the night time when the wind and clouds were from the south.

1st June „ This fall occurred during the night time when the wind and clouds were from the south, but accompanied by good rain.

3rd „ „ This fall was also accompanied by rain with clouds from the south and wind from the south-east, but towards, the evening the weather was clear.

5th „ „ The fall occurred during the night time with very cold weather, it having rained heavily on the preceding day.

14th „ „ This fall was also accompanied by rain and the wind and clouds from the south-east and south respectively, the weather being cold.

"Generally during the intervals between the snowstorms the weather has been said to be fine.

"There is still a good deal of snow (on the 8th July) at the higher elevations. Thus the Bhabba pass has only been open a short time and there is said to be still a lot of snow on the Rupin and Buru passes between the Sutlej and Pabar Valleys. It is known that there is now little or no snow on the Howang pass (14,000 feet).

'The snow fall of the present year is said to be heavier than that of the last year and than the general average."

Bashahr State.—On the 1st, 2nd, 3rd and 4th of June heavy rain fell and above 10,000 feet snowstorms occurred, and in consequence the weather was abnormally cold.

(B) NORTH-WESTERN PROVINCES HIMALAYAS.

1. *Almora District.*—The following report of the snowfall in this district from the 15th May to 15th July 1897 has been received from the office of the Commissioner of Kumaon :—

"*Malla Danpur.*—Snow fell as under during the period :—

	Ft.	Inch.
12th to 13th June	0	6
17th to 20th „	0	9
TOTAL .	1	3

"This was the depth on the well-known peaks of Pindar Kaphini and Kantela.

Malla Johar.—Snow fell as under during the period :—

			Ft.	Inch.
20th	*May*	*1897*	1	9
24th	"	"	1	9
2nd	*June*	"	1	9
3rd	"	"	1	6
12th	"	"	1	9
16th	"	"	1	6
17th	"	"	2	3
18th	"	"	1	6
		TOTAL	13	9

(2) *Garhwal.*—The Commissioner of Kumaun has sent the following notes :—

"The accumulation of snow on the 1st June on the Niti and Mana passes was greater than usual. The rain which fell about the 10th July melted a great deal of the accumulated snow. The snow line lay then at about 17,000 feet on southern aspects, though in northern and sheltered parts drifts were to be found much lower down. Passes into Thibet were open at the beginning of July as usual. At present the snow line is about 16,000 feet (the average summer height) owing to recent falls."

Summary of special Storm Reports.

As stated in the pressure section one cyclonic storm formed during the month at the head of the Bay. The special storm observations taken by certain observers during the passage of the storm across their stations have been utilized in the history of the storm given in the pressure section. A number of local disturbances also occurred during the month, of which reports have been received from various observing stations and the principal facts with reference to them are detailed below. The majority of these local disturbances were duststorms and thunderstorms, such as almost invariably accompany the advance and establishment of the south-west monsoon over the drier districts of Northern and Central India.

1st.—Severe nor' wester at Burdwan from 5-30 P.M. to 6 P.M.

Duststorm at Allahabad from 10 A.M. to 2 P.M.

Duststorm at Bahraich at 6 A.M.

Duststorm at Jeypore at 6 P.M.

Thunderstorm at Belgaum at 4 P.M.

2nd.—Thunderstorm at Allahabad at 6 P.M.

Severe thunderstorm at Cocanada from 4-30 P.M. to 5 P.M. and again from 9 P.M. to 9-20 P.M.

Duststorm at Jodhpur at 6-25 P.M. and again at 7-30 P.M.

Duststorm at Ludhiana at 1'40 P.M.

Thunderstorm with some hail at Simla from 0'30 P.M. to 1 P.M.

3rd.—Duststorm at Delhi at 5 P.M.

Duststorm at Jodhpur at 4-25 P.M.

Thunderstorm at Simla from 1-10 P.M. to 1-50 P.M.

4th.—Severe duststorm at Allahabad lasting from 6-20 P.M. to 6-30 P.M. The highest wind velocity recorded was 54 miles per hour.

Duststorm at Delhi at 7 P.M. and at Ludhiana at 3-15 P.M.

5th.—Severe thunderstorm at Poona lasting from 5-12 to 7-30 P.M.

6th.—Severe duststorm at Amraoti at 7-10 P.M.

Severe duststorm with thunder and rain at Nagpur lasting from 4-30 P.M. to 6 P.M.

Thunderstorm at Poona at 3-40 P.M.

7th.—Very severe squall or thunderstorm at Cochin from about 3-30 P.M. to 6-15 P.M. Much damage was done in the town and the foreshore greatly injured. So severe a storm has not been experienced at Cochin during the previous 30 years. A similar gale is said to have visited Cochin in 1863.

Thunderstorm at Poona from 4-50 P.M. to 5-15 P.M.

8th.—Duststorm with thunder at Poona from 4-50 to 5-15 P.M. and severe thunderstorm from 7-45 P.M. to 8-25 P.M. The total rainfall during the storm was 0'48 inch.

10th.—Duststorm at Amraoti with very strong winds at 6-10 P.M. The storm came from north-north-east, 3'7 miles of wind were registered by the anemometer in 5 minutes.

Heavy duststorm at Jubbulpore during the evening. The strongest winds were of velocity 66 miles per hour as registered by the anemometer.

Duststorm at Khandwa at 7 P.M.

Severe thunderstorm with very strong winds at Nagpur from 2 P.M. to 3-10 P.M. The highest velocity of the wind was 60 miles per hour. Temperature fell from 110° at 2 P.M. to 93°·2 at 2-30 P.M. and the barometer changed rapidly and irregularly. The storm did much damage to property and several lives were lost.

Duststorm at Pachmarhi from 3-30 P.M. to 4 P.M.

11th.—Duststorm at Delhi at 6 P.M.

Duststorm with rain at Jubbulpore during day.

Duststorm at Pachmarhi from 4-35 P.M. to 4-50 P.M.

Duststorm with rain at Raipur.

12th.—Severe duststorm with rain at Gopalpur at 5 P.M.

Severe duststorm followed by thunder and heavy rain at Jubbulpore from 5 P.M. to 5-20 P.M.

Duststorm at Ludhiana at 5 A.M.

Severe thunderstorm at Simla from 10-50 P.M. to 11-15 P.M. The highest wind recorded by a Dines's pressure tube anemometer was 32 miles per hour.

Thunderstorm at Srinagar from 4 P.M. to 7-30 P.M.

13th.—Duststorm at Bahraich from 10-15 A.M. to 10 45 A.M.

Severe duststorm at Jubbulpore from 3 P.M. to 3-20 P.M.

Duststorm at Ludhiana at 4-54 P.M.

Severe duststorm at Nagpur between 4 P.M. and 5 P.M. Storm came from north-east. 1 12 inches rain fell between 4-50 P.M. and 5 P.M. and 0·41 inch between 5 P.M. and 5-30 P.M.

Duststorm at Pachmarhi from 5-35 P.M. to 5-45 P.M.

Severe duststorm at Delhi at 10 P.M.

Thunderstorm at Simla from 11-50 P.M. to 0-35 A.M. of the 14th.

14th.—Thunderstorm at Simla from 0·8 P.M. to 1-30 P.M.

Duststorm at Srinagar at 3 P.M.

15th.—Thunderstorm with heavy rain and some hail and very strong winds at Jubbulpore at 2 P.M. Greatest recorded velocity of wind is stated by the observer to be 80 miles per hour.

Duststorm at Jodhpur from east at 7-30 P.M. to 8-5 P.M.

Severe duststorm followed by violent squalls of wind and rain at Cocanada during the afternoon.

Hard squalls during afternoon and evening at Calicut.

Duststorm at Ajmere at 5-20 P.M. The barometer rose from 27·994″ at 5-20 P.M. to 28·102″ at 5-40 P.M.

16th.—Duststorm with distant thunder at Allahabad from 5-10 P.M. to 6 P.M. The strongest winds registered by a Dines's pressure tube anemometer were of velocity 32 miles per hour.

Severe duststorm followed by a thunderstorm at Jodhpur at 10-15 A.M. to 11-30 A.M.

Thunderstorm with heavy rain and strong wind sat Karwar. 2·02 inches of rain fell between 8 A.M. and 9-10 A.M. The sea was tremendous during the day.

17th.—Duststorm at Ajmere from 4-30 P.M. to 4-45 P.M.

22nd.—Duststorm at Delhi from 6 P.M. to 8 P.M.

Severe thunderstorm at Saugor from 5-10 P.M to 5-30 P.M. 9 8 miles of wind were registered in 10 minutes by the anemometer.

Severe thunderstorm at Simla from 10 A.M. to 11-45 A.M. The strongest winds were of velocity 42 miles per hour.

Severe thunderstorm at Agra at 6·45 P.M.

23rd.—Violent duststorm at Lahore from 11-30 P.M. to midnight. Storm came from west.

24th.—Duststorm at Srinagar at 4 P.M. described by the observer as "a severe nor'wester."

25th.—Duststorm at Ludhiana at 10 A.M.

Violent duststorm at Jacobabad from north-west at 3 A.M.

26th.—Duststorm at Hyderabad-Sind, from 5-48 P.M. to 6·29 P.M. Pressure increased from 29·600″ at 5-48 P.M. to 29·696″ at 6-5 P.M. The greatest wind velocity, at 6-5 P.M., was 36 miles per hour.

29th.—Duststorm at Bahraich at 5-30 P.M.

Severe duststorm at Delhi during evening.

Reports of the following hailstorms have been received from the local authorities :—

2nd.—Hailstorm at Untrangdesar in the Bickaneer State. The storm came from west and was not severe in the neighbouring villages. The largest stones were said to be half an inch in diameter.

9th.—Hailstorm in the Mouza Sorwa, Pargana Takarwara of the Bhopawar State in Rajputana. The storm lasted for nearly half an hour and the stones weighed from 1 to 1½ chhataks.

Hailstorm at Sirdarpur from 5 P.M. to 5-30 P.M. The stones were as large as pigeon's eggs.

10th.—Hailstorm in eight villages in Pargana Jhabua of the Bhopawar State. The storm lasted 15 minutes and the stones varied from the weight of a four anna piece to a rupee.

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

Arabian Sea.—At the beginning of the month light to fresh south-west winds with occasional squalls and showers obtained generally over the Arabian Sea to the south of Lat. 8° N. and very variable winds force 1 to 2 with cloudy weather over the north and west. Over the centre of the sea, on the other hand, winds were easterly in direction and light to fresh in force. Ordinary westerly winds of indraught to the land prevailed along the Sind, Kathiawar and Konkan Coasts. The mean intensity of the air movement was 2·9 or 1·6 below the normal. No important change occurred during the next four days, except in the south-west of the sea where the humid south-west winds intensified and advanced northwards along the African coast. On the morning of the 5th monsoon winds and weather were established as far north as Socotra over the south-west and south of the sea. The strongest winds experienced at 8 A.M. of the 6th were of force 9 in Lat. 7½° N. and Long. 52¾° E. The monsoon current continued to advance northwards during the day, and on the morning of the 7th monsoon conditions prevailed over the western half of the Arabian Sea as far north as Lat. 16° N. Winds were variable over the eastern half of the sea where weather was cloudy with occasional showers. The mean strength of the winds as determined from the data of 17 vessels was 0·9 greater than on the 1st. Winds increased further in strength more especially in the neighbourhood of Socotra, and on the morning of the 8th averaged 4·0 for the whole sea area, or 0·5 below their normal intensity in June. Weather was very disturbed with heavy rain squalls on this day near and to the north of Socotra, and there was a tendency to the generation of a cyclonic storm in that area. It intensified on the 9th, and at 8 A.M. of the 10th was central in about Lat. 15° N. and Long. 56½° E. The storm marched apparently northwards towards the Arabian Coast during the day, at the same time filling up almost completely.

With the dispersion of the storm the monsoon winds advanced rapidly eastwards over the centre and east of the Arabian Sea, and were established over the whole of the sea during the next three days. On the morning of the 17th south-west winds, force 2 to 9, obtained over the whole of the Arabian Sea and averaged 4·5 in force.

A moderate to strong monsoon continued to prevail generally over the Arabian Sea during the next eight days. The strongest winds during this period were of force 9 and the mean wind force for the whole sea fluctuated between 4·3 and 5·0. Winds decreased rapidly in strength on the 26th and 27th, and shifted round to directions between west-south-west and north-west. The mean intensity of the air movement, as deduced from the wind data of 22 vessels, was 2·8 or 1·7 below the normal at 8 A.M. of the 28th. Fine weather with winds blowing more directly from the west than usual prevailed generally over the Arabian Sea during the last two days of the month. The monsoon current on these two days was at least 33 per cent weaker than usual.

Bay of Bengal.—At the commencement of the month gradients were steep over the Bay and south-west winds, force 2 to 7, obtained generally over that area. Weather was cloudy with occasional showers and squalls over the eastern half and fine to hazy over the western half. The mean air movement, as deduced from the data of 24 vessels, was 4·5 or 0·5 above the normal strength in June. Conditions changed rapidly during the next four days. Gradients decreased largely in intensity over the centre and north of the Bay, and winds hence fell off in strength and became very variable in direction, except in the immediate neighbourhood of the Bengal and Orissa Coasts where ordinary winds of indraught to the land area continued to prevail. The air movement as recorded on board 16 vessels averaged 2·3 at 8 A.M. of the 5th, or 2·2 less than on the 1st. No significant change occurred until the 8th, at 8 A.M. of which day 10 vessels out of the 12 in the different parts of the Bay reported winds of force 2 and fine weather. The air movement increased considerably on the 9th and 10th, and on the morning of the 11th averaged 3·7, or only 0·3 below the normal. An important change took place over the south of the Bay during the day where humid south-west winds set in and began to work up the east of the Bay. On the morning of the 14th the whole of the Bay, excepting the extreme north (where local sea winds held), was occupied by monsoon winds. The air movement over the Bay at 8 A.M. of this day averaged 4·8 or 0·8 above the normal. Weather was fine in the west, cloudy in the south, and showery and squally over the remainder of the Bay, more especially off the Arakan coast, where the S.S. *Pentakota* experienced frequent sharp squalls. There was on this day a feeble tendency to the formation of a cyclonic storm in the north-west of the Bay. It developed during the next twenty-four hours, and on the morning of the 15th a fairly regular cyclonic circulation was exhibited over the north of the Bay. The storm developed during the day and advancing along a west-north-west track, passed inland across the Orissa Coast a little to the north of False Point on the early morning of the 17th. Very unsettled weather with heavy rain squalls was experienced over the northern half of the Bay on the 16th and 17th, and fine weather with passing clouds over the southern half of the Bay. The air movement averaged 5·5 on the 16th and 4·8 on the 17th. The strongest winds experinced in the storm area, however, did not exceed 9 in force. Strongly marked

monsoon conditions prevailed generally over the Bay during the remainder of the month. The strongest winds during this period were of force 9, and the mean wind force for the whole Bay area ranged from 4·1 to 5·2.

Equatorial belt.—As is usually the case, the information for the equatorial belt is very limited in amount. It, however, suffices to show that in the western half of the belt the south-east trades were not so strong or steady as usual, more especially during the last week of the month. This is borne out fully by the data of the Seychelles where the mean daily velocity of the winds was only 170 miles, or 108 miles below the normal, and the percentage of steadiness 65 as compared with 79, the normal percentage.

It will be seen from the preceding account of the weather in the Indian seas that, although the advance of the humid monsoon winds from the equatorial belt occurred about the normal date over the south-west of the Arabian sea, it was not until the 13th or 14th of the month that the monsoon conditions set in on the west coast of India, or upwards of a week later than usual. This was largely due to the formation of a cyclonic disturbance near Socotra, which diverted the monsoon current from India during its formation and existence.

It is noteworthy that while the Bombay current was nearly 15 per cent. weaker than usual the Bay branch of the monsoon current was at least 5 per cent. above its normal intensity.

Temperature of the Air.

The mean temperature conditions of the month were chiefly determined by the prolonged delay in the establishment of the south-west monsoon on the west coast, and by the rapid advance of the monsoon currents after their establishment in the coast districts to the Gangetic Plain and Central and Upper India, and by the break in the rains which prevailed during the last week of the month.

The mean maximum or day temperature of the month was above the normal over the whole of Burma and India, with the exception of Baluchistan, the North and Central Punjab and the Kashmir and Punjab hills.

The local deficiency was large at Quetta (−3°·2) and at Peshawar (−3°·2) and also at Srinagar and Murree (−2°·5) and probably also at Leh and Kailang.

The excess ranged between 2° and 7° over by far the greater part of India, including North Bengal, Upper Burma, the Deccan, Konkan, North Madras, the Central Provinces, Berar, Central India, Gujarat, Kathiawar, Rajputana and Sind. It was more than 5° in the areas represented by the stations, for which comparative data are given below:—

Province.	Station.	Mean maximum temperature.		
		Actual, June 1897.	Normal, June.	Variation of actual from normal.
		°	°	°
Deccan	Hyderabad	98·4	93·3	+5·1
Central Provinces	Chanda	104·6	97·7	+6·9
	Nagpur	103·9	97·8	+6·1
	Khandwa	103·1	97·3	+5·8
	Seoni	98·9	93·6	+5·3
Berar	Akola	104·2	97·5	+6·7
	Amraoti	102·9	96·7	+6·2
Central India	Indore	99·5	94·2	+5·3
Khandesh	Malegaon	100·0	94·5	+5·5
Rajputana	Deesa	106·9	101·6	+5·3
Lower Sind	Hyderabad	110·1	103·2	+6·9

The excess was hence most pronounced in Berar and the southern districts of the Central Provinces.

The highest maximum temperatures of the year were recorded in the second week of the month in Upper India. The greatest heat of the year in India is usually experienced in the fourth week of May, and hence it occurred in the present year, as was also the case in 1896, about a fortnight later than usual.

The following gives the actual maximum temperature recorded at the hottest stations:—

Station.	Highest maximum temperature recorded in June 1897.	Date on which recorded.	Highest maximum temperature in June previous to 1897.	Year in which recorded.
	°		°	
Jacobabad	126·0	13th	123·7	1889
Pachpadra	122·1	10th	116·0	1896
Jodhpur	121·3	10th	?	?
Hyderabad (Sind)	121·2	10th	116·2	1883, 1889, 1896.
Mooltan	121·0	12th	120·3	1890, 1892
Montgomery	120·6	12th	121·4	1890
Khushab	120·4	12th	120·4	1896

The absolute maximum temperatures were considerably higher than have been previously registered at Jacobabad, Hyderabad and Pachpadra.

The mean minimum or night temperature of the month was above the normal over the whole of Burma and of India, with the exception of a small area in South-West Bengal, the western submontane districts of the North-Western Provinces, the north and central districts of the Punjab and Baluchistan. The positive variations were largest in Rajputana, Central India, Kathiawar, Gujarat, Khandesh, Berar, the Central Provinces, and the North and Central Deccan, where the night temperature was considerably to largely (2° to 5°) above the normal.

The following gives comparative data for stations at which the excess was more than 3° in amount:—

Province.	Station.	Mean minimum temperature. Actual, June 1897.	Normal, June.	Variation of actual from normal.
		°	°	°
Deccan	Hyderabad	77·9	74·0	+3·9
Khandesh	Malegaon	78·4	74·7	+3·7
Berar	Akola	82·3	77·3	+5·0
	Amraoti	80·3	76·2	+4·1
Central Provinces.	Raipur	81·6	78·1	+3·5
	Nagpur	81·2	78·1	+3·1
	Saugor	80·2	77·1	+3·1
Central India	Indore	78·2	74·9	+3·3
Kathiawar	Rajkot	81·0	77·3	+3·7
Upper Sind	Jacobabad	86·6	83·5	+3·1

The mean minimum temperature of the month was more than 2° below the normal at Quetta (−3·5°), Peshawar (−2·8°), and Dera Ismail Khan (−2·6°).

The mean temperature of the month was above the normal over Burma and the whole of India, with the exception of two areas, *viz.*—

(1) A part of South-West Bengal represented by Calcutta and Burdwan.

(2) Baluchistan, the North and Central Punjab and the Kashmir and Punjab hills.

In the first area the deficiency was very small and the mean temperature of the month was practically normal. It was also small in amount over a large part of the second area, but exceeded 2° at Quetta (−3°·4) probably representative of the whole Baluchistan plateau, at Peshawar (−3°·0) and at the hill stations of Srinagar (−4°·8), Kailang (−3°·4) and Leh (−2°·6). A noteworthy feature of the month was the unusually low temperature prevailing in the Baluchistan and Afghanistan plateau and the Kashmir and Punjab mountain districts, more especially the higher elevation. This was almost certainly due to the large accumulation of snow on the higher ranges.

The mean temperature exceeded the normal over the remainder of India. The excess was more than 2° over the greater part of the interior and exceeded 4° in the area defined by the stations of Rajkot, Indore, Nagpur, Raipur, Secunderabad and Malegaon.

The following table gives temperature data of the month for the 57 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 Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	85·9	75·5	80·7	10·4	18·6	+1·0	+1·0	0
	Lower Burma (Deltaic)	85·8	77·7	82·3	9·1	18·0	+1·0	+0·8	+0·2
	Central do.	91·2	77·4	84·3	13·9	24·8	+1·5	+1·6	−0·1
	Upper do.	94·0	77·9	86·0	16·1	27·7	+2·0	+1·5	+0·5
	Arakan	86·3	78·1	82·2	8·2	18·1	+0·4	+0·2	+0·2
Bengal and Assam	Eastern Bengal	87·4	76·6	82·0	10·8	22·1	+1·1	+1·0	+0·1
	Assam (Surma)	90·7	76·5	83·6	14·2	27·8	+2·0	+0·4	+1·6
	Do. (Brahmaputra)	89·8	76·8	83·3	13·0	23·5	+2·1	+0·8	+1·3
	Deltaic Bengal	91·6	79·2	85·4	12·4	26·3	+0·1	+0·3	−0·2
	Central do.	93·6	78·8	86·2	14·8	30·5	+0·6	+0·3	+0·3
	North do.	90·3	77·3	83·9	13·0	22·9	+2·4	+0·8	+1·6
	Bengal Hills	68·1	54·9	61·5	13·2	25·0	+1·3	+1·8	−0·5
	Orissa	93·1	80·9	87·1	12·2	25·9	+1·1	+1·2	−0·1
	Chota Nagpur	96·4	78·0	87·3	18·5	37·8	+1·1	+0·5	+0·6
	Bihar (South)	98·6	81·1	89·8	17·5	38·6	+0·2	+1·1	−0·9
	Do. (North)	95·4	79·9	87·7	15·5	29·7	+1·8	+1·9	−0·1
North-Western Provinces and Oudh.	North-Western Provinces (East)	102·1	83·3	92·7	18·9	38·0	+0·4	+0·7	−0·3
	Oudh (South)	103·9	82·4	93·2	21·5	42·5	?	?	?
	Do. (North)	101·1	80·3	90·7	20·8	43·6	?	?	?
	North-Western Provinces (Central)	104·5	83·8	94·2	20·7	42·0	+1·5	+2·0	−0·5
	Do. do. (West)	103·4	82·4	92·9	21·0	41·7	+0·2	−0·4	+0·6
	Do. do. (Submontane East)	97·9	81·1	89·5	16·8	35·0	+0·2	+1·3	−1·1
	Do. do. (do. West)	99·9	77·4	88·7	22·5	40·5	+1·4	−0·4	+1·8
	Do. do. (Hills)	76·4	60·4	68·4	16·0	33·3	+0·6	+0·1	+0·5
Punjab	Punjab (South-East)	103·6	84·2	93·9	19·4	41·8	−0·6	+0·8	−1·4
	Do. (South)	105·7	81·8	93·8	24·0	44·3	+0·7	−0·4	+1·1
	Do. (Central)	104·2	79·8	92·0	24·4	47·0	−1·4	0	−1·4
	Do. (Submontane)	105·6	80·7	93·2	24·9	45·5	−0·1	+0·5	−0·6
	Do. (Hills)	78·4	56·4	67·4	22·0	42·3	−1·7	−0·9	−0·8
	Do. (North)	102·7	73·5	88·1	29·2	48·1	−1·7	−1·6	−0·1
	Do. (West)	107·4	80·9	94·2	26·5	52·1	+0·7	−0·9	+1·6

Province.	Division.	Actual temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Bombay and Malabar Coast Districts (Madras).	Malabar	85·1	75·7	80·4	9·4	18·2	+1·4	+1·4	0
	Madras (South Central)	92·3	73·8	83·1	18·5	28·1	+0·3	+1·3	—1·0
	Coorg	73·1	64·3	68·7	8·8	20·3	+1·0	+1·1	—0·1
	Mysore	84·7	68·4	76·6	16·3	25·2	+1·5	+1·6	—0·1
	Konkan	88·1	79·4	83·8	8·7	19·3	+2·8	+2·1	+0·7
	Bombay Deccan	92·5	72·2	82·4	20·2	35·1	+4·0	+1·3	+2·7
	Hyderabad (North)	97·8	74·9	86·4	22·9	37·6	?	?	?
	Khandesh	98·3	76·4	87·4	21·9	37·5	+5·5	+3·7	+1·8
Central Provinces and Berar.	Berar	103·6	81·3	92·5	22·3	39·5	+6·5	+4·6	+1·9
	Central Provinces (West)	103·2	81·8	92·5	21·4	41·7	+5·5	+3·4	+2·1
	Do. (Central)	100·9	79·8	90·4	21·1	41·1	+3·4	+2·6	+0·8
	Do. (East)	100·5	81·4	91·0	19·1	38·2	+3·5	+1·9	+1·6
Bombay (North)	Gujarat	101·2	82·1	91·7	19·1	39·7	+2·9	+2·3	+0·6
	Kathiawar & Cutch	99·6	81·6	90·7	18·0	29·8	+4·4	+2·6	+1·8
	Sind	106·9	84·3	95·6	22·7	42·3	+3·7	+1·8	+1·9
	Baluchistan Hills	94·9	60·2	77·6	34·7	50·2	—3·2	—3·5	+0·3
Rajputana and Central India.	Central India (East)	101·5	81·6	91·6	19·9	42·2	+3·0	+2·4	+0·6
	Rajputana (East), Central India (West)	106·3	83·6	94·9	22·7	43·6	+4·6	+2·5	+2·1
	Do. (West)	109·3	84·8	97·0	24·5	44·3	+3·9	+1·9	+2·0
Madras	East Coast (North)	97·0	82·9	89·9	14·1	27·9	+3·9	+2·3	+1·6
	Hyderabad (South)	98·8	77·5	88·2	21·3	35·2	+5·8	+3·4	+2·4
	Madras (Central)	99·0	78·7	88·9	20·2	32·0	+3·4	+1·6	+1·8
	East Coast (Central)	101·2	82·3	91·8	18·9	30·4	+2·0	+2·1	—0·1
	Do. (South)	98·8	80·4	89·6	18·4	29·7	+1·0	+1·5	—0·5
	Madras (South)	94·6	78·2	86·4	16·3	30·6	?	?	?

The following is a brief summary of the larger changes of the temperature conditions in India during the month.

At the commencement of the month temperature was in moderate to large defect in Baluchistan and the Punjab, and in slight to moderate defect in Assam, Upper Burma, North Bengal and Bihar, and in large excess in Central India and the Deccan.

The reduction of temperature below the normal in the Punjab and Baluchistan held from the 1st to 7th, and was due in part to rainfall on the 1st, 2nd and 3rd in the Punjab, but probably chiefly to stormy weather accompanied with much snow on the hills to the north of the Punjab. The following gives comparative data for these areas from the 1st to the 7th :—

Area.	Temperature.	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.	7th June.
		°	°	°	°	°	°	°
Baluchistan (Quetta).	Maximum	—6·7	—9·5	—9·5	—7·8	—5·4	—0·7	+0·8
	Minimum	+2·7	+1·1	—3·6	—5·0	—2·3	—0·3	—1·0
	Mean	—2·0	—4·2	—6·6	—6·4	—3·9	—0·5	—0·1
Punjab	Maximum	—4·0	—8·8	—13·7	—12·7	—7·0	—3·6	+0·4
	Minimum	—1·4	—4·4	—6·4	—5·4	—4·4	—3·8	—2·8
	Mean	—2·7	—6·6	—10·1	—9·1	—5·7	—3·7	—1·2

As already noted temperature was in general excess over by far the greater part of India and in Burma, and the excess was large and marked throughout the period in Central India and the Deccan as is shown by the following comparative data :—

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.	7th June.
	°	°	°	°	°	°	°
Madras Deccan	+3·2	+3·7	+1·3	+1·5	+2·8	+1·2	+2·8
Bombay "	+5·2	+5·3	+5·1	+5·3	+7·6	+5·2	+3·9
Central Provinces	+5·2	+6·6	+3·9	+5·5	+6·4	+4·6	+4·1
Berar	+7·3	+8·6	+6·1	+5·5	+8·4	+8·8	+4·3
Central India	+5·7	+5·3	+3·6	+3·4	+3·7	+4·0	+4·5
Rajputana	+0·9	0	+0·9	+1·1	+1·3	+2·6	+5·1
Kathiawar and Cutch	+2·7	+2·2	+1·3	+0·6	+2·5	+7·1	+8·0
Sind	+0·7	+1·5	+0·6	0	+1·9	+3·3	+6·4

Temperature increased rapidly on the 5th, 6th and 7th

in Upper India, and was in general excess in India on the 8th, as is shown by the following comparative data :—

AREA.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+ 1·1	+1·1	+1·1
Bengal and Assam	+ 2·3	+1·3	+1·8
North-Western Provinces and Oudh	+ 7·2	—0·3	+3·5
Punjab	+ 3·3	+1·3	+2·3
Sind and Rajputana	+10·3	+2·4	+6·4
Central India and Gujarat	+10·3	+3·5	+6·9
Central Provinces and Berar	+ 8·4	+6·0	+7·2
Bombay	+ 5·4	+2·9	+4·2
Madras	+ 1·8	+2·5	+2·2

Temperature was in general excess from the 9th to the 13th, the area of greatest excess being transferred north-westwards during the period from the North Deccan and Central Provinces to Rajputana and Upper Sind. The following gives mean variation data for this period in illustration :—

AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	9th June.	10th June.	11th June.	12th June.	13th June.
	°	°	°	°	°
Burma	+2·1	+ 2·1	+1·9	+1·1	+1·5
Bengal and Assam	+2·7	+ 2·9	+3·0	+1·1	—2·3
North-Western Provinces and Oudh	+5·6	+ 6·4	+6·6	+2·0	—0·6
Punjab	+5·3	+ 5·9	+6·3	+7·6	+4·7
Sind and Rajputana	+7·6	+10·2	+6·6	+5·9	+8·6
Central India and Gujarat	+8·7	+ 7·9	+5·3	+5·2	+5·2
Central Provinces and Berar	+9·7	+ 8·6	+6·7	+3·4	+4·2
Bombay	+3·1	+ 4·2	+2·1	+0·5	+2·0
Madras	+1·4	+ 3·9	+2·0	—0·4	+1·6

This was the hottest period of the year in North-West and Central India and culminated in a period of excessive and phenomenal heat on the 12th and 13th, when higher day temperatures were registered in Sind and Rajputana than have been previously recorded. The following gives the most remarkable :—

STATION.	Highest maximum temperature recorded in June 1897.	Date on which recorded.	Highest maximum temperature in June previous to 1897.	Year in which recorded.
	°		°	
Jacobabad	126·0	13th	123·7	1889
Pachpadra	122·1	10th	116·0	1896
Jodhpur	121·3	10th	?	?
Hyderabad (Sind)	121·2	10th	116·2	1883, 89, 96
Mooltan	121·0	12th	120·3	1890, 92
Montgomery	120·6	12th	121·4	1890
Khushab	120·4	12th	120·4	1896

The absolute maximum of 126°·0 at Jacobabad is 2°·3 higher than has ever been recorded at that station and is the highest temperature that has been as yet observed under the standard conditions of thermometer exposure in India. The reading of the maximum thermometer is fully corroborated by the readings of the standard or dry bulb thermometer which were 119°·8 at 10 A.M. and 124°·8 at 4 P.M. of the 12th. The following gives variation data of the maximum and minimum temperatures at the hottest stations in Upper India from the 10th to the 13th :—

STATION.	VARIATION FROM NORMAL OF MAXIMUM TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	10th June.	11th June.	12th June.	13th June.
	°	°	°	°
Kurrachee	+18·2	+ 0·2	— 1·1	+ 0·6
Hyderabad	+17·6	+ 3·7	+ 7·9	+11·3
Bickaneer	+13·5	+ 9·4	+ 8·1	+10·7
Jacobabad	+ 9·9	+ 6·0	+10·8	+13·1
Ajmere	+14·1	+ 6·6	+ 4·8	+ 9·6
Jeypore	+13·0	+10·1	+ 7·7	+13·4
Mooltan	+10·5	+11·0	+13·6	+13·2
Jhanshi	+11·3	+12·9	+12·3	+ 7·5
Sirsa	+ 9·0	+10·2	+ 9·9	+ 9·6

STATION.	VARIATION FROM NORMAL OF MINIMUM TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	10th June.	11th June.	12th June.	13th June.
	°	°	°	°
Kurrachee	+ 0·6	+ 1·1	+ 1·7	+ 1·7
Hyderabad	+ 2·7	+ 2·1	+ 3·7	+ 5·3
Bikaneer	+ 12·0	+ 10·0	+ 6·6	+ 11·4
Jacobabad	+ 1·4	+ 4·7	+ 7·8	+ 4·1
Ajmere	+ 11·7	+ 7·0	+ 3·3	+ 7·9
Jeypore	+ 6·8	+ 11·5	+ 8·8	+ 11·7
Mooltan	+ 3·2	+ 5·6	+ 6·6	+ 9·2
Jhansi	+ 6·4	+ 15·6	+ 9·3	+ 7·8
Sirsa	+ 5·2	+ 6·2	— 1·3	+ 0·6

The following gives variation data for the 13th, illustrating the temperature conditions which obtained in India on that day :—

AREA.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+ 1·9	+ 1·0	+ 1·5
Bengal and Assam	— 3·3	— 1·3	— 2·3
North-Western Provinces and Oudh	+ 1·9	— 3·0	— 0·6
Punjab	+ 4·7	+ 4·7	+ 4·7
Sind and Rajputana	+ 10·2	+ 6·9	+ 8·6
Central India and Gujarat	+ 5·8	+ 4·6	+ 5·2
Central Provinces and Berar	+ 5·3	+ 3·1	+ 4·2
Bombay	+ 3·5	+ 0·5	+ 2·0
Madras	+ 3·0	+ 0·2	+ 1·6

The changes of the temperature conditions during the next three days were large and irregular, due to the occurrence of series of duststorms and thunderstorms in North-Western and Central India, and to the extension of the monsoon currents into the interior.

The following gives mean variation data for the 14th, 16th, and 18th to show the reduction of temperature due to the disturbed weather of the period and the advance of monsoon :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	14th June.	16th June.	18th June.
	°	°	°
Burma	+ 1·8	+ 1·2	+ 0·8
Bengal and Assam	— 0·9	+ 0·2	— 2·0
North-Western Provinces and Oudh	— 3·6	— 1·5	— 4·5
Punjab	— 2·7	— 6·5	— 2·6
Sind and Rajputana	+ 6·3	— 2·1	+ 1·3
Central India and Gujarat	+ 3·2	+ 2·4	+ 2·1
Central Provinces and Berar	+ 2·6	+ 2·2	+ 2·0
Bombay	+ 0·9	+ 1·8	— 1·0
Madras	+ 1·0	— 0·7	— 1·4

A storm formed in the north-west of the Bay at the commencement of the third week of the month. The centre crossed the Orissa Coast early on the morning of the 17th, and drifted slowly west-north-westwards into Bundelkhand where the storm filled up on the 21st and 22nd. The storm gave moderately heavy localized rain to the areas over which it passed and hence temperature was in large defect in the districts covered by the storm, as is shown by the following data :—

AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	17th June.	18th June.	19th June.	20th June.	21st June.	22nd June.
	°	°	°	°	°	°
Orissa	— 4·4	— 3·5	— 0·4	— 1·7	0	— 0·5
Chota Nagpur	— 4·0	— 5·6	— 3·6	— 3·4	0	0
Bihar	+ 0·9	— 0·5	— 0·5	+ 1·3	+ 2·4	+ 1·3
North-Western Provinces and Oudh.	— 2·6	— 4·5	— 5·4	— 4·5	— 1·9	— 1·2
Bundelkhand	— 3·3	— 3·4	— 9·4	— 12·7	— 8·5	— 6·4
Baghelkhand	+ 0·8	— 2·3	— 10·7	— 7·5	— 4·3	— 5·9

Whilst this storm was passing north-westwards the Bombay monsoon current was falling off in strength and giving rain in decreasing amounts to Western India and the Peninsula, and on the 24th a marked break in the rains obtained over the whole of India, except North-Eastern India, which continued during the remainder of the months. Temperature was hence more or less in excess over the whole of North-Western and Central India and the Peninsula during this period, as is shown by the

following data for every second day from the 22nd to the 30th :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	22nd June.	24th June.	26th June.	28th June.	30th June.
	°	°	°	°	°
Punjab	+7·7	−2·4	−2·0	+2·1	+3·1
Sind and Rajputana	+3·6	+3·1	+1·8	+2·5	+1·9
Central India and Gujarat	−2·3	+0·6	+2·3	+5·4	+3·6
Central Provinces and Berar	−2·5	+0·7	+3·8	+8·2	+7·5
North-Western Provinces and Oudh	−1·2	−2·4	+0·5	+6·8	+6·8
Bombay	+1·3	+2·2	+3·0	+3·9	+4·0
Madras	+0·7	+3·1	+3·8	+3·9	+4·5

A noteworthy feature of this period was the unusually low temperature in Baluchistan and the West and North Punjab, due chiefly to stormy weather in the adjacent mountain areas, on the higher ranges of which heavy snow is said to have fallen. The conditions are fully shown by the following variation data for five stations :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	22nd June.	24th June.	26th June.	28th June.	30th June.
	°	°	°	°	°
Quetta	−4·2	−8·6	−10·2	−10·0	−6·7
Peshawar	+6·7	−3·7	−12·9	−6·8	−2·9
Rawalpindi	+7·2	−3·1	−0·5	+0·1	−0·6
Dera Ismail Khan	+7·4	−5·1	−8·9	−0·8	+0·5
Murree	+5·6	−3·1	−2·4	−1·1	+4·6

During this period the Bay current continued to give moderate to heavy rain in North-Eastern India. The area of heaviest rainfall was defined by a corresponding area of low pressure and slight depression. The Bengal current fell off in strength during the last week of the month, and the area of shallow depression and heavy rain was transferred eastwards from Bihar to East Bengal. Temperature was below the normal during this period in North-Eastern India, and the area of greatest deficiency shifted eastwards with the rainfall. This is indicated by the following variation data for every second day from the 24th to the 30th :—

AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	24th June.	26th June.	28th June.	30th June.
	°	°	°	°
North Bihar	+2·3	+1·3	−0·4	+4·5
South Bihar	−2·5	−9·4	+1·6	+5·7
Chota Nagpur	−0·4	−6·9	+3·9	+6·8
Orissa	+1·1	+0·6	+3·1	+5·5
North Bengal	−0·7	+3·9	+0·9	+4·4
South-West Bengal	−0·5	−3·0	−2·9	+4·6
East Bengal	−1·2	+0·2	−2·7	+5·2
Assam	+0·7	+3·9	+0·3	+0·4

A rapid increase of temperature occurred in North-Eastern India on the 29th and 30th, accompanying the extension of the break in the rains to that area.

The following gives variation data of the Indian area for the 24 hours preceding 8 A.M. of the 30th, illustrating the temperature conditions obtaining at the end of the month in the Indian area :—

AREA.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	−0·3	+1·4	+0·6
Bengal and Assam	+6·0	+3·3	+4·7
N.-W. Provinces and Oudh	+9·2	+4·3	+6·8
Punjab	+5·1	+1·0	+3·1
Sind and Rajputana	+4·0	−0·2	+1·9
Central India and Gujarat	+4·8	+2·4	+3·6
Central Provinces and Berar	+10·5	+4·5	+7·5
Bombay	+5·1	+2·8	+4·0
Madras	+6·2	+2·7	+4·5

The following table gives the variations of the mean temperature week by week during the month and also for the whole month :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF WEEK ENDING					
	5th June.	12th June.	19th June.	26th June.	3rd July.	For whole month.
	°	°	°	°	°	°
Burma	+1·9	+1·8	+1·3	+0·7	+0·8	+1·4
Bengal and Assam	+0·7	+2·0	−1·1	+0·4	+2·8	+1·0
North-Western Provinces and Oudh.	+2·6	+3·6	−3·5	−2·0	+6·8	+0·6
Punjab	−3·5	+3·2	−2·8	+1·7	+2·9	−0·4
Sind and Rajputana	+1·7	+6·3	+2·6	+3·0	+2·3	+3·1
Central India and Gujarat	+3·3	+6·5	+2·4	−0·1	+4·2	+3·1
Central Provinces and Berar.	+5·7	+6·4	+2·4	−0·2	+7·8	+3·9
Bombay	+3·4	+3·2	+0·5	+1·8	+3·6	+2·4
Madras	+1·6	+1·7	−0·3	+2·5	+4·5	+2·1

Winds.

Winds were of normal intensity on the average of the month at Port Blair and Rangoon, and were somewhat more westerly in direction than usual at Port Blair and the Burma coast stations. The following gives data in illustration :—

STATION.	VELOCITY IN MILES PER DIEM.			WIND DIRECTION.		
	Mean actual, June 1897.	Mean normal, June.	Percentage variation.	Mean actual, June 1897.	Mean normal, June.	Westerly deflection.
				°	°	°
Port Blair . . .	247	231	+ 7	S 56 W	S 43 W	13
Rangoon . . .	105	123	—15	S 33 W	S 23 W	10
Diamond Island . .	329	216	+52	S 45 W	S 35 W	10

Winds were slightly above their normal strength on the mean of the month in Bengal, and were less easterly or more westerly than usual at the interior stations and less westerly at the coast stations. The following gives comparative data for five stations :—

STATION.	VELOCITY IN MILES PER DIEM.			WIND DIRECTION.	
	Mean actual, June 1897.	Mean normal, June.	Variation from normal.	Mean actual, June 1897.	Mean normal, June.
				°	°
False Point	302	303	— 1	S 20 W	S 37 W
Saugor Island	431	372	+59	S 5 W	S 12 W
Calcutta	148	142	+ 6	S 12 W	S 3 E
Burdwan	114	122	— 8	S 8 W	S 16 E
Berhampore	96	127	—31	S 22 E	S 37 E

Winds were steadier than usual in the Gangetic Plain, easterly winds prevailing over the whole of Bihar and the North-Western Provinces.

The following gives comparative data for four stations in that area :—

STATION.	STEADINESS.			WIND DIRECTION.	
	Mean actual, June 1897.	Mean normal, June.	Variation from normal.	Mean actual, June 1897.	Mean normal, June.
				°	°
Patna	40	48	— 8	N 66 E	N 75 E
Allahabad.	30	15	+15	N 27 E	N 9 W
Lucknow	28	16	+12	N 41 E	N 46 E
Roorkee	10	17	— 7	S 55 E	S 10 E

Easterly winds prevailed generally in the Punjab, and winds were somewhat steadier than usual. The following gives data for three stations in that area :—

STATION.	WIND DIRECTION.		STEADINESS.		
	Mean actual, June 1897.	Mean normal, June.	Mean actual, June 1897.	Mean normal, June.	Variation from normal.
	°	°			
Meerut	S 30 W	N 16 W	13	10	+ 3
Ludhiana	S 57 E	S 64 W	12	8	+ 4
Lahore	N 7 E	N 19 E	27	6	+21

The trough of low pressure and area of unsteady variable winds of the month occupied its normal position in the eastern half, but was further north than usual in the western half. It was defined by the stations of Hazaribagh, Sutna, Agra, Meerut, Ludhiana and Lahore. The following gives comparative data of the mean wind direction and steadiness at these stations :—

STATION.	WIND DIRECTION.		STEADINESS.		
	Mean actual, June 1897.	Mean normal, June.	Mean actual, June 1897.	Mean normal, June	Variation from normal
	°	°			
Hazaribagh	S 51 W	S 38 W	22	15	+ 7
Sutna	N 56 W	N 64 W	35	49	—14
Allahabad	N 27 E	N 9 W	30	15	+15
Agra	N 60 W	N 60 W	22	26	— 4
Meerut	S 30 W	N 16 W	13	10	+ 3
Ludhiana	S 57 E	S 64 W	12	8	+ 4
Lahore	N 7 E	N 19 E	27	6	+21

The following table gives comparative data of the mean air movement of the month in different provinces of Northern India :—

PROVINCE.	VELOCITY IN MILES PER DIEM.		
	Mean actual, June 1897.	Mean normal, June.	Variation from normal.
Burma Coast	217	170	+47
Bengal	202	184	+18
Chota Nagpur	263	225	+38
Bihar	183	136	+47
North-Western Provinces and Oudh .	133	96	+37
Punjab	76	87	—1

The Arabian Sea monsoon current set in fully on the Bombay or west coast on the 13th and 14th, and was of moderate intensity until the 22nd when it fell off rapidly and was feeble during the remainder of the month. The mean velocity of the winds at the west coast stations for June was considerably below the normal at Bombay, normal at Ratnagiri, and above the normal on the Malabar Coast, as is shown by the following data:—

Station.	Velocity in miles per diem.		
	Mean actual, June 1897.	Mean normal, June.	Percentage variation.
Cochin	172	147	+17
Karwar	175	128	+37
Ratnagiri	270	268	+ 1
Bombay	329	376	—13
Kurrachee	420	423	— 1

The average intensity of the winds varied somewhat irregularly from the normal in the Deccan, Central Provinces, Berar, Central India and Rajputana, but winds were on the whole considerably stronger than the normal, due, however, to the strength of the hot day winds during the first fortnight of the month before the setting in of the monsoon. The following gives data in illustration:—

Division.	Velocity in miles per diem.			
	Mean actual, June 1897.	Mean normal, June.	Variation from normal.	Percentage variation.
Bombay Deccan	463	411	+52	+13
Madras Deccan	239	251	—12	— 5
Central Provinces	227	175	+52	+30
Berar	304	238	+66	+28
Central India	177	174	+ 3	+ 2
Rajputana	284	281	+ 3	+ 1

Winds were on the average of the month more westerly and less southerly than usual at the west coast stations, as is shown by the following data:—

Station.	Wind direction.		
	Mean actual, June 1897.	Mean normal, June.	Westerly deflection.
	°	°	
Bombay	S 83 W	S 64 W	+19
Ratnagiri	N 70 W	S 56 W	Large
Karwar	S 89 W	S 73 W	+16

The mean wind directions were very approximately normal at the stations in the Central Provinces and Deccan directly under the influence of the Bombay current of which the following gives a few examples:—

Station.	Wind direction.		Steadiness.		
	Mean actual, June 1897.	Mean normal, June.	Mean actual, June 1897.	Mean normal, June	Variation from normal.
Akola	N 67° W	N 68° W	72	72	0
Khandwa	N 77° W	N 79° W	75	72	+ 3
Jubbulpore	N 88° W	N 85° W	50	55	— 5
Sholapur	S 87° W	S 86° W	60	70	—10
Bellary	S 86° W	S 86° W	80	78	+ 2

Winds were, on the other hand, less southerly and more westerly than usual in Rajputana.

Winds were considerably stronger and much steadier at the Himalayan stations. The following gives comparative data for five stations:—

Station.	Steadiness.			Velocity in miles per diem.		
	Mean actual, June 1897.	Mean normal, June.	Variation from normal.	Mean actual, June 1897.	Mean normal, June.	Variation from normal.
Leh	53	31	+22	98	57	+ 41
Kailang	57	65	— 8	64	49	+ 15
Murree	10	20	—10	183	175	+ 8
Simla	38	30	+ 8	127	97	+ 30
Chakrata	63	52	+11	295	153	+142

The mean wind direction of the month at Zanzibar was S 2° E and at the Seychelles S 31° E. Winds were very steady at the former station, but were less steady at the latter station than the normal.

Humidity and Cloud.

The absolute humidity of the air as measured by the aqueous vapour pressure was somewhat greater than usual in Burma, Arakan, Assam, Bengal, Bihar, Chota Nagpur, Orissa and the eastern districts of the North-Western

Provinces, but the mean relative humidity of the month was generally in very slight defect due to the increased temperature of the period. The following table gives comparative data :—

AREA.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, June 1897.	Average normal, June.	Variation from normal.	Average actual, June 1897.	Average normal, June.	Variation from normal.
	"	"	"	%	%	
Port Blair . . .	·953	·916	+·037	84	86	—2
Lower Burma . .	·919	·895	+·024	86	88	—2
Arakan . . .	·993	·923	+·070	91	87	+4
Bengal . . .	·960	·945	+·015	81	83	—2
Assam . . .	·926	·909	+·017	84	85	—1
Orissa . . .	1·008	·969	+·039	82	83	—1
Bihar	·910	·892	+·018	73	73	0
Chota Nagpur . .	·704	·692	+·012	66	66	0
North-Western Provinces (East) . .	·776	·769	+·007	52	56	—4

The air was very much drier than usual over the large area including the South Punjab, the western districts of the North-Western Provinces, Upper Sind, Rajputana, Central India, Khandesh, Berar, the Central Provinces and the Deccan, due in part to general deficiency in the amount of aqueous vapour present in the air, and in part to the unusually high temperature which prevailed during the greater part of the month in these districts. The following table gives comparative data showing the extent to which the mean absolute and relative humidities of the month were below the normal in those area :—

PROVINCE.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, June 1897.	Average normal, June.	Variation from normal	Average actual, June 1897.	Average normal, June.	Variation from normal.
	"	"	"	%	%	
South Punjab . .	·584	·669	—·085	40	45	—5
Upper Sind . . .	·521	·659	—·138	28	40	—12
Rajputana . . .	·640	·699	—·059	43	52	—9
North-Western Provinces (West).	·591	·666	—·075	45	56	—8
Central India . .	·638	·684	—·046	46	53	—7
Berar . . .	·603	·680	—·077	45	62	—17
Central Provinces .	·655	·707	—·052	49	59	—10
Bombay Deccan . .	·652	·660	—·008	66	71	—5

The abnormal dryness of the air during the month was most pronounced in the area including the greater part of the Central Provinces, Berar and the North Deccan, and defined by the stations for which comparative data are given below :—

PROVINCE.	STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
		Actual, June 1897.	Normal, June.	Variation from normal	Actual, June 1897.	Normal, June.	Variation from normal.
		"	"	"	%	%	
BERAR .	Akola .	·677	·695	—·018	46	58	—12
	Buldana .	·528	·664	—·136	44	65	—21
CENTRAL PROVINCES.	Khandwa	·597	·714	—·117	44	60	—16
	Hoshangabad.	·689	·759	—·070	49	62	—13
	Raipur .	·642	728	—·086	49	62	—13
	Nagpur .	·647	·718	—·071	48	60	—12

The mean relative humidity of the month was locally 12 below the normal at Jacobabad and Jeypore, and 14 below at Bellary.

The air was also drier than usual in the Madras and West Coast districts and Southern India, but the variations were much smaller than in the interior. The conditions in these districts are indicated by the following comparative data for nine representative stations :—

AREA.	STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
		Actual, June 1897.	Normal, June.	Variation from normal.	Actual, June 1897.	Normal, June.	Variation from normal.
		"	"	"	%	%	
WEST COAST.	Kurrachee	·994	·959	+·035	74	75	—1
	Bombay .	·913	·924	—·011	77	82	—5
	Karwar .	·846	·850	—·004	77	83	—6
	Cochin .	·882	·856	+·026	86	87	—1
MADRAS COAST.	Madras .	·845	·815	+·030	63	65	—2
	Vizagapatam.	·910	·859	+·051	67	67	0
	False Point	1·008	·969	+·039	82	83	—1
SOUTH INDIA.	Trichinopoly.	·689	·707	—·018	54	56	—2
	Bangalore	·612	·619	—·007	69	73	—4

The air was much drier than usual at the hill stations in Central India and on the outer ranges of the Himalayas, but was damper at the elevated and interior stations

of Srinagar, Leh and Kailang. The following gives data in illustration :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, June 1897.	Normal, June.	Variation from normal.	Actual, June 1897.	Normal, June.	Variation from normal.
	"	"	"	%	%	
Srinagar	·560	·557	+·003	85	73	+12
Simla	·350	·408	—·058	55	63	— 8
Chakrata	·378	·416	—·038	61	67	— 6
Kailang	·225	·249	—·024	58	55	+ 3
Leh	·160	·172	—·012	42	38	+ 4

The air was, so far as can be judged from the returns, slightly drier than usual at Quetta, Aden and Muscat, and also at Zanzibar, but the variations were small and probably of little significance.

The following gives the lowest humidities recorded at stations at which relative humidity percentages below 10 were recorded during the month :—

STATION.	Date.	Hour.	Lowest humidity recorded during June 1897.
			%
Meerut	7th	4 P.M.	4
Jacobabad	13th	10 A.M.	5
Sutna	8th	10 "	5
Allahabad	7th	4 P.M.	6
Deesa	7th	4 "	7
Roorkee	29th	4 "	7
Nowgong	10th	4 "	9
Khandwa	5th	4 "	9

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

(1) Slight excess of aqueous vapour and slight deficiency in the mean humidity of the month in Burma, Assam, Bengal, Orissa, Chota Nagpur, Bihar, and the eastern districts of the North-Western Provinces.

(2) Abnormal dryness of the air, due to deficiency of aqueous vapour and excessive temperature, in the western districts of the North-Western Provinces, the South Punjab, Rajputana, Central India, Berar, the Central Provinces and Deccan. The deficiency in the mean relative humidity of the month was most marked in Berar, the Central Provinces and North Deccan, in which it ranged between 10 and 21.

(3) Slight deficiency in the mean humidity of the month in the Madras and west coast districts and Southern India.

The air was driest on the mean of the month in Upper Sind and the West and North Punjab. The driest period of the month in that area was from the 5th to the 10th. The lowest humidity recorded at any station was 4 per cent. at 4 P.M. of the 7th at Meerut.

Cloud was in slight to moderate excess over the Andamans, Burma and the Bengal Coast districts as is indicated by the following mean data :—

AREA.	MEAN CLOUD AMOUNT.		
	Average actual, June 1897.	Average normal, June.	Variation from normal.
Port Blair	8·6	7·5	+1·1
Burma	9·0	8·1	+0·9
Bengal Coast	7·9	7·4	+0·5

There was also more cloud than usual in the North and Central Punjab and in the Kashmir and Punjab Himalayas. The mean cloud amount of the month was 1·1 in excess at Peshawar, 0·6 at Srinagar and 0·7 at Leh. Cloud was also in slight excess in the area defined by the following stations in Southern India :—Mysore and Cochin (each +0·7), Bellary (+0·6), Bangalore (+0·2), and Mercara (+0·1).

There was less cloud than usual over the remainder of India. The deficiency was small in amount in Bengal, Bihar, the North-Western Provinces, Bundelkhand, Baghelkhand and the Konkan and Madras Coast districts, as is shown by the following data :—

AREA.	MEAN CLOUD AMOUNT.		
	Average actual, June 1897.	Average normal, June.	Variation from normal.
Bengal	7·4	7·6	—0·2
Bihar	5·2	5·4	—0·2
Chota Nagpur	7·5	7·5	0
Orissa	7·0	6·9	+0·1
North-Western Provinces and Oudh	3·6	4·0	—0·4
Bundelkhand	5·9	5·9	0
Baghelkhand	4·0	4·7	—0·7
Konkan	6·6	7·3	—0·7
Madras Coast	5·3	6·1	—0·8

The deficiency in the amount of cloud was large and

marked in the South Punjab, Sind, Rajputana, Kathiawar, Gujarat, Khandesh, Berar, the Central Provinces and the western districts of Central India. The deficiency was absolutely greatest at the stations for which data are given below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, June 1897.	Normal, June.	Variation from normal.
Deesa	2·4	5·0	—2·6
Mount Abu	2·6	5·2	—2·6
Kurrachee	2·5	4·3	—1·8
Ludhiana	1·4	3·2	—1·8
Jeypore	2·7	4·5	—1·8

The chief abnormal features of the cloud distribution of the month were as follows :—

(1) Cloud was in slight to moderate excess in Burma the Bengal Coast districts, the North Punjab and Punjab and Kashmir hills.

(2) It was in moderate to large defect over the greater part of the interior including the South Punjab, Sind, Rajputana, Kathiawar, Gujarat, Central India, Berar, the Central Provinces and Hyderabad. The deficiency was absolutely greatest at Deesa and Mount Abu.

(3) Cloud was in slight defect in the Konkan and Madras coast districts.

(4) It was in slight excess in Malabar, Mysore and South Madras.

Rainfall.

The conditions under which the south-west monsoon rains of 1897 were initiated have been stated in the pressure and temperature sections.

The North Punjab and adjacent hill districts received moderate showers from the 1st to the 3rd.

Bengal and Lower Burma obtained moderate rain from thunderstorms during the first ten days of the month.

Malabar received moderately heavy rain from the 6th to the 9th, during which period a strong advance of south-west monsoon winds was in progress in the west of the Arabian Sea. It gave very squally, stormy weather with much rain in the neighbourhood of Socotra on the 7th, 8th and 9th. On the 10th the disturbance developed into a cyclonic storm which, however, advanced northwards to the coast of Arabia and broke up there on the 11th. The disappearance of this disturbance was followed by the establishment of the monsoon rains on the Malabar and Konkan Coasts. Heavy rain fell daily from the 12th or 13th to the 20th. The North Kanara district received an exceptionally heavy downpour during this period.

The humid current advanced rapidly from the West Coast across Central India, and gave disturbed weather with series of severe thunderstorms and duststorms to Berar, the Central Provinces, Central India, Rajputana, the North-Western Provinces and the East Punjab.

Whilst these changes were in progress in the Arabian Sea and Western India, a corresponding advance of monsoon winds was made in the Bay of Bengal. A cyclonic storm formed on the 14th and 15th in the north of the Bay in the front of the advancing monsoon. It crossed the Orissa Coast on the morning of the 17th and advanced west-north-westwards through Orissa and Chota Nagpur into Baghelkhand and Bundelkhand, where it broke up on the 20th and 21st. The indraught to the storm gave heavy rain on the 15th and 16th to Orissa, a heavy downpour on the 20th and 21st to Bundelkhand and Bhopal, and moderate rain to South Bengal, Chota Nagpur, Bihar, the North-Western Provinces and the Central Provinces.

The Bombay current began to show signs of weakness on the 20th, and it temporarily withdrew from Upper India on the 23rd, Central India and the Central Provinces on the 24th and the Deccan on the 25th, and dry weather prevailed over the whole of these areas during the remainder of the month.

A shallow depression formed in Central Bihar on the 23rd, and was transferred slowly eastwards into East Bengal on the 27th, where it filled up during the next 36 hours. This depression gave general rain to North-Eastern India. Central Bihar received an unusually heavy downpour from the 23rd to the 25th, and South and Central Bengal moderate to heavy rain from the 25th to the 28th. The eastward movement of the depression was followed by the extension of dry westerly winds and fine weather over Bihar and Bengal, and the break in the rains, already established in North-Western India, extended to Bihar on the 27th and to Bengal on the 29th.

The dates of the commencement of the monsoon rains in 1897 in the different provinces of India are as follows :—

	Date of commencement of the monsoon rains.
Malabar	12th
Konkan	13th
Kathiawar	17th
Central Provinces	14th
Central India	14th
Rajputana	15th
Bengal	13th
Chota Nagpur	17th
Bihar	17th
North-Western Provinces	18th
East Punjab	22nd

The distribution of the rainfall of the month was largely determined :—

1st.—By the delay in the establishment of the monsoon currents, more especially the Bombay branch.

2nd.—By the relative weakness of the Bombay current compared with the Bengal current.

3rd.—By the unusually rapid advance of both currents towards Upper India.

4th.—By the break in the rains which set in over North-Western and Central India on the 23rd. This break extended over the whole of India by the 29th.

The chief abnormal features of the rainfall distribution in June 1897 were :—

(1) Large deficiency in Upper Burma, Assam, North Bengal and the Bengal hills.

(2) Large excess in South Bihar and moderate excess in North Bihar.

(3) Rainfall practically normal in amount in the North Western Provinces, the Punjab, Lower Burma and South Madras.

(4) Large defect in Berar, Khandesh, the Central Provinces, Gujarat, Kathiawar and North Madras.

The following table gives comparative rainfall data of June 1897 of the 57 meteorological districts of India. In the case of Bengal, the North-Western Provinces, the Punjab, Rajputana, Central India, Bombay, Madras and Coorg, the monthly rainfall statements published by the respective Local Governments were received in time to be utilized in the preparation of this table, and hence the variations in the meteorological districts of these provinces given in the last column of that table and in Plate V are based on the whole of the available information.

In the case of the remaining provinces the averages were derived from the data of the weekly rainfall telegrams for the period sent by the district officers in those provinces.

The following table gives comparative rainfall data of June 1897 for the 57 meteorological divisions of India :—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, June 1897.	Average normal, June.	Average actual, June 1897.	Average normal, June.	Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	30·81	30·29	+ 0·52
	Lower Burma (Deltaic)*	?	?	13·12	10·19	+ 2·93
	Central do.*	?	?	8·22	10·34	— 2·12
	Upper do.*	?	?	2·73	5·47	— 2·74
	Arakan*	?	?	44·68	40·98	+ 3·70
Bengal and Assam	Eastern Bengal	16·0	15·8	16·15	17·04	— 0·89
	Assam (Surma)*	?	?	24·53	17·87	+ 6·66
	Do. (Hills)*	?	?	15·68	18·37	— 2·69
	Do. (Brahmaputra)*	?	?	7·22	11·63	— 4·41
	Deltaic Bengal	14·8	12·8	13·36	10·66	+ 2·70
	Central do.	11·3	11·9	9·59	10·02	— 0·43
	North do.	13·5	15·8	13·36	21·14	— 7·78
	Bengal Hills	18·9	21·5	20·01	30·37	— 10·36
	Orissa	8·4	10·8	7·85	9·20	— 1·35
	Chota Nagpur	10·9	10·1	7·08	8·34	— 1·26
	Bihar (South)	9·1	7·4	12·21	6·12	+ 6·09
	Do. (North)	9·0	9·3	9·68	8·89	+ 0·79
North-Western Provinces and Oudh.	North-Western Provinces (East)	6·5	5·1	5·74	4·29	+ 1·45
	Oudh (South)	4·6	4·6	3·58	4·39	— 0·81
	Do. (North)	6·0	5·6	4·67	4·93	— 0·26
	North-Western Provinces (Central)	4·7	4·4	4·74	3·53	+ 1·21
	Do. do. (West)	4·2	3·2	2·45	2·35	+ 0·10
	Do. do. (Submontane, East)	8·4	6·0	6·95	5·54	+ 1·41
	Do. do. (do. West)	4·7	5·5	3·00	5·16	— 2·16
	Do. do. (Hills)	7·7	10·5	5·44	7·53	— 2·09
Punjab	Punjab (South-East)	3·1	3·0	1·76	2·49	— 0·73
	Do. (South)	1·8	2·2	0·77	1·62	— 0·85
	Do. (Central)	2·8	2·2	1·32	1·58	— 0·26
	Do. (Submontane)	3·5	3·0	1·18	2·79	— 1·61
	Do. (Hills)	6·7	6·9	3·22	4·78	— 1·56
	Do. (North)	2·4	1·6	1·39	0·76	+ 0·63
	Do. (West)	2·0	1·3	1·04	0·67	+ 0·37
Bombay and Malabar Coast Districts, Madras.	Malabar	20·5	24·8	44·51	37·30	+ 7·21
	Travancore	18·7	?	26·30	?	?
	Madras (South Central)	3·6	3·8	1·97	2·03	— 0·06
	Coorg	17·7	?	25·44	?	?
	Mysore*	?	?	5·83	4·71	+ 1·12
	Konkan	16·2	19·2	22·39	27·14	— 4·75
	Bombay Deccan	7·7	8·2	5·76	5·80	— 0·04
	Hyderabad North	4·5	?	3·66	5·77	— 2·11
	Khandesh	3·2	7·6	2·50	5·69	— 3·19

* The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

Province.	Division.	Number of rainy days. Average actual, June 1897.	Number of rainy days. Average normal, June.	Rainfall. Average actual, June 1897.	Rainfall. Average normal, June.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
Central Provinces and Berar.	Berar*	?	?	1·73	5·98	— 4·25
	Central Provinces (West)	5·4	8·4	4·28	7·13	— 2·85
	Do. do. (Central)	5·9	8·0	4·43	7·42	— 2·99
	Do. do. (East)	6·9	6·6	5·42	7·72	— 2·30
Bombay (North)	Gujarat	3·1	6·6	2·34	6·26	— 3·92
	Kathiawar	1·5	3·6	1·35	3·26	— 1·91
	Sind	0	?	0	0·20	— 0·20
	Baluchistan Hills	0·3	?	0·09	0·44	— 0·35
Rajputana and Central India.	Central India (East)	4·2	?	5·34	6·52	— 1·18
	Rajputana (East) and Central India (West)	2·9	?	1·62	3·27	— 1·65
	Rajputana (West)	0·6	?	0·32	1·73	— 1·41
Madras	East Coast (North)	4·6	6·7	3·24	4·90	— 1·66
	Do. (do.) (a)	8·5	11·1	5·14	10·41	— 5·27
	Hyderabad (South)	4·9	?	2·56	4·33	— 1·77
	Madras (Central)	5·4	4·8	3·17	2·63	+ 0·54
	East Coast (Central)	2·3	3·1	1·44	1·65	— 0·21
	Do. (South)	2·9	3·8	1·81	2·27	— 0·46
	Madras (South)	3·4	2·2	1·50	1·06	+ 0·44

* The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

Bengal obtained frequent showers from the 1st to the 12th, due chiefly to series of thunderstorms and nor'westers. The storms were most frequent on the 2nd and 5th, and gave moderately heavy rain in North and East Bengal. Bihar received practically no rain during this period, except on the 11th.

The south-west monsoon rains began in Bengal on the 13th, when the advancing current in the Bay began to give moderate general rain to Bengal. At the same time a cyclonic storm was generated in the north-west angle of the Bay. The centre crossed the North Orissa coast on the morning of the 17th, and drifted slowly west-north-westwards through Chota Nagpur on the 18th into Baghelkhand and Bundlekhand on the 19th and 20th. The storm gave heavy rain to Orissa on the 16th and 17th, moderately heavy rain to South-West Bengal from the 17th to the 19th and to Bihar and Chota Nagpur on the 18th and 19th. The following gives the falls of five inches and over in 24 hours registered during this storm :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Cuttack	Salipore	17th	10·00
	Kendrapara	,,	7·96
	Jajpur	,,	5·41
Balasore	Akhyapada	,,	5·70

The Cuttack district was the only area in Bengal which received heavy cyclonic downpours during the march of the storm.

North and East Bengal received frequent light to moderate showers during the progress of the storm from the 15th to the 21st, but the rainfall of the period was small in amount compared with that in South-West Bengal.

The disappearance of this storm was followed by the formation of a shallow depression in Central Bihar on the 23rd. It shifted very slowly eastwards into Central and East Bengal, where it filled up on the 27th.

The formation of the depression in Central Bihar on the 23rd was followed by an excessive downpour in that area during the next 48 hours.

The following gives some of the more remarkable falls :—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 24th June.	Rainfall during 24 hours preceding 8 A.M. of 25th June.	Total rainfall in 48 hours.
		Inches.	Inches.	Inches.
Patna	Patna	5·87	13·80	19·67
	Dinapore	3·66	19·64	23·30
	Bikram	1·50	11·20	12·70
Shahabad	Arrah	10·27	2·52	12·79
	Ageaon	2·80	14·00	16·80
Saran	Amnour	6·75	7·50	14·25
Muzaffarpur	Hajipur	2·98	10·70	13·68

The preceding data indicate that Dinapore was the centre of this excessive downpour.

The area of heavy rainfall was transferred eastwards on the 26th and 27th. This is roughly indicated by the following data :—

Division.	Average actual rainfall during 24 hours preceding 8 A.M. of						Total of period.
	23rd June.	24th June.	25th June.	26th June.	27th June.	28th June.	
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
North Bihar .	0·73	2·61	1·97	0·67	0·32	0·13	6·43
South Bihar .	0·55	2·37	2·46	2·43	0·10	0	7·91
Chota Nagpur.	0·22	0·72	0·53	0·26	0·08	0·01	1·82
South-West Bengal.	1·10	0·57	0·63	0·60	1·57	0·31	4·78
North Bengal .	0·86	1·45	0·60	0·25	0·62	0·79	4·57
East Bengal .	1·00	1·14	0·83	1·53	1·09	1·12	6·71
Orissa . .	0·12	0·34	0·02	0·05	0·10	0·01	0·64

The disappearance of the depression was followed by a break in the rains which commenced in Bihar and Chota Nagpur on the 28th and in Bengal on the 29th.

The following gives comparative data of the rainfall of the month for the nine divisions of the province :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, June 1897.	Average normal, June.	Variation from normal.	Average actual, June 1897.	Average normal, June.	Variation from normal.
				Inches.	Inches.	Inches.
Bengal, East. . .	16·0	15·8	+0·2	16·15	17·04	— 0·89
„ Deltaic . .	14·8	12·8	+2·0	13·36	10·66	+ 2·70
„ Central . .	11·3	11·9	—0·6	9·59	10·02	— 0·43
„ North . .	13·5	15·8	—2·3	13·36	21·14	— 7·78
„ Hills . .	18·9	21·5	—2·6	20·01	30·37	—10·36
Orissa	8·4	10·8	—2·4	7·85	9·20	— 1·35
Chota Nagpur . .	10·9	10·1	+0·8	7·08	8·34	— 1·26
South Bihar . .	9·1	7·4	+1·7	12·21	6·12	+ 6·09
North Bihar . .	9·0	9·3	—0·3	9·68	8·89	+ 0·79

The rainfall was hence in moderate to considerable excess in South-West or Deltaic Bengal and Bihar. It was 50 per cent. or upwards in excess in the districts, for which data are given below :—

Division.	District.	Rainfall.		
		Average actual, June 1897.	Average normal, June.	Percentage variation from normal.
		Inches.	Inches.	
Bihar . . .	Patna . .	16·49	6·70	+146
	Saran . .	15·30	6·89	+122
	Gaya . .	12·65	5·79	+118
	Shahabad .	11·17	5·44	+105
South-West Bengal.	Khulna . .	20·92	12·65	+ 65
	Jessore . .	18·82	11·40	+ 65
	Hooghly . .	14·53	9·70	+ 50

The rainfall of the month was practically normal over the greater part of North Bihar and Central and East Bengal, but was in large defect in Bihar, North Bengal and Sikkim. It was more than 33 per cent. below the normal of the month in the nine districts for which data are given below :—

Division.	Station.	Rainfall.		
		Actual, June 1897.	Normal, June.	Percentage variation from normal.
		Inches.	Inches.	
North Bengal. .	Bogra . .	3·91	13·11	—70
	Cooch Behar .	15·76	30·83	—49
	Jalpaiguri .	14·35	28·09	—49
	Dinajpur . .	7·80	15·32	—49
Chota Nagpur . .	Palamau . .	3·24	6·24	—48
Orissa	Puri . .	4·83	8·47	—43
Bihar	Purnea . .	8·62	12·57	—39
East Bengal . .	Narainganj .	8·08	12·91	—37
	Mymensingh .	11·21	17·87	—37

The area of most deficient rainfall hence included the submontane districts of North Bengal and North Bihar, and the deficiency was absolutely greatest in Jalpaiguri and Cooch Behar, and was greatest relatively to the normal in Bogra, which received only 30 per cent. of the normal fall of the month.

Thunderstorms were received in the western, submontane and hill districts of the North-Western Provinces from the 1st to the 3rd. The total rainfall due to these disturbances was slight to moderate in amount and very irregularly distributed.

The whole province obtained a moderate burst of rain from the 13th to the 15th during the establishment of the monsoon on the West Coast. This, like the preceding, was

chiefly due to local thunderstorms, and was very irregularly distributed and moderate in amount.

The passage of the first storm of the month across the south-eastern districts of the North-Western Provinces, Baghelkhand and Bundelkhand gave fairly general rain from the 19th to the 22nd. The rainfall accompanying this storm was heavy and general in the south-eastern and central districts and was light in the western districts. The districts of Saharanpur and Muzaffarnagar, Bulandshahr, Meerut and Pilibhit received practically no rain during this period. The rainfall was heaviest in the Allahabad, Banda, Hamirpur and Jhansi districts. The following gives the largest falls in 24 hours during this period :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Hamirpur	Bija Nagar	19th	7·61
,,	Bela Thal	19th	6·05
Banda	Mau	19th	5·95
Hamirpur	Mahoba	20th	7·32
Jhansi	Mahroni	20th	6·75

The eastern districts of the province received moderate to heavy rain from the 22nd to the 25th, during which period a depression formed in Central Bihar and drifted slowly eastwards through Central into East Bengal.

This burst of rain was followed by a general break, during which strong dry westerly winds prevailed generally in the province. This break commenced on the 24th in the western and central districts, and on the 26th in the eastern districts.

The following gives comparative data of the rainfall of the month in the eight rainfall divisions of the province :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, June 1897.	Average normal, June.	Variation from normal.	Average actual, June 1897.	Average normal, June.	Variation from normal.
				Inches.	Inches	Inches.
North-Western Provinces, East.	6·5	5·1	+1·4	5·74	4·29	+1·45
South Oudh	4·6	4·6	0	3·58	4·39	—0·81
North Oudh	6·0	5·6	+0·4	4·67	4·93	—0·26
North-Western Provinces, Central.	4·7	4·4	+0·3	4·74	3·53	+1·21
North-Western Provinces, West.	4·2	3·2	+1·0	2·45	2·35	+0·10
North-Western Provinces, East Submontane.	8·4	6·0	+2·4	6·95	5·54	+1·41
North-Western Provinces, West Submontane.	4·7	5·5	—0·8	3·00	5·16	—2·16
North-Western Provinces, Hills.	7·7	10·5	—2·8	5·44	7·53	—2·09

The rainfall of the month was hence normal in North Oudh and the western division of the North-Western Provinces and in moderate defect in South Oudh. It was in moderate to large defect in the west submontane and hill divisions. The following gives data for the districts in which the deficiency was most marked :—

DISTRICT.	RAINFALL.			
	Average actual, June 1897.	Average normal, June.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Dehra Dun	4·69	9·74	—5·05	—52
Pilibhit	2·28	6·16	—3·88	—63
Bareilly	2·24	4·87	—2·63	—54
Bijnor	3·09	4·68	—1·59	—34
Muzaffarnagar	1·66	3·10	—1·44	—47
Saharanpur	1·65	4·86	—3·21	—66

The rainfall of the month was in moderate to large excess in the eastern and central divisions. The excess was greatest in the Allahabad, Banda, Hamirpur and Jhansi districts which received the heavy downpour of the 19th and 20th noted above.

The rainfall of the month was below the normal over the greater part of the Punjab.

There were three periods of more or less general rain.

The first period was from the 1st to the 3rd. The north-west, west, submontane and hill districts received light to moderate rain, chiefly from thunderstorms or dust-storms.

The second period extended from the 4th to the 6th. The southern, central, submontane and hill districts obtained light to moderate local rain during this period, chiefly from thunderstorms. Practically no rain fell in the north-west division, and only light showers in the western division.

During the third period, extending from the 22nd to the 24th, the submontane, north-west and west divisions obtained light rain and the hill districts moderate rain. The rainfall of the month was more or less below the average over the greater part of the province. The following gives comparative data for each district :—

DISTRICT.	RAINFALL.			
	Average actual, June 1897.	Average normal, June.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Hissar	0·87	1·75	—0·88	—50
Ferozepore	0·57	1·45	—0·88	—61
Montgomery	0·19	0·92	—0·73	—79

District.	Rainfall.			
	Average actual, June 1897.	Average normal, June.	Variation from nomal.	Percentage variation.
	Inches.	Inches.	Inches.	
Gurgaon	1·67	2·17	—0·50	—23
Rohtak	1·73	2·12	—0·39	—18
Delhi	2·09	2·99	—0·90	—30
Karnal	1·76	3·04	—1·28	—42
Lahore	1·04	1·65	—0·61	—37
Umballa	1·00	3·62	—2·62	—72
Ludhiana	1·11	2·20	—1·09	—50
Jullundur	1·09	2·33	—1·24	—53
Hoshiarpur	1·58	2·76	—1·18	—43
Gurdaspur	1·70	3·32	—1·62	—49
Amritsar	0·84	2·24	—1·40	—63
Simla	3·58	4·99	—1·41	—28
Kangra	2·99	4·63	—1·64	—35
Gujaranwala	1·60	1·52	+0·08	+ 5
Sialkot	1·08	2·43	—1·35	—56
Gujarat	1·05	1·88	—0·83	—44
Jhelum	1·43	1·28	+0·15	+12
Rawalpindi	1·78	1·23	+0·55	+45
Peshawar	0·99	0·30	+0·69	+230
Hazara	2·38	1·91	+0·47	+25
Kohat	1·92	0·91	+1·01	+111
Bannu	0·43	0·68	—0·25	—37
Shahpur	2·05	0·88	+1·17	+133
Jhang	1·03	0·85	+0·18	+21
Dera Ismail Khan	0·89	0·39	+0·50	+128
Dera Ghazi Khan	1·05	0·64	+0·41	+64
Muzaffargarh	0·33	0·41	—0·08	—20
Mooltan	0·30	0·43	—0·13	—30

The distribution of the rainfall of the month was very unusual. The northern and western districts received heavier rain than usual, due chiefly to disturbed conditions in the neighbouring Chitral and Afghan hills. The excess was hence greatest in the districts bordering these hills, including Peshawar, Kohat, Shahpur and Dera Ismail Khan. The rainfall of the month was more or less in defect over the remainder of the province. The deficiency was large and pronounced in the southern districts, and exceeded 50 per cent. of the normal in Montgomery (—79 per cent), Umballa (—72 per cent.), Amritsar (—63 per cent.), Ferozepore (—61 per cent.), Sialkot (—56 per cent.), and Jullundur (53 per cent.). The efficiency was, relatively to the normal, greatest in the southern division (Punjab South) in which it averaged 51 per cent.

The Baluchistan hills and plateau received a few light showers of no importance, chiefly on the 24th.

Kashmir obtained moderately heavy daily showers from the 1st to the 4th and light showers between the 23rd and 27th. The rainfall of the month was probably above the normal in the valley and on the lower hills.

Light local showers, chiefly accompanying thunderstorms, were received in Rajputana on the 1st, 3rd and 4th.

Fairly general but light rain, the first burst of the monsoon, was received between the 13th and the 16th. The falls were heaviest in Ulwar, Bhurtpore and Dholpur.

Showers were also received in the eastern and central states between the 17th and 23rd, but the total rainfall of this period was scanty. Dry weather set in on the 23rd and prevailed during the remainder of the month.

The following gives comparative data for the larger states :—

State.	Rainfall.			
	Average actual, June 1897.	Average normal, June.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Jodhpur	0·35	1·82	—1·47	—81
Jeypore	0·87	2·65	—1·78	—67
Ajmere	0·98	2·35	—1·37	—58
Bhurtpore	1·93	2·20	—0·27	—12
Ulwar	1·42	3·53	—2·11	—60
Kotah	3·62	4·05	—0·43	—11
Kerowlee	2·13	3·63	—1·50	—41
Oodeypore	0·74	4·30	—3·56	—83
Dholpur	2·22	?	?	?
Sirohi	1·04	4·97	—3·93	—79

The rainfall of the month was hence in large defect in all the larger Rajputana states, except Kotah and Bhurtpore. On the average of the whole area, less than half of the normal amount was received during the month.

Central India received a feeble burst of rain between the 13th and 15th, due to the first advance of monsoon winds from the west coast. The cyclonic storm of the third week of the month gave a heavy burst of rain to the eastern states and light to moderate rain to the western states. The rainfall of this period was very heavy in

Bhopal, Gwalior and Bundelkhand. The following gives the more noteworthy rainfalls in 24 hours:—

STATE.	STATION.	Date.	Rainfall in 24 hours preceding 8 A.M. of date.
			Inches.
Gwalior	Shujaulpur	19th	6·12
Bundelkhand	Nowgong	20th	18·22
Bhopal	Sironj	,,	6·74
,,	Biaora	21st	9·28
,,	Kurwai	,,	9·24
,,	Narsinghgarh	,,	7·15
,,	Khilchipur	,,	7·00
,,	Maksudangarh	,,	6·42
,,	Sehore	,,	5·81

The break in the rains which commenced in Rajputana on the 23rd extended to Central India on the 24th.

The following gives comparative data for the larger divisions or states :—

STATE.	RAINFALL.			
	Average actual, June 1897.	Average normal, June.	Variation from normal.	Percentage variation.
	Inches.	Inches.	Inches.	
Rewah	4·58	8·02	−3·44	−43
Bundelkhand	7·02	6·00	+1·02	+17
Gwalior	3·54	4·61	−1·07	−23
Bhopal	11·19	7·39	+3·80	+51
Indore	1·98	6·65	−4·67	−70
Rutlam	1·50	5·41	−3·91	−72
Nagode	5·52	5·97	−0·45	− 8
Maihar	5·63	7·85	−2·22	−28

The rainfall of the month was hence in slight to considerable excess in Bundelkhand and Bhopal, due to the heavy rainfall of the 20th and 21st. It was in defect in the remaining states, and the deficiency was large in the western states of Indore and Rutlam.

The Central Provinces received occasional thundershowers during the first week of the month. Little or no rain fell between the 7th and 11th. On the 14th general rain, due to the advance of the monsoon currents from the west coast, commenced.

Daily general rain fell between the 16th and the 23rd, when the rains suddenly ceased temporarily and practically no rain was received during the remainder of the month.

The heaviest falls in 24 hours during the month were 5·45 inches at Raigarh on the 12th, 5·00 inches at Khurai on the 20th, 4·52 inches at Pachmarhi on the 22nd, and 4·05 inches at Mohpani on the same date. The daily falls were as a rule moderate in amount.

The following table gives a summary of the rainfall data of the month for the three rainfall divisions of the province, and also for Berar :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, June 1897.	Average normal, June.	Variation from normal.	Average actual, June 1897.	Average normal, June.	Percentage variation from normal.
				Inches.	Inches.	
Central Provinces (East)	6·9	6·6	+0·3	5·42	7·72	−30
,, (Central)	5·9	8·0	−2·1	4·43	7·42	−40
,, (West)	5·4	8·4	−3·0	4·28	7·13	−40
Berar	?	?	?	1·73	5·98	−71

The rainfall was in considerable defect over the whole area, and by nearly equal percentage amounts in the three divisions of the Central Provinces. The deficiency was large in Berar, averaging 71 per cent.

The monsoon rains commenced in the same manner on the Bombay coast in May 1897 as in May 1896. They were preceded by a period of showery weather in Malabar and the Konkan, extending from the commencement of the month to the 12th. The falls during this period were generally light to moderate and were heaviest in Malabar and accompanied thunderstorms.

The first burst of the monsoon rains proper occurred in North Kanara and Ratnagiri on the 13th, in Kolaba on the 17th and in Thana on the 18th. This initial burst of rain in the Konkan was not so heavy as usually occurs. The following gives average data of the rainfall in the coast districts from the 13th to the 20th :—

DISTRICT.	AVERAGE ACTUAL RAINFALL DURING 24 HOURS PRECEDING 8 A.M. OF								Total rainfall of period 13th to 20th June 1897.
	13th June.	14th June.	15th June.	16th June.	17th June.	18th June.	19th June.	20th June.	
	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches.
North Kanara	1·90	2·21	2·18	6·72	5·27	1·26	1·01	0·84	21·39
Ratnagiri	2·86	1·40	1·22	0·81	2·09	2·06	2·18	0·50	13·12
Kolaba	1·11	0·86	0·24	0·28	1·38	3·90	0·94	1·58	10·29
Thana	0·15	0·03	0·06	0·09	0·64	2·79	1·54	0·17	5·47

The chief feature of the establishment of the monsoon rains on the Konkan coast was the excessively heavy downpour in the North Kanara and Savantvadi districts on the 16th and 17th.

The following gives data of this excessive downpour :—

District.	Station.	Rainfall in 24 hours preceding 8 A.M. of date		Total.
		16th June.	17th June.	
		Inches.	Inches.	Inches.
North Kanara	Karwar	13·17	8·88	22·05
	Ankola	13·73	7·93	21·66
	Kumta	14·87	14·70	29·57
	Honovar	13·30	12·20	25·50
	Bhatkal	10·79	12·31	23·10
Savantvadi	Savantvadi	7·70	12·10	19·80
	Banda	11·36	7·75	19·11

Rain fell steadily in the North Kanara, Ratnagiri, Kolaba and Thana districts until the 26th. The monsoon current gave only light local showers during the remainder of the month.

The Bombay Deccan districts received occasional thundershowers during the first week of the month and light to moderate daily rain from the 12th to the 25th. The rainfall of the month was in moderate excess in the Dharwar and Bijapur districts, and normal in Satara. It was irregularly distributed in the Sholapur, Poona, Ahmednagar, Nasik and Khandesh districts and was in moderate to large defect, averaging nearly fifty per cent. over the area, including these districts.

The following table gives comparative data for the collectorates in the Deccan and Khandesh :—

District.	Rainfall.			
	Average actual, June 1897.	Average normal, June.	Variation from normal.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dharwar	6·27	3·54	+2·73	+77
Satara	6·94	7·09	−0·15	−2
Belgaum	6·44	8·24	−1·80	−22
Sholapur	3·29	4·64	−1·35	−29
Bijapur	4·91	3·59	+1·32	+37
Poona	5·72	7·84	−2·12	−27
Ahmednagar	1·50	4·27	−2·77	−65
Nasik	3·35	6·89	−3·54	−51
Khandesh	1·97	5·12	−3·15	−61

Gujarat and Kathiawar received light showers on the 11th and again from the 16th to the 20th, and occasional light local showers of little importance during the remainder of the month.

Sind and Cutch received no rain.

The following table gives comparative data of the rainfall of the month in the six divisions of the Bombay Presidency and also for Baluchistan :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, June 1897.	Average normal, June.	Variation from normal.	Average actual, June 1897.	Average normal, June.	Variation from normal.
				Inches.	Inches.	Inches.
Konkan	16·2	19·2	−3·0	22·39	27·14	−4·75
Bombay Deccan	7·7	8·2	−0·5	5·76	5·80	−0·04
Khandesh	3·2	7·6	−4·4	2·50	5·69	−3·19
Gujarat	3·1	6·6	−3·5	2·34	6·26	−3·92
Kathiawar	1·5	3·6	−2·1	1·35	3·26	−1·91
Sind	0	?	?	0	0·20	−0·20
Baluchistan Hills	0·3	?	?	0·09	0·44	−0·35

The rainfall in the Madras Presidency was even more unequally distributed than usual.

The Malabar coast districts received frequent heavy showers from the 6th to the 9th. The average total rainfall of the Malabar district for this period was 8·53 inches and of the South Kanara district 4·01 inches.

The monsoon rains proper commenced on the 13th and held steadily during the remainder of the month. The following gives the average daily rainfall in these districts from the 16th to the 23rd (a period of eight days) :—

Date.	Average rainfall during 24 hours preceding 8 A.M. of date.	
	Malabar.	South Canara.
	Inches.	Inches.
16th June 1897	2·48	5·38
17th " "	5·48	7·52
18th " "	3·62	5·95
19th " "	3·96	2·87
20th " "	2·62	2·14
21st " "	2·73	2·78
22nd " "	2·02	1·15
23rd " "	1·58	0·36
Total of period	24·49	28·15
Total for same period in 1896	17·11	17·25

giving an average daily fall of over three inches in those two districts during this period. The heaviest falls in 24 hours were 10·80 inches at Puttur on the 17th and 10·01 inches at Udipi on the 16th. The data illustrate clearly the character of the rainfall accompanying the monsoon proper in the west coast districts, as distinguished from the rainfall in May, due to local thunderstorms. Although the monsoon rains commenced on the Malabar Coast nearly a fortnight later than usual, the rainfall of the month in the Malabar division was in largish excess, *viz.*, 7·21 inches or 19 per cent. above the normal.

The south and south central divisions of Madras received occasional showers, local in character, during the month, and chiefly from the 5th to the 7th and on the 11th and the 16th. The rainfall was normal or in slight excess in these two divisions. It was most largely above the normal in the Tinnevelly district. The East Coast, South and Central and the Deccan divisions obtained occasional showers, which gave fairly general rain, more especially on the 3rd, the 11th to the 13th and the 16th and 17th. The rainfall of the month was normal or in slight excess. The excess was most marked in the Bellary and Anantapur districts. There was a considerable local deficiency in the Chingleput district.

The northern coast districts received occasional rain, more especially on the 3rd and from the 15th to the 18th. The rainfall of the month was in considerable defect in this division, and more especially in the Vizagapatam, Godavari and Kistna districts. The following gives comparative data for the 22 Collectorates of the Presidency:—

District.	Number of rainy days.		Rainfall.		
	Actual, June 1897.	Normal, June.	Actual, June 1897.	Normal, June.	Variation from normal.
			Inches.	Inches.	Inches.
Ganjam	6·3	6·4	4·35	4·76	—0·41
Vizagapatam	5·9	8·1	3·75	5·91	—2·16
Godavari	3·0	5·9	2·48	4·54	—2·06
Kistna	3·4	6·0	2·46	4·29	—1·83
Nellore	2·3	3·1	1·44	1·65	—0·21
Chingleput	2·9	4·8	1·57	3·10	—1·53
Madras	3·0	4·7	3·21	2·07	+1·14
North Arcot	3·6	4·5	1·96	2·86	—0·90
South Arcot	2·9	4·0	2·32	2·16	+0·16
Tanjore	2·0	3·2	1·09	1·97	—0·88
Trichinopoly	3·8	2·1	2·31	1·21	+1·10
Madura	3·0	2·3	1·28	1·21	+0·07
Tinnevelly	4·0	2·0	1·77	0·87	+0·90
Malabar	20·5	23·9	43·84	32·01	+11·83
South Kanara	20·5	26·2	45·71	44·96	+0·75
Salem	3·4	4·4	2·01	2·54	—0·53
Coimbatore	3·9	3·0	1·91	1·42	+0·49
Nilgiris	14·6	13·8	13·70	10·64	+3·06
Cuddapah	5·0	4·4	1·84	2·30	—0·46
Anantapur	5·5	4·4	3·48	2·32	+1·17
Bellary	5·9	5·2	4·97	2·89	+2·08
Kurnool	5·1	5·5	2·79	3·08	—0·29

Table

Abstract of Observations taken at 8 A.M. at 213

Number of District.	Meteorological Province or District.	Station.	Elevation of barometer above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	I.—Burma Coast and Bay Islands.		...	...	−·014	...	...	...	...	...	...	...	87·0	+1·1	77·2	+0·9	82·1	+1·0	9·8	...	...	...	...	19·0
1	Tenasserim and Bay Islands.	Car Nicobars	?	29·864	?	?	29·946	2nd	29·822	13th	·124	80·1	88·4	?	77·5	?	82·9	?	10·9	92·2	3rd	75·1	13th	17·1
		Port Blair	61	29·758	?	29·749	29·830	1st	29·676	16th	·154	83·3	86·7	?	80·0	?	83·4	?	6·7	95·1	3rd	75·2	14th	19·9
		Mergui	96	29·772	?	29·800	29·831	26th	29·711	7th	·123	79·7	86·7	?	75·4	?	81·1	?	11·3	93·2	9th	73·5	15th	19·7
		Tavoy	26	29·838	−·005	29·795	29·886	10th	29·766	30th	·120	79·6	85·2	+0·5	75·1	+0·5	80·2	+0·5	10·1	91·7	3 days	72·7	24th	19·0
		Moulmein	94	29·724	−·003	29·756	29·821	10th	29·627	15th	·194	79·1	85·7	+1·4	75·9	+1·4	80·8	+1·4	9·8	90·5	1st	73·3	18th	17·2
2	Lower Burma	Rangoon	41	29·736	?	29·714	29·838	10th	29·620	15th	·218	80·4	87·3	+1·1	77·3	+0·9	82·3	+1·0	10·0	92·7	2 days	73·9	2 days	18·8
		Bassein	27	29·742	−·016	29·704	29·843	6th	29·611	15th	·232	80·5	87·0	+0·9	76·9	+0·7	82·0	+0·8	10·1	93·2	2nd	73·8	26th	19·4
		Diamond Island.	41	29·728	−·018	29·704	29·827	10th	29·617	15th	·210	82·0	86·1	+0·6	78·9	?	82·5	?	7·2	90·1	2 days	75·4	2 days	14·7
5	Arakan	Akyab	20	29·681	−·020	29·644	29·821	2nd	29·534	15th	·287	81·2	86·3	+0·4	78·1	+0·2	82·2	+0·3	8·2	92·3	4th	74·2	2nd	18·1
3	Central Burma	Toungoo	183	29·573	−·021	29·697	29·673	10th	29·464	15th	·209	81·7	90·8	+2·4	76·7	+1·5	83·8	+2·0	14·1	97·7	2 days	71·2	12th	26·5
	II.—Burma Inland.		...	...	−·024	...	...	...	...	...	...	...	93·6	+1·8	77·9	+1·5	85·8	+1·6	15·7	...	...	...	...	26·9
3	Central Burma	Thayetmyo	134	29·592	−·019	29·667	29·711	10th	29·476	21st	·235	81·9	91·6	+0·6	78·0	+1·6	84·8	+1·1	13·6	98·1	2 days	75·1	27th	23·0
4	Upper Burma	Minbu	?	29·543	−·027	?	29·664	2nd	29·418	22nd	·246	81·9	94·7	+2·1	79·0	+1·6	86·9	+1·9	15·7	101·1	4th	77·1	19th	24·0
		Yamethin	645	29·078	?	29·669	29·181	10th	28·958	22nd	·223	81·6	93·6	+1·3	76·0	+0·7	84·8	+1·0	17·6	99·0	5th	71·2	1st	27·8
		Mandalay	249?	29·452	−·023	29·648	29·576	2nd	29·329	22nd	·247	85·5	97·8	+3·2	80·1	+1·8	89·0	+2·5	17·7	101·6	6th	72·1	1st	29·5
		Kindat	?	29·247?	?	?	29·376	2nd	29·126	25th	·250	82·2	92·4	+2·1	77·9	+1·7	85·2	+1·9	14·5	103·3	6th	71·0	2nd	32·3
		Bhamo	?	29·312	−·027	?	29·421	2nd	29·179	29th	·242	80·0	91·5	+1·2	76·3	+1·5	83·9	+1·4	15·2	98·1	5th	73·1	6th	25·0
4 (a)	Burma Hill Stations.	Taunggyi	?				Not re	corded.				69·5	79·5	?	65·1	?	72·3	?	14·4	84·2	2 days	63·5	1st	20·7
		Lashio	?	27·002	+·010	?	27·117	20th	26·868	25th	·249	73·6	87·0	+2·2	70·5	+1·5	78·8	+1·9	16·5	92·5	10th	65·0	1st	27·5
	III.—Assam.		...	...	−·017	...	...	...	...	...	...	...	90·0	+2·1	76·7	+0·6	83·4	+1·4	13·3	...	...	...	...	24·6
7	Surma	Silchar	104	29·567	−·019	29·623	29·731	6th	29·404	25th	·327	80·5	90·7	+2·0	76·5	+0·4	83·6	+1·2	14·2	98·6	16th	70·8	6th	27·8
9	Brahmaputra	Sibsagar	333	29·317?	?	29·605?	29·474	5th	29·139	29th	·335	80·5	89·0	?	76·4	?	82·7	?	12·6	96·2	18th	72·0	4th	24·2
		Dhubri	115	29·514	−·015	29·583	29·691	9th	29·336	30th	·355	80·6	87·7	+2·1	77·2	+0·8	82·6	+1·5	10·5	91·2	5 days	70·7	4th	20·5
		Salonah	?	29·394	?	29·592	29·554	5th	29·172	30th	·382	83·1	92·7	?	76·8	?	84·7	?	15·9	97·2	25th	71·4	5th	25·8
	IV.—Bengal and Orissa.		...	...	−·017	...	...	...	...	...	...	...	91·1	+1·0	78·4	+0·8	84·8	+1·0	12·7	...	...	...	...	25·9
6	East Bengal	Chittagong	87	29·577	−·021	29·612	29·735	2nd	29·414	25th	·321	81·9	88·1	+1·9	77·8	+1·3	83·0	+1·6	10·3	92·2	2 days	72·1	2nd	20·1
		Lungleh	?				Not re	corded.				70·8	77·0	?	66·8	?	71·9	?	10·2	81·6	5th	62·5	2nd	19·1
		Noakhali	43	29·601	?	29·591	29·778	2nd	29·438	25th	·340	82·7	87·7	?	78·2	?	83·0	?	9·5	92·0	7th	70·8	19th	21·2
		Comilla	36	29·605	?	29·589	29·792	2nd	29·435	25th	·357	81·9	89·0	?	77·2	?	83·1	?	11·8	94·3	6th	70·8	2nd	23·5
		Sirajganj	49	29·553	?	29·552	29·740	9th	29·381	25th	·359	81·9	89·4*	?	77·3	?	84*	?	12·1	94·3	30th	70·2	2nd	24·1
		Narayanganj	26	29·595	−·024	29·569	29·798	2nd	29·413	25th	·385	83·4	89·6	+0·6	79·2	+0·9	84·4	+0·8	10·4	95·1	30th	74·2	2nd	20·9
		Barisal	13	29·607	−·019	29·565	29·791	2nd	29·423	25th	·368	83·2	89·8	+0·8	78·9	+1·1	84·4	+1·0	10·9	97·3	30th	72·4	24th	24·9
		Mymensingh	5	29·575	−·018	29·585	29·747	9th	29·412	25th	·335	81·4	88·4	+1·2	77·3	+0·8	82·9	+1·0	11·1	93·7	30th	71·1	8th	22·6
10	Deltaic Bengal	Faridpur	46	29·581	?	29·574	29·769	2nd	29·402	25th	·367	82·6	90·1	?	77·7*	?	83·9*	?	12·4	96·8	5th & 6th	72·4	2nd	24·4
		Jessore	33	29·571	−·020	29·550	29·762	2nd	29·402	25th	·360	83·9	92·5	+0·9	79·5	+0·6	86·0	+0·8	13·0	101·0	7th	74·2	2nd	26·8
		Calcutta	21	29·572	−·012	29·538	29·740	10th	29·384	17th	·356	83·7	90·4	−0·9	79·1	+0·3	84·7	−0·3	11·3	96·9	11th	73·7	2nd	23·2
		Saugor Island	25	29·561	−·021	29·529	29·728	10th	29·341	17th	·387	85·7	91·1	+0·4	81·8	−0·1	86·4	+0·2	9·3	95·4	2 days	72·5	2nd	22·9
		Krishnagar	47	29·545	?	29·540	29·727	2nd	29·385	25th	·342	83·9	92·5	?	78·8	?	85·7	?	13·7	99·7	2nd	71·7	2nd	28·0
		Midnapore	149	29·435	?	29·530	29·582	9th	29·227	17th	·355	83·9	93·1	?	78·5	?	85·8	?	14·6	104·4	2nd	72·2	2nd	32·2

* Mean of 29 days.

I.

stations in India, Burma, etc., in June, 1897.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 June to 30th June 1897.	Normal rainfall for period, from 1st June to 30th June.	Variation from normal of period, 1st June to 30th June.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30·72	27·47	+5·99	...	...	...	...	I.—Burma Islands.	Coast and Bay	
...	1	1	1	2	2	10	...	...	4·5	?	?	92	·971	8·7	17	?	?	6·08	?	?	6·08	?	?	0·85	Car Nicobars†		
2	...	...	1	3	2	11	10	1	9·9	10·0	− 1	86	·984	8·2	20	?	?	15·52	18·79	−3·27	15·52	18·79	− 3·27	3·18	Port Blair	Tenasserim and Bay Islands.	1
..	2	1	...	5	1	5	9	7	1·8	1·9	− 5	92	·934	5·4	23	?	?	40·03	31·44	+8·59	40·03	31·44	+ 8·59	4·45	Mergui		
20	...	...	...	...	...	6	2	2	2·1	?	?	91	·927	7·6	24	?	?	68·14	39·39	+28·75	68·14	39·39	+28·75	8·12	Tavoy.		
...	1	...	2	6	15	3	2	1	4·2	3·4	+ 16	92	·907	9·3	27	27·00	0	37·03	35·72	+1·31	37·03	35·72	+ 1·31	3·63	Moulmein.		
...	...	1	1	2	7	12	6	1	4·3	5·3	− 19	91	·940	8·8	23	23·27	−0·27	15·45	17·51	−2·06	15·45	17·51	− 2·06	3·17	Rangoon	Lower Burma.	2
8	2	...	...	1	7	11	1	...	5·2	4·0	+ 30	92	·964	7·7	23	24·82	−1·82	35·17	22·56	+12·61	35·17	22·56	+12·61	12·35	Bassein.		
...	...	...	1	4	1	21	1	2	12·4	8·5	+ 46	85	·926	9·0	22	21·73	+0·27	27·48	23·20	+4·28	27·48	23·20	+ 4·28	5·26	Diamond Island.		
...	2	7	7	6	5	2	...	1	3·0	3·9	− 23	94	1·000	9·0	27	23·09	+3·91	49·58	43·99	+5·59	49·58	43·99	+ 5·59	6·19	Akyab.	Arakan.	5
1	...	...	...	17	11	1	...	...	6·6	4·8	+ 38	88	·962	8·5	17	20·91	−3·91	12·72	14·61	−1·89	12·72	14·61	− 1·89	3·39	Toungoo	Central Burma.	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·85	8·35	−1·50	...	...	...	...	II.—Burma Inland.		
...	...	...	...	10	20	...	...	...	3·8	8·2	− 54	78	·849	9·1	14	15·00	−1·00	6·26	6·94	−0·68	6·26	6·94	− 0·68	1·28	Thayetmyo	Central Burma.	3
...	...	...	3	19	8	...	...	...	13·1	?	?	81	·887	7·3	10	?	?	2·95	3·90	−0·95	2·95	3·90	− 0·95	0·66	Minbu	Upper Burma.	4
...	...	...	...	20	10	...	...	...	11·4	?	?	78	·851	6·5	6	?	?	3·20	4·50	−1·30	3·20	4·50	− 1·30	1·63	Yamethin.		
...	1	...	...	...	28	1	...	...	9·8	?	?	72	·874	4·6	4	?	?	5·40	6·21	−0·81	5·40	6·21	− 0·81	1·84	Mandalay.		
16	1	2	1	3	4	2	1	...	?	?	?	88	·981	7·2	8	?	?	7·56	14·87	−7·31	7·56	14·87	− 7·31	2·01	Kindat.		
10	1	2	3	3	2	6	1	2	3·6	?	?	88	·906	7·4	21	?	?	15·74	13·66	+2·08	15·74	13·66	+ 2·08	3·79	Bhamo.		
5	...	...	...	3	6	13	3	...	?	?	?	85	·619	10·0	12	?	?	3·09	?	?	3·09	?	?	0·50	Taunggyi.	Burma Hill Stations.	4(a)
			Not	rec	orde	d.			?	?	?	85	·734	8·6	10	?	?	7·79	10·24	−2·45	7·79	10·24	− 2·45	2·95	Lashio.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16·33	19·65	−2·03	...	...	...	...	III.—Assam.		
20	2	1	2	...	2	1	...	2	3·6	3·1	+ 16	89	·924	8·9	22	21·33	+0·67	27·29	20·73	+6·56	27·29	20·73	+ 6·56	5·61	Silchar	Surma.	7
6	...	13	2	...	...	8	1	...	3·3	2·6	+ 27	91	·943	8·0	13	16·70	−3·70	12·16	13·69	−1·53	12·16	13·69	− 1·53	2·79	Sibsagar	Brahmaputra.	9
			Not	rec	orde	d.			?	4·9	?	88	·925	7·5	14	17·87	−3·87	13·40	24·53	−11·13	13·40	24·53	−11·13	3·07	Dhubri.		
11	1	5	2	2	1	2	2	4	?	?	?	84	·958	6·5	14	?	?	12·46	?	?	12·46	?	?	2·38	Salonah		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12·26	12·81	−0·63	...	...	...	...	IV.—Bengal and Orissa.		
...	...	...	7	13	8	...	1	1	8·5	6·9	+ 23	86	·939	7·1	17	16·62	+0·38	21·31	22·69	−1·38	21·31	22·69	−1·38	5·02	Chittagong	East Bengal.	6
			Not	rec	orde	d.			?	?	?	93	·703	?	27	?	?	30·13	19·41	+10·72	30·13	19·41	+10·72	3·50	Lungleh.		
...	...	2	4	10	6	7	...	1	6·8	?	?	88	·983	6·9	18	18·35	−0·35	23·21	24·19	−0·98	23·21	24·19	− 0·98	3·32	Noakhali.		
...	...	...	2	15	12	...	1	...	7·2	?	?	84	·910	7·5	19	17·30	+1·70	18·75	17·65	+1·10	18·75	17·65	+ 1·10	2·43	Comilla.		
			Not	rec	orde	d			?	?	?	89	·974	9·0	12	13·09	−1·09	7·27	11·12	−3·85	7·27	11·12	− 3·85	1·69	Sirajganj.		
...	...	1	2	16	7	4	...	...	9·0	7·2	+ 25	89	1·018	7·8	11	15·08	−4·08	5·52	13·06	−7·54	5·52	13·06	− 7·54	1·38	Narayanganj.		
17	...	...	...	3	7	3	...	...	4·6	?	?	87	·994	8·6	17	16·88	+0·12	16·17	16·02	+0·15	16·17	16·02	+ 0·15	2·16	Barisal.		
4	..	3	7	9	4	1	2	...	?	?	?	88	·949	7·2	16	18·42	−2·42	7·62	6·01	+1·61	7·62	6·01	+ 1·61	1·72	Mymensingh.		
12	...	...	2	4	11	1	...	...	3·0	?	?	91	1·021	5·9	18	14·12	+3·88	17·60	12·38	+5·22	17·60	12·38	+ 5·22	2·51	Faridpur	Deltaic Bengal.	10
17	...	...	4	4	2	1	1	1	2·3	4·9	− 53	87	1·002	7·5	16	14·54	+1·46	20·59	12·50	+8·09	20·59	12·50	+ 8·09	5·70	Jessore.		
...	...	2	4	3	9	8	3	1	6·4	6·2	+ 3	84	·980	6·6	12	12·77	−0·77	10·98	10·71	+0·27	10·98	10·71	+ 0·27	2·29	Calcutta.		
1	1	1	1	1	13	12	...	...	18·0	14·6	+ 23	51	·137	8·1	14	12·19	+1·81	8·89	9·84	−0·95	8·89	9·84	− 0·95	2·40	Saugor Island.		
1	...	2	5	5	10	2	4	1	6·6	?	?	84	·970	6·3	14	12·15	+1·85	11·46	9·33	+2·13	11·46	9·33	+ 2·13	2·18	Krishnagar.		
4	...	2	1	4	17	1	1	...	4·7	?	?	82	·956	4·8	18	11·35	+6·65	14·00	9·42	+4·58	14·00	9·42	+ 4·58	2·42	Midnapore.		

† Wind observations of 17 days and 7 variables.

Table

Abstract of Observations taken at 8 A.M. at 213

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure 8 A.M. in inches. 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.	Temperature of air. 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.
11	Central Bengal	Bankura	298	29·253?	?	29·498?	29·402	6th & 9th.	29·096	25th	·306	83·4	94·4	?	78·6	?	86·5	?	15·8	108·1	2nd	73·6	5th	34·5
		Raniganj	334	29·242†	?	29·521†	29·410	2nd	29·049	22nd	·361	83·1	94·8	?	78·5	?	86·6	?	16·3	108·8	2nd	71·9	2nd & 5th.	36·9
		Burdwan	99	29·486	−·013	29·532	29·655	2nd	29·323	17th	332	83·9	93·0	−1·1	78·9	−0·6	86·0	−0·9	14·1	101·9	2nd	74·3	2nd	27·6
		Naya Dumka	489	29·084	?	29·525	29·244	9th	28·926	25th	·318	84·1	94·4	?	78·5	?	86·5	?	15·9	105·5	4th	69·8	5th	35·7
		Berhampore	67	29·522	−·019	29·537	29·707	2nd	29·355	25th	·352	83·0	92·5	−0·1	79·0	+0·5	85·8	+0·2	13·5	99·1	2 days	73·8	2nd	25·3
		Rampur Boalia.	70	29·522	?	29·541	29·699	2nd	29·355	25th	344	84·1	92·5	?	79·1	?	85·8	?	13·4	98·6	8th	70·1	2nd	28·5
		Malda	72	29·512	?	29·535	29·687	9th	29·346	25th	·341	83·5	94·9	?	79·6	?	87·3	?	15·3	102·1	4th & 11th.	73·5	2nd	28·6
		Bogra	61	29·540	?	29·553	29·715	2nd	29·371	25th	·344	82·4	92·4	+3·1	78·1	+1·1	85·3	+2·1	14·3	98·2	30th	71·2	2nd	27·0
12	North Bengal	Dinajpur	123	29·482	−·018	29·558	29·657	9th	29·319	25th	·338	82·0	91·6	+2·4	78·1	+1·1	84·9	+1·8	13·5	95·8	11th	71·2	7th	24·6
		Rangpur	123	29·497	?	29·573	29·670	9th	29·336	30th	·334	82·6	90·2	?	77·9	?	84·1	?	12·4	94·2	30th	70·7	5th & 7th.	23·5
		Jalpaiguri	284	29·343	−·020	29·583	29·524	9th	29·172	30th	·352	80·8	89·8	+2·3	75·3	+0·5	82·6	+1·4	14·5	93·4	30th	71·1	5 days	22·3
		Cooch Behar	?		Not	record	ed.	...	...	...	...	82·1	89·6	?	77·9	?	83·8	?	11·7	93·4	20th	72·1	7th	21·3
17	North Bihar	Purnea	125	29·471	−·010	29·547	29·661	9th	29·315	25th	·346	83·1	94·2	+1·9	79·1	+2·2	86·7	+2·1	15·1	100·3	5th	74·2	7th	26·1
14	Orissa	Balasore	56	29·537	−·006	29·529	29·698	2nd	29·281	17th	·417	84·6	93·6	+1·0	79·8	+1·2	86·7	+1·1	13·8	103·0	2nd	72·8	15th	30·2
		False Point.	21	29·585	−·012	29·547	29·749	2nd	29·330	17th	·419	86·0	90·9	+0·1	81·4	+1·2	86·2	+0·7	9·5	95·5	25th	75·1	15th	20·4
		Cuttack	80	29·515	−·017	29·536	29·657	5th	29·248	17th	·409	85·2	98·0	+2·1	81·4	+1·2	89·7	+1·7	16·6	109·5	2nd	76·7	2 days	32·8
		Shortt's Island.	?	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Puri	20	29·591	?	29·553	29·739	10th	29·375	17th	·364	85·1	89·9	?	81·0*	?	85·6*	?	8·9	93·7	9th	73·6	16th	20·1
	V.—Gangetic Plain and Chota Nagpur.		...	...	−·027	...	...	...	...	...	...	...	98·7	+0·6	80·6	+0·9	89·7	+0·8	18·1	...	...	...	...	37·0
15	Chota Nagpur	Hazaribagh.	2,007	27·579	−·031	29·504	27·715	6th	27·435	18th	·280	80·8	93·5	+1·0	76·3	+0·4	84·9	+0·7	17·2	109·1	2nd	73·3	12th	35·8
		Ranchi	2,128		...	...	Not	record	ed.	...	...	80·1	93·0	+1·2	75·3	+0·6	84·3	+0·9	17·7	103·7	9th	69·4	26th	34·3
		Daltonganj	730?	28·828	?	29·497	28·988	6th	28·657	18th	·331	88·4	102·8	?	82·1	?	92·5	?	20·7	116·1	2nd	72·5	25th	43·6
		Chaibassa	760?	28·821	?	29·523	28·970	5th	28·619	17th	·351	83·1	96·4	−0·6	78·2	−1·3?	87·3	−1·0?	18·2	108·0	2nd	70·5	5th	37·5
16	South Bihar	Gaya	375	29·167?	−·034	29·490?	29·321	6th	29·026	23rd	·295	86·8	100·1	+0·2	81·4	+1·9	90·8	+1·1	18·7	113·5	5th	71·8	26th	41·7
		Dehri	351	29·190	?	29·489	29·330	6th	29·046	23rd	·284	88·1	100·4	?	81·6*	?	90·9*	?	18·8	111·4	5th	75·0	26th	36·4
		Patna	183	29·373	−·031	29·507	29·560	5th	29·226	23rd	·334	84·7	96·7	+0·1	80·3	+0·2	88·5	+0·2	16·4	112·6	5th	74·2	26th	38·4
		Arrah	190	29·368	?	29·507	29·542	5th	29·218	24th	·324	85·4	97·8	?	81·1	?	89·5	?	16·7	112·9	5th	74·0	12th	38·9
		Buxar	239	29·302	?	29·492	29·464	5th	29·149	23rd	315	86·7	98·0	?	81·0	?	89·5	?	17·0	112·4	5th	74·8	26t	37·6
17	North Bihar	Bhagalpur	160	29·404	?	29·515	29·582	5th	29·253	25th	·329	84·8	95·8	?	80·0	?	87·9	?	15·8	105·3	5th	75·6	2nd & 26th.	29·7
		Darbhanga	166	29·410	−·023	29·528	29·604	5th	29·262	2 days	·342	84·4	93·9	+1·6	80·6	+1·6	87·3	+1·6	13·3	101·0	7th	76·5	2nd	24·5
		Muzaffarpur	178	29·388	?	29·518	29·572	5th	29·245	22nd	·327	83·8	94·9	?	79·4	?	87·2	?	15·5	104·7	4th & 5th.	75·7	26th	29·0
		Motihari	224	29·350	?	29·530	29·552	5th	29·197	23rd	·355	83·5	96·[illegible]	?	79·3	?	87·8	?	16·8	107·0	4th	75·9	3 days	31·1
		Chapra	181	29·376	?	29·508	29·547	5th	29·235	22nd & 23rd.	·312	85·2	97·4	?	80·9	?	89·2	?	16·5	112·7	5th	75·1	26th	37·6
18	N. W. Provinces (East).	Benares	267	29·271	−·025	29·489	29·427	5th	29·084	22nd	·343	87·4	100·7	−0·3	82·4	+0·1	91·6	−0·1	18·3	113·3	5th	73·7	15th	39·6
		Allahabad	309	29·226	−·028	29·483	29·376	5th	29·071	19th	·305	90·0	103·5	+1·1	84·1	+1·3	93·8	+1·2	19·4	114·2	5th	77·8	25th	36·4
23	N.-W. Provinces (East, Sub-montane).	Gorakhpur	256	29·293	−·021	29·503	29·433	8th	29·148	22nd & 23rd.	·285	85·8	97·9	+0·2	81·1	+1·3	89·5	+0·8	16·8	110·3	4th	75·3	14th	35·0
19	South Oudh	Lucknow	368	29·176	−·019	29·497	29·306	5th	29·013	22nd	·293	88·5	103·9	?	82·4	+0·9	93·2	?	21·5	115·8	8th	73·3	14th	42·5
20	North Oudh	Bahraich	403	29·147	?	29·504	29·278	5th	29·009	22nd	·269	87·1	101·1	?	80·3	?	90·7	?	20·8	111·6	8th & 9th.	68·0	1st	43·6
21	N.-W. Provinces (Central).	Cawnpore	416	29·121	?	29·482	29·255	2nd	28·966	22nd	·289	89·9	104·7	?	83·8	?	94·3	?	20·9	114·1	11th	77·5	7th	36·6
		Mainpuri	516	29·018	?	29·482	29·168	5th	28·862	22nd	·306	88·4	104·2	?	81·6	?	92·9	?	22·6	118·2	11th	70·0	15th	48·2

* Mean of 29 days.
† „ 28 „

I—*continued.*

stations in India, Burma, etc., in June, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	Normal.	Percentage variation.	Hygrometry 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy day.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 30th June 1897.	Normal rainfall for period, 1st June to 30th June.	Variation from normal of period, 1st June to 30th June.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
9	...	1	5	3	7	2	3	...	6·1	?	?	83	·915	6·0	12	12·08	−0·08	8·49	9·96	−1·47	8·49	9·96	−1·47	2·03	Bankura	Central Bengal.	11
11	...	...	2	4	6	5	2	...	3·6	?	?	83	·835	6·4	14	11·65	+2·35	12·27	9·27	+3·00	12·27	9·27	+3·00	2·28	Raniganj.		
3	...	2	5	2	8	7	2	1	4·7	4·9	− 4	83	·969	7·0	15	12·38	+2·62	11·26	8·92	+2·34	11·26	8·92	+2·34	3·06	Burdwan.		
2	...	...	5	7	8	4	1	3	2·6	?	?	74	·855	7·9	12	12·12	−0·13	9·44	9·22	+0·22	9·44	9·22	+0·22	2·96	Naya Dumka.		
9	...	...	7	4	5	4	1	...	4·3	5·5	− 22	86	·975	7·6	13	11·88	+1·12	6·95	9·38	−2·43	6·95	9·38	−2·43	2·33	Berhampore.		
2	1	1	7	10	6	3	...	...	5·2	?	?	85	1·000	6·5	12	12·15	−0·15	9·41	9·91	−0·50	9·41	9·91	−0·50	2·05	Rampore Boalia.		
...	...	2	6	5	5	1	6	5	3·0	?	?	85	·969	5·0	13	11·96	+1·04	9·57	10·34	− 0·77	9·57	10·34	−0·77	2·40	Malda.		
			Not	re	cord	ed			?	?	?	86	·961	6·6	10	14·23	−4·23	3·52	13·56	−10·04	3·52	13·56	−10·04	1·25	Bogra.		
...	...	4	13	9	2	1	1	...	6·6	?	?	86	·942	6·7	11	14·08	−3·08	8·75	15·49	−6·74	8·75	15·49	−6·74	2·48	Dinajpur	North Bengal.	12
			Not	re	cord	ed			?	?	?	86*	·966*	6·5	16	15·38	+0·62	22·10	18·62	+3·48	22·10	18·62	+3·48	3·93	Rangpur.		
...	4	9	8	6	1	...	...	2	3·5	?	?	86	·910	4·7	17	19·00	−2·00	14·68	26·42	−11·74	14·68	26·42	−11·74	4·15	Jalpaiguri.		
7	...	1	15	5	1	1	...	...	?	?	?	91	·999	6·7	13	?	?	14·65	?	?	14·65	?	?	3·40	Cooch Behar		
...	1	7	17	1	1	1	2	...	6·8	3·3	+106	83	·940	9·1	11	11·48	− 0·48	5·35	10·71	−5·36	5·35	10·71	−5·36	1·78	Purnea	North Bihar.	17
1	2	1	...	1	7	16	2	...	7·9	?	?	86	1·028	5·5	12	10·81	+1·19	9·65	9·07	+0·58	9·65	9·07	+0·58	2·48	Balasore	Orissa.	14
...	...	...	...	...	11	11	6	2	12·9	11·5	+12	83	1·031	7·9	6	9·32	−3·32	6·64	9·37	−2·73	6·64	9·37	−2·73	2·63	False Point.		
6	...	...	...	...	2	15	7	...	4·8	4·0	+20	75	·903	6·7	9	11·54	− 2·54	8·60	11·53	− 2·93	8·60	11·53	−2·93	3·94	Cuttack.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Shortt's Island.		
5	1	...	.	...	...	12	10	2	14·6	?	?	87	1·043	5·7	5	8·04	−3·04	5·12	8·06	− 2·94	5·12	8·06	−2·94	2·21	Puri.		
...	..	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	9·17	6·56	+ 2·61	...	...	...	...	**Y.—Gangetic Plain and Chota Nagpur.**		
1	1	...	3	1	7	9	4	4	10·9	8·9	+22	73	·749	6·9	15	10·92	+4·08	11·00	7·63	+3·37	11·00	7·63	+3·37	3·61	Hazaribagh	Chota Nagpur.	15
...	...	2	1	2	7	12	3	3	10·9	?	?	73	·734	4·8	14	12·50	+1·50	5·70	8·48	−2·78	5·70	8·48	−2·78	1·11	Ranchi.		
...	1	1	5	2	11	6	4	...	8·2	?	?	65	·854	2·2	7	8·27	−1·27	2·27	6·03	−3·76	2·27	6·03	−3·76	0·48	Daltonganj.		
7	...	...	1	5	2	9	5	1	2·6	?	?	77	·874	7·1	11	11·46	− 0·46	5·31	8·53	− 3·22	5·31	8·53	−3·22	1·12	Chaibassa.		
5	2	4	8	3	1	2	5	...	9·0	3·4	+165	68	·848	3·9	8	8·04	−0·04	13·63	6·56	+7·07	13·63	6·56	+7·07	7·08	Gaya	South Bihar.	16
2	1	1	8	8	3	6	1	...	10·1	?	?	64	·816	4·5	11	7·92	+3·08	12·51	5·91	+ 6·60	12·51	5·91	+6·60	4·78	Dehri.		
1	1	6	14	3	1	2	2	...	7·5	4·2	+79	81	·962	5·3	10	7·85	+2·15	28·87	7·34	+21·53	28·87	7·34	+21·53	13·80	Patna.		
...	...	7	10	3	2	2	2	4	5·0	?	?	77	·924	4·6	9	8·15	+0·85	23·98	6·14	+17·84	23·98	6·14	+17·84	9·97	Arrah.		
...	3	2	17	1	2	2	3	...	6·3	?	?	72	·884	5·1	10	7·88	+2·12	5·23	5·20	+0·03	5·23	5·20	+0·03	1·29	Buxar.		
6	1	5	9	5	1	1	2	...	4·5	?	?	78	·932	6·9	11	9·69	+1·31	9·77	7·54	+2·23	9·77	7·54	+2·23	2·90	Bhagalpur.	North Bihar.	17
...	...	3	13	10	1	1	1	1	7·8	3·3	+136	73	·835	5·5	6	8·64	−2·64	7·07	7·56	−0·49	7·07	7·56	−0·49	3·65	Darbhanga.		
1	...	4	13	9	...	1	2	...	7·2	?	?	81	·942	4·3	10	8·00	+2·00	9·35	7·65	+1·70	9·35	7·65	+1·70	3·92	Muzaffarpur.		
...	1	1	22	1	2	2	1	...	8·9	?	?	82	·948	2·5	7	9·57	−2·57	8·73	9·18	−0·45	8·73	9·18	−0·45	3·68	Motihari.		
4	...	1	14	6	1	3	...	1	5·8	?	?	82	·984	5·0	8	7·42	+0·58	18·67	6·28	+12·39	18·67	6·28	+12·39	8·39	Chapra.		
1	1	6	9	2	1	2	5	3	5·8	5·1	+14	67	·863	5·5	9	4·64	+4·36	8·27	5·13	+3·14	8·27	5·13	+3·14	3·02	Benares	N.-W. Provinces (East).	18
...	1	6	10	3	...	2	5	3	9·8	3·8	+158	60	·812	5·4	5	4·73	+0·27	5·44	5·69	− 0·25	5·44	5·69	−0·25	2·53	Allahabad.		
3	3	14	4	2	2	...	2	...	3·0	3·6	−17	76	·932	4·5	10	7·00	+3·00	5·90	9·68	− 3·78	5·90	9·68	−3·78	1·75	Gorakhpur	N.-W. Provinces (East, Submontane).	23
1	1	4	14	2	...	2	3	3	4·0	4·2	− 5	62	·806	7·0	3	5·64	−2·64	1·75	5·43	− 3·68	1·75	5·43	−3·68	0·95	Lucknow	South Oudh.	19
4	...	1	10	11	1	...	1	2	4·8	?	?	70	·897	2·8	7	?	?	3·54	5·64	−2·10	3·54	5·64	−2·10	0·81	Bahraich	North Oudh.	20
2	2	4	8	5	2	1	5	1	5·8	?	?	57	·782	3·0	5	4·30	+0·70	2·47	3·09	− 0·62	2·47	3·09	−0·62	0·97	Cawnpore	N.-W. Provinces (Central).	21
2	4	4	11	...	...	...	7	2	4·6	?	?	57	·733	4·8	4	?	?	3·09	3·00	+ 0·09	3·09	3·00	+0·09	1·37	Mainpuri.		

Table

Abstract of Observations taken at 8 A.M. at 213

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	VI.—Upper Sub-Himalayas		...	...	−·003	...	...	...	...	...	...	...	103·4	+0·3	79·7	−0·1	91·6	+0·2	23·6	...	...	...	...	43·6
24	N.-W. Provinces (West, Submontane).	Bareilly	568	28·975	−·013	29·497	29·110	5th	28·836	22nd	·274	87·1	102·4	+1·7	80·9	+0·9	91·7	+1·3	21·5	110·5	10th	73·4	14th	37·1
		Dehra Dun	2,233	27·382	−·020	29·530	27·529	5th	27·223	22nd	·306	79·8	95·2	+1·8	73·3	−1·3	84·3	+0·3	21·9	106·0	11th	65·0	13th	41·0
		Roorkee	887	28·667	−·007	29·505	28·821	5th	28·496	22nd	·325	86·1	102·1	+0·7	78·0	−0·9	90·1	−0·1	24·1	113·2	11th	69·7	6th & 17th	43·5
22	N.-W. P. (West)	Meerut	738	28·813	−·003	29·503	28·973	5th	28·636	22nd	·337	87·5	102·1	+0·7	80·5	−0·2	91·3	+0·3	21·6	113·2	11th	72·0	13th	41·2
26	South-East Punjab.	Delhi	718	28·832	−·002	29·498	28·988	5th	28·648	22nd	·340	89·5	103·6	−0·6	84·2	+0·8	93·9	+0·1	19·4	114·7	11th	72·9	15th	41·8
28	Central Punjab.	Lahore	702	28·824	+·004	29·484	29·007	5th	28·593	22nd	·414	87·1	104·2	−1·4	79·8	0	92·0	−0·7	24·4	118·1	12th	71·1	2nd	47·0
27	South Punjab	Sirsa	662	28·868	−·009	29·480	29·065	5th	28·603	22nd	·462	89·9	107·3	+0·7	82·5	−0·4	94·9	+0·2	24·8	118·3	11th	71·8	15th	46·5
		Patiala	818	28·724	?	29·492	28·890	5th	28·508	22nd	·382	89·0	104·1	?	81·0	?	92·6	?	23·1	115·0	11th	73·0	5th	42·0
29	Punjab (Submontane).	Ludhiana	812	28·722	−·007	29·486	28·904	5th	28·494	22nd	·410	86·0	105·1	−0·7	80·3	+0·2	92·7	−0·3	24·8	116·3	11th	70·1	3rd	46·2
		Sialkot	830	28·707	+·009	29·489	28·890	5th	28·461	22nd	·429	89·9	106·2	+0·6	80·8	+0·7	93·5	+0·7	25·4	118·0	12th	70·5	4th	47·5
		Umballa	892	28·660	?	29·495	28·824	3rd	28·463	22nd	·361	88·7	105·6	?	81·1	?	93·4	?	24·5	115·8	11th	73·0	6th	42·8
31	North Punjab	Rawalpindi	1,643	27·905	+·019	29·485	28·072	5th	27·674	22nd	·398	87·0	102·5	−0·2	74·4	−0·3	88·5	−0·3	28·1	113·0	9th & 21st.	66·7	3rd	46·3
	VII.—Indus Valley and North-West Rajputana.		...	...	+·014	...	...	...	...	...	...	...	107·0	+1·9	81·4	+0·4	94·2	+1·1	25·6	...	...	...	...	47·2
31	North Punjab	Peshawar	1,110	28·478	+·035	29·502	28·659	3rd	28·232	22nd	·427	86·7	102·3	−3·2	73·9	−2·8	88·1	−3·0	28·4	114·5	12th	64·5	3rd	50·0
		Mardan	?			Not recorded.						88·7	103·4	?	72·3	?	87·8	?	31·1	109·9	5 days	62·0	7th	47·9
32	West Punjab	Khushab	612	28·919	?	29·187	29·121	3rd	28·659	22nd	·462	91·3	106·1	?	80·3	?	93·2	?	25·8	120·4	12th	66·0	3rd	54·4
		Montgomery	558	28·960	?	29·470	29·160	5th	28·684	22nd	·476	93·4	108·7	?	82·0	?	95·4	?	26·7	120·6	12th	72·5	3rd & 4th.	48·1
		D. I. Khan	593	28·957	+·016	29·485	29·168	3rd	28·699	22nd	·469	89·6	106·0	−0·8	78·2	−2·6	92·1	−1·7	27·8	116·7	22nd	69·0	16th	47·7
		Mooltan	420	29·093	+·009	29·473	29·313	5th	28·804	22nd	·509	90·5	108·8	+2·1	83·1	+0·8	96·0	+1·5	25·7	121·0	12th	73·0	16th	58·0
47	Sind	Jacobabad	186	29·324	+·006	29·466	29·515	5th	29·118	22nd	·397	93·5	114·6	+2·7	86·6	+3·1	100·6	+2·9	28·0	126·0	13th	76·1	25th	49·9
		Hyderabad	96	29·471	?	29·517	29·643	10th	29·275	23rd	·368	90·4	110·1	+6·9	83·5	+2·0	96·8	+4·5	26·6	121·2	10th	78·5	1st	42·7
		Kurrachee	30	29·570	+·002	29·550	29·754	11th	29·335	23rd	·419	87·3	96·1	+1·4	82·7	+0·4	89·4	+0·9	13·4	114·2	9th	80·0	1st	34·2
51	West Rajputana	Bickaneer	771?	28·779	?	29·496	28·947	6th	28·577	22nd	·370	92·7	109·9	+3·9	86·8	+1·9	98·4	+2·9	23·1	119·8	10th	73·5	16th	46·3
		Pachpadra	380?	?	?	?	?		?	...	?	89·7	109·8	?	83·8	?	96·8	?	26·0	122·1	10th	79·6	17th	42·5
		Jodhpur	810	28·788	?	29·543	28·912	5th	28·611	22nd	·301	89·1	108·1	?	83·7	?	95·9	?	24·4	121·3	10th	77·1	16th	44·2
	VIII.—East Rajputana, Central India and Gujarat.		...	...	−·006	...	...	...	...	...	...	..	102·8	+3·3	82·5	+2·1	92·7	+2·7	20·3	...	...	...	...	38·9
50	East Rajputana	Jeypore	1,431	28·170	−·012	29·525	28·316	2nd	27·976	22nd	·340	89·9	106·5	+3·7	82·9	+2·8	94·7	+3·3	23·6	117·5	10th	74·0	15th	43·5
		Kotah	?	28·745	?	?	28·879	6th	28·572	22nd	·307	92·2	106·5	?	86·5	?	96·5	?	20·0	118·6	10th	78·6	16th	40·0
		Sambhar	1,254	28·331	−·008	29·516	28·473	5th	28·135	22nd	·338	90·0	106·5	+4·8	83·4	+1·8?	95·0	+3·3	23·1	117·0	10th	76·9	15th	40·1
		Ajmere	1,611	28·002	−·016	29·539	28·140	6th	27·812	22nd	·328	88·3	104·8	+4·5	82·8	+2·8	92·3	+3·7	22·2	113·9	8th	72·1	15th	41·8
		Deesa	466	29·175	−·002	29·589	29·333	10th	28·993	22nd	·340	87·9	106·9	+5·3	82·3	+1·8	94·6	+3·6	24·6	119·4	9th	72·0	17th	47·4
46	Kathiawar and Cutch.	Bhuj	395	29·250	+·014	29·591	29·405	11th	29·077	22nd	·328	87·8	101·4	+4·2	81·2	+1·4	91·3	+2·8	20·2	113·5	7th	76·9	2nd	36·6
		Rajkot	429	29·246	+·013	29·621	29·384	2nd	29·093	22nd	·291	87·5	104·5	+4·6	81·0	+3·7	92·8	+4·2	23·5	113·3	7th	78·1	4th	35·2
		Veraval	?	29·680	?	29·640	29·809	2nd	29·525	22nd	·284	83·9	87·0	?	82·1	?	84·6	?	4·9	88·6	16th	80·2	3 days	8·4
		Ghadechi	35	29·651	?	29·630	29·808	11th	29·480	22nd	·328	88·7	105·6	?	82·1	?	93·9	?	23·5	113·7	8th	74·8	1st	38·9
49	Central India	Nowgong	757	28·803	−·030	29·498	28·953	6th	28·638	21st	·315	89·6	102·5	0	83·9	+1·2	93·2	+0·6	18·6	117·0	11th & 12th.	77·5	23rd	39·5
		Indore	1,823	27·856	+·005	29·597	27·978	2nd	27·697	21st	·281	84·4	99·5	+5·3	78·2	+3·3	88·9	+4·3	21·3	112·5	9th	67·6	11th	44·9
		Neemuch	1,630	28·022	+·012	29·577	28·148	2nd	27·849	22nd	·299	86·8	102·2	+3·8	79·8	+2·6	91·0	+3·2	22·4	115·1	9th	72·6	21st	42·5
45	Gujarat	Surat	39	29·603	−·005	29·644	29·818	11th	29·508	22nd	·310	86·9	96·6	+2·9	81·5	+2·3	89·1	+2·6	15·1	109·1	6th	72·5	11th	36·6
		Ahmedabad	164	29·510	?	29·618	29·655	10th	29·337	22nd	·318	88·6	105·7	?	82·7	?	94·2	?	23·0	116·9	7th	74·1	17th	42·8
22	N.-W. P. (West)	Agra	555	28·995	−·014	29·497	29·145	5th	28·817	22nd	·328	89·8	104·4	−0·5	84·2	−0·5	94·3	−0·5	20·2	117·0	11th	74·9	23rd	42·1
21	N.-W.P. (Central)	Jhansi	858	28·712	−·025	29·505	28·858	6th	28·534	22nd	·324	91·3	104·7	+1·5	86·0	+2·0	95·4	+1·8	18·7	118·2	11th	76·9	20th	41·3

I—*continued.*

***stations in India, Burma, etc., in June, 1897*—continued.**

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 30th June 1897.	Normal rainfall for period, 1st to 30th June.	Variation from normal of period, 1st to 30th June.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·71	3·65	−1·82	...	...	...	...	VI.—Upper Sub-Himalayas.		
8	...	1	6	6	...	3	1	5	3·6	4·9	− 27	60	·753	4·8	3	4·91	− 1·91	0·95	5·67	−4·72	0·95	5·67	−4·72	0·29	Bareilly .	N.-W. Provinces (West, Sub-montane.)	24
15	1	3	2	5	1	2	1	...	1·9	1·6	+ 19	59	·601	4·9	10	8·91	+ 1·09	3·45	9·25	−5·80	3·45	9·25	−5·80	0·67	Dehra Dun.		
10	2	...	4	7	6	...	...	1	3·2	3·9	− 18	55	·661	3·4	4	5·64	−1·64	3·25	4·71	−1·46	3·25	4·71	−1·46	2·24	Roorkee.		
10	...	...	8	3	...	4	3	2	3·1	2·6	+ 19	53	·666	2·4	1	3·64	−2·64	2·46	2·44	+0·02	2·46	2·44	+0·02	2·35	Meerut. .	N.-W. P. (West).	22
4	...	2	2	7	1	1	7	6	7·3	4·9	+ 49	47	·631	5·2	3	4·00	− 1·00	1·95	3·35	−1·40	1·95	3·35	−1·40	1·60	Delhi . .	South-East Punjab.	26
6	9	2	6	5	...	...	1	1	3·6	3·5	+ 3	53	·663	2·6	4	2·73	+ 1·27	2·41	1·84	+0·57	2·41	1·84	+0·57	1·44	Lahore.	Central Punjab.	28
...	2	1	4	5	2	5	7	4	8·4	5·2	+ 62	45	·607	5·0	3	3·18	− 0·18	0·97	1·91	−0·94	0·97	1·91	−0·94	0·65	Sirsa.	South Punjab.	27
5	1	11	1	2	2	7	1	...	10·3	?	?	61	·834	1·6	2	?	?	0·27	?	?	0·27	?	?	0·16	Patiala		
12	2	3	2	9	2	...	...	...	3·0	2·4	+ 25	49	·630	1·4	4	3·64	+ 0·36	2·51	2·41	+0·10	2·51	2·41	+0·10	1·74	Ludhiana	Punjab (Submontane).	29
3	5	9	6	4	...	...	1	2	4·4	2·4	+ 83	44	·600	1·9	3	3·73	− 0·73	0·81	3·08	−2·27	0·81	3·08	−2·27	0·45	Sialkot.		
16	...	...	9	2	1	...	1	1	2·7	?	?	52	·682	1·1	2	?	?	0·69	3·83	−3·14	0·69	3·83	−3·14	0·50	Umballa.		
14	2	3	6	1	...	2	1	1	3·8	2·6	+ 46	45	·566	3·7	4	3·55	+ 0·45	0·74	1·71	−0·97	0·74	1·71	−0·97	0·34	Rawalpindi.	North Punjab.	31
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·40	0·76	−0·42	...	...	...	...	VII.—Indus Valley and North-West Rajputana.		
11	6	1	1	2	...	1	3	5	4·3	4·3	0	45	·541	2·7	2	0·73	+ 1·27	0·47	0·35	+0·12	0·47	0·35	+0·12	0·25	Peshawar .	North Punjab.	31
			Not	recorded.					?	?	?	61	·816	2·5	2	?	?	1·10	?	?	1·10	?	?	0·60	Mardan.		
1	3	9	9	2	2	...	3	1	4·4	?	?	35	·474	1·4	3	1·20	+ 1·80	2·11	0·70	+1·41	2·11	0·70	+1·41	1·09	Khushab .	West Punjab.	32
2	2	6	4	1	6	5	2	2	8·2	?	?	36	·542	1·1	1	2·00	− 1·00	0·33	1·29	−0·96	0·33	1·29	−0·96	0·21	Montgomery.		
12	6	8	...	2	...	1	...	1	3·4	2·4	+ 42	57	·787	2·2	1	0·91	+ 0·09	0·21	0·54	−0·33	0·21	0·54	−0·33	0·11	D. I. Khan		
4	1	7	...	8	1	5	...	4	1·8	3·8	− 53	46	·641	1·2	0	1·45	− 1·45	0·09	0·59	−0·50	0·09	0·59	−0·50	0·09	Mooltan.		
1	1	2	9	12	5	...	...	...	6·7	4·7	+ 31	39	·613	0·9	0	0·09	− 0·09	0·04	0·12	−0·08	0·04	0·12	−0·08	0·04	Jacobabad .	Sind . .	47
3	1	6	...	...	6	17	1	2	18·9	15·2	+ 24	51	·701	1·0	0	0·45	− 0·45	0·03	0·33	−0·30	0·03	0·33	−0·30	0·03	Hyderabad.		
...	1	...	...	...	...	10	16	2	14·2	18·5	− 24	76	·985	3·6	0	0·18	− 0·18	0	0·52	−0·52	0	0·52	−0·52	0	Kurrachee.*		
1	1	2	2	3	2	12	6	...	10·5	7·8	+ 35	44	·670	0·4	0	?	?	0·11	1·66	−1·55	0·11	1·66	−1·55	0·07	Bickaneer* .	West Rajputana.	51
...	2	...	1	...	16	10	...	1	19·5	12·0	+ 63	59	·796	1·8	0	?	?	0·02	0·69	−0·67	0·02	0·69	−0·67	0·02	Pachpadra.		
2	1	1	...	1	2	10	11	1	7·1	?	?	48	·638	2·1	2	?	?	0·26	1·52	−1·26	0·26	1·52	−1·26	0·12	Jodhpore*.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·88	4·11	−0·89	...	...	...	...	VIII.—East Rajputana, Central India and Gujarat		
4	1	6	2	3	...	5	8	1	6·5	7·3	− 11	49	·664	2·2	1	3·70	−2·70	0·25	2·49	−2·24	0·25	2·49	−2·24	0·23	Jeypore .	East Rajputana	50
...	2	3	9	1	...	9	4	2	7·8	?	?	46	·650	2·3	5	?	?	3·10	?	?	3·10	?	?	1·29	Kotah .		
3	2	1	4	2	...	...	18	...	12·0	11·2	+ 7	44	·650	2·2	0	3·10	− 3·10	0·07	1·40	−1·33	0·07	1·40	−1·33	0·05	Sambhar.		
2	1	1	...	3	...	6	17	...	?	8·3	?	54	·701	2·6	1	3·73	− 2·73	0·22	2·28	−2·06	0·22	2·28	−2·06	0·12	Ajmere.		
...	...	1	1	1	2	12	12	1	17·3	16·8	+ 3	64	·820	4·9	1	2·18	− 1·18	0·50	2·16	−1·66	0·50	2·16	−1·66	0·50	Deesa.		
...	...	...	...	...	...	10	15	5	22·0	16·1	+ 37	59	·775	5·4	0		?	0	1·94	−1·94	0	1·94	−1·94	0	Bhuj . .	Kathiawar and Cutch.	46
...	...	...	...	...	1	7	19	3	17·4	15·6	+ 12	66	·862	6·4	0	5·27	− 5·27	0	4·73	−4·73	0	4·73	−4·73	0	Rajkot.		
...	...	...	...	1	2	3	22	2	9·9	?	?	86	·998	6·0	0	?	?	0·07	5·64	−5·57	0·07	5·64	−5·57	0·04	Veraval.		
1	1	...	...	...	2	16	9	1	14·9	?	?	60	·838	5·7	3	?	?	1·00	?	?	1·00	?	?	0·45	Ghadechi.		
...	3	5	3	...	2	2	12	3	5·1	4·4	+ 16	52	·693	5·9	6	5·91	+ 0·09	21·51	5·83	+15·68	21·51	5·83	+15·68	18·22	Nowgong .	Central India.	49
...	1	...	1	...	...	6	18	4	8·0	7·0	+ 14	57	·661	5·6	4	8·27	− 4·27	1·98	6·79	−4·81	1·98	6·79	−4·81	1·03	Indore.		
...	...	4	2	...	...	10	14	...	14·1	14·2	− 1	57	·686	4·8	4	5·09	− 1·09	2·82	4·27	−1·45	2·82	4·27	−1·45	1·19	Neemuch.		
1	...	...	...	1	4	17	6	1	9·	15·6	− 40	73	·936	7·1	3	8·18	− 5·18	1·63	10·12	−8·49	1·63	10·12	−8·49	0·84	Surat . .	Gujarat.	45
...	1	...	...	...	2	14	10	2	9·8	?	?	64	·853	6·3	4	?	?	2·80	4·01	−1·21	2·80	4·01	−1·21	1·50	Ahmedabad.		
...	...	6	...	7	...	10	...	7	7·7	5·7	+ 25	60	·821	2·7	4	3·64	+0·36	3·73	2·54	+1·19	3·73	2·54	+1·19	1·56	Agra . .	N.-W. P. (West).	22
13	1	3	1	1	...	2	7	2	1·7	5·8	− 71	47	·638	2·8	6	6·09	−0·09	6·34	4·89	+1·45	6·34	4·89	+1·45	2·75	Jhansi . .	N.-W.P. (Central)	21

*Wind direction of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	IX.—Deccan	...	...	...	−·010	...	...	...	...	...	...	...	97·6	+4·6	78·1	+2·9	88·7	+3·8	21·1	...	...	...	...	38·0
38	Bombay Deccan	Belgaum	2,524	27·271	+·004	29·715	27·372	28th & 29th.	27·182	16th	·190	74·2	84·1	+3·4	69·1	+1·3	76·6	+2·4	15·0	93·7	3rd	66·3	13th	27·4
		Sholapur	1,590	28·158	−·009	29·682	28·269	29th	28·053	22nd	·216	81·5	98·4	+4·1	74·4	+1·8	86·4	+3·0	24·0	108·7	5th	69·0	11th	39·7
		Poona	1,840	27·921	+·009	29·692	28·043	2nd	27·797	22nd	·246	79·5	93·0	+4·5	73·3	+0·7	83·2	+2·6	19·7	106·5	6th	69·4	25th	37·1
		Bijapur	1,946	27·820	?	29·695	27·929	29th	27·710	16th	·219	78·2	94·3	?	72·1	?	83·2	?	22·2	104·7	1st	69·0	16th & 30th.	35·7
40	Khandesh	Malegaon	1,430	28·278	−·003	29·638	28·395	2nd	28·129	22nd	·266	85·9	100·0	+5·5	78·4	+3·7	89·2	+4·6	21·6	110·3	7th	71·2	17th	39·1
		Ahmednagar	2,152	27·603	?	29·665	27·727	2nd	27·478	22nd	·249	81·8	96·5	?	74·4	?	85·5	?	22·1	104·8	6th & 7th.	68·9	29th	35·9
41	Berar	Akola	930	28·746	−·003	29·608	28·858	2nd	28·626	17th	·232	88·2	104·2	+6·7	82·3	+5·0	93·3	+5·9	21·9	113·5	9th	74·2	14th	39·3
		Amraoti	1,215	28·447	−·006	29·597	28·550	2nd	28·312	17th	·239	86·2	102·9	+6·2	80·3	+4·1	91·6	+5·2	22·6	111·9	1st & 2nd.	72·3	23rd	39·6
42	Central Provinces (West).	Khandwa	1,044	28·620	−·003	29·605	28·730	2nd	28·471	22nd	·259	86·9	103·1	+5·8	82·1	+4·0	92·6	+4·9	21·0	113·7	9th	74·6	21st	39·1
		Hoshangabad	1,006	28·625	−·010	29·571	28·744	2nd	28·483	22nd	·261	88·3	102·5	+4·5	82·1	+3·1	92·4	+3·8	20·4	115·1	9th	72·7	23rd	42·4
		Nagpur	1,025	28·600	?	29·560	28·712	1st	28·449	17th	·263	88·0	103·9	+6·1	81·2	+3·1	92·6	+4·6	22·7	114·7	1st	72·6	14th	42·1
43	Central Provinces (Central)	Chanda	634	29·028	?	29·594	29·130	29th	28·884	17th	·246	88·5	104·6	+6·9	82·6	+3·3	93·6	+5·1	22·0	113·7	11th	74·7	16th	39·0
		Seoni	2,033	27·613	−·015	29·538	27·728	1st	27·467	19th	·261	86·4	98·9	+5·3	77·6	+2·3	88·3	+3·8	21·3	110·1	11th	70·9	16th	39·2
		Jubbulpur	1,327	28·275	−·019	29·533	28·402	6th	28·118	22nd	·284	86·6	99·9	+3·2	80·6	+2·4	90·2	+2·8	19·3	114·0	11th	72·6	23rd	41·4
		Saugor	1,807	27·793	−·024	29·510	27·944	6th	27·574	20th	·370	86·7	100·2	+1·7	80·2	+3·1	90·2	+2·4	20·0	114·4	11th	71·6	23rd	42·8
49	Central India	Sutna	1,040	28·512	−·025	29·486	28·663	6th	28·314	19th	·349	90·6	101·8	+3·0	84·6	+3·6	93·2	+3·3	17·2	114·6	11th & 12th.	75·6	19th	39·0
44	Central Provinces (East).	Raipur	970	28·633	−·019	29·534	28·771	6th	28·483	17th	·288	87·5	101·7	+5·0	81·6	+3·5	91·7	+4·3	20·1	112·5	11th	74·6	17th	37·9
		Sambalpur	486	29·111	−·018	29·539	29·259	6th	28·929	17th	·330	86·7	99·3	+2·0	81·2	+0·3	90·3	+1·2	18·1	112·6	2nd	74·2	20th	38·4
39	Hyderabad (North).	Aurangabad	1,865?	27·878	?	29·660	27·997	2nd	27·756	22nd	·241	83·9	100·0	?	75·7	?	87·9	?	24·3	109·0	7th	67·9	17th	41·1
		Indur	?			Not recorded.						85·1	100·5	?	80·5	?	90·5	?	20·0	109·0	2nd	72·9	14th	36·1
		Bidar	2,165?	27·579	?	29·654	27·679	29th	27·473	17th	·206	80·7	95·1	?	69·3	?	82·2	?	25·8	100·0	1st	61·0	17th	39·0
53	Hyderabad (South).	Gulbarga	1,502	28·262?	?	29·706?	28·402	27th	28·137	17th	·265	79·6	98·3	?	75·1	?	86·7	?	23·2	108·3	5th	71·7	15th	36·6
		Raichur	1,309	28·439	?	29·687	28·546	29th	28·321	17th	·225	80·9	96·3	?	74·8	?	85·6	?	21·5	104·0	5th	70·1	23rd & 24th.	33·9
		Hyderabad (Deccan).	1,690	28·037	−·005	29·653	28·134	29th	27·919	17th	·215	82·1	93·4	+5·1	77·9	+3·9	88·2	+4·5	20·5	106·4	2nd & 5th.	72·7	3 days	33·7
		Secunderabad	1,787	27·949	?	29·661	28·012	29th	27·824	17th	·218	81·6	99·7	+6·4	76·8	+2·8	88·3	+4·6	22·9	107·7	11th	71·9	17th	35·8
		Khamamet	373	29·318	?	29·631	29·402	1st	29·173	17th	·229	87·5	101·2	?	82·8	?	92·0	?	18·4	111·2	3rd	75·3	17th	35·9
	X.—West Coast	...	...	...	−·006	...	...	...	...	...	...	...	86·8	+2·1	77·8	+1·8	82·3	+2·0	9·0	...	...	...	...	18·8
37	Konkan	Bombay	37	29·719	+·007	29·695	29·858	11th	29·566	22nd	·292	84·5	89·7	+2·4	80·8	+1·5	85·3	+2·0	8·9	93·5	5th & 6th.	75·0	7th & 11th.	18·5
		Ratnagiri	110	29·665	+·004	29·713	29·800	11th	29·558	22nd	·242	83·1	89·5	+3·3	79·5	+2·8	84·5	+3·1	10·0	94·4	7th & 10th.	72·9	13th & 18th.	21·5
		Mormugao	60	29·742	?	29·737	29·860	29th	29·626	8th	·234	82·8	88·2	?	78·6	?	83·4	?	9·6	94·0	8th	73·4	18th	20·6
		Goa	199	29·591	+·003	29·726	29·707	10th	29·480	8th	·227	82·4	85·4	?	80·3	?	82·9	?	5·1	91·0	3rd	76·0	17th	15·0
		Karwar	44	29·759	−·011	29·735	29·881	29th	29·640	8th	·241	81·4	87·7	+2·8	77·7	+2·0	82·7	+2·4	10·0	93·3	6th	72·5	17th	20·8
33	Malabar	Cochin	11	29·863	−·014	29·801	29·938	29th	29·801	4th	·137	78·6	85·5	+1·0	75·8	+1·4	80·7	+1·2	9·7	89·2	10th	71·2	8th	18·0
		Calicut	27	29·827	−·016	29·783	29·923	29th	29·749	6th	·174	79·3	85·5	+1·6	75·5	+1·2	80·5	+1·4	10·0	89·8	2nd	71·5	17th	18·3
		Mangalore	65	29·775	−·012	29·773	29·877	29th	29·660	6th	·217	79·5	86·0	+1·6	76·4	+1·6	81·2	+1·6	9·6	91·3	6th	70·4	17th	20·9
		Trivandrum	198	29·659	?	29·789	29·738	29th	29·593	8th & 9th.	·145	78·1	83·3	?	75·2	?	79·3	?	8·1	87·5	10th & 11th.	72·0	18th	15·5
	XI.—South India	...	...	...	−·011	...	...	...	...	...	...	...	94·0	+2·0	77·4	+1·7	85·7	+1·9	16·6	...	...	...	...	28·5
57	Madras (South).	Pamban	37	29·776	?	29·739	29·865	29th	29·708	7th	·157	84·4	90·0	?	79·9	?	85·0	?	10·1	96·2	11th	75·2	23rd	21·0
		Tinnevelly	168	29·652	?	29·718	29·743	29th	29·571	7th	·172	84·8	86·4	?	79·2	?	87·8	?	17·2	103·4	10th	71·9	18th	31·5
		Madura	447	29·348	−·016	29·726	29·440	29th	29·274	7th	·166	84·4	97·3	−1·4	75·6	?−1·1	86·4	?−1·3	21·7	103·0	11th	63·7	14th	39·3

I—*continued.*

in India, Burma, etc., in June, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 30th June 1897.	Normal rainfall for period, from 1st to 30th June.	Variation from normal of period, 1st to 30th June.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·84	6·41	−2·57	...	...	...	...	**IX.—Deccan.**		
3	1	...	...	...	1	7	12	6	21·4	24·3	−12	83	·702	7·6	12	12·27	−0·27	5·35	6·59	−1·24	5·35	6·59	−1·24	1·16	Belgaum .	BOMBAY DECCAN.	38
1	...	...	1	...	2	5	12	9	15·2	12·2	+25	61	·652	6·2	5	7·82	−2·82	2·81	5·01	−2·20	2·81	5·01	−2·20	1·21	Sholapur.		
...	...	...	...	...	...	8	18	4	18·8	16·0	+17	70	·698	6·7	8	7·18	+0·82	4·28	4·73	−0·45	4·28	4·73	−0·45	1·40	Poona.		
1	...	...	...	...	...	9	16	4	8·9	?	?	76	·740	5·3	8	6·30	+1·70	8·20	3·42	+4·78	8·20	3·42	+4·78	2·48	Bijapur.		
...	1	...	1	1	...	7	17	3	18·0	11·9	+51	61	·740	6·1	3	7·82	−4·82	1·79	4·72	−2·93	1·79	4·72	−2·93	1·23	Malegaon .	KHANDESH.	40
2	...	1	...	4	2	2	13	6	23·5	?	?	68	·733	6·1	2	?	?	1·50	4·79	−3·29	1·50	4·79	−3·29	1·22	Ahmednagar.		
...	1	1	...	...	...	5	13	10	12·8	8·9	+44	59	·766	6·5	3	8·55	−5·55	0·90	5·47	−4·57	0·90	5·47	−4·57	0·63	Akola . .	BERAR.	41
...	1	...	1	...	1	3	21	3	9·8	7·4	+33	61	·739	5·3	5	10·36	−5·36	4·03	6·84	−2·81	4·03	6·84	−2·81	1·91	Amraoti.		
...	...	...	...	...	...	2	19	9	13·0	9·2	+41	56	·672	5·1	3	7·91	−4·91	0·97	6·05	−5·08	0·97	6·05	−5·08	0·45	Khandwa .	CENTRAL PROVINCES (WEST).	42
5	...	2	...	...	1	12	8	2	5·7	4·6	+24	58	·732	5·4	6	10·09	−4·09	6·30	8·20	−1·90	6·30	8·20	−1·90	2·51	Hoshangabad		
1	3	1	...	...	...	6	9	10	10·8	7·6	+42	55	·684	6·0	8	12·73	−4·73	4·96	8·74	−3·78	4·96	8·74	−3·78	1·63	Nagpur.		
...	...	...	...	2	5	8	13	2	6·8	6·3	+ 8	53	·699	5·6	6	?	?	2·04	7·85	−5·81	2·04	7·85	−5·81	0·55	Chanda .	CENTRAL PROVINCES (CENTRAL).	43
...	1	...	...	2	2	11	3	11	6·0	5·7	+ 5	52	·610	3·7	6	13·00	−7·00	2·92	10·57	−7·65	2·92	10·57	−7·65	0·88	Seoni.		
...	1	1	...	3	1	8	12	4	5·6	5·3	+ 6	57	·673	4·7	7	11·18	−4·18	7·99	9·10	−1·11	7·99	9·10	−1·11	2·47	Jubbulpore.		
...	...	2	1	...	1	5	16	5	8·0	5·2	+54	59	·723	4·2	6	9·73	−3·73	8·55	7·40	+1·15	8·55	7·40	+1·15	2·22	Saugor.		
1	4	5	3	1	5	1	8	2	11·8	9·6	+23	49	·639	3·6	3	5·91	−2·91	5·75	6·54	−0·79	5·75	6·54	−0·79	3·60	Sutna . .	CENTRAL INDIA.	49
...	...	...	1	1	4	20	4	...	12·3	8·7	+41	57	·705	5·2	9	11·55	−2·55	3·71	8·92	−5·21	3·71	8·92	−5·21	1·50	Raipur.	CENTRAL PROVINCES, EAST.	44
...	...	3	...	...	11	15	...	1	6·1	3·4	+79	67	·841	5·5	10	?	?	8·24	11·13	−2·89	8·24	11·13	−2·89	2·46	Sambalpur.*		
2	1	...	...	...	1	6	11	8	6·9	?	?	57	·645	6·0	4	?	?	3·15	6·34	−3·19	3·15	6·34	−3·19	2·29	Aurangabad.	HYDERABAD (NORTH).	33
1	4	...	1	...	2	1	12	9	15·3	?	?	70	·843	5·4	6	?	?	2·77	4·60	−1·83	2·77	4·60	−1·83	1·02	Indur.		
...	2	...	...	...	1	6	15	5	11·0	?	?	74	·771	3·3	2	?	?	0·92	6·30	−5·38	0·92	6·30	−5·38	0·41	Bidar.*		
4	...	...	...	...	...	11	6	9	13·1	?	?	72	·722	6·6	5	?	?	4·26	4·82	−0·56	4·26	4·82	−0·56	1·50	Gulbarga .	HYDERABAD (SOUTH).	53
...	...	...	...	...	6	...	22	2	13·4	?	?	73	·771	4·9	8	?	?	4·27	3·75	+0·52	4·27	3·75	+0·52	1·95	Raichur.		
5	...	...	...	1	...	...	24	...	9·6	?	?	67	·730	4·1	5	?	?	1·39	4·85	−3·46	1·39	4·85	−3·46	0·56	Hyderabad (Deccan).		
...	...	...	...	1	1	10	17	1	13·6	12·3	+11	63	·679	4·8	3	?	?	1·10	3·83	−2·73	1·10	3·83	−2·73	0·66	Secunderabad		
6	...	...	...	2	4	3	14	1	10·7	?	?	65	·848	1·9	4	?	?	1·58	5·98	−4·40	1·58	5·98	−4·40	0·45	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31·59	27·73	+3·86	...	...	...	...	**X.—West Coast.**		
...	...	...	1	1	3	6	15	4	13·5	16·2	−17	79	·950	7·6	13	14·82	−1·82	13·84	19·37	−5·53	13·84	19·37	−5·53	3·21	Bombay .	KONKAN.	37
2	3	2	2	2	1	5	8	5	8·3	12·0	−31	81	·906	7·1	15	21·45	−6·45	15·48	31·26	−15·78	15·48	31·26	−15·78	3·39	Ratnagiri.		
2	3	1	1	2	3	1	...	17	14·5	?	?	83	·936	6·9	18	?	?	23·68	21·99	+1·69	23·68	21·99	+1·69	3·79	Mormugao.		
1	...	2	3	...	4	3	10	7	?	?	?	81	·899	8·4	17	?	?	33·33	30·09	+3·24	33·33	30·09	+3·24	8·31	Goa.		
1	7	...	...	...	...	6	12	4	7·3	?	?	80	·853	6·9	21	24·36	−3·36	43·00	37·24	+5·76	43·00	37·24	+5·76	15·49	Karwar.		
7	4	4	...	...	1	3	5	6	7·0	?	?	88	·864	8·2	23	24·80	−1·80	42·44	28·41	+14·03	42·44	28·41	+14·03	6·10	Cochin .	MALABAR.	33
...	2	6	3	5	1	5	2	6	14·8	?	?	87	·869	7·6	22	25·00	−3·00	49·11	33·22	+15·89	49·11	33·22	+15·89	7·19	Calicut.		
2	3	1	5	2	1	1	6	8	4·2	3·7	+14	88	·879	8·3	21	25·60	−4·60	45·20	35·03	+10·17	45·20	35·03	+10·17	9·92	Mangalore.		
6	10	2	...	...	...	...	...	12	6·7	?	?	87	·839	8·3	17	?	?	18·24	12·95	+5·29	18·24	12·95	+5·29	3·90	Trivandrum.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·57	3·92	−0·34	...	...	...	...	**XI.—South India.**		
1	1	...	...	2	4	20	2	...	14·1	?	?	45	·930	3·0	1	0·30	+0·70	0·17	0·04	+0·13	0·17	0·04	+0·13	0·17	Pamban .	MADRAS (SOUTH).	57
...	...	...	...	2	...	7	11	10	7·3	?	?	66	·795	7·9	3	1·60	+1·40	0·81	0·62	+0·19	0·81	0·62	+0·19	0·28	Tinnevelly.		
1	...	...	...	...	2	7	4	16	4·1	4·8	−15	68	·791	5·6	2	2·00	0	0·80	1·50	−0·70	0·80	1·50	−0·70	0·39	Madura.		

* Wind direction of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
34	Madras, South Central.	Salem	940	28·886	−·017	29·761	28·982	29th	28·819	7th	·163	81·8	96·7	+2·4	75·7	+2·2	86·2	+2·3	21·0	101·4	10th	72·0	11th	29·4
		Coimbatore	1,348	28·466	−·013	29·758	28·561	29th	28·393	17th	·168	77·7	87·9	−1·9	71·9	+0·4	79·9	−0·8	16·0	94·9	11th	68·1	12th	26·8
35	Coorg	Mercara	3,781	26·156	−·003	?	26·240	29th	26·073	16th	·167	66·7	73·1	+1·0	64·3	+1·1	68·7	+1·1	8·8	81·0	5th	60·7	17th	20·3
36	Mysore	Chitaldroog	2,405	27·408	?	29·724	27·509	29th	27·325	16th	·184	75·4	86·8	?	70·3	?	78·6	?	16·5	92·6	2nd & 13th	63·9	17th	28·7
		Bangalore	3,021	26·842	−·017	29·748	26·944	29th	26·745	16th	·199	72·9	86·1	+1·5	68·2	+1·6	77·2	+1·6	17·9	90·3	3 days	65·3	17th & 18th.	25·0
		Hassan	3,091	26·786	?	29·773	26·877	29th	26·709	8th	·168	72·4	80·8	?	66·7	?	73·7	?	14·1	86·4	5th	64·1	29th	22·3
		Mysore	2,518	27·347	?	29·777	27·439	29th	27·265	16th	·174	74·1	84·9	?	68·4	?	76·7	?	16·5	90·9	3rd & 5th.	66·0	30th	24·9
56	Madras, East Coast, South.	Negapatam	31	29·760	−·010	29·719	29·847	29th	29·681	17th	·166	86·6	97·9	+1·3	80·8	+1·9	89·4	+1·6	17·1	103·2	25th	76·9	12th	26·3
		Cuddalore	12	29·757	?	29·698	29·848	29th	29·668	17th	·180	85·9	93·5	?	80·0	?	89·3	?	18·5	104·3	3rd	74·2	7th	30·1
		Trichinopoly	255	29·538	−·017	29·724	29·622	29th	29·463	17th	·159	83·7	99·0	+0·5	79·2	+1·2	89·1	+0·9	19·8	105·7	3rd	76·4	3 days	29·3
		Madras	22	29·730	−·020	29·682	29·823	29th	29·635	17th	·188	87·6	99·6	+1·3	81·6	+1·3	90·6	+1·3	18·0	105·5	30th	72·5	3rd	33·0
55	Madras, East Coast, Central.	Nellore	71	29·647	?	29·651	29·744	28th	29·525	16th	·219	89·1	102·8	?	82·4	?	92·6	?	20·4	108·3	11th	78·1	11th & 12th.	30·2
		Masulipatam	15	29·684	−·002	29·632	29·773	1st	29·544	17th	·229	88·0	99·5	+2·0	82·2	+2·1	90·9	+2·1	17·3	106·7	29th	76·1	16th	30·6
54	Madras, Central	Cuddapah	433	29·323	−·012	29·690	29·442	28th	29·227	17th	·215	87·6	102·5	+3·8	82·1	+2·1	92·3	+3·0	20·4	108·3	2nd	76·3	11th	32·0
		Kurnool	923	28·826	−·016	29·685	28·935	29th	28·719	17th	·216	82·6	98·6	+3·0	77·3	+1·1	88·0	+2·1	21·3	106·3	5th	70·4	17th	35·9
		Bellary	1,475	28·301	−·002	29·711	28·406	29th	28·204	17th	·202	81·9	95·8	?	76·8	+1·3	86·3	?	19·0	101·2	1st & 4th	70·7	13th	30·5
52	Madras, East Coast, North.	Rajahmundry	112			Not	recorded.					88·4	101·2	+3·8	83·1	+3·0	92·1	+3·4	18·1	108·1	2nd	75·1	18th	33·0
		Cocanada	26	29·647	−·001	29·608	29·766	1st	29·488	17th	·278	87·7	99·0	+4·8	83·3	+2·4	91·1	+3·6	15·7	106·1	28th & 30th.	75·5	3rd	30·6
		Vizagapatam	31	29·609	−·012	29·577	29·741	6th	29·424	17th	·317	88·5	96·4	+3·0	83·6	+1·5	90·0	+2·3	12·8	105·2	26th	77·4	18th	27·8
		Waltair	?			No	Barom	eter.				87·0	93·4	?	82·5	?	88·0	?	10·9	100·6	25th	76·9	18th	24·2
		Gopalpur	21	29·592	?	29·552	29·737	5th	29·387	17th	·350	86·0	91·5	?	81·6	?	86·5	?	9·9	94·2	3 days	74·1	16th	20·1
	XII.—Hill Stations.																							
48	Baluchistan	Sharigh	?	(b) 25·649	?	?	25·820	5th	25·500	23rd	·320	(a) 85·7	(a) 100·9	?	(a) 69·6	?	85·3	?	31·3	109·2	21st	62·0	25th	47·2
		Pishin	?				Not rec	orded.				?	98·3	?	57·1	?	77·7	?	41·2	105·3	9th & 19th.	49·9	3rd	55·4
		Quetta	5,502	24·500	+·023	?	24·653	10th	24·352	23rd	·301	73·3	87·4	−3·2	55·7	−3·5	71·6	−3·4	31·7	94·1	19th	49·4	4th	44·7
		Kalat	?				Not rec	orded.				(a) 77·3	90·9	?	(a) 48·8	?	69·8	?	42·1	101·7	9th	40·8	4th	60·9
		Chaman	4,311	25·516	?	?	25·674	5th	25·379	23rd	·295	82·9	97·0	?	69·9	?	83·5	?	27·1	104·7	20th	62·1	4th	42·6
30	Punjab	Leh	11,503				Not re	corded.				50·2	66·9	?	41·0	?	53·9	?	25·9	77·6	27th	33·6	5th	44·0
		Srinagar	5,204	24·758	?	?	24·918	9th	24·592	22nd	·326	65·0	77·1	?	54·9	?	66·0	?	22·2	89·3	21st	49·2	5th	40·1
		Skardu	?	22·791	?	?	22·982	10th	22·680	23rd	·302	61·4	75·0	?	53·4	?	64·2	?	21·6	85·0	19th	45·8	6th	39·2
		Dras	?	20·744	?	?	20·928	9th	20·638	15th	·290	53·7	68·3	?	37·6	?	53·0	?	30·7	78·9	22nd & 27th.	31·1	5th & 7th.	47·8
		Gilgit	?	24·559	?	?	24·770	10th	24·410	23rd	·360	70·7	86·4	?	63·9	?	75·1	?	22·5	98·8	20th	53·5	4th	45·3
		Chitral	?				Not rec	orded.				73·6	85·3	?	60·5	?	72·9	?	24·8	95·2	19th	51·8	5th	43·4
		Killa Drosh	?				Not rec	orded.				76·7	87·3	?	63·7	?	75·5	?	23·6	95·2	20th	52·9	2nd	42·3
		Para Chinar	6,000																					
		Cherat	?	25·524	?	?	25·669	9th	25·336	22nd	·333	77·6	89·6	?	70·8	?	80·2	?	18·8	101·5	12th	58·0	2nd & 3rd	43·5
		Murree	6,344	23·737	+·016	?	23·887	10th	23·606	22nd	·281	69·7	79·4	−2·5	63·3	−1·1	71·4	−1·8	16·1	91·7	21st	46·1	4th	45·6
		Poo	?				Not rec	orded.				?	72·9	?	51·4	?	62·2	?	21·5	81·6	12th	40·8	5th	40·8
		Simla	7,224	23·014	+·008	?	23·142	9th	22·868	22nd	·274	66·6	74·3	−1·0	59·8	−0·7	67·1	−0·9	14·5	82·7	12th	49·3	3rd	33·4
25	N.-W. Provinces.	Chakrata	7,022	23·187	−·010	?	23·318	9th	23·040	22nd	·278	65·0	73·9	−0·8	59·9	0	66·9	−0·5	14·0	81·8	11th	49·2	3rd	32·6
		Mussooree	6,705	23·416	?	?	23·542	9th	23·288	22nd	·254	66·4	76·7	+0·7	60·5	0	68·6	+0·4	16·2	87·3	11th	52·0	1st	35·3
		Ranikhet	6,069	23·974	+·018	?	24·102	9th	23·834	22nd	·268	69·5	80·1	+2·0	63·6	+0·4	71·9	+1·2	16·5	88·1	9th	54·5	3rd	33·6
		Muktesar	?	22·762	?	?	22·914	10th	22·607	22nd	·307	63·7	74·8	?	57·6	?	66·2	?	17·2	82·0	10th	50·3	3rd & 4th.	31·7
13	Bengal	Yatung	10,480?				Not rec	orded.					63·4	?	55·9	?	59·6	?	7·5	70·0	21st	44·9	6th	25·1
		Darjeeling	7,421	22·878	−·008	?	23·013	9th	22·762	29th	·251	61·3	66·5	+1·3	55·7	+0·4	61·8	+·9	10·8	70·6	21st	53·8	12th	16·8
		Gantok	5,660?	...			Not rec	orded.				65·5	74·5	?	51·8	?	63·1	?	22·7	79·4	21st	46·4	5th	33·0

(a) Uncorrected. (b) Aneroid uncorrected.

I—*continued.*

in India, Burma, etc., in June, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 30th June 1897.	Normal rainfall for period, 1st to 30th June.	Variation from normal of period, 1st to 30th June.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
1	1	...	...	...	6	12	7	3	6·3	4·9	+29	71	·792	4·8	2	6·00	−4·00	1·53	3·68	−2·15	1·53	3·68	−2·15	1·29	Salem . .	MADRAS, SOUTH CENTRAL.	34
...	...	...	...	...	1	22	6	1	5·8	7·7	−25	80	·768	6·4	11	4·55	+6·45	4·38	1·43	+2·95	4·38	1·43	+2·95	1·11	Coimbatore.		
5	...	...	...	1	2	5	15	2	9·0	9·0	0	94	·823	9·4	20	25·00	−5·00	31·60	25·71	+5·89	31·60	25·71	+5·89	4·71	Mercara .	COORG.	35
...	...	...	...	1	3	12	12	2	12·4	?	?	78	·690	8·1	7	?	?	6·68	2·84	+3·84	6·68	2·84	+3·84	4·66	Chitaldroog .	MYSORE	35
1	1	...	...	...	...	11	16	1	11·4	8·4	+36	79	·646	6·6	5	5·91	−0·91	1·13	3·45	−2·32	1·13	3·45	−2·32	0·34	Bangalore.		
1	...	1	...	1	...	5	20	2	4·8	?	?	80	·643	9·0	10	?	?	4·33	4·12	+0·21	4·33	4·12	+0·21	1·00	Hassan.		
...	...	...	...	1	1	17	11	...	13·9	?	?	80	·666	8·4	9	?	?	3·78	2·11	+1·67	3·78	2·11	+1·67	1·58	Mysore.		
...	...	...	...	...	1	16	13	...	10·3	8·3	+24	67	·819	3·9	0	3·09	−3·09	0	1·74	−1·74	0	1·74	−1·74	0	Negapatam .	MADRAS, EAST COAST, SOUTH.	56
...	...	...	...	...	7	11	9	3	2·9	?	?	69	·857	2·4	2	3·30	−1·10	1·97	1·49	+0·48	1·97	1·49	+0·48	1·03	Cuddalore.		
2	...	...	...	...	...	2	18	8	7·3	9·2	−21	64	·738	6·7	4	2·00	+2·00	2·71	1·62	+1·09	2·71	1·62	+1·09	1·19	Trichinopoly.		
...	1	...	...	1	4	10	12	2	8·9	9·0	— 1	65	·815	5·9	3	4·18	−1·18	3·21	2·11	+1·10	3·21	2·11	+1·10	2·12	Madras.		
3	...	...	...	2	2	...	5	18	10·4	?	?	62	·836	8·0	1	3·10	−2·10	0·38	1·46	−1·08	0·38	1·46	−1·08	0·24	Nellore .	MADRAS, EAST-COAST, CENTRAL.	55
2	...	...	...	3	5	1	8	11	13·0	9·4	+38	76	·997	6·1	2	7·00	−5·00	1·07	5·52	−4·45	1·07	5·52	−4·45	0·65	Masulipatam.		
...	...	...	1	2	...	2	13	12	?	?	?	61	·789	5·9	3	5·50	−2·50	0·66	4·11	−3·45	0·66	4·11	−3·45	0·29	Cuddapah .	MADRAS, CENTRAL.	54
1	...	...	1	1	...	1	22	4	?	?	?	67	·746	5·2	6	5·50	+0·50	2·57	3·95	−1·38	2·57	3·95	−1·38	0·87	Kurnool.		
5	...	...	...	...	1	4	18	2	9·9	10·5	− 5	49	·529	7·6	4	3·64	+0·36	2·65	1·85	+0·80	2·65	1·85	+0·80	1·27	Bellary.		
4	...	...	2	...	7	...	17	...	?	?	?	63	·836	6·5	3	6·60	−3·60	1·24	5·79	−4·55	1·24	5·79	−4·55	0·64	Rajahmundry	MADRAS, EAST-COAST, NORTH.	52
...	...	...	1	2	3	15	9	...	9·4	?	?	68	·885	4·2	4	6·00	−2·60	3·47	5·37	−1·90	3·47	5·37	−1·90	1·23	Cocanada.		
11	...	...	...	...	...	9	10	...	3·0	3·8	−21	69	·926	6·5	2	6·64	−4·64	0·87	3·49	−2·62	0·87	3·49	−2·62	0·42	Vizagapatam		
...	...	..	...	1	2	23	4	...	16·9	?	?	72	·910	6·5				No	rain ga	uge.					Waltair.		
1	...	...	...	...	5	23	1	...	18·0	11·6	+55	78	·964	2·8		7·44	+1·56	6·15	6·09	+0·06	6·15	6·09	+0·06	1·44	Gopalpur.		
																									XII.—Hill Stations.		
4	..	...	3	2	...	1	14	5	7·1	?	?	23	·273	0·6	0	?	?	0	1·25	−1·25	0	1·25	−1·25	0	Sharigh .	BALUCHISTAN.	48
			Not	rec	orde	d.			?	?	?	?	?	?	0	?	?	0	0·06	−0·06	0	0·06	−0·06	0	Pishin.		
28	...	...	...	1	1	...	...	...	2·5	4·7	−47	51	·424	0·5	1	0·36	+0·64	0·32	0·12	+0·20	0·32	0·12	+0·20	0·29	Quetta.		
...	1	...	...	...	18	...	9	1	?	?	?	27	·255	0·3	0	?	?	0	0·21	−0·21	0	0·21	−0·21	0	Kalat.		
...	3	2	1	...	3	15	3	3	11·8	?	?	21	·238	1·1	0	?	?	0	0·22	−0·22	0	0·22	−0·22	0	Chaman.		
...	1	...	3	2	10	7	7	...	3·3	2·4	+38	47	·165	4·6	0	?	?	0·05	0·22	−0·17	0·05	0·22	−0·17	0·02	Leh . .	PUNJAB.	30
9	4	1	1	5	5	...	2	3	4·6	?	?	88	·551	3·7	5	?	?	2·13	?	?	2·13	?	?	0·90	Srinagar.		
12	1	6	...	...	...	2	9	...	6·6	?	?	60	·321	4·1	0	?	?	0·14	0·54	−0·40	0·14	0·54	−0·40	0·09	Skardu.		
29	...	...	...	1	...	...	...	...	1·6	?	?	88	·370	4·5	3	?	?	0·63	?	?	0·63	?	?	0·27	Dras.		
			Not	rec	orde	d.			?	?	?	50	·358	5·0	2	?	?	1·03	0·16	+0·87	1·03	0·16	+0·87	0·43	Gilgit.		
2	5	8	4	3	5	1	...	2	?	?	?	58	·464	0·9	3	?	?	1·55	?	?	1·55	?	?	0·61	Chitral		
			Not	rec	orde	d.			?	?	?	35	·291	4·7	3	?	?	0·57	?	?	0·57	?	?	0·19	Killa Dross.		
																									Para Chinar.		
4	12	...	...	...	3	...	1	10	13·1	?	?	44	·396	3·0	4	?	?	1·75	0·48	+1·27	1·75	0·48	+1·27	0·80	Cherat.		
3	6	...	3	9	1	1	...	7	8·5	6·6	+29	50	·357	4·2	4	4·55	−0·55	2·08	2·87	−0·79	2·08	2·87	−0·79	0·85	Murree.		
21	2	1	...	...	1	...	4	1		Not	record	ed.		3·4	0	?	?	0·17	0·27	−0·10	0·17	0·27	−0·10	0·04	Poo.		
5	8	8	2	1	4	2	...	...	5·3	2·3	+130	53	·335	3·5	9	10·00	−1·00	3·42	6·79	−3·37	3·42	6·79	−3·37	0·74	Simla.		
12	6	...	2	...	9	...	...	1	12·2	5·7	+114	62	·380	3·1	8	?	?	4·05	6·91	−2·86	4·05	6·91	−2·86	0·75	Chakrata.	NORTH-WESTERN PROVINCES.	25
...	2	4	6	1	1	...	7	9	?	10·9	?	64	·410	4·9	9	10·20	−1·20	5·87	10·29	−4·42	5·87	10·29	−4·42	1·64	Mussooree.		
9	1	3	2	3	...	3	6	3	4·1	3·2	+29	67	·466	4·8	8	9·12	−1·12	4·32	5·94	−1·62	4·32	5·94	−1·62	1·18	Ranikhet.		
...	1	2	3	5	1	5	...	13	1·9	?	?	68	·396	4·4	8	?	?	5·50	?	?	5·50	?	?	2·08	Muktesar.		
			Not	rec	orde	d.			?	?	?	?	?	?	16	?	?	7·24	?	?	7·24	?	?	1·08	Yatung.	BENGAL.	13
3	1	3	8	5	...	4	6	...	5·4	4·7	+15	94	·512	6·3	16	21·04	−5·04	14·68	23·69	−9·01	14·68	23·69	−9·01	3·43	Darjeeling.		
17	...	...	...	.	..	1	2	3	3·5	?	?	90	·570	?	19	?	?	20·29	21·76	−1·47	20·29	21·76	−1·47	3·81	Gantok.		

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

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.
Central India.	Mount Abu.	3,945	25·868	0	?	26·007	10th	25·708	22nd	·299	76·7	88·0	+4·7	70·3	+2·3	79·2	+3·5	17·7	100·7	9th	63·8	16th & 30th.	36·9
	Pachmarhi .	3,528	26·251	0	?	26·372	2nd	26·097	21st	·275	77·5	89·5	+3·9	73·7	+2·0	81·7	+3·0	15·8	103·7	9th	66·7	23rd	37·0
South India .	Wellington .	6,200	24·170	−·024	?	24·264	25th	24·089	16th	·175	64·8	72·7	+0·9	57·6	−0·6	65·2	+0·2	15·1	77·2	5th	50·2	29th	27·0
XIII.—Extra India.																							
Ceylon . .	Trincomalee.	12	29·791	?	29·729	29·868	29th	29·706	7th	·162	82·4	90·8	?	79·0	?	84·9	?	11·8	95·5	9th	75·5	11th	20·0
	Colombo .	40	29·846	−·018	29·812	29·934	29th	29·761	7th	·173	80·9	86·3	?	77·7	?	82·0	?	8·6	91·0	10th	74·0	19th & 20th	17·0
Persia . .	Meshed .	3,104				Not recorded.					77·7	?	?	62·4	?	?	?	?	?	?	55·8	3rd	?
	Resht .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Teheran .	?	25·871*	?	?	26·000	24th	25·675	16th	·325	80·4	93·7	?	67·2	?	80·4	?	26·5	100·3	16th	60·0	10th	40·3
			25·417*	?	?	25·540	24th	25·280	16th	·260													
	Ispahan .	?	24·355*	?	?	24·500	1st&6th	24·210	16th	·290	78·6	95·7	?	61·5	?	78·6	?	34·2	99·7	17th	54·5	26th	45·2
			24·681*	?	?	24·810	1st&6th	24·540	16th	·270													
	Bushire .	14	29·616	+·039	29·588	29·713	7th	29·501	30th	·212	87·9	92·6	+0·4	79·8	−0·5	86·2	−0·1	12·8	100·0	2nd & 6th.	71·1	30th	28·9
	Jask . .	?	29·607	?	29·559	29·756	11th	29·469	22nd	·287	88·4	95·1	?	81·5	?	88·3	?	13·6	99·3	23rd	77·2	1st	22·1
Arabia . .	Muscat .	20	29·607	?	29·574	29·747	1st	29·472	22nd	·275	91·9	94·8	?	86·6	?	90·7	?	8·2	102·3	20th	78·3	12th	24·0
	Baghdad .	220?	29·573	−·005	29·761	29·700	9th	29·407	30th	·293	85·5	102·8	+0·4	76·4	+0·8	89·6	+0·6	26·4	112·1	28th	67·1	7th	45·0
	Aden . .	94	29·652	−·009	29·675	29·709	24th	29·546	9th	·163	89·4	96·6	+2·6	85·2	+2·2	90·9	+2·4	11·4	100·3	13th	81·8	27th	18·5
	Perim . .	?	29·558	?	?	29·617	19th	25·491	1st	·126	87·6	93·7	?	74·1	?	83·9	?	19·6	97·9	12th	72·4	24th	25·5
Afghanistan	Kabul .	?				Not recorded					71·4	84·5	?	56·6	?	70·6	?	27·9	90·1	4 days	48·0	3rd	42·1
Central Asia .	Kashgar .	?	25·490†	?	?	25·701	6th	25·311	2nd	·390	72·8	84·9	?	63·2	?	74·1	?	21·7	92·6	11th	53·2	17th	39·4
Arabian Sea Islands.	Amini Devi.	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Africa . .	Zanzibar .	73	30·112	?	30·113	30·172	23rd	30·040	9th	·132	75·2	81·?	?	73·8	?	77·6	?	7·5	84·0	1st	69·9	16th	14·1

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

* Aneroid and uncorrected.
† Do. and corrected.

I—*concluded.*

in India, Burma, etc., in June, 1897—concluded.

Wind Direction. Number of winds from									Wind Velocity.			Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.								Variation from normal of period, 1st to 30th June.	Heaviest rainfall during month.	Station.	Meteorological Province or District.
Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean velocity in miles per hour.	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 June 1897.	Normal rainfall for period, 1st to 30th June.				
...	1	5	...	1	1	20	2	...	14·4	10·1	+42	63	·531	4·0	2	6·70	−4·70	0·42	6·13	−5·71	0·42	6·13	−5·71	0·26	Mount Abu.	Central India.
2	...	...	...	...	3	11	11	3	17·3	7·7	+125	71	·659	5·4	8	11·64	−3·64	12·18	9·80	+2·38	12·18	9·80	+2·38	4·50	Pachmarhi.	
12	1	1	...	...	1	11	3	1	4·5	5·1	−12	72	·449	6·3	8	7·22	+0·78	2·75	3·73	−0·98	2·75	3·73	−0·98	0·62	Wellington.	South India.
																									XIII.—Extra India.	
...	...	...	...	...	...	30	...	...	9·7	?	?	81	·901	3·9	2	?	?	0·48	1·21	−0·73	0·48	1·21	−0·73	0·26	Trincomalee	Ceylon.
...	...	...	...	...	3	15	8	4	11·1	10·2	+ 9	86	·915	8·2	20	?	?	10·85	7·24	+3·61	10·85	7·24	+3·61	1·95	Colombo.	
				Not	rec	orded.			?	?	?	51	·490	1·0	2	?	?	0·31	0·22	+0·09	0·31	0·22	+0·09	0·16	Meshed.	Persia.
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Resht.	
20	...	...	1	...	5	2	2	...	4·3	?	?	?	?	1·6	1	?	?	0·20	0·01	+0·19	0·20	0·01	+0·19	0·20	Teheran.	
4	2	9	4	2	...	...	3	6	3·2	?	?	46	·448	0	0	?	?	0	0	0	0	0	0	0	Ispahan.	
...	1	3	4	3	...	2	2	15	8·7	10·8	−19	60	·774	0	0	?	?	0	?	?	0	?	?	0	Bushire.	
1	1	1	8	1	3	...	2	13	10·0	?	?	70	·924	0·4	0	?	?	0	0	0	0	0	0	0	Jask.	
...	1	2	9	5	3	2	3	5	4·3	?	?	69	1·010	0·6	0	?	?	0	?	?	0	?	?	0	Muscat.	Arabia.
6	14	1	...	...	...	...	1	8	4·6	?	?	45	·548	0	0	?	?	0	0·01	−0·01	0	0·01	−0·01	0	Baghdad.	
5	1	4	9	1	4	6	...	...	8·4	7·6	+11	68	·930	3·0	0	?	?	0	0·01	−0·01	0	0·01	−0·01	0	Aden.	
6	...	2	...	...	...	2	1	4	12·9	?	?	80	1·039	2·9	0	?	?	0	?	?	0	?	?	0	Perim.	
6	...	1	10	...	3	1	8	1	?	?	?	39	·299	0·7	0	?	?	0·06	0·37	−0·31	0·06	0·37	−0·31	0·06	Kabul.	Afghanistan.
26	2	...	...	1	...	...	...	1	5·9	?	?	36	·290	3·6	0	?	?	0·09	0·53	−0·44	0·09	0·53	−0·44	0·05	Kashgar.	Central Asia.
..	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Amini Devi.	Arabian Sea Islands.
...	...	...	...	1	16	13	...	...	7·5	?	?	81	·712	4·3	4	?	?	3·86	?	?	3·86	?	?	2·29	Zanzibar.	Africa.

that station are not employed for calculating the provincial variations.

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. 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.
Burma Coast and Bay Islands.	Port Blair	...	29·768	29·691	·077	29·726	+·002	29·717	86·7	80·0	6·7	95·1	75·2	19·9	85·2	84·0	82·2	+1·4	77·1	80·8	79·9	79·3
	Rangoon	...	·750	·657	·093	·714	−·021	·691	87·2	77·3	9·9	92·9	73·7	19·2	82·6	82·7	80·3	+0·9	75·7	79·1	78·8	77·9
	Diamond Island	...	·744	·663	·081	·700	−·020	·675	85·8	78·9	6·9	90·2	75·4	14·8	83·0	83·2	81·2	+1·7	76·4	78·9	79·1	78·1
	Cocos Island	111	·720	·646	·074	·679	+·031	·723	87·5	79·2	8·3	93·4	75·2	18·2	85·1	84·8	82·1	+1·4	76·2	80·6	80·1	79·0
	Akyab	...	·691	·612	·079	·655	−·022	·617	86·2	78·1	8·1	92·5	74·0	18·5	83·9	83·6	81·2	0	76·1P	81·6P	81·4P	79·7P
Assam.	Silchar	...	·573	·449	·124	·521	−·019	·575	90·9	76·5	14·4	98·6	70·8	27·8	83·7	87·8	82·5	+0·9	75·6	78·8	80·5	78·3
	Sibsagar	...	·326	·195	·131	·263	−·040	·546	89·2	76·4	12·8	96·2	72·0	24·2	83·8	88·6	82·0	+0·4	75·9	79·3	81·3	78·8
	Dhubri	...	·519	·406	·113	·472	−·028	·539	87·9	77·5	10·4	91·2	70·7	20·5	83·0	85·7	81·4	+1·7	75·4	79·2	80·5	78·4
Bengal and Orissa.	Chittagong	...	·583	·486	·097	·541	−·026	·575	87·9	77·8	10·1	92·3	72·1	20·2	85·0	85·0	81·9	+1·4	76·0	80·0	80·1	75·4
	Narayanganj	...	·601	·508	·093	·562	−·016	·535	89·7	79·3	10·4	95·1	74·2	20·9	85·8	85·8	83·8	+0·7	76·4	81·4	80·9	79·6
	Calcutta (Alipore)	...	·577	·488	·089	·539	−·008	·505	90·5	79·0	11·5	97·1	73·5	23·6	86·8	87·4	84·6	+0·1	77·0	80·8	80·7	79·5
	Saugor Island	...	·572	·481	·091	·533	−·017	·501	91·0	81·8	9·2	95·5	72·4	23·1	87·9	88·6	85·3	+0·6	78·7	82·6	83·0	81·4
	Burdwan	...	·493	·385	·108	·446	−·019	·491	93·0	78·9	14·1	102·4	74·1	28·3	87·2	90·2	84·6	−0·4	76·6	81·2	81·7	80·0
	Berhampore	...	·518	·419	·099	·476	−·015	·490	92·6	79·0	13·6	99·3	73·8	25·5	87·1	90·4	84·5	−0·1	76·6	81·3	82·0	80·0
	False Point	...	·590	·501	·089	·550	−·024	·511	91·2	81·4	9·8	99·0	75·1	23·9	88·0	88·3	85·0	+1·3	78·8	82·3	82·5	81·2
	Cuttack	...	·516	·416	·100	·475	−·026	·495	98·0	81·4	16·6	109·6	76·6	33·0	90·0	94·1	88·4	+2·7	?	79·8	80·7	?
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·585	27·501	·084	27·552	−·026	·456	92·9	76·3	16·6	109·1	73·3	35·8	85·9	86·4	82·6	+0·7	70·6	74·8	74·4	73·3
	Patna	...	29·377	29·268	·109	29·329	−·022	·459	96·5	80·3	16·2	112·4	74·1	38·3	89·7	93·5	86·6	−0·3	77·0	80·8	81·5	79·8
	Darbhanga	...	·417	·293	·124	·361	−·027	·476	94·2	80·6	13·6	101·0	76·5	24·5	87·8	93·1	86·1	+1·6	77·2	80·2	81·5	79·6
	Allahabad	...	·230	·115	·115	·174	−·030	·424	103·5	84·1	19·4	114·3	77·6	36·7	96·2	101·9	92·8	+2·2	74·2	80·2	81·1	78·5
	Lucknow	...	·184	·070	·114	·128	−·023	·440	104·0	82·4	21·6	115·7	73·4	42·3	94·9	100·4	92·7	+1·4	74·2	78·9	80·2	77·8
Upper Sub-Himalayas.	Dehra Dun	...	27·398	27·298	·100	27·338	−·017	·456	94·9	73·3	21·6	105·8	65·1	40·7	86·0	91·7	83·5	−0·5	66·1	71·0	72·2	69·8
	Roorkee	...	28·674	28·563	·111	28·614	−·006	·434	101·9	78·0	23·9	113·5	69·7	43·8	93·1	99·1	89·5	−0·4	69·4	75·0	74·7	73·0
	Meerut	...	·821	·715	·106	·759	−·005	·434	101·8	80·6	21·2	112·8	72·2	40·6	94·2	95·9	90·9	+0·3	71·8	75·3	75·0	74·0
	Lahore	...	·836	·735	·101	·779	+·006	·420	104·1	79·8	24·3	118·1	71·3	46·8	94·5	103·8	91·5	+0·3	69·1	76·1	77·0	74·1
	Ludhiana	...	·727	·630	·097	·673	−·008	·420	104·9	80·3	24·6	116·4	70·1	46·3	94·7	101·9	91·6	+0·4	69·7	75·0	74·3	73·0
Indus Valley and N.-W. Rajputana.	Peshawar	...	·483	·389	·094	·430	+·043	·481	102·9	74·0	28·9	114·5	64·6	49·9	94·7	100·1	87·3	−2·6	62·9	70·9	71·3	68·4
	Mooltan	...	29·113	29·006	·107	29·054	+·016	·422	109·1	83·1	26·0	121·0	73·0	48·0	98·2	107·3	95·2	+0·6	69·7	76·5	78·9	75·0
	Jacobabad	...	·336	·208	·128	·266	+·007	·396	114·8	86·6	28·2	126·0	76·0	50·0	103·6	113·5	100·0	+2·9	69·9	76·5	78·3	74·9
	Kurrachee	...	·568	·484	·084	·527	−·009	·507	96·1	82·7	13·4	114·1	80·0	34·1	91·6	91·3	87·9	+1·1	78·8	82·8	83·4	81·7
E. Rajputana, Central India, and Gujarat.	Jeypore	...	28·182	28·072	·110	28·127	−·006	·456	106·4	82·8	23·6	117·7	73·8	43·9	96·2	104·3	94·0	+3·4	79·1	75·3	75·7	73·7
	Ajmere	...	·005	27·902	·103	27·960	−·021	·464	104·6	82·8	21·8	116·3	72·1	44·2	94·7	103·0	92·5	+4·0	72·6	76·9	78·6	76·0
	Deesa	...	29·169	29·033	·136	29·106	−·017	·507	106·5	82·2	24·3	119·3	72·0	47·3	94·0	104·7	93·3	+3·5	72·4	77·4	77·2	75·6
	Nowgong	...	28·811	28·715	·096	28·767	−·011	·449	102·0	83·8	18·2	117·0	77·5	39·5	95·7	100·2	92·2	+1·3	72·4	77·0	77·1	75·5
	Agra	...	29·000	·891	·109	·939	−·018	·432	104·0	84·2	19·8	117·2	74·9	42·3	95·9	100·3	93·4	−0·8	76·1P	80·8P	82·1P	79·7P
Deccan.	Belgaum	...	27·274	27·191	·083	27·236	−·010	·654	83·8	69·0	14·8	93·8	66·4	27·4	78·0	79·1	74·8	+2·2	67·2	71·8	71·6	70·2
	Sholapur	...	28·153	28·022	·131	28·097	−·017	·591	98·1	74·4	23·7	108·7	69·0	39·7	87·1	93·8	84·2	+2·3	70·1	73·1	72·7	71·9
	Poona	...	27·917	27·823	·094	27·877	+·002	·621	92·3	73·3	19·0	106·6	69·3	37·3	84·8	88·2	81·6	+2·3	69·7	72·8	73·0	71·8
	Akola	...	28·741	28·601	·140	28·676	−·013	·525	103·9	82·4	21·5	113·7	74·1	39·6	94·1	102·4	91·9	+6·3	72·2	77·7	78·3	76·1
	Buldana	2,132	27·586	27·468	·118	27·532	−·006	·531	98·0	77·2	20·8	107·7	71·2	36·5	88·3	96·0	86·2	+5·5	67·5	71·7	71·4	70·2
	Khandwa	...	28·618	28·489	·129	28·559	−·009	·521	102·8	82·1	20·7	113·7	74·6	39·1	92·4	101·9	92·1	+5·3	70·4	75·2	75·0	73·5

II.

85 Stations in India, Burma, etc., for June 1897.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from											Wind Steadiness.		Wind Velocity.		Rainfall.			
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.	Station.	Meteorological Province.
																									%	%						
·894	·997	·967	·953	+·037	87	82	83	84	−2	8·4	8·7	8·6	+1·1	1	...	...	...	6	5	23	24	1	S. 56° W.	S. 43° W.	73	79	247	231	...	...	Port Blair	Burma Coast and Bay Islands.
·870	·949	·932	·917	+·015	93	85	84	87	−2	8·8	8·8	8·8	+0·1	...	1	1	2	3	18	25	8	2	S. 33° W.	S. 23° W.	68	71	105	123	...	...	Rangoon	
·881	·937	·942	·920	+·032	89	83	83	85	−1	8·9	9·2	9·1	+1·0	2	1	1	1	3	6	36	9	1	S. 45° W.	S. 35° W.	73	74	329*	216	...	...	Diamond Island,	
·863	·985	·969	939	+·021	87	82	81	83	−3	8·4	8·3	8·3	+0·1	...	...	...	...	4	10	39	5	...	S. 36° W.	S. 34° W.	87	90	?	?	16·84	3·71	Cocos Island	
·879?	1·054?	1·045?	·993?	+·070?	91?	91?	91?	91?	+4?	8·9	9·2	9·1	+1·6	...	...	5	9	11	14	16	4	1	S. 9° E.	S. 3° E.	48	57	72	97	...	...	Akyab	
·876	·923	·948	·916	+·009	95	80	73	83	−2	8·3	7·0	7·7	−0·1	31	2	3	2	2	4	3	8	5	N. 89° W.	N. 41° E.	13	5	84*	69	...	...	Silchar	Assam.
·889	·944	·974	·936	+·013	97	82	72	84	0	7·3	5·0	6·2	−1·9	9	...	31	1	4	2	11	1	1	N. 58° E.	S. 86° E.	32	14	81*	64	...	...	Sibsagar	
·858	·949	·975	·927	+·030	91	84	79	85	−2	6·7	6·2	6·5	−0·8	?	?	?	?	?	?	?	?	?	?	S. 85° E.	?	22	?	136	...	...	Dhubri	
·874	·959	·964	·932	+·063	92	80	80	84	−2	8·0	7·5	7·8	+0·2	...	1	...	3	15	16	21	4	...	S. 7° W.	S. 24° E.	68	60	207*	160	...	...	Chittagong	Bengal and Orissa.
·873	1·017	·995	·962	−·001	87	83	80	83	−3	8·4	7·7	8·1	+0·4	...	...	...	4	26	18	11	1	...	S. 17° E.	S. 16° E.	77	73	217	178	...	...	Narayanganj	
·903	·974	·962	·946	−·011	91	77	75	81	−2	7·2	6·7	7·0	−0·1	...	...	3	4	7	21	19	5	1	S. 12° W.	S. 3° E.	62	59	148	142	...	...	Calcutta (Alipore),	
·947	1·044	1·054	1·015	−·004	87	79	78	81	−2	8·4	7·7	8·1	+0·4	1	...	2	3	8	27	17	1	1	S. 5° W.	S. 12° W.	72	68	431	372	...	...	Saugor Island	
·887	·987	·971	·948	+·024	90	77	70	79	+2	6·9	6·8	6·9	−0·4	7	1	2	4	11	14	13	7	1	S. 8° W.	S. 16° E.	47	54	114*	122	...	...	Burdwan	
·886	·992	·985	·954	+·018	89	78	70	79	−3	6·6	6·3	6·5	−1·5	12	...	1	11	9	19	6	2	...	S. 22° E.	S. 37° E.	52	48	96*	127	...	...	Berhampore	
·956	1·030	1·038	1·008	+·039	89	78	78	82	−1	7·7	7·7	7·7	+0·5	1	...	2	...	4	28	19	6	...	S. 20° W.	S. 37° W.	75	64	302*	303	...	...	False Point	
?	·881	·871	?	?	?	63	56	?	?	6·0	6·4	6·2	−0·4	3	2	3	1	2	12	27	7	3	S. 40° W.	S. 38° W.	62	42	113	97	...	...	Cuttack	
·682	·725	·704	·704	+·012	76	61	61	66	0	6·7	8·2	7·5	0	1	3	3	8	4	12	9	9	11	S. 51° W.	S. 38° W.	22	15	263	225	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·889	·902	·920	·904	+·032	86	69	63	73	+4	6·2	5·4	5·8	−0·2	4	1	13	24	2	1	3	6	6	N. 66° E.	N. 75° E.	40	48	178*	123	...	...	Patna	
·891	·932	·923	·915	+·003	85	71	61	72	−4	4·9	4·3	4·6	−0·1	...	...	7	26	17	2	4	3	1	S. 73° E.	S. 14° E.	63	6	187	148	...	...	Darbhanga	
·720	·822	·787	·776	+·007	63	51	43	52	−4	5·4	5·5	5·5	+0·8	1	8	14	11	4	3	3	7	9	N. 27° E.	N. 9° W.	30	15	284*	124	...	...	Allahabad	
·744	·775	·760	·760	−·001	68	51	42	54	−2	6·9	5·9	6·4	+1·7	1	7	8	18	4	3	2	7	10	N. 41° E.	N. 46° E.	28	16	107*	104	...	...	Lucknow	
·559	·579	·553	·564	−·086	68	48	39	52	−11	4·1	3·5	3·8	−0·6	9	3	2	1	12	4	8	11	10	S. 63° W.	S. 53° W.	23	16	43	40	...	...	Dehra Dun	Upper Sub-Himalayas.
·617	·631	·539	·596	−·060	65	42	32	46	−6	2·2	1·7	2·0	−1·3	14	2	4	1	19	4	...	3	13	S. 55° E.	S. 10° E.	10	17	75	95	...	...	Roorkee	
·674	·628	·539	·614	−·079	65	41	30	45	−7	2·3	1·7	2·0	−1·4	17	...	...	13	6	...	6	15	3	S. 30° W.	N. 16° W.	13	10	87*	64	...	...	Meerut	
·572	·660	·570	·601	−·016	57	42	28	42	+2	2·0	1·1	1·6	−1·4	3	11	6	11	3	6	1	5	14	N. 7° E.	N. 19° E.	27	6	84	88	...	...	Lahore	
·589	·608	·481	·559	−·095	57	38	26	40	−9	0·7	2·1	1·4	−1·8	23	4	4	...	16	2	3	1	7	S. 59° E.	S. 64° W.	12	8	72	64	...	...	Ludhiana	
·437	·463	·413	·438	−·081	53	31	23	36	−2	2·2	4·3	3·3	+1·1	15	7	14	8	...	1	2	7	6	N. 16° E.	N. 41° E.	32	31	104*	113	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·549	·622	·608	·593	−·144	48	35	27	37	−9	1·1	0·7	0·9	0	4	...	13	...	22	...	13	...	8	S. 45° E.	S. 33° W.	23	32	45*	81	...	...	Mooltan	
·513	·552	·498	·521	−·138	41	27	18	28	−12	0·7	0·1	0·4	−0·5	6	1	2	10	20	11	4	1	5	S. 40° E.	S. 33° E.	48	45	163*	125	...	...	Jacobabad	
·936	1·006	1·040	·994	+·035	83	69	71	74	−1	2·5	2·5	2·5	−1·8	...	...	...	...	...	3	27	29	1	S. 66° W	S. 62° W.	89	85	420*	423	...	...	Kurrachee	
·589	·619	·536	·581	−·086	52	38	25	38	−12	2·2	3·2	2·7	−1·8	1	3	7	4	2	4	12	22	5	S. 84° W.	N. 66° W.	40	45	157	165	...	...	Jeypore	E. Rajputana, Central India, and Gujarat.
·680	·707	·677	·688	−·012	61	45	33	46	−6	1·9	2·5	2·2	−1·2	...	1	7	...	2	1	11	36	2	S. 86° W.	S. 78° W.	65	66	?	216	...	...	Ajmere	
·671	·719	·566	·632	−·080	61	46	27	45	−9	2·9	1·8	2·4	−2·6	...	2	3	1	...	2	21	28	3	S. 76° W.	S. 42° W.	79	70	411	397	...	...	Deesa	
·652	·679	·622	·651	−·069	58	45	38	47	−7	5·8	5·9	5·9	0	...	8	4	13	1	2	3	22	7	N. 49° W.	N. 74° W.	27	50	109*	113	...	...	Nowgong	
·799?	·849?	·852?	·833?	+·153?	69	52?	46?	56?	+10?	1·7	2·4	2·1	−1·6	...	...	10	1	11	...	13	2	23	N. 60° W.	N. 60° W.	22	26	202*	146	...	...	Agra	
·647	·704	·682	·678	+·012	91	74	70	78	−4	6·5	7·3	6·9	−1·0	...	4	...	2	2	2	6	19	21	N. 72° W.	S. 62° W.	65	78	538	556	..	...	Belgaum	Deccan.
·684	·639	·545	·623	−·009	81	51	37	56	−4	5·9	8·0	7·0	−0·2	...	...	2	2	3	2	16	18	17	S. 87° W.	S. 86° W.	60	70	341*	316	...	...	Sholapur	
·682	·661	·626	·656	−·028	83	56	49	63	−7	6·9	7·5	7·2	−0·3	...	...	...	1	1	...	10	43	5	S. 85° W.	S. 80° W.	87	78	510*	360	...	...	Poona	
·655	·732	·644	·677	−·018	61	47	32	46	−12	6·0	6·9	6·5	−0·1	...	1	3	...	1	3	4	19	29	N. 67° W.	N. 68° W.	72	72	328	223	...	...	Akola	
·550	·572	·463	·528	−·136	60	44	28	44	−21	5·5	5·1	5·3	−1·0	1	2	1	2	1	2	4	29	18	N. 72° W.	N. 73° W.	54	66	279	253	...	...	Buldana	
·603	·654	·533	·597	−·117	58	45	28	44	−16	4·3	4·7	4·5	−1·5	...	...	...	...	4	1	5	25	25	N. 77° W.	N. 79° W.	75	72	321	234	...	...	Khandwa	

* Corrected.

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.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S.L. and for gravity 45° Lat.	Temperature of air. Mean maximum.	Temperature of air. Mean minimum.	Temperature of air. Mean daily range.	Temperature of air. Highest maximum.	Temperature of air. Lowest minimum.	Temperature of air. Absolute range.	Temperature of air. Mean 10 hours.	Temperature of air. Mean 16 hours.	Temperature of air. Mean daily.	Temperature of air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Deccan—*concld.*	Hoshangabad	...	28·628	28·495	·133	28·567	−·015	29·495	102·1	82·2	19·9	115·0	72·9	42·1	93·2	100·2	91·5	+3·9	70·6	78·0	78·0	75·5
	Nagpur	...	·599	·471	·128	·540	−·023	·482	103·5	81·4	22·1	114·2	72·5	41·7	94·3	99·1	90·5	+4·5	71·4	76·4	76·1	74·6
	Do. (Sanitary Commr.'s Office).	...	·611	·486	·125	·554	?	·485	104·1	82·5	21·6	114·4	72·2	42·2	95·1	101·0	92·6	?	71·8	76·1	77·1	75·0
	Jubbulpore	...	·280	·171	·109	·231	−·013	·467	99·3	80·6	18·7	114·1	72·6	41·5	92·2	96·0	88·9	+2·3	72·2	75·5	79·0	75·6
	Saugor	...	27·798	27·692	·106	27·750	−·035	·435	99·6	80·2	19·4	114·2	71·7	42·5	91·8	97·2	89·1	+3·2	71·5	76·7	76·6	74·9
	Sutna	...	28·512	28·409	·103	28·465	−·027	·426	101·2	84·5	16·7	114·6	75·6	39·0	95·3	99·1	91·9	+3·0	71·6	75·6	75·9	74·4
	Raipur	...	·635	·511	·124	·578	−·026	·452	101·3	81·6	19·7	112·5	74·3	38·2	93·5	98·1	89·8	+4·1	72·6	75·9	75·7	74·7
	Hyderabad (Deccan.)	...	·036	27·910	·126	27·980	−·011	·561	98·3	77·9	20·4	106·8	72·5	34·3	87·7	96·4	87·6	+4·4	72·0	75·6	76·4	74·7
West Coast.	Bombay	...	29·719	29·632	·087	29·675	+·006	·651	89·5	80·1	9·4	93·7	74·8	18·9	86·0	87·1	84·4	+1·2	75·6	80·0	80·9	78·8
	Ratnagiri	...	·670	·588	·082	·628	−·001	·674	89·3	79·4	9·9	94·5	72·7	21·8	85·8	86·9	83·9	+2·7	75·6	79·3	80·2	78·4
	Karwar	...	·772	·690	·082	·730	−·014	·705	87·5	77·4	10·1	93·2	72·5	20·7	84·1	85·4	82·1	+2·0	74·4	77·5	78·2	76·7
	Cochin	...	·869	·806	·063	·837	−·015	·774	85·5	75·8	9·7	89·2	71·2	18·0	81·8	82·4	80·1	+0·7	74·5	77·7	78·2	76·8
South India.	Salem	...	28·885	28·761	·124	28·836	−·026	·694	96·9	75·7	21·2	101·2	72·1	29·1	87·3	92·8	84·7	+2·0	73·4	76·1	77·1	75·5
	Mercara	...	26·165	26·094	·071	26·143	−·011	?	73·0	64·4	8·6	81·1	60·9	20·2	68·8	69·1	67·7	+0·8	63·4	66·7	67·2	65·8
	Chitaldroog	...	27·412	27·315	·097	27·373	−·001	·666	86·7	70·3	16·4	93·0	64·0	29·0	80·0	83·8	77·8	+1·6	67·7	71·8	71·8	70·4
	Bangalore	...	26·848	26·750	·098	26·810	−·012	·676	86·3	68·2	18·1	91·0	65·1	25·9	73·2	84·2	76·7	+2·5	66·3	69·9	70·1	68·8
	Hassan	...	·797	·716	·081	·768	0	·724	80·8	66·7	14·1	86·4	64·1	22·3	76·4	77·7	73·0	+1·7	65·5	69·5	69·8	68·3
	Mysore	...	27·353	27·265	·088	27·309	+·003	·718	84·9	68·5	16·4	91·0	65·9	25·1	78·5	81·4	75·8	+0·8	66·7	71·0	71·5	69·7
	Trichinopoly	...	29·540	29·416	·124	29·491	−·020	·673	93·9	79·2	19·7	105·6	76·6	29·0	90·0	55·2	87·6	+0·8	73·0	75·4	76·4	74·9
	Madras	...	·728	·615	·113	·681	−·019	·630	99·9	81·6	18·3	105·3	72·4	32·9	92·4	93·1	88·5	+1·2	?	78·8	80·1	78·6
	Bellary	...	28·303	28·180	·123	28·251	−·018	·635	95·6	76·6	19·0	101·2	70·8	30·4	86·6	93·1	84·6	+1·7	67·4	69·4	70·4	69·1
	Cocanada	...	29·644	29·529	·115	29·591	−·018	·551	99·0	83·3	15·7	106·1	75·3	30·8	92·0	95·3	90·2	+3·9	77·7	79·6	80·2	79·2
	Vizagapatam	...	·608	·510	·098	·562	−·030	·531	96·7	83·4	13·3	105·4	77·5	27·9	92·6	91·5	88·7	+1·5	78·2	81·1	81·1	80·1
Hill Station, Baluchistan.	Quetta	...	24·504	24·437	·067	24·463	+·026	?	87·8	55·7	32·1	94·3	49·5	44·8	80·3	85·3	71·1	−3·1	46·8	61·5	61·4	56·6
Hill Stations, Punjab.	Leh	...	Not recorded.						67·5	41·0	26·5	77·6	33·6	44·0	57·8	65·4	53·3	−2·6	36·0	43·1	46·5	41·9
	Srinagar	...	24·760	24·695	·065	24·721	+·032	?	77·7	54·8	22·9	89·3	49·2	40·1	69·1	75·4	65·7	−4·8	54·2	64·8	70·3	63·1
	Murree	...	23·756	23·721	·035	23·732	+·014	?	79·8	63·3	16·5	91·7	46·1	45·6	73·5	77·4	71·5	−0·9	51·3	59·3	61·2	57·3
	Kailang	10,087	20·711	20·667	·044	20·701	−·010	?	65·7	41·9	23·8	73·3	35·0	38·3	57·4	61·6	52·2	−3·4	39·0	47·2	48·1	44·8
	Simla (Ridge)	...	23·024	22·980	·044	22·995	+·005	?	74·3	59·5	14·8	82·7	49·3	33·4	69·6	71·0	66·6	−1·3	52·5	57·5	58·6	56·2
Hill Stations, N.-W.P.	Chakrata	...	·196	23·142	·054	23·163	+·007	?	73·6	59·9	13·7	81·7	49·2	32·5	68·8	69·6	66·3	−0·8	54·0	58·6	58·4	57·0
	Ranikhet	...	·963	915	·068	·937	0	?	80·0	63·6	16·4	88·1	54·4	33·7	73·4	76·5	71·4	+0·9	58·0	62·8	63·9	61·6
Hill Station, Nepal.	Muktesar	...	22·766	22·712	·054	22·739	?	?	74·4	57·6	16·8	81·6	50·3	31·3	67·0	69·8	64·9	?	53·5	59·0	60·7	57·7
	Katmandu	4,388	25·441	25·385	·056	25·411	+·008	?	87·4	66·7	20·7	93·8	58·4	35·4	80·8	81·3	75·5	+0·8	64·9	71·9	72·6	69·5
Hill Station, Bengal.	Darjeeling	...	22·891	22·821	·070	22·855	−·004	?	66·7	55·7	11·0	70·7	53·8	16·9	63·3	63·6	60·4	+0·6	56·1	61·7	61·9	59·9
Hill Stations, Central India.	Mount Abu	...	25·878	25·812	·066	25·850	+·004	?	87·7	70·2	17·5	100·7	63·8	36·9	79·6	86·4	78·6	+3·4	62·0	68·2	69·7	66·6
	Pachmarhi	...	26·262	26·180	·082	26·226	−·006	?	89·0	73·8	15·2	103·5	66·7	36·8	81·6	86·7	80·6	+2·7	67·3?	72·4?	74·4?	71·4?
	Chikalda	3,642	·174	·090	·084	·137	+·009	?	88·5	71·9	16·6	100·0	65·5	34·5	79·8	87·2	79·6	+4·3	64·8	68·3	69·7	67·6

II—*continued.*

at 85 Stations in India, Burma, etc., for June 1897—continued.

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.		
																									%	%						
·611	·771	·685	·689	−·070	58	52	38	49	−13	5·5	6·4	6·0	0	13	...	4	2	...	1	19	10	11	S. 82° W.	S. 80° W.	45	69	137	116	...	...	Hoshangabad	Deccan—*concld.*
·645	·688	·607	·647	−·071	63	46	36	48	−12	5·0	7·1	6·1	−1·0	1	13	4	1	1	4	5	13	18	N. 51° W.	N. 83° W.	53	52	269	204	...	...	Nagpur	
·647	·666	·636	·650	P	61	42	34	46	P	3·5	6·0	4·8	P	10	4	1	3	1	5	14	17	5	S. 74° W.	P	45	P	99*	P	...	...	Do. (Sanitary Commr.'s Office).	
·689	·676	·634	·666	−·028	68	49	44	54	−6	4·4	6·4	5·4	−1·0	1	5	5	...	2	3	18	12	14	N. 88° W.	N. 85° W.	50	55	133	122	...	...	Jubbulpore	
·666	·733	·663	·687	+·060	65	51	41	52	−1	4·4	6·2	5·3	+0·7	...	7	4	...	1	...	12	27	9	N. 80° W.	S. 83° W.	65	63	207	141	...	...	Saugor	
·622	·643	·609	·625	−·023	54	43	38	45	−6	3·6	4·3	4·0	−0·7	2	9	5	4	1	8	3	14	14	N. 56° W.	N. 64° W	35	49	245*	235	...	...	Sutna	
·681	·658	·587	·642	−·086	65	45	36	49	−13	4·3	6·8	5·6	−1·1	3	2	...	1	1	8	27	15	3	S. 56° W.	S. 73° W.	70	68	294*	231	...	...	Raipur	
·712	·737	·664	·704	−·003	75	57	39	57	−8	4·9	4·4	4·7	−1·2	5	1	1	3	4	...	1	45	...	S. 87° W.	N. 84° W	65	70	235*	217	...	...	Hyderabad (Deccan).	
·827	·938	·973	·913	−·011	81	76	75	77	−5	7·2	7·4	7·3	−0·5	...	...	...	1	1	3	11	36	8	S. 83° W.	S. 64° W.	82	65	329	376	...	...	Bombay	West Coast.
837	·918	·944	·899	+·037	84	75	74	77	−4	6·7	5·8	6·3	−0·5	3	2	2	1	...	2	14	22	14	N. 70° W.	S. 56° W	66	62	270	268	...	...	Ratnagiri	
·813	·857	·869	·846	−·004	87	74	72	77	−6	6·2	5·9	6·1	−1·0	1	8	...	...	...	1	22	16	12	S. 89° W.	S. 73° W.	67	74	175	128	...	...	Karwar	
·837	·896	·912	·882	+·026	94	83	82	86	−1	8·1	8·2	8·2	+0·7	7	2	3	...	...	3	6	17	22	N. 71° W	S. 87° W.	62	44	172	147	...	...	Cochin	
·795	·754	·721	·757	−·004	89	58	48	65	−4	4·6	6·8	5·7	−0·3	...	1	...	1	1	4	25	20	8	S. 69° W.	S. 54° W.	73	76	152	113	...	...	Salem	South India.
·573	·634	·643	·617	+·013	94	90	91	92	0	9·1	9·4	9·3	+0·1	5	1	...	...	...	5	10	33	6	S. 81° W.	N. 81° W	75	63	217	193	...	...	Mercara	
·647	·682	·632	·654	+·020	87	67	55	70	−1	7·5	7·1	7·3	−0·7	1	1	...	1	1	2	23	26	5	S. 72° W.	S. 76° W.	78	77	267*	261	...	...	Chitaldroog	
·625	·636	·574	·612	−·007	90	66	50	69	−4	6·4	6·0	6·2	+0·2	1	...	...	...	2	1	18	32	6	S. 77° W.	S. 72° W.	82	87	279*	209	...	...	Bangalore	
·616	·641	·639	·632	+·024	94	71	68	78	−1	8·9	8·1	8·5	+0·2	...	...	1	...	1	1	14	34	9	S. 85° W.	S. 80° W.	82	82	116*	125	...	...	Hassan	
·632	·665	·651	·649	+·021	91	68	62	74	0	8·6	8·3	8·5	+0·7	2	...	...	...	...	1	19	35	3	S. 76° W.	S. 75° W.	87	77	338*	365	...	...	Mysore	
·728	683	·656	·689	−·018	73	49	41	54	−2	5·7	6·9	6·3	−0·4	4	...	...	1	...	...	6	36	13	N. 84° W.	S. 88° W.	82	80	173	226	...	...	Trichinopoly	
P	·804	·853	·845	+·030	P	54	56	63	−2	5·5	6·4	6·0	−0·3	...	1	1	1	14	4	10	21	8	S. 58° W.	S. 36° W.	43	61	215	212	...	...	Madras	
·557	·504	·463	·508	−·142	61	40	30	44	−14	7·7	8·7	8·2	+0·6	1	2	...	...	1	3	8	39	6	S. 86° W.	S. 86° W.	80	78	239	251	...	...	Bellary	
·879	·848	·831	·853	+·003	77	57	53	62	−6	3·3	4·5	3·9	−1·9	...	...	...	3	12	4	14	25	2	S. 50° W.	S. 62° W.	53	57	226*	209	...	..	Cocanada	
·897	·910	·922	·910	+·051	78	60	63	67	0	5·5	6·7	6·1	−0·2	2	...	...	...	1	18	26	13	..	S. 40° W.	S. 56° W.	80	66	76	82	...	...	Vizagapatam	
·230	·354	·296	·293	−·063	52	34	25	37	−3	0·5	1·6	1·1	0	28	2	1	...	...	1	3	13	12	N. 70° W.	N. 75° W.	40	39	44*	84	...	...	Quetta	Hill Station, Baluchistan.
·171	·152	·156	·160	−·012	67	33	26	42	+4	5·4	5·6	5·5	+0·7	...	6	5	...	1	6	17	21	4	S. 79° W.	S. 81° W.	53	31	98	57	...	...	Leh	Hill Stations, Punjab.
·418	·571	·693	·561	+·004	96	80	78	85	+12	3·8	4·9	4·4	+0·6	10	11	9	1	7	7	1	3	11	N. 4° E.	S. 69° E.	20	5	87*	86	...	...	Srinagar	
·256	·361	·376	·331	−·036	48	46	42	45	−3	3·8	3·5	3·7	−0·3	1	11	...	3	11	13	2	6	13	S. 71° W.	S. 4° E.	10	20	183*	175	...	...	Murree	
·215	·240	·221	·225	−·024	80	52	43	58	+3	4·3	6·2	5·3	0	...	2	...	1	7	8	20	14	8	S. 55° W.	S. 63° W.	57	65	64	49	1·38	0·70	Kailang	
·326	·354	·371	·350	−·058	65	49	50	55	−8	4·6?	4·9?	4·8?	−1·1	4	21	11	2	...	7	5	2	7	N. 2° W.	S. 68° W	38	30	127	97	...	...	Simla (Ridge)	
·363	·394	·378	·378	−·038	71	57	54	61	−6	4·3	4·8	4·6	−0·5	9	6	...	1	1	43	...	...	...	S. 3° E.	S. 73° W.	63	52	295	153	...	...	Chakrata	Hill Stations, N.-W.P.
·429	·466	·469	·455	−·017	74	59	52	62	−4	4·9	3·5	4·2	−1·3	7	4	4	1	2	5	10	21	6	S. 85° W.	S. 67° W.	43	46	109*	84	...	...	Ranikhet	
·372	·422	·442	·412	P	78	65	62	68	P	3·8	4·1	4·0	P	...	...	6	...	13	1	8	3	29	N. 61° W.	P	30	P	45*	P	...	...	Muktesar	Hill Station, Nepal.
·600	·683	·713	·665	+·035	91	66	68	75	0	5·3	6·7	6·0	−0·2	...	2	...	13	4	1	2	29	9	N. 81° W.	N. 80° W.	35	23	42	31	5·11	1·46	Katmandu	
·464	·536	·537	·512	+·020	99	92	91	94	0	8·8	8·3	8·6	−0·2	1	...	12	11	5	1	5	13	5	N. 36° E.	S. 9° W.	10	8	150	124	...	...	Darjeeling	Hill Station, Bengal.
467	·560	·539	·522	−·051	66	58	44	56	−12	2·9	2·3	2·6	−2·6	...	3	5	...	1	1	38	11	1	S. 58° W	S. 49° W.	71	67	344*	254	...	...	Mount Abu	Hill Stations, Central India.
·598?	·692?	·711?	·666?	+·066?	74	66	59	66	0	5·4	6·3	5·9	−0·7	7	1	2	...	1	1	14	25	9	S. 86° W.	N. 80° W	65	60	365*	206	...	...	Pachmarhi	
·534	·560	·524	·539	−·060	71	58	43	58	−14	5·0	6·6	5·8	−1·1	5	29	5	...	...	...	6	1	14	N. 17° W.	N. 45° W.	67	60	365*	234	4·69	1·28	Chikalda	

* 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.
Hill Station, S. India.	Wellington	...	24·176	24·119	·057	24·148	−·016	?	72·7	57·6	15·1	77·1	50·2	26·9	69·2	67·4	63·8	0	52·6	59·3	59·6	57·2
Extra India.	Muscat	...	29·615	29·543	·072	29·579	+·069	29·546	94·6	86·6	8·0	102·8	78·3	24·5	93·1	93·5	90·4	−0·4	75·4	82·4	82·9	80·2
	Aden	...	·657	·550	·107	·600	+·005	·623	96·2	85·2	11·0	100·1	81·6	18·5	92·9	93·0	90·1	+2·0	73·8	81·4	80·6	78·8
	Perim	...	·558	·458	·100	·504	+·027	?	93·7	?	?	97·9	?	?	90·5	90·2	?	?	?	82·7	82·9	?
	Zanzibar	...	30·123	30·008	·115	30·066	+ 031	30·066	81·2	73·8	7·4	83·0	69·9	13·1	76·6	80·7	77·4	−0·1	70·0	71·7	72·1	71·3
	Port Victoria (Seychelles).	15	29·962	29 893	·069	29 928	−·019	29·867	83 2	77·3	5·9	85·3	74·5	10·8	81·9	82·1	80·0	+1·3	73·1	76·4	76·4	75·3
	Mauritius	181	?	?	?	·956	−·029	30·086	?	?	?	87·3	54·7	32·6	?	?	70·8	+2·0	?	?	?	?

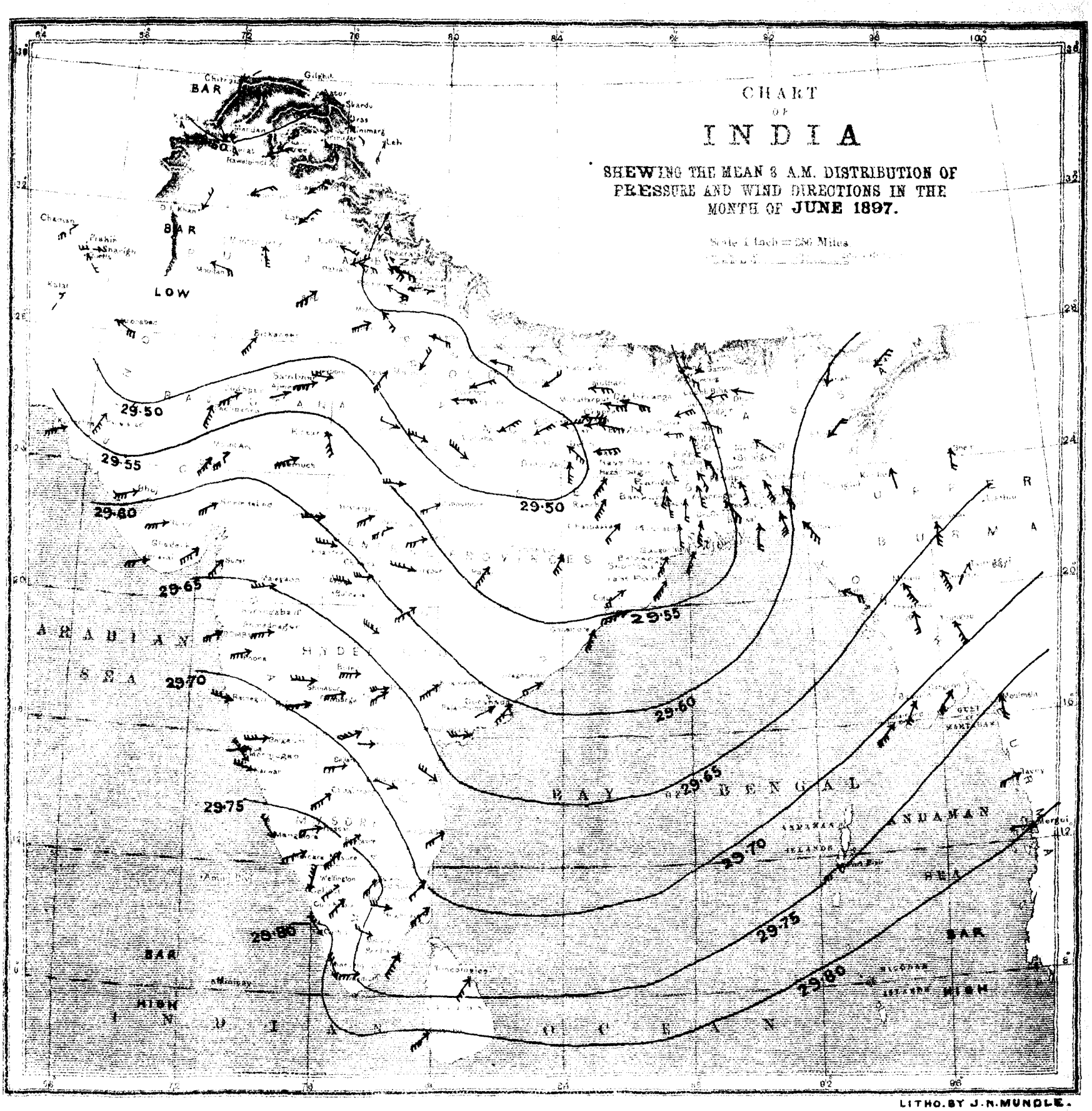
II—*concluded.*

85 Stations in India, Burma, etc., for June 1897—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.		
																									%	%						
·394	·463	·489	·449	+·005	82	65	72	73	−2	7·6	8·9	8·3	+0·8	5	1	2	1	6	9	24	4	5	S. 36° W.	S. 71° W.	50	52	112	111	...	...	Wellington.	Hill Station, S. India.
·733	·973	·988	·898	−·034	61	64	64	63	−2	0·6	0·3	0·5	−0·6	...	3	9	23	2	1	1	1	20	N. 36° E.	N. 9° E.	42	42	105	99	...	...	Muscat.	Extra India.
·684	·922	·881	·829	−·017	57	60	57	58	−1	1·6	2·5	2·1	+0·8	1	...	...	5	11	22	18	3	..	S. 3° W.	S.	72	55	209	216	...	...	Aden.	
?	1·016	1·031	?	?	?	71	73	?	?	1·5	2·7	2·1	+0·3	7	...	2	...	...	...	2	1	8	N. 51° W.	N. 39° W.	15	42	308	347	...	...	Perim.	
·684	·712	·673	·690	−·020	82	78	65	75	−1	3·4	3·7	3·6	−0·9	...	...	...	...	15	32	13	...	...	S. 2° E.	S. 4° E.	87	86	193*	216	...	...	Zanzibar.	
·762	·839	·834	·812	+·062	82	77	76	78	+2	6·5	7·4	7·0	−0·1	9	...	2	2	29	14	1	3	...	S. 31° E.	S. 21° E.	65	79	170	278	12·97	3·00	Port Victoria (Seychelles).	
?	?	?	·555	?	?	?	?	73	0	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	288	274	2·51	0·95	Mauritius.	

G. I. C. P. O.—No. 60 Meteor.—9-10-97.—385.

* Corrected.



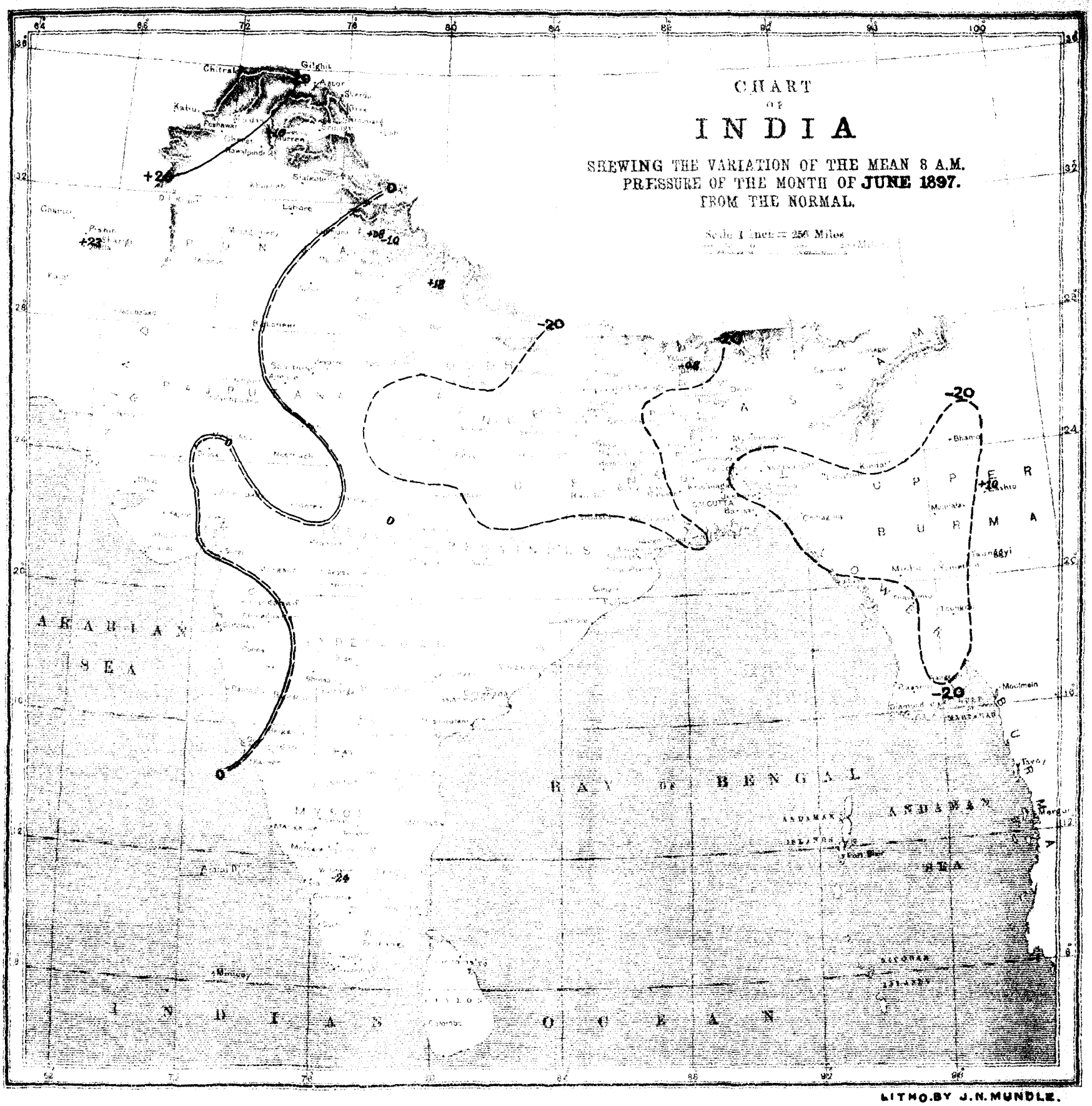
LITHO. BY J. N. MUNDLE.

Explanation.

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

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

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



LITHO. BY J. N. MUNDLE.

Explanation.

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

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

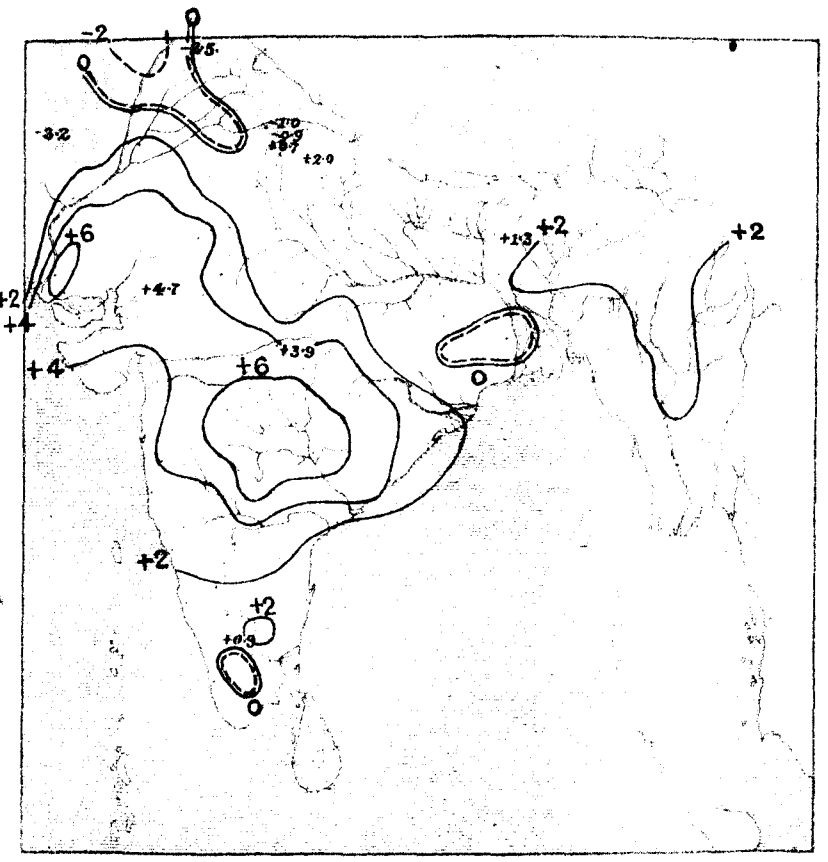
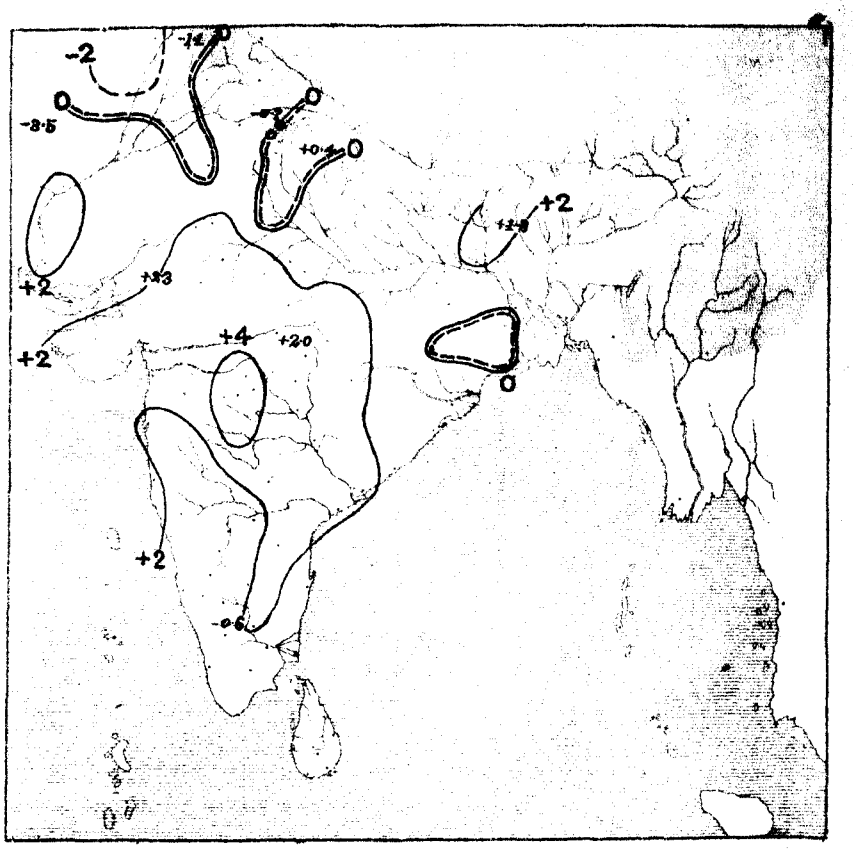


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

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

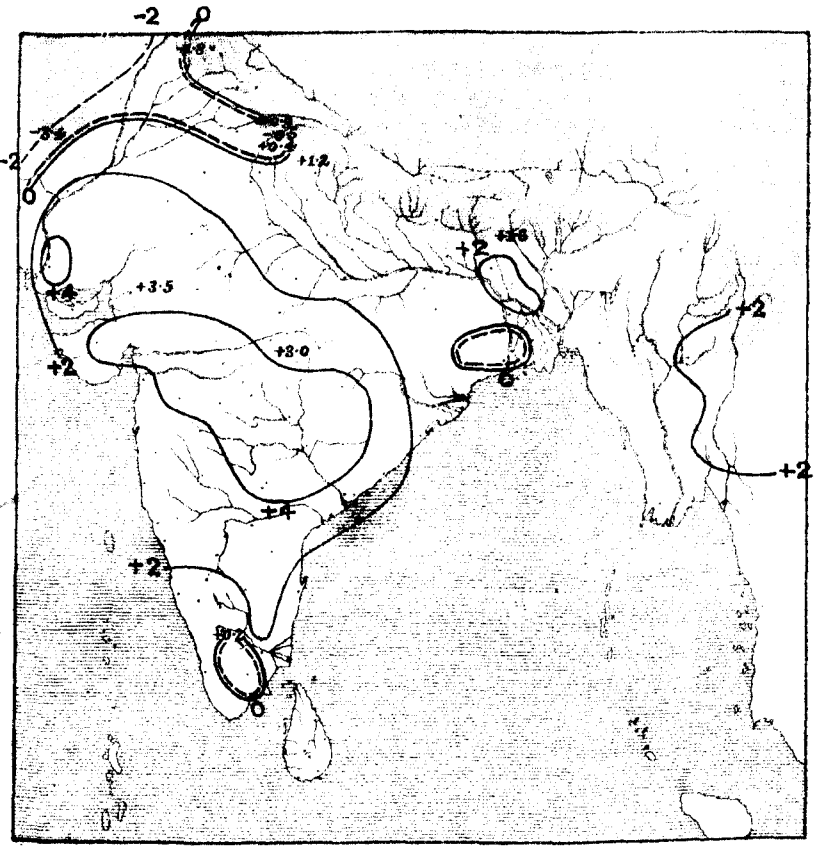
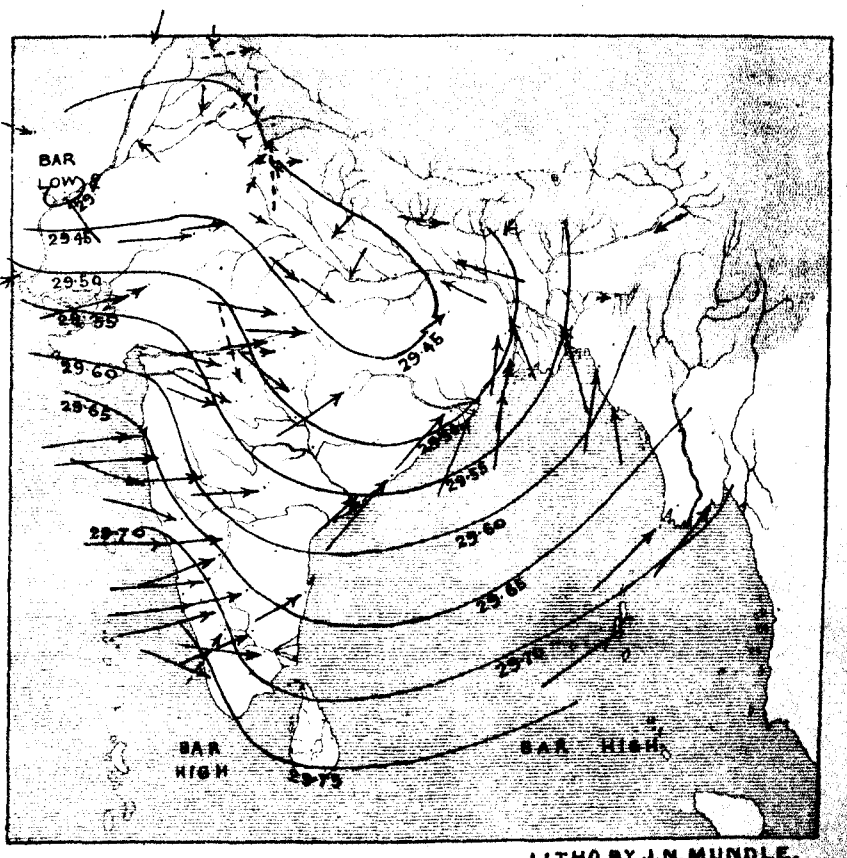


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JUNE 1897.

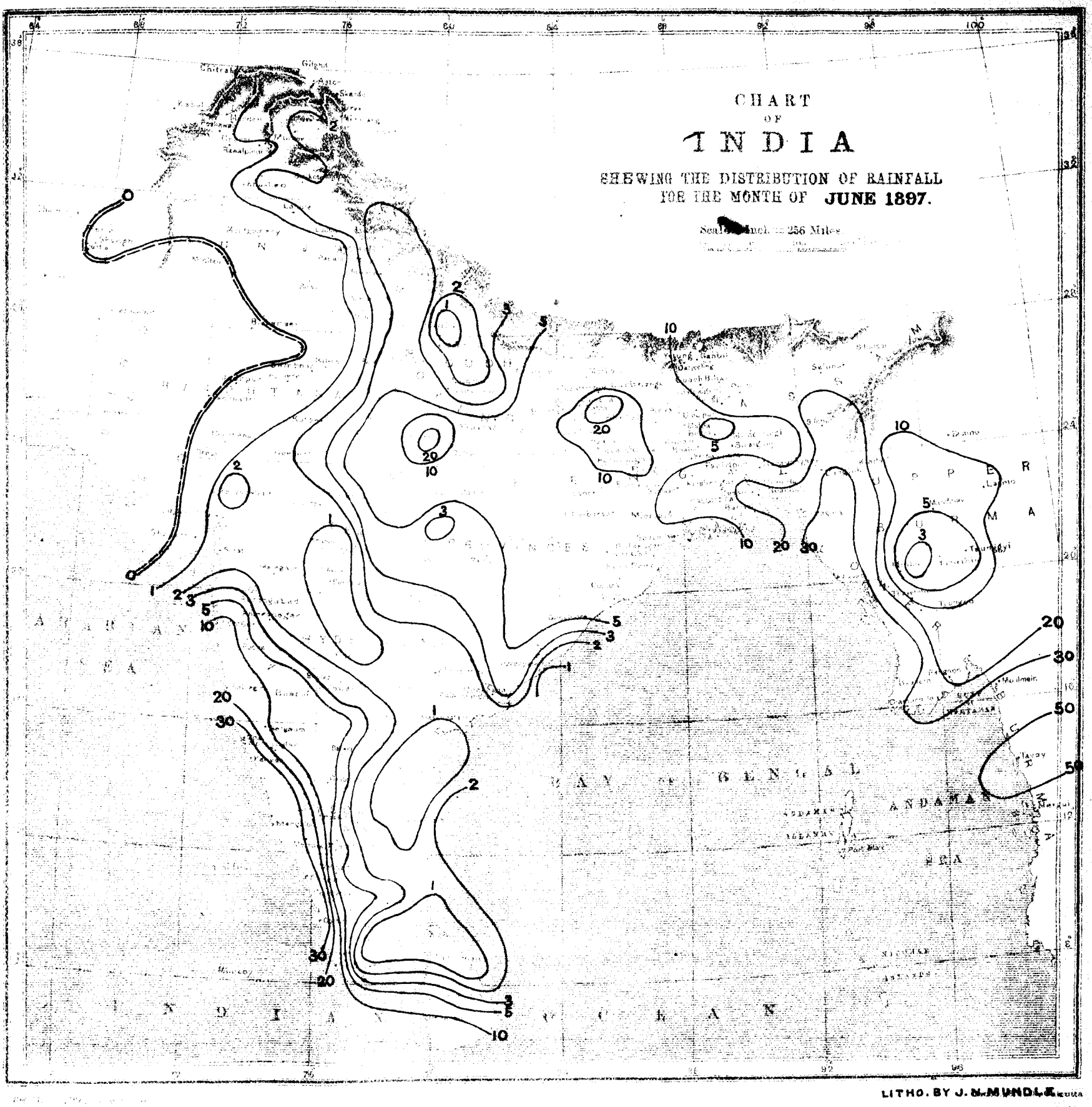


LITHO. BY J.N. MUNDLE.

Explanation.

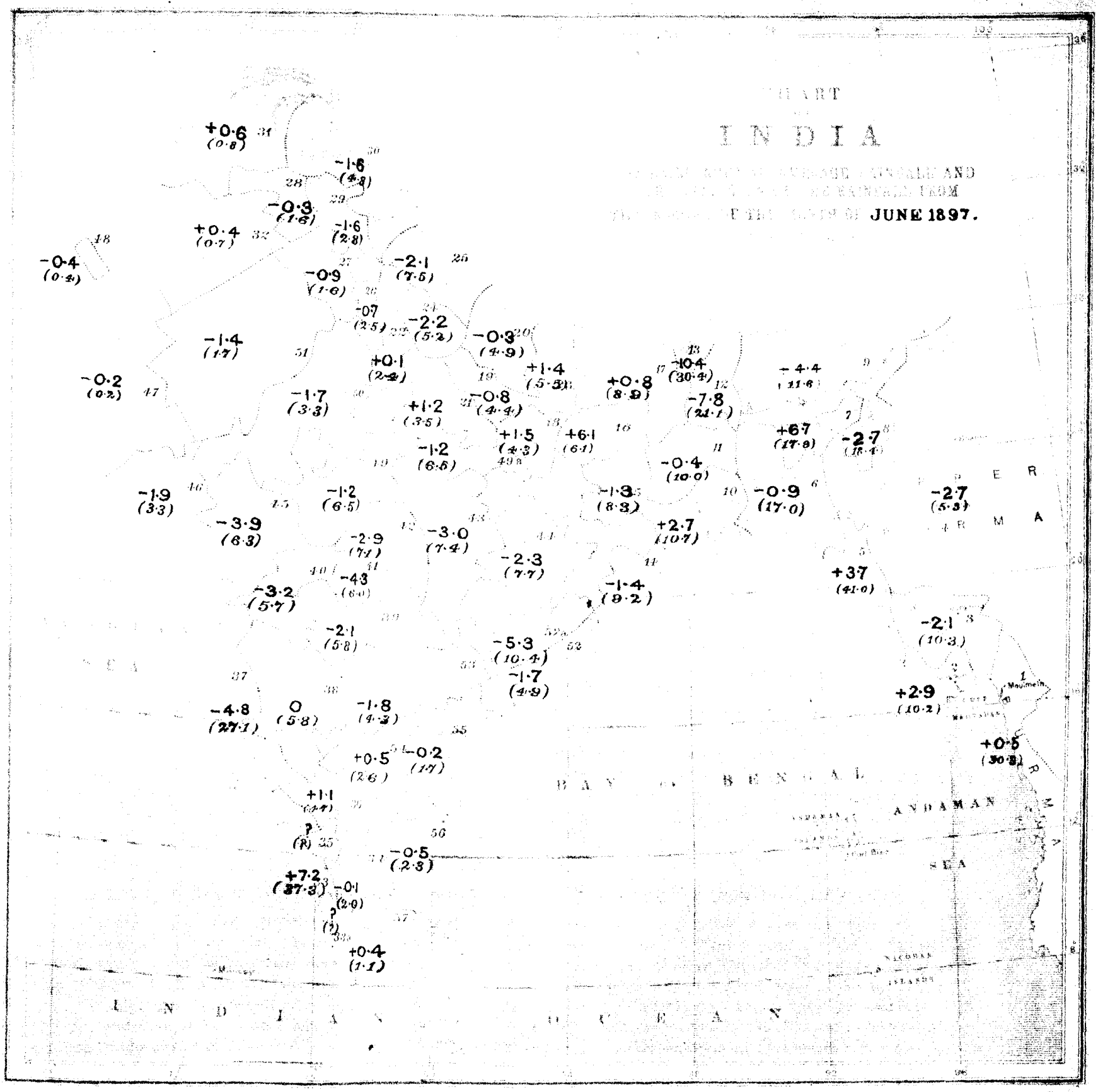
Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their



Explanation.

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



LITHO. BY U. N. MUKERJI.

Explanation.

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

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

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, JULY, 1897.

INTRODUCTION.

THIS review of the weather in India during the month of July 1897 is based on observations taken daily at 8 A.M. at 214 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 85 stations. In the rainfall summary, the rainfall data of the meteorological observatories, the weekly rainfall telegrams received during the month from district officers throughout India, 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 July, 1897.

The south-west monsoon circulation is usually fully established over nearly the whole of India before the end of June, and prevails with great steadiness during the whole of July. If the monsoon currents are feebler than usual, the rains may be considerably delayed in North-Western and Central India, and not be fully established until the middle or end of July.

The month is hence usually a period of frequent, and in some districts, of almost constant rainfall, and of comparative uniformity of temperature and of high humidity over the greater part of the country. The only areas in which the rainfall is small in amount, and in which hot weather conditions continue, though in a somewhat mitigated form, are Sind, North-West Rajputana and the West Punjab.

The distribution of rainfall during the month depends largely upon the relative strength of the two branches of the monsoon current. The Bombay branch advances usually in an easterly direction across the Peninsula, and in a north-easterly direction across Central India and Rajputana towards the East Punjab. The Bay of Bengal branch of the current in part advances over Burma and in part crosses the Bengal coast, and is deflected westwards up the Gangetic valley towards the Punjab. The goal of both branches of the monsoon current would hence appear to be the Punjab. But the greater part of the ascensional motion, which is the continuation of the horizontal movements, takes place in the Deccan, Central India and the Gangetic Plain, as well as in the coast districts, all of which receive more or less general and heavy rain during the month. It is only when at least one branch of the monsoon current is blowing strongly that humid winds advance into the Punjab and give fairly general rain, chiefly in the eastern districts.

Between the two areas in which the two branches of the

DEC 24 1897 WEATHER BUREAU

monsoon circulation exclusively prevail, is a long narrow belt of country which forms a kind of debatable ground between the two currents and in which there is much interaction. In this belt pressure is somewhat lower than it is either further to the north or to the south, and hence it forms a trough of low pressure. The trough in July usually stretches from Orissa through Chota Nagpur to Upper Sind or the South-West Punjab.

An important feature of the meteorology of the month is the occasional formation of shallow cyclonic storms in the north of the Bay of Bengal or South Bengal. They usually advance in a west to west-north-west direction along the trough of low pressure. These cyclonic whirls draw into them the humid winds advancing across the coasts of India, and discharge their moisture as more or less heavy cyclonic rainfall over the areas they traverse. They hence tend to make the rainfall distribution of the month more irregular in Northern and Central India than it would otherwise be. On the other hand, their advance westwards is always accompanied with and followed by a strong influx of humid winds across the Bengal coast. Hence they give rise at the same time to more or less general rain over Northern or Central India.

The following is a summary of the chief features of the weather in India during the month of July 1897.

The break in the rains, which had set in over North-Western India on the 24th June and extended over the whole of the interior of India during the next five days, held steadily until the 5th or 6th July. Temperature was hence more or less considerably in excess over the whole of the interior during this period. The following gives the mean daily excess in the nine political provinces from the 1st to the 6th :—

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.
	°	°	°	°	°	°
Burma	+1·0	+1·3	+1·0	+0·8	+0·5	+1·3
Bengal and Assam	+4·7	+4·2	+5·1	+5·0	+3·0	+1·8
N.-W. Provinces and Oudh	+7·1	+6·2	+7·7	+9·4	+9·2	+7·9
Punjab	+4·0	+3·8	+5·1	+6·5	+6·6	+7·1
Sind and Rajputana	+2·1	+2·6	+2·6	+2·7	+3·1	+5·0
Central India and Gujarat	+3·3	+4·0	+5·2	+5·9	+6·0	+6·6
Central Provinces and Berar	+7·9	+7·9	+8·9	+9·2	+8·1	+7·3
Bombay	+3·6	+3·4	+3·0	+3·4	+2·9	+2·8
Madras	+5·3	+5·4	+4·2	+4·4	+3·9	+3·1

The excess was most marked in the North Deccan on the 1st, 2nd and 3rd, and in the eastern districts of the North-Western Provinces on the 4th, 5th and 6th. The following gives variation data for the stations in these areas at which the excess was greatest on each day during this period :—

Date.	STATION.	VARIATION FROM NORMAL OF		
		Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
		°	°	°
1st	Raipur	+14·3	+8·2	+11·3
2nd	Amraoti	+15·1	+6·3	+10·7
3rd	Raipur	+14·1	+8·4	+11·3
4th	Allahabad	+15·2	+9·8	+12·5
5th	Lucknow	+18·5	+9·9	+14·2
6th	Allahabad	+16·9	+8·1	+12·5

Abnormally high day temperatures were recorded in this area of excessive heat during this period, higher in some cases than have been previously recorded in July. The following gives examples :—

STATION.	Highest maximum temperature recorded in July 1897.	Date on which recorded.	Highest maximum temperature recorded in July previous to 1897.	Year in which recorded.
	°		°	
Allahabad	108·6	5th and 6th	113·4	1876
Lucknow	110·8	5th and 6th	113·0	1873
Bareilly	107·0	1st	111·5	1876
Sutna	103·0	7th	106·5	1876
Jhansi	106·1	4th, 6th and 7th.	113·2	1876
Nagpur	105·1	4th	100·8	1891
Chanda	105·2	3rd and 4th	98·9	1895 & 1896
Raipur	102·4	1st	100·0	1881
Akola	104·7	3rd	109·0	1875
Amraoti	103·3	2nd	99·4	1876

The pressure distribution was abnormal at this period, the most important feature being the position of the trough of low pressure in Northern India. It lay along the foot of the hills to the west of Darbhanga. Hence dry westerly winds with clear or lightly clouded skies prevailed generally in the Gangetic Plain during this period.

Showers were received daily from the 1st to the 5th in the west coast districts, but on the 6th the rainfall began to increase in intensity, especially in Malabar. During the next four days advances of strong monsoon winds occurred in the Bay and along the West Coast, in each case giving rise to a depression and feeble cyclonic storm.

Weather was fine with light winds in the north of the Bay from the 1st to the 6th or 7th. Unusually strong west-south-west winds with much rain, on the other hand, prevailed to the south of Lat. 16° N. throughout the period.

Pressure was unusually low in Burma and the east and south-east of the Bay from the 5th to the 7th, and the area of deficient pressure in the Bay was transferred northwards on the 6th and 7th. On the latter day there was shewn a very shallow low pressure area, with feeble irregular winds, in the north of the Bay. This intensified slowly on the 8th and 9th, and on the latter day a small depression with a moderately strong cyclonic circulation lay in the north-west angle of the Bay. It advanced rather rapidly westwards during the next 24 hours into the eastern districts of the Central Provinces and filled up during the following 24 hours. The indraught to the storm gave a moderate burst of rain to South Bengal, Orissa, Chota Nagpur and the Central Provinces. The heaviest falls were recorded in Orissa and the Sambalpur district of the Central Provinces but did not exceed 6 inches in 24 hours at any station.

The wave of low pressure which usually accompanies an advance of strong south-west monsoon winds in the Arabian Sea was well exhibited during this period. The fall of pressure due to its advance was greatest in Travancore on the 6th and 7th, on the Malabar and South Konkan coasts on the 8th, on the North Konkan coast on the 9th, and in Kathiawar on the 10th. The fall of pressure increased with the northward advance of the wave, and steep gradients were exhibited on the Konkan and Malabar coasts on the 9th and 10th. Heavy rain fell in Malabar and the Konkan during this period. The following gives a summary of the rainfall in these coast districts from the 7th to the 11th :—

DISTRICT.	AVERAGE ACTUAL RAINFALL IN 24 HOURS PRECEDING 8 A.M. OF					Total rainfall of period.
	7th July.	8th July.	9th July.	10th July.	11th July.	
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Malabar . . .	1·89	1·56	3·69	3·78	2·43	13·35
South Canara . .	4·35	4·49	3·45	4·70	1·53	18·52
North Kanara . .	1·47	2·92	3·00	3·08	1·26	11·73
Savantavadi . .	4·58	5·12	3·03	4·18	2·29	19·20
Ratnagiri . . .	3·50	3·28	2·10	2·13	2·55	13·56
Kolaba . . .	0·64	1·23	0·57	0·77	1·71	4·92
Thana . . .	0·34	0·91	0·40	0·63	0·80	3·08
Surat . .	0·01	0	0·09	0·47	0·23	0·80
Broach . . .	0·01	0	0·01	2·41	0·09	2·52

Some heavy downpours were received in the west coast districts and west ghâts during this period of which the following are the most noteworthy :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
South Canara . .	Udipi	7th	6·40
Ratnagiri . . .	Ratnagiri . . .	7th	6·27
Savantavadi . . .	Savantavadi . .	8th	6·90
South Canara . .	Udipi	8th	7·93
Ditto . .	Karakal . . .	8th	6·83
Ditto . .	Puttur . . .	8th	6·65
Malabar . . .	Badagara . . .	9th	6·03
Ditto . . .	Calicut . . .	10th	6·93
Ditto . . .	Vayitri . . .	10th	6·26
South Canara . .	Karakal . . .	10th	7·71
Ditto . .	Bantval . . .	10th	6·95
Ditto . .	Beltangadi . . .	10th	6·20
Malabar . . .	Vayitri . . .	11th	6·33
Kolaba	Matheran . . .	11th	6·39
Ratnagiri . . .	Rajapur . . .	11th	6·33

When the low pressure wave was advancing towards Kathiawar on the afternoon and evening of the 9th a low pressure area and cyclonic circulation began to form in the angle between the Kathiawar and Bombay coasts. It is one of the many examples India presents of the influence of topographical conditions in determining or contributing to the formation of cyclonic storms. The low pressure wave, it may be noted, had advanced during the previous three days at an average rate of about 250 miles per diem.

The storm increased in intensity on the 11th and 12th and the centre was displaced slowly northwards from the Kathiawar coast on the 10th to a position near Bhuj on the 12th. Its rate of advance was less than 70 miles per diem during this period. Very strong winds with squally stormy weather prevailed in the Arabian Sea off the Bombay and Kathiawar coasts and a moderately strong monsoon in the Arabian Sea generally. The monsoon winds passing inland across the Bombay coast gave moderate general rain in Central India and the Central Provinces on the 11th and 12th. Gujarat and Kathiawar received moderate rain on the 12th and 13th. The depression filled up on the 13th and the strong monsoon winds which followed in the rear of the storm advanced across Rajputana into the East Punjab and gave moderate to heavy general rain over the greater part of North-Western India.

The gradual extension of rainfall into the interior following these two storms reduced temperature to some extent, but it was generally in excess over the greater part

of the interior from the 7th to the 11th. The following gives mean daily variations for each of nine provinces :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	7th July.	8th July.	9th July.	10th July.	11th July.
Burma	+0°·2	+1°·0	−0°·6	+0°·9	−0°·3
Bengal and Assam	+2·6	+2·2	+2·3	+0·9	−0·5
North-Western Provinces and Oudh.	+6·4	+7·7	+4·8	+4·8	+4·1
Punjab	+6·7	+5·7	+5·6	+0·4	−0·3
Sind and Rajputana	+4·7	+5·7	+5·7	+6·8	+3·4
Central India and Gujarat	+7·4	+7·2	+6·4	+5·1	+2·4
Central Provinces and Berar	+7·1	+6·7	+4·6	+3·2	+1·8
Bombay	+2·2	+0·9	+1·5	+0·8	+1·7
Madras	+1·6	+2·5	+2·2	+3·0	+2·2

The excess was greatest on the 7th and 8th in Baghelkhand, Bundelkhand and Rajputana, and on the 9th and 10th in Central Rajputana. The area of greatest excess was transferred to the Central Deccan on the 11th, 12th and 13th, as is shown by the following data :—

DATE.	STATION.	VARIATION FROM NORMAL OF		
		Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
7th	Saugor	+13°·3	+8°·2	+10°·8
8th	Allahabad	+13·5	+8·3	+10·9
9th	Jhansi	+12·4	+7·1	+9·8
10th	Bickaneer	+12·4	+5·2	+8·8
11th	Cuddapah	+7·6	+6·4	+7·0
12th	Ditto	+11·6	+5·3	+8·5
13th	Hyderabad (Deccan)	+9·8	+4·2	+7·0

A shallow depression began to form in West and Central Bengal on the 12th. This was a land-formed depression originating in an area of heavy rainfall during a period of strong monsoon winds. The storm intensified slightly on the 13th and 14th, and it was central at 8 A.M. of the latter day in about Lat. 24½° N. and Long. 88° E. It then drifted slowly along a west-by-north track through South Bihar on the 15th into the south-eastern districts of the North-Western Provinces on the 16th. It then recurved slightly, passing westwards through Bundelkhand into East and Central Rajputana on the 19th, and filled up in West Rajputana on the 20th. The central area of the storm received heavy rain during its passage and the greater part of Northern and Central India obtained more or less general rain during its existence from the 14th to the 20th. The rainfall diminished temperature very considerably and temperature was hence generally below the normal over the whole of Northern and Central India and the North Deccan during this period. Temperature was, on the other hand, in moderate excess during the period in Southern India and the Indus valley districts. The following gives variation data of nine political provinces for the period from the 15th to the 21st :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	15th July.	16th July.	17th July.	18th July.	19th July.	20th July.	21st July.
Burma	−0°·9	−1°·1	−2°·5	−1°·1	+0°·4	+1°·3	+1°·1
Bengal and Assam.	−2·7	−2·8	−2·0	−2·2	−1·5	+0·2	+0·9
North-Western Provinces and Oudh.	−4·0	−5·6	−3·4	−2·8	−1·3	0	+1·2
Punjab	−2·9	−5·5	−2·8	+0·4	+1·9	+1·4	+0·3
Sind and Rajputana.	−2·6	−1·4	−0·3	+0·1	+1·6	+1·6	+2·3
Central India and Gujarat.	−0·3	−0·2	+0·3	−0·3	−1·5	−0·7	+1·2
Central Provinces and Berar.	+1·2	−1·0	−2·9	−4·0	−1·0	+0·7	+1·9
Bombay	+2·3	+1·3	+1·0	+1·2	+0·3	+0·5	+0·5
Madras	+3·7	+0·4	+0·1	+2·4	+0·2	−0·5	+1·8

Pressure increased generally during this period in Northern India and was in moderate to large excess on the 22nd and 23rd. The monsoon currents on the Bombay coast and in the Bay had fallen off considerably in strength and the Bay current, more especially, was very weak during the next five days (from the 24th to the 28th). Local showers, in some cases giving heavy rain, were received during this period, but the total rainfall was not large. Temperature hence increased, more especially in Northern India and was in general and increasing excess from the 26th to the 29th, as is shown by the following variation data for the nine political provinces or areas :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	26th July.	27th July.	28th July.	29th July.
Burma	+2°·9	+3°·1	+1°·1	−0°·4
Bengal and Assam	+2·2	+3·0	+2·9	+2·0
North-Western Provinces and Oudh	−1·1	+2·0	+4·9	+5·3
Punjab	−2·7	−0·1	+3·8	+7·3
Sind and Rajputana	+2·7	+2·5	+5·0	+7·3
Central India and Gujarat	+1·7	+3·0	+4·5	+5·6
Central Provinces and Berar	+2·7	+3·6	+5·4	+5·8
Bombay	+1·2	+1·9	+1·2	+0·5
Madras	+1·5	+2·1	+0·9	−0·6

Pressure gave way briskly in North-Western India on the 27th, 28th and 29th and hence very steep gradients prevailed in India on the 30th and 31st. Winds strengthened on the Bombay coast on the 28th and 29th and the rainfall increased rapidly in intensity. This burst of humid winds extended rapidly into the interior and gave showers to the Deccan on the 29th and to the Central Provinces, Central India, the North-Western Provinces and South-East Punjab on the 30th and 31st. The hill and submontane districts of the North-Western Provinces obtained very heavy downpours on the 31st. The current at the head of the Bay also increased rapidly from the 29th to the 31st. It gave general rain in Bengal on the 30th and 31st, and a shallow depression began to form in Central Bengal which developed into an important storm in the first week of August.

Temperature was above the normal during this period, but decreased, more especially on the 30th and 31st, so that the variations from the normal were generally small on the 31st. The following gives comparative data for the 29th and 31st :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		Change of temperature.
	29th July.	31st July.	
	°	°	°
Burma	—0·4	+0·5	+0·9
Bengal and Assam	+2·0	+0·2	—1·8
North-Western Provinces and Oudh	+5·3	—2·2	—7·5
Punjab	+7·3	+1·4	—5·9
Sind and Rajputana	+7·3	+5·0	—2·3
Central India and Gujarat	+5·6	+2·7	—2·9
Central Provinces and Berar	+5·8	+1·0	—4·8
Bombay	+0·5	+1·5	+1·0
Madras	—0·6	+0·8	+1·4

Pressure.—The mean pressure of the Indian land area for the month agreed exactly with the normal. Pressure was in excess in North-Eastern India, the Central Provinces, the East Punjab and Burma. The variations in that area were generally small, except in the eastern half of Bengal where they very slightly exceeded ·02″. Pressure was below the normal in the remainder of India. The deficiency was largest in the West Coast districts, ranging between ·02″ at Cochin and ·038″ at Surat. The vertical anomalies were positive and small in amount, and so far as can be judged of little significance.

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

METEOROLOGICAL PROVINCE.	Variation of mean 8 A.M. pressure of July 1897 from normal.	Pressure anomaly, July 1897.
	″	″
Burma Coast and Bay Islands	+·009	+·009
Burma Inland	+·009	+·009
Assam	+·024	+·024
Bengal and Orissa	+·017	+·017
Gangetic Plain and Chota Nagpur	+·001	+·001
Upper Sub-Himalayas	+·001	+·001
Indus Valley and North-West Rajputana	—·004	—·004
East Rajputana, Central India and Gujarat	—·007	—·007
Deccan	+·001	+·001
West Coast	—·022	—·022
South India	—·008	—·008

Temperature.—The mean temperature conditions of the month were strongly marked, due to the deficient rainfall and the occurrence of partial breaks in the rains, more especially from the 1st to the 6th, and the 24th to the 29th.

The mean day temperature of the month was above the normal over the whole Indian area with some local exceptions in Assam, Upper Burma, South Madras and the Konkan, where it was in very slight defect. The excess was greatest in the interior and was more than 4° in amount over the area including the greater part of the Deccan, Berar, Khandesh, the Central Provinces, Central India, the south-eastern districts of the North-Western Provinces and parts of the East Punjab. The excess was absolutely greatest at Chanda (+7°·2), Nagpur (+6°·2) and Akola (+5°·9).

The mean minimum or night temperature was in general excess, but by smaller amounts than the day temperature. The excess was more than 2° in amount over the greater part of the Deccan, the Central Provinces, Central India and Rajputana, and was absolutely greatest at Lahore (+3°·8), Hyderabad (Deccan) (+3°·3), Sutna (+3°·2) and Jhansi, Jeypore and Sambhar (each +2°·9). It was locally in slight defect at Sibsagar, Peshawar and Dera Ismail Khan.

The mean temperature of the month was slightly below the normal in the Assam Valley, and locally at one or two stations in South Madras and Upper Burma, and was more or less above it over the whole of India and Burma with those exceptions. It was more than 2° above the normal over nearly the whole of the interior. The excess was greatest in an area defined by the stations for which comparative data are given below:—

Station.	Mean daily temperature.		
	Actual, July 1897.	Normal, July.	Variation of actual from normal.
	°	°	°
Chanda	86·4	81·6	+4·8
Sutna	86·1	81·8	+4·3
Raipur	84·5	80·3	+4·2
Nagpur	85·2	80·9	+4·3
Khandwa	85·2	81·0	+4·2
Akola	85·2	81·1	+4·1
Hyderabad (Deccan)	82·7	78·7	+4·0

This area of large excess of temperature hence included Hyderabad, Berar and the southern half of the Central Provinces.

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

Meteorological Province.	Variation from normal of		
	Mean maximum temperature, July 1897.	Mean minimum temperature, July 1897.	Mean daily temperature, July 1897.
	°	°	°
Burma Coast and Bay Islands	+1·0	+0·5	+0·7
Burma Inland	+0·7	+0·8	+0·8
Assam	—0·3	+0·1	—0·2
Bengal and Orissa	+1·2	+0·5	+0·8
Gangetic Plain and Chota Nagpur.	+3·1	+1·4	+2·3
Upper Sub-Himalayas	+1·8	+1·4	+1·7
Indus Valley and North-West Rajputana.	+1·5	+1·1	+1·3
East Rajputana, Central India and Gujarat.	+3·4	+2·3	+2·8
Deccan	+5·1	+2·2	+3·7
West Coast	+0·3	+0·7	+0·5
South India	+3·1	+1·6	+2·4

Winds—were, on the mean of the month, of normal strength at Port Blair and the Burma coast stations, but were more westerly than usual. They were somewhat above their normal intensity at the head of the Bay and in South Bengal, and were less westerly than usual at the coast stations, but more westerly at the interior stations. Winds were very unsteady in the Gangetic Plain and the line of stations at which winds were most unsteady (and hence defining the central axis of the trough of low pressure) was slightly further north than usual. The mean winds of the month were much below their normal strength on the Bombay, Kathiawar and Sind coasts, and were also feebler than usual at the great majority of stations usually under the influence of the Bombay monsoon current in July. Winds were also more southerly than usual at the West-Coast stations, and in Rajputana and the Central Provinces. Winds were lighter and less steady than usual at the Seychelles, but were on the mean of the month practically normal in direction. The chief feature of the air movement of the month was the decreased strength and steadiness of the current in the Arabian Sea and Western India.

Humidity and Cloud.—The amount of aqueous vapour present in the air as measured by its pressure was normal in Burma, Assam and Bengal, and the variations of the mean humidity conditions of the month from the normal were hence small. There was less aqueous vapour than usual in the Gangetic Plain, the Punjab, East Rajputana, the Central Provinces and the greater part of the Deccan. As temperature was more or less considerably above the normal, the air was much drier than usual in those areas. The mean humidity of the month was most largely in defect at Bellary (—14), Hazaribagh, Saugor and Hoshangabad (each —9), and Buldana, Khandwa and Raipur (each —8). The mean absolute humidity of the month was in slight excess in the West-Coast districts and Southern India, and the mean relative humidity was also above the normal at the majority of stations in these areas, but the variations were small. The air was somewhat drier than usual at the hill stations in Upper India, and also at Aden and Muscat.

Cloud was in slight excess in the southern half of the Peninsula, Burma, East Bengal, Assam, and the northern districts of the Punjab, and in considerable excess in Baluchistan. There was less cloud than usual over the remainder of India. The deficiency was largest in amount in three areas, *viz.*, the South-East Punjab, represented by Lahore (—1·4), West Bengal as represented by Berhampore (—2·0), and Burdwan (—1·8), and the northern districts of the Central Provinces as represented by Hoshangabad (—1·4) and Jubbulpore (—1·1). Cloud was practically normal in amount at the hill stations in Northern India, but was considerably in defect at Pachmarhi (—1·2) and Mount Abu (—0·8).

The following table gives variation data of the mean aqueous vapour pressure, mean humidity and mean cloud amount of ten meteorological provinces for the month of July 1897:—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean aqueous vapour pressure, July 1897.	Mean humidity, July 1897.	Mean cloud amount, July 1897.
	"		
Burma Coast and Bay Islands	+·015	0	+0·6
Assam	—·001	+1	+0·2
Bengal and Orissa	+·005	—2	—0·4
Gangetic Plain and Chota Nagpur	—·011	—5	0
Upper Sub-Himalayas	—·033	—3	—0·5
Indus Valley and North-West Rajputana.	—·001	—3	—0·4
East Rajputana, Central India and Gujarat.	+·038	—2	—0·7
Deccan	—·001	—6	—0·4
West Coast	+·012	+1	+0·5
South India	+·009	—2	+0·5

Rainfall.—The monsoon currents were weak at the commencement of the month and a general break in the rains obtained until the 6th. The monsoon currents then strengthened, and the rainfall increased in amount in the coast districts, and extended rapidly into the interior. The distribution of the rainfall during the next fortnight was largely determined by three storms. The first advanced from the head of the Bay across Orissa into the Central Provinces lasting from the 7th to the 10th. The second formed off the Bombay coast on the 9th and advanced slowly northwards across Kathiawar and Cutch. It gave moderate rain to Gujarat and Kathiawar, and its disappearance on the 12th was followed by an advance of strong monsoon winds across Central India and Rajputana, and by general rain for some days in North-Western India. The third storm formed in Central Bengal on the 12th and 13th, when both currents were strong. It advanced slowly westwards as far as Bundelkhand, where it recurved slightly and passed into Central Rajputana, filling up on the 20th. It gave general and heavy rain to the whole area over which it passed. Moderately heavy rain continued in North-Western India for four days after its dispersion. Winds then fell off and a short partial break set in lasting until the 29th, when a strong advance of monsoon winds again occurred. Heavy rain, due to these winds, commenced in the coast districts on the 29th, and rapidly extended into the interior, so that on the 31st general rain was again falling over nearly the whole of Northern and Central India.

The rainfall of the month was on the whole below the normal. It was in moderate to considerable defect in Burma, the greater part of Bengal, North Bihar, the Punjab excepting the southern districts, Gujarat, Kathiawar, Central India, the Central Provinces, Berar and the Deccan. It was more than 33 per cent. in defect in the following divisions:—

Assam Hills (51 per cent. in defect), Central Punjab (42 per cent. in defect), South Madras (41 per cent. in defect), Gujarat (36 per cent. in defect), and the central division of the Central Provinces (35 per cent. in defect).

The rainfall of the month was practically normal in Assam (except the hill districts), Orissa, Chota Nagpur, South Bihar, the eastern half of the North-Western Provinces, the South-East and West Punjab, East Rajputana and the central coast districts of Madras. It was, on the other hand, in large excess in Malabar (42 per cent.), the Konkan (29 per cent.), the North-Western Provinces Hills (61 per cent.), the western division of the North-Western Provinces (51 per cent.), the South Punjab (40 per cent.), and South Hyderabad (33 per cent.). The following table gives the rainfall data of the month for the eleven meteorological provinces:—

METEOROLOGICAL PROVINCE.	RAINFALL.		
	Mean actual for July 1897.	Mean normal for July.	Variation from normal. *
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	27·81	31·38	—2·15
Burma Inland	6·94	8·15	—1·21
Assam	17·64	17·46	+0·19
Bengal and Orissa	13·51	14·53	—1·38
Gangetic Plain and Chota Nagpur.	10·18	12·37	—2·19
Upper Sub-Himalayas	11·40	11·49	—0·06
Indus Valley and North-West Rajputana.	2·89	2·83	+0·06
East Rajputana, Central India and Gujarat.	9·14	10·79	—1·52
Deccan	8·59	10·91	—2·32
West Coast	42·26	28·98	+13·28
South India	4·47	5·30	—0·83

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

Atmospheric Pressure.

The mean pressure of the Indian land area for the month was normal.

Pressure was in slight local excess in North-Eastern India, the Central Provinces, North Madras, Burma and the East Punjab. The positive anomalies were more than ·02″ in a portion of Assam and Bengal defined by the stations for which data are given below :—

STATION.	Variation of mean 8 A. M. pressure of July from normal.	Pressure anomaly, July 1897.
	″	″
Dhubri	+·028	+·028
Barisal	+·026	+·026
Jalpaiguri	+·024	+·024
Mymensingh	+·021	+·021
Calcutta	+·022	+·022

Pressure was in defect over the remainder of India. The deficiency was moderate in amount, slightly exceeding ·02″, in the West Coast districts of Malabar and the Konkan, as is shown below :—

STATION.	Variation of mean 8 A. M. pressure of July 1897 from normal.	Pressure anomaly, July 1897.
	″	″
Surat	—·038	—·038
Bombay	—·036	—·036
Ratnagiri	—·020	—·020
Karwar	—·022	—·022
Mangalore	—·025	—·025
Calicut	—·020	—·020
Cochin	—·020	—·020

The mean pressure of the month at the hill stations in Northern India was generally in slight excess. The vertical pressure anomalies of the month were small in amount and were positive except in Sikkim and also at Kailang in Lahoul and Wellington in Southern India, as is shown below :—

HILL STATION.	Variation of pressure from normal. (a)	PLAIN STATION.	Variation of pressure from normal. (b)	Vertical pressure anomaly or (a)—(b).
	″		″	″
Murree	+·016	Peshawar	—·003	+·019
Simla	+·017	Ludhiana	—·003	+·020
Kailang	—·021	Lahore	+·002	—·023
Chakrata	+·017	Roorkee	—·009	+·026
Ranikhet	+·018	Bareilly	+·005	+·013
Darjeeling	+·011	Dhubri	+·028	—·017
Quetta	+·016	Jacobabad	+·008	+·008
Pachmarhi	+·019	Hoshangabad	+·005	+·014
Wellington	—·032	Coimbatore	—·011	—·021

Barometric depressions and cyclonic storms of the month.

At the commencement of the month and from the 1st to the 5th or 6th a well-marked break in the rains obtained over the whole of India. Temperature was throughout the period in considerable to large excess over the whole of the interior. Pressure was in general excess in the Peninsula and Central India at the commencement of the period, the excess being very pronounced in North Bombay. Pressure however gave way during the period, and was in general defect on the 5th. The following gives mean pressure and temperature variation data for the larger provinces on the 1st, 3rd and 5th :—

AREA.	VARIATION FROM NORMAL OF MEAN 8 A.M. PRESSURE OF			VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A. M. of		
	1st July.	3rd July.	5th July.	1st July.	3rd July.	5th July.
	″	″	″	°	°	°
Burma	—·069	—·083	—·087	+1·0	+1·0	+0·5
Bengal and Assam	—·033	—·038	—·058	+4·7	+5·1	+3·0
North-Western Provinces and Oudh.	—·024	—·001	—·044	+7·1	+7·7	+9·2
Punjab	—·014	+·007	—·079	+4·0	+5·1	+6·6
Sind and Rajputana	+·044	+·077	—·014	+2·1	+2·6	+3·1
Central India and Gujarat.	+·074	+·094	+·003	+3·3	+5·2	+6·0
Central Provinces and Berar.	+·064	+·066	+·007	+7·9	+8·9	+8·1
Bombay	+·071	+·066	—·041	+3·6	+3·0	+2·9
Madras	+·033	+·026	—·047	+5·3	+4·2	+3·9

The chief feature of the pressure distribution during this period was that pressure was lowest in the submontane districts of Northern India and, as usual with this distribution, dry westerly winds obtained over nearly the whole of the Gangetic Plain.

Weather was fine and skies clear or lightly clouded over the interior. It was, on the other hand, showery in Burma, Bengal and the West Coast districts. The rainfall increased largely in amount on the 5th and 6th in the West Coast districts, indicating that a burst of monsoon winds was in progress. Two shallow depressions originated from the advance of humid winds—one in each sea—during the next 48 hours, and these formed the chief features of the weather of the next week. The following gives a brief account of these two depressions :—

Depression and cyclonic storm of the 7th to the 10th July in the Bay of Bengal.—The pressure conditions at the beginning of the month were abnormal in the Bay and Burma. Pressure was in considerable relative defect in Central and Lower Burma and the north-east of the Bay, and in slight to moderate defect in Bengal and the north of the Bay. Pressure was fairly uniform over the north of the Bay, and gradients were steep in the centre and the south. Strong west-south-west winds prevailed in the south-east of the Bay, where they gave moderate to heavy rain from the 3rd to the 8th. The character of the weather in that area is most clearly shown by the Port Blair observations for the period :—

Date.	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	
3rd June .	29·766	—·007	—·008	WSW	19	10	1·57	Strong wind.
4th „ .	·731	—·035	—·043	WSW	23	9	0·07	Ditto.
5th „ .	·723	—·008	—·051	WSW	24	10	3·24	Ditto.
6th „ .	·722	—·001	—·052	WSW	20	10	1·47	Ditto.
7th „ .	·700	—·022	—·074	WSW	19	10	0·19	Ditto.
8th „ .	·667	—·033	—·107	WSW	18	10	2·69	Ditto.

The conditions at Mergui, on the Tennasserim coast, were very similar to those at Port Blair. Winds were more westerly than usual at both stations. Pressure was in moderate to large defect and more or less heavy rain fell from the 3rd to the 9th.

On the other hand, fine weather with very light winds and no rain obtained over the north of the Bay during the period, more especially on the 5th, 6th and 7th. The mean force of the wind during these three days, as registered on board the F. L. V. *Hesperus*, was only 2. Captain Beahan, Commander of the F. L. V. *Torch*, describes the weather during this period in the following terms :—

"5th.—At 8-30 A.M. a hard rain squall from north-north-east with heavy thunder and lightning. It lasted till 10 A.M., when the wind veered to south-south-west. A gentle south breeze prevailed during the remainder of the day.

6th.—Light southerly breeze during the day; weather hazy and sultry.

7th.—Wind light and variable. At 10 A.M. a squall from the north-east with thunder and lightning."

The data indicate that on the 4th, 5th and 6th an area of considerable to large deficiency of pressure lay over the centre of the Bay and Lower Burma, and that moderately strong monsoon winds prevailed to the south and light variable winds to the north. This area of deficient pressure was transferred northwards on the 6th and 7th and lay on the 8th over the north of the Bay, where a shallow depression was shown, in which an irregular and feeble cyclonic circulation had set in. The following gives data of this depression area on the morning of the 8th :—

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.	
Port Blair	29·667	—·033	—·107	WSW	18	10	2·69	Strong wind.
Diamond Island.	·609	—·027	—·137	SW	15	9	0·83	Sea rough.
Akyab .	·555	—·012	—·119	SE	4	8	0·26	Fine.
Chittagong	·545	—·034	—·085	ENE	6	10	0·85	
Saugor Island.	·478	—·010	—·066	NE	7	9	...	
False Point.	·490	—·013	—·070	WNW	6	7	...	Wind variable.
Gopalpore	·482	—·039	?	NNW	10	6	0·78	Fine.
F. L. V. *Torch*.	·469	—·018	?	NE	3*	6	...	A sharp southerly swell.
F. L. V. *Hesperus*	·480	—·043	?	N	2*	4	0·05	Moderate south-west swell.

* Force.

The data indicate that a large shallow depression in which pressure was from a tenth to a seventh of an inch below the normal lay over the north of the Bay.

The following data, extracted from the logs of vessels, indicate the character of the weather in the depression:—

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.		Long. E.		Barometer corrected.	Wind. Direction.	Force.	Weather.
		°	′	°	′	″			
8 A.M.	S. S. *Arratoon Apcar.*	19	4	89	21	29·487	NNE	4	Squally and N. swell.
,,	S. *Lyndhurst.*	19	7	85	57	·463	NNW	4	Thick black clouds.
,,	S. S. *Mecca*	17	22	92	9	·565	SSW	5	Noon, rain squalls from SSW.
,,	S. S. *Jupiter*	15	2	85	19	·555	WSW	6	Rainy.

9th July.—Pressure had decreased briskly in the north-west angle of the Bay and increased slightly in Burma during the past 24 hours, thus bringing into greater prominence the depression in the Bay. The following observations define its position at 8 A.M.:—

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	
Calcutta	29·475	—·048	—·069	ENE	8	10	0·20	
Saugor Island	·390	—·088	—·148	ENE	11	10	0·56	Drizzling.
Balasore	·420	—·082	—·105	NE	1	8	1·70	Showery.
False Point	·407	—·083	—·146	NW	8	10	0·93	,,
Puri	·441	—·043	?	Calm	9	10	1·19	Raining.
F. L. V. *Torch.*	·419	—·070	?	SE	5*	7	...	Confused SSW sea and squally.
F.L.V. *Hesperus*	·393	—·087	?	ESE	3*	3	0·05	Moderate south-east swell.

* Force.

The centre of the depression at 8 A.M. was hence nearly midway between False Point and Saugor Island, and probably only a few miles to the south of the *Hesperus.*

Strong south-westerly winds with squally weather obtained in the south of the Bay. The following gives data showing the character of the weather in the Bay at 8 A.M.—

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.		Long. E.		Barometer corrected.	Wind. Direction	Force.	Weather.
		°	′	°	′	″			
8 A. M.	S.S. *Palamcotta.*	Off Saugor.				29·392	E	6	Light drizzling rain.
,,	S.S. *Kistna*	21	20	90	46	·481	SE	6	SW swell 4 A.M. rainy and squally.
,,	S. *Altair*	19	48	87	0	·443	SW	1 to 2	
,,	S. *Lyndhurst*	19	49	86	36	·403	W	2	Terrible black sky.
,,	S.S. *Chyebassa*	18	51	90	30	·501	SW by S	2	Cloudy and moderate swell.
,,	S.S. *Colaba*	6	5	80	51	·793	WSW	6	Squally.
,,	S.S. *Peshawur*	6	1	84	48	·761	SW	6	4 A.M. overcast.

10th July.—Pressure had increased briskly to rapidly in the north of the Bay, and the depression had been transferred westwards into the eastern districts of the Central Provinces during the previous 24 hours. The following observations show its position at 8 A.M.:—

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	
Raipur	29·471	+·002	—·077	Calm	3	10	0·40	Drizzling.
Sambalpore	·463	+·005	—·087	S	8	10	5·72	
Jubbulpore	·484	+·045	—·062	NE	2	10	0·70	Raining.
Seoni	·475	+·004	—·086	NNW	2	10	0·25	
Nagpur	·490	+·020	—·088	Calm	3	10	0·90	Distant lightning.

The depression had filled up considerably and was now slightly marked. Winds were also very light in the storm area. Heavy rain had fallen in Orissa and the eastern districts of the Central Provinces, and light to moderate rain in Bengal and Chota Nagpur.

The depression continued to advance westwards and filled up during the day, so that there was no sign of its existence on the morning of the 11th.

Depression of the 10th to the 13th July in the Arabian Sea and Kathiawar.—This depression formed in front of an advance of monsoon winds along the West Coast. As stated above, after a prolonged

break over the greater part of the interior, lasting from the 24th June to the 6th July, winds began to strengthen and rain to increase in the West Coast on the 6th and following days. A wave of low pressure, similar in character to that which usually initiates the south-west monsoon, advanced along the West Coast. The fall of pressure due to the advance of this wave was greatest on the Travancore coast on the 7th, on the North Malabar coast on the 8th, on the Konkan coast on the 9th, and on the Kathiawar coast on the 10th. The following data, giving the changes of pressure for each day from the 7th to the 10th show the advance of this wave of low pressure :—

STATION.	CHANGE OF PRESSURE DURING 24 HOURS PRECEDING 8 A.M. OF			
	7th July.	8th July.	9th July.	10th July.
	"	"	"	"
Cochin	+·001	—·006	—·054	—·009
Calicut	+·019	—·030	—·025	—·008
Mangalore	+·023	—·050	—·058	+·003
Karwar	+·018	—·053	—·081	+·026
Ratnagiri	+·032	—·055	—·124	+·030
Bombay	—·001	—·059	—·071	—·049
Veraval	—·017	—·029	—·047	—·087
Bhuj	+·014	—·038	—·042	—·030
Rajkot	—·008	—·032	—·036	—·078

Weather was very squally with strong monsoon winds off the Malabar and Konkan coasts, but it was not until the evening of the 9th that a cyclonic storm began to form in the low pressure area in front of this advance.

10th July.—The following data show the character of the depression which had formed between the Kathiawar and Bombay coasts during the previous 24 hours :—

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.	
Bombay	29·455	—·040	—·216	SSE	14	10	0·56	Overcast with rain.
Surat	·424	—·061	—·185	SSE	4	8	1·36	Thunder-storm.
Rajkot	·413	—·078	—·145	ENE	8	10	0·51	Distant lightning.
Veraval	·384	—·087	?	ENE	7	6	...	Ditto.

The data indicate that pressure was about a quarter of an inch below the normal in the centre of the area. Weather was stormy off the Bombay coast, as is shown by the following extracts from the logs of vessels :—

Hour.	NAME OF VESSEL.	8 A.M. POSITION.				WIND.		WEATHER.
		Lat. N.		Long. E.		Direction.	Force.	
		°	′	°	′			
8 A.M.	S.S. *Ganges*	18	22	68	7	W	5 to 6	Continuous rain.
"	S.S. *Sirdhana*	15	30	73	23	W	6	Occasional squalls of wind and rain.
"	S.S. *Lalpoora*	11	37	75	4*	WSW	5	Hard squalls with heavy rain and WNW swell.
"	S.S. *Nairung*	17	10	73	1	WSW	7	Heavy squalls.
"	S.S. *Scindia*	18	14	72	40*	SW	6	Heavy sea and heavy squalls.

* Noon position.

Very heavy rain had fallen in the West Coast districts from Bombay southwards and moderate rain in Gujarat and Kathiawar.

11th July.—Pressure had fallen briskly in Kathiawar and Cutch during the previous 24 hours, and the low pressure area had been slightly displaced northwards. The following data indicate its position at 8 A.M. :—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Bombay	29·450	—·005	—·220	WSW	11	10	0·57	Overcast with rain.
Ghadechi	·360	—·065	?	SSE	10	9	0·23	
Rajkot	·356	—·057	—·194	E	6	10	0·04	
Veraval	·322	—·062	—·230	SW	8	9	0·02	Sea rough and squally.
Bhuj	·386	—·055	—·140	ENE	9	8	0·48	Showery.
Kurrachee	·405	—·029	—·096	ENE	9	8	1·06	

The centre of the depression was hence probably a short distance to the north of Veraval, where pressure was nearly a quarter of an inch below the normal. Moderately heavy rain had again fallen in the West Coast districts, but the winds at Bombay, Ratnagiri and Karwar were by no means so strong as they usually are in a vigorous burst of the monsoon. The following extracts from logs show the

character of the weather on this day off the Bombay coast:—

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer, corrected.	Wind. Direction.	Force.	Weather.
		° ′	° ′	″			
8 A.M.	S.S. *Scindia*	15 49	73 03	...	W	6	Frequent hard squalls and high sea.
"	S.S. *Dumra*	19 51	71 31	29·322	W	6 to 7	Squally and continuous rain and heavy sea.
"	S.S. *Naderi*	18 24	70 30*	·400	W	9 to 10	Squally.
"	S.S. *Nairung*	15 2	73 45	·610	W ·W	7	Ditto.

* Noon position.

12th July.—Pressure had increased rapidly in the Konkan and South Kathiawar and had fallen slightly in Cutch. The depression had again been transferred slightly northwards and was central a little to the south of Bhuj (in about Lat. 22¾° N. and Long. 70° E.) at 8 A.M. The following gives data of the storm area at that hour:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Wind. Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	″		″				Inch.	
Veraval	29·425	+·103	?	WSW	33	10	0·20	Sea very rough.
Rajkot	·372	+·016	—·178	WSW	8	10	0·33	Distant lightning.
Ahmedabad	·379	—·021	?	SE	6	10	0·08	
Deesa	·380	—·022	—·154	S	11	10	0·40	
Bhuj	·345	—·041	—·178	NE	12	8	0·54	Showery.
Hyderabad (Sind).	·411	—·025	—·029	N	9	9	0·05	

The depression had already begun to fill up, and pressure at the centre was now less than two-tenths of an inch below the normal. Light to moderate rain had fallen in Kathiawar, Cutch and Gujarat, and moderately heavy rain had been received in the West Coast districts. The monsoon current blowing across the Bombay coast had advanced rapidly into the interior during the previous 36 hours and humid westerly winds were now re-established over the greater part of North-West and Central India. The Central Provinces, Central India, Rajputana and the North-Western Provinces had hence obtained moderate general rain during the previous 24 hours. Weather was, as on the 11th, stormy with strong to hard squalls off the Kathiawar coast, and a moderate to strong monsoon prevailed between the Bombay coast and Socotra.

The depression filled up rapidly during the next 24 hours, and there was practically no trace of its existence at 8 A.M. of the 13th when strong monsoon winds prevailed over the whole of Rajputana as well as in Cutch and Kathiawar. The whole of Rajputana and Sind had received light to moderate rain during the preceding 24 hours.

The storm belonged to a class of occasional occurrence in the early stages of the monsoon. The discussion has shown that after a break in the rains, lasting nearly a fortnight, in North-Western India, a wave of low pressure preceded and accompanied an advance of monsoon winds and heavy rain along the West Coast. The depression in the low pressure wave increased slightly with its northward advance, and when the wave approached Kathiawar, a low pressure area and cyclonic storm began to form between the Bombay and Kathiawar coasts on the 9th and 10th. The pressure wave had hitherto (*i.e.*, from the 6th to the 9th) advanced northwards at an average rate of about 250 miles per diem. The low pressure area or cyclonic storm was, on the other hand, nearly stationary during its existence, being displaced slowly northwards on the 11th and 12th about 65 miles per diem. It filled up rapidly, as is usual with depressions forming in or near Kathiawar during the monsoon, after a short existence of three days.

Land-formed depression of the 13th to the 19th July.—This depression began to form on the 12th, whilst the previous storm was in existence, and giving light to heavy rain in Kathiawar. The trough of low pressure on the 12th and 13th lay further north than usual, stretching along the centre of the Gangetic Plain. Strong westerly winds with much southing were blowing across the Central Provinces into Chota Nagpur and Orissa, and strong monsoon winds prevailed at the head of the Bay. A shallow depression was shown in North-Eastern India on the morning of the 13th. The following observations indicate its position at 8 A.M.:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Wind. Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	″	″	″				Inch.	
Burdwan	29·531	—·029	—·003	SW	5	10	0·68	Showery.
Berhampore.	·503	—·025	—·046	SSW	12	9	0·83	Ditto.
Dinajpur	·521	—·009	—·046	SE	7	10	0·32	Continuous rain.
Malda	·472	—·044	?	SSE	4	10	0·89	
Purnea	·479	—·057	—·074	E	5	10	0·26	Showery.
Bhagalpore	·438	—·070	—·083	NNW	4	10	0·40	Drizzling.
Hazaribagh	·537	+·020	—·005	NW	12	10	0·98	Showery.

The depression was hence central near Bhagalpur, where pressure was however less than a tenth of an inch below the normal. Moderate to heavy rain had fallen over the whole province during the previous 24 hours. The heaviest falls were recorded in the Monghyr, Patna and Gaya districts and the Santhal Parganas.

14th July.—Pressure had given way locally in the storm area in West Bengal and Bihar and had risen in East Bengal and Burma, and the depression had hence intensified slightly. The following gives 8 A.M. data for the depression area:—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Burdwan	29·482	—·049	—·053	SW	9	10	2·68	Gale of wind.
Berhampore.	·427	—·076	—·122	S	11	10	0·51	Drizzling.
Dinajpur	·505	—·016	—·061	ESE	4	8	0·19	Showery.
Malda	·445	—·027	?	ESE	4	10	0·22	
Purnea	·465	—·014	—·087	E	5	10	0·18	Showery.
Patna	·510	—·027	—·024	ENE	2	10	2·01	Ditto.
Bhagalpur	·438	0	—·082	NE	8	6	0·11	Fine.
Naya Doomka.	·423	—·065	—·108	NW	?	10	0·74	Gloomy.
Hazaribagh	·508	—·029	—·041	WNW	22	10	3·51	Gale of wind.

The centre of the depression at 8 A.M. of the 14th was probably a little to the south-east of its position on the previous day. Pressure was nearly two-tenths of an inch below the normal at the centre. Winds were moderate to strong at the head of the Bay where weather was squally. General rain had again fallen over the province, and the fall was very heavy in the central storm area. The following gives the most noteworthy falls during the previous 24 hours:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 14th July.
		Inches.
Monghyr	Jamui	9·12
	Monghyr	5·56
	Gidhaur	5·14
Gaya	Bakri Barawan	8·05
	Daudnagar	5·23
	Nawada	5·10
Hazaribagh	Barhi	7·44
Manbhum	Gobindpur	7·32
	Raghunathpur	5·80
Bankura	Bankura	7·98
	Sonamukhi	6·50

The rainfall had hence been heaviest in the west quadrant of the depression. A shallow depression was also shown in the western districts of the North-Western Provinces on this day, associated with heavy rain in the Mussooree and Naini Tal hills and submontane districts.

15th July.—Pressure had increased briskly to rapidly in Bengal and fallen briskly in Bihar to which the storm depression was now transferred.

The following gives 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.			
	"	"	"				Inches	
Hazaribagh	29·455	—·053	—·088	SSW	15	10	3·09	Continuous rain.
Gaya	·420	—·106	—·108	SSE	17	10	3·66	
Patna	·437	—·073	—·095	ENE	6	10	0·53	
Chaibassa	·488	—·041	?	Calm	3	10	0·64	Showery.
Arrah	·430	—·093	?	NE	6	10	2·84	Gloomy.
Benares	·461	—·065	—·047	NNW	4	10	1·58	Drizzling.
Dehri	·389	—·139	—·128	ENE	6	10	0·99	

The depression was hence central a little to the west of Gaya, and probably about 50 miles east of Dehri (in Lat. 25° N., Long. 85° E.) at 8 A.M. Winds were very strong at the head of the Bay, and Saugor Island reported a severe gale at 8 A.M. General rain had again been received over the whole province. The rainfall was light in North Bengal and heavy in Bihar. The following gives the most noteworthy falls during the previous 24 hours:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 15th July.
		Inches.
Shahabad	Sikroul	10·24
	Koath	7·4

The rainfall was hence, as on the previous day, heaviest in the western quadrant of the depression.

The shallow stationary depression in the western districts of the North-Western Provinces during the previous 24 hours was now rapidly filling up, and it disappeared during the day. Very heavy rain had fallen in the Naini Tal hills and the adjacent plains districts. The following gives the more remarkable fails :—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 15th July.
		Inches.
NAINI TAL	Naini Tal	14·59
	Haldwani	12·10
	Kathgodam	12·07
	Ramnagar	8·27
	Rudarpur	6·62
	Kilpuri	6·38
	Satargunj	6·10
	Nagla	6·10
	Satma	5·40
ALMORA	Champawat	6·70
	Ranikhet	5·46
SHAHARANPUR	Hardwar	6·20

16th July.—Pressure had increased over the whole of India except locally in the south-eastern districts of the North-Western Provinces to which the depression was now transferred. The following data localize it at 8 A.M.:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Sutna	29·432	—·081	—·081	SW	14	10	0·36	Showery.
Allahabad	·415	—·063	—·089	SSE	2	10	0·06	,,
Gorakhpur	·475	—·002	—·040	ENE	5	8	0·13	,, ,,
Lucknow	·447	—·031	—·061	E	4	10	1·80	
Cawnpore	·424	—·047	?	NE	5	10	0·60	Showery.
Nowgong	·453	—·031	—·067	WNW	8	10	0·18	

The centre of the depression at 8 A.M. was a little to the west of Allahabad in Lat. 25½° N. and Long. 81½° E. The storm was less concentrated than hitherto and had given moderate general rain during the previous 24 hours over the whole of Bengal, the North-Western Provinces and the Central Provinces.

17th July.—The pressure changes were everywhere small. Pressure had increased slightly in the eastern half of the North-Western Provinces, and had fallen slightly in the south western districts to which the storm was now transferred. The following data define its position at 8 A.M.:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Sutna	29·430	—·002	—·081	WSW	14	10	0·02	Overcast.
Allahabad	·444	+·029	—·056	ESE	7	9	0·49	Thunder-storm.
Lucknow	·465	+·018	—·041	E	5	10	0·98	
Cawnpore	·446	+·022	?	E	6	10	0·22	Showery.
Agra	·474	—·026	—·028	NE	3	10	2·35	Continuous rain.
Jhansi	·479	—·013	—·041	NW	1	10	0·45	Raining.
Nowgong	·467	+·014	—·053	W	5	10	4·58	Heavy rain.

The centre of the depression at 8 A.M. was probably about 70 miles to the south-south-west of Cawnpore in Lat. 25½° N. and Long. 80° E. The depression area was now an elongated oval, the axis of which lay in a north-north-west and south-south-east direction. Moderate rain had fallen in the North-Western Provinces and Baghelkhand and heavy rain in Bundelkhand.

18th July.—Conditions were now being modified by large and general changes of pressure. The storm was filling up and was feebly marked on the morning of the 18th. It had advanced westwards into Bundelkhand during the previous 24 hours. The following observations show its position at 8 A.M.:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Saugor	29·453	—·049	—·083	WSW	7	10	2·02	Showery.
Sutna	·459	+·029	—·052	S	5	8	0·82	Ditto.
Nowgong	·431	—·036	—·092	E	5	10	0·93	Raining.
Jhansi	·428	—·051	—·083	SE	2	8	0·22	
Kotah	...	—·109	?	NE	8	10	0·50	Raining.

Pressure was now less than a tenth of an inch below the normal in the area of depression, the centre of which at 8 A.M. was probably in about Lat. 25½° N. and Long. 78° E. or a little to the west of Jhansi.

Moderate to heavy rain had been received during the previous 24 hours in Central India and the Central Provinces, and light showers in Chota Nagpur and South Bengal. Weather had improved in the Gangetic Plain where little or no rain was now falling.

Winds were also falling off in strength on the West Coast.

The depression continued to advance westward and filled up rapidly during the day, and its existence on the 19th was chiefly indicated by the wind directions. The following gives 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.	
Neemuch .	29·499	+·018	—·057	WSW	14	10	0·15	Showery.
Kotah .	...	+·033	?	SW	5	9	0·29	Ditto.
Jeypore .	·475	—·002	—·042	NE	10	10	0·01	
Ajmere .	·470	—·012	—·067	NE	6	9	0·29	

There was hence a feeble cyclonic circulation, the centre of which was near Kotah in Lat. 25¾° N. and Long. 75° E. at 8 A.M. It disappeared during the day. The Central Provinces, Central India and Rajputana received light to moderate general rain on the 19th and 20th.

This land-generated depression formed on the 12th and 13th, under the usual conditions of a strong monsoon current at the head of the Bay and strong westerly monsoon winds in the Central Provinces and Chota Nagpur. The chief feature of its earlier phases was the heavy rainfall in and to the west of the central area. It drifted slowly in a west-by-north direction during the next four days into the south-western districts of the North-Western Provinces, where it recurved slightly and marched westwards into Central and West Rajputana, and finally filled up in the latter area on the 20th. The following data give the position of the centre at 8 A.M. of each day of its existence and its daily rate of movement:—

Date.	Position of centre at 8 A.M.		Distance travelled during interval.	Average hourly rate of motion during interval.
	Lat. N.	Long. E.		
	° ′	° ′	Miles	Miles.
14th	24 30	88 0		
15th	25 0	85 0	200	8⅓
16th	25 30	81 30	240	10
17th	25 30	80 0	100	4
18th	25 30	78 0	125	5
19th	25 45	75 0	200	8⅓

The following table gives a summary of the rainfall in the districts traversed or directly affected by the storm from the 13th to the 20th:—

Province.	Average actual rainfall in 24 hours preceding 8 A.M. of								Total of period, 13th to 20th July.
	13th July.	14th July.	15th July.	16th July.	17th July.	18th July.	19th July.	20th July.	
	Inches	Inches	Inches	Inches	Inches	Inches	Inch.	Inch.	Inches
South-West Bengal.	1·08	1·71	0·97	0·74	0·22	0·21	0·14	0·24	5·31
North Bengal .	0·87	0·22	0·16	0·41	0·51	0·08	0·17	0·30	2·72
East Bengal .	1·49	0·63	0·63	0·50	0·37	0·25	0·22	0·22	4·31
Bihar . .	1·35	1·53	0·89	0·48	0·26	0·15	0·10	0·13	5·89
Orissa . .	0·62	0·81	0·87	0·29	0·30	0·53	0·27	0·05	3·74
Chota Nagpur .	1·02	2·01	1·20	0·66	0·31	0·33	0·25	0·21	5·99
Oudh (North) .	0·55	0·17	0·35	0·64	0·09	0·02	0·10	0·10	1·93
„ (South) .	0·42	0·11	0·64	1·20	0·31	0·12	0·15	0·38	3·33
N.-W. Provinces (South-East) .	0·43	0·11	1·17	0·82	0·59	0·52	0·41	0·47	4·52
N.-W. Provinces (Central).	0·47	0·08	0·24	1·11	1·06	0·61	0·22	0·34	4·15
N.-W. Provinces (West).	0·89	1·31	0·91	1·54	1·21	1·44	0·21	0·05	7·56
N.-W. Provinces (Submontane).	1·02	2·02	2·32	1·30	0·61	0·33	0·10	0·12	7·82
N.-W. Provinces (North-East).	0·63	0·41	1·38	0·29	0·34	0·04	0·03	0·17	3·29
Bundelkhand .	0·06	0	0·15	1·08	2·15	0·70	0·36	0·11	4·61
Baghelkhand .	0·02	0·03	0·47	0·89	0·73	0·29	0·97	0·67	4·07

The disappearance of the preceding depression was followed by finer weather than usual and a partial break in the rains over the greater part of the country. The West Coast districts received moderately heavy rain on the 21st and 22nd and the East Punjab and western districts of the North-Western Provinces on the 22nd and 23rd. Pressure increased over the whole of India on these dates and was in general excess on the 23rd and

24th. Pressure gave way on the 24th and again on the 26th and 27th and was generally below the normal on the 27th and 28th.

The following gives mean variation data for the 23rd and 28th and the mean change of pressure during the period :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN 8 A.M. PRESSURE OF		Change.
	23rd July.	28th July.	
	"	"	"
Burma	+·074	+·012	—·062
Bengal and Assam	+·152	+·007	—·145
North-Western Provinces and Oudh	+·093	—·020	—·113
Punjab	+·100	—·035	—·135
Sind and Rajputana	+·083	—·013	—·096
Central India and Gujarat	+·077	—·021	—·098
Central Provinces and Berar	+·086	—·035	—·121
Bombay	+·033	—·081	—·114
Madras	+·042	—·060	—·102

Local showers were received on the 25th, 26th and 27th in the Central Provinces, Central India and the North-Western Provinces. The rainfall was very light during this period in North-Eastern India and Burma. On the 27th heavy rain began to fall again in the West Coast districts and continued during the remainder of the month.

The following data giving mean daily rainfall from the 24th to the 31st in the West Coast districts illustrate this change :—

DISTRICT.	AVERAGE ACTUAL RAINFALL DURING 24 HOURS PRECEDING 8 A.M. OF								Total rainfall of period.
	24th July.	25th July.	26th July.	27th July.	28th July.	29th July.	30th July.	31st July.	
	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches
Malabar	1·04	0·23	0·10	1·27	2·64	2·83	1·92	1·30	11·33
South Canara	3·15	1·59	0·63	2·22	2·78	4·13	1·75	1·04	17·29
North Kanara	0·91	1·39	1·01	1·82	4·11	2·12	1·42	0·72	13·50
Savantavadi	4·69	2·09	2·97	5·30	6·47	5·09	1·43	1·06	29·10
Ratnagiri	2·55	2·73	3·69	2·94	3·08	3·44	2·07	0·63	21·13
Kolaba	2·29	2·55	3·69	1·21	0·89	2·26	2·63	0·50	16·02
Thana	1·64	2·20	2·25	0·62	0·25	0·74	2·81	0·52	11·03

Pressure gave way briskly to rapidly in North-Western India on the 28th, 29th and 30th, so that on the latter day and the 31st very steep gradients obtained in India.

The following gives the mean variations of pressure in the larger provinces on the 27th and 30th for comparison :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN, 8 A.M., PRESSURE OF		Change.
	27th July.	30th July.	
	"	"	"
Burma	—·049	+·026	+·075
Bengal and Assam	+·015	—·050	—·065
N.-W. Provinces and Oudh	+·020	—·047	—·067
Punjab	+·037	—·140	—·177
Sind and Rajputana	+·030	—·079	—·109
Central India and Gujarat	—·003	—·045	—·042
Central Provinces and Berar	—·006	—·020	—·014
Bombay	—·063	—·036	+·027
Madras	—·054	—·005	+·049

The humid winds on the West Coast increased considerably in intensity on the 28th and 29th and their influence extended rapidly into the interior, so that the Central Provinces, Central India, the North-Western Provinces and the South-East Punjab received moderate to heavy rain on the 30th and 31st. The fall was heavy in the hill and submontane districts of Upper India, as is shown by the following data :—

DISTRICT.	STATION.	DATE.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Bahraich	Nanpara	28th.	5·50
Ditto	Bahraich	29th.	6·09
Almora	Tanakpur	29th.	7·62
Dehra Dun	Dehra (Leper Asylum)	30th.	5·10
Bahraich	Kaisarganj	30th.	5·20
Farukhabad	Aligarh	30th.	7·33
Ditto	Farukhabad	30th.	9·80
Bareilly	Pandhera	31st.	5·80
Moradabad	Moradabad	31st.	5·22
Umballa	Naraingarh	31st.	4·45
Ditto	Umballa	31st.	4·00
Kangra	Dharmsala	31st.	4·68

Winds had also increased simultaneously in the north of the Bay and had given moderate rain to Bengal. There was also shown on the 31st a slight tendency to the establishment of a low pressure area due to heavy rain in Central Bengal. The history of the depression will be given in the August Monthly Weather Review.

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

The following gives snowfall reports for the month from the 15th of June to the 15th July received from Chitral, Kulu, the Simla Hill districts, Garhwal and Almora :—

Chitral.—The following interesting information was telegraphed by Colonel Davidson from Drosh on the 25th June :—

"Since the 21st June strong northerly winds have prevailed, the maximum thermometer having fallen nearly 18°, namely, from 94° to 76°. Heavy clouds and mist prevail. Some rain and snow has fallen within the last twenty-four hours on the higher hills near Drosh, elevation 14,000 feet."

On the 13th July he telegraphed: "weather in Chitral has been normal during the past fortnight, and again on the 29th July "weather has been fine and clear since the 26th."

Kulu.—The Assistant Commissioner states :—

"I forward statements in the usual form shewing the amount of snow said to be still lying on the passes usually reported on.

"I may add that during the past five weeks I have travelled through Lahoul over the Rotang Pass, thence *viâ* the Baralacha and Kunzum passes up the Spiti valley as far as Darkar, a place not far from the Babeh, Parang La and Manirang passes. The universal opinion is that the snow is very much deeper on the high passes than is usual at this time of year, and its larger accumulation is shewn by the great volume of water in the Spiti River and tributary hill torrents. As regards the Baralacha Pass in Lahoul there was a fortnight ago still some 8 or 9 feet of snow left on the top. The normal at that time of year would probably be nothing at all or perhaps a foot or two at most."

The following statement shows the depth of snow on the higher passes and peaks on the 15th July :—

Name of Pass.	Elevation.	Depth of snowfall on the 15th July.
	Feet.	
Rotang	13,000	3 feet.
Hamta	14,500	2 ,,
Barsai	...	*Nil.*
Chandarkhani	...	2 feet.
Bujadhar	...	½ foot.
Sinkhand	15,000	3 feet.
Gargarasan	17,000	1 foot.
Tirath	...	1 ,,

Simla Hill Districts.—"The snowfall during the period from the 15th June to the 15th July has been confined to the higher elevations. Rain has been unusually abundant over the lower elevations during the last half of the month.

"The snow accumulation is unusually abundant, and there is much more snow on the high passes than is generally the case at this time of the year. Slight snow is said to have fallen frequently on most of the high passes.

"The following table gives the probable depth of accumulation of snow on the various passes in this district on the 15th July :—

Name of Pass.	Elevation	Depth of snow.
	Feet.	Feet.
Bhabba	...	12
Shatul	...	10
Ekna	...	10
Rupin	...	Much.
Brum	...	5
Harrang	14,000	No snow.

Garhwal.—"There was a considerable fall (about 1 foot) in the extreme north on the 2nd May. Snow fell down to about 11,000 feet.

"Heavy snow fell about the 13th July on the higher ranges and down to about 16,000 feet on the southern face of the great snowy range.

"The accumulation of snow on the 1st June on the Niti and Mana passes was greater than usual. The rain which fell about the 10th July melted a great deal of the accumulated snow. The snow line lay then at about 17,000 feet on southern aspects, though in northern and sheltered parts drifts were to be found much lower down. The passes into Thibet were open at the beginning of July as usual. At present the snow line is about 16,000 feet (the average summer height) owing to recent falls."

Almora District.—Snow fell in Malla Johar on the 12th, 14th and 15th July. The total fall on these three dates measured 9 feet. No snow fell during the month in Mallas Danpur, Chandans, Byans and Darma.

The fall is said to be greater than during the corresponding period of 1896.

Summary of snowfall information of past two months.—The reports are few in number, but are of considerable interest, as they indicate clearly the character of the weather and the snow accumulation in the Western Himalayas during the past two months.

As no reports have been received from officers on the North-West Frontier, it is almost certain no snow has fallen on the higher elevations in Afghanistan or Baluchistan.

The reports received from Chitral and Kashmir show that weather was more disturbed than usual in June and the first half of July, and that frequent snow fell on the higher elevations and occasional snow on the lower elevations. The snow accumulation is unusually great in North Kashmir, due to the heavy and prolonged snowfall of the winter.

The reports for Chamba and the Simla Hill districts indicate that there was more rain than usual in these districts, and that there was occasional light snow on the higher elevations. The snowfall was too small in amount to be of any importance, but the accumulation on the higher elevations and passes, due to the heavy winter snowfall, is still considerably larger in amount than usual.

The report for Garhwal indicates similar weather and conditions in that area as in the Punjab Himalayas.

No information has been received from Sikkim and the Assam Himalayas, and the closure of the Gnatong observatory has withdrawn from the Department the only source of accurate information for the whole length of the Eastern Himalayas.

It was stated in the forecast published in the *Gazette of India* on the 5th June that the snowfall of the preceding winter months was much heavier than usual in the Kashmir and perhaps the Punjab Himalayas—more especially on the higher ranges, and hence that there was in the beginning of June an abnormal accumulation of snow on the higher ranges in the Chitral, Kashmir and perhaps the Panjab Himalayas. Weather has been during the past two months more cloudy and disturbed than usual in the hill districts, and hence snow has melted more slowly than usual, and the accumulation is still abnormally large—more especially on the higher ranges in North Kashmir and perhaps Chitral. There has, however, been no heavy or prolonged general snowfall during the past two months in these areas, and the accumulation is hence slowly but steadily decreasing in amount. The abnormal accumulation is, moreover, probably restricted to the higher ranges or the region of perpetual snow, and is not due to an unusual and large extension of snow-clad surface.

Summary of special storm reports.

The following gives a statement of the chief local storms of which reports were received during the month :—

1st.—Severe duststorm at Agra at 10-30 P.M.

Duststorm from north-west at Jubbulpore at 6 P.M.

Thunderstorm at Simla from 6 P.M. to 7-25 P.M. The storm came from west.

2nd.—Duststorm at Amraoti at 3 P.M.

Duststorm at Ludhiana from 1-58 P.M. to 5-28 P.M.

Severe duststorm at Raipur.

5th.—Duststorm at Ludhiana from 2-43 P.M. to 5-56 P.M.

Thunderstorm at Simla from 6 to 7 P.M. The storm came from south-west and west. The total air movement during the storm was only two miles.

6th.—Severe thunderstorm and nor'-wester at the Ridge Light Ship station. The barometer rose from 29·685″ at 6 P.M. to 29·80″ at 7 P.M. At 7-15 P.M. a squall from north-west struck the vessel. A brief fall of hailstones occurred and the dry bulb fell from 85°·5 to 76°·5 instantly. The squall was of force 7 and lasted 30 minutes, during which 0·34 inch of rain fell.

Duststorm at Amraoti at 5-45 P.M.

7th.—Duststorm at Jeypore at 4-5 P.M.

Duststorm at Peshawar from 3-25 P.M. to 4-34 P.M. The anemometer recorded 10·7 miles of wind between 3-25 and 3-40 P.M.

8th.—Thunderstorm at Khandwa at 5-30 P.M.

Thunderstorm at Simla from 0-27 P.M. to 4 P.M.

9th.—Severe duststorm at Jodhpur at 3-42 P.M. The storm lasted 12 minutes and gave light rain.

Duststorm at Ajmere at 5 P.M.

Duststorm at Jeypore at 5-41 P.M.

Thunderstorm from north-west at Rajkot.

Thunderstorm at Simla from 5 P.M. to 5-40 P.M.

10th.—Duststorm at Hyderabad (Sind) from 4-55 P.M. to 5-10 P.M.

Violent duststorm at Jacobabad from 1-30 A.M. to 2-30 A.M. The storm came up from the east.

Severe duststorm at Jodhpur from 4-20 P.M. to 4-37 P.M. Temperature fell from 102°·8 at 4-20 P.M. to 81°·2 at 4-47 P.M. Rain fell in torrents from 4-40 P.M. to 5-7 P.M.

11th.—Violent duststorm at Jacobabad from 3 P.M. to 3-30 P.M. Storm came from north-east. The anemometer registered 9·6 miles of wind between 3 P.M. and 3-10 P.M. 0·86 inch of rain fell in 23 minutes.

Severe thunderstorm with heavy rain at Ludhiana from 7-28 to 9-28 A.M. The rainfall during the storm measured 2·4 inches.

12th.—Thunderstorm at Salem at 5-15 P.M.

13th.—Thunderstorm at Bhuj at 8 P.M.

21st.—Duststorm at Sirsa from 4 P.M. to 4-50 P.M.

24th.—Thunderstorm at Bhuj at 4-10 P.M. A flash of lightning struck the Bhujia temple in the fort.

Violent duststorm at Jacobabad at 9 P.M. The storm came up from east and lasted one hour.

26th.—Thunderstorm at Amraoti at 5 P.M.

Thunderstorm at Bhuj during the afternoon.

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

Arabian Sea.—At the beginning of the month a moderately strong monsoon obtained in the west of the Arabian Sea, but the winds were more southerly than usual in that region, and the monsoon current was hence deflected more largely than usual to Arabia. In the centre and south of the sea the winds were considerably feebler than usual and contained a strong westerly component. Exceedingly unsteady and irregular winds prevailed in the east in the neighbourhood of the Bombay coast and normal south-west winds (lighter than usual) along the Kathiawar and Sind coasts. Weather was generally fine with passing clouds except near the Konkan coast where it was feebly unsettled with rain squalls. The mean wind force as determined from the logs of 26 vessels was 4·1 or 0·5 below the normal.

Winds intensified slowly in the Equatorial region and the south of the Arabian Sea during the next three days, and a wave of strong humid winds advanced from that region up the east of the Arabian Sea from the 5th to the 9th. This burst of humid monsoon winds was preceded by and accompanied the advance of a wave of low pressure along the west coast of India. The trough of this low pressure wave was in the latitude of Ratnagiri at 8 A.M. of the 9th. Monsoon winds, force 4 to 7, obtained generally over the Arabian Sea on this day except along the North Konkan coast, where they were southerly and south-easterly, due to the indraught to the area of deficient pressure in front of the advancing monsoon wave. A storm was generated during the day in this area of deficient pressure between Kathiawar and Bombay, and winds hence shifted to northerly directions along the Kathiawar coast. It intensified on the 11th, and advancing very slowly northwards passed into Cutch on the 12th. Very showery weather prevailed over the centre, north-east and east of the Arabian Sea from the 10th to the 12th, vessels in this area experiencing whole gales, violent squalls, continuous heavy rain and a strong high sea.

Winds and weather during this period were worst on the 11th when the mean intensity of the air movement was 5·2 for all parts of the Arabian Sea. Weather began to moderate on the 13th and winds returned to their normal monsoon directions on the Konkan and Kathiawar coasts, at the same time falling off considerably in intensity, and on the morning of that day averaged 4·0 or 0·6 below the normal. A moderate monsoon continued to prevail generally over the Arabian Sea until the 29th, when the winds began to increase in force. The wind force for the whole of the Arabian Sea averaged 4·2 on the 30th and 5·4 on the 31st, or nearly twenty per cent. above the normal of the month.

Bay of Bengal.—Ordinary monsoon winds prevailed generally over the Bay during the first five days of the month, but they were considerably below their normal intensity in the northern half of the Bay and stronger than usual in the southern half. The mean air movement ranged between 4·1 and 4·6 as compared with 4·0, the normal strength of the monsoon current in July over the Bay. The pressure conditions were abnormal over the centre and north-east of the Bay during this period, pressure being more or less considerably below the normal of the period in that area. These abnormal conditions intensified during the next 48 hours, and were at the same time transferred northwards to the north-west of the Bay. A feeble cyclonic circulation was developed in this area of diminished pressure in the north-west of the Bay on the 7th and 8th. The storm increased slightly in intensity on the 9th, and marching westwards during the day passed inland into the eastern districts of the Central Provinces where it filled up by the morning of the 11th. Passing rain squalls were experienced over the north of the Bay from the 7th to the 10th, but the storm was too feeble to affect the winds and weather to any considerable extent, and hence the strongest winds experienced in the storm area in the Bay did not exceed 6 in force. With the dispersion of the depression on the 11th the monsoon current took off rapidly in strength, and was at least 15 per cent below its normal intensity during the next five days. This weakness of the monsoon current is clearly shown by the wind data of Port Blair, where the average hourly air movement during this period was only 6 miles per hour, or barely half its normal strength. Winds began to increase again in force on the 17th, and on the morning of the 18th averaged 4·2 in force or 0·2 above the normal. This change was, however, only temporary, as winds again decreased rapidly in strength during the next five days, and on the morning of the 23rd averaged only 2·9 or 1·1 below their normal intensity. No change occurred during the next five days,

the monsoon current remaining below its normal strength. The air movement was feeblest during this period on the 26th, when it averaged only 2·8, or fully 30 per cent. below the normal intensity of the month. The monsoon current blew freshly during the next two days but took off again on the 31st, at 8 A.M. of which day the mean strength of the current was 3·6, or 0·4 less than the normal.

It will be seen from the preceding account of the weather in the Arabian Sea and Bay of Bengal that the monsoon currents were not so steady or strong as usual. This was specially the case with the Bombay branch of the current which was nearly ten per cent. weaker than the normal on the mean of the month.

Equatorial Belt.—The data for the equatorial belt indicate that the south-east trades were even more unsteady and feebler than the currents in the Arabian Sea and Bay of Bengal. These features were most marked during the period from the 12th to the 20th or 21st, when light irregular airs and calms were experienced over the greater part of the Belt.

It is worthy of notice that there was more easting in the trade winds than is normally the case in July, indicating that the trade current was deflected more largely to Africa than usual.

Temperature of the Air.

The variations of the mean temperature conditions of the month from the normal were mainly determined by the abnormal distribution of the rainfall of the month.

The mean maximum or day temperature of the month was below the normal locally at the following stations:—Ratnagiri, Karwar, Dhubri, Sibsagar and perhaps Diamond Island, Kendat, Bhamo, Meerut, Ludhiana, Coimbatore and Madura, but the variations of these stations are very doubtful. The variations at these stations were small in all cases, except perhaps Sibsagar (—3°·1) and Coimbatore (—2°·0).

The mean maximum or day temperature of the month was above the normal over the remainder of India. The excess was more than 2° in amount over nearly the whole of the interior of India. It was over 4° in a part of the East Punjab and in a large area including the greater part of Central India, the southern districts of the North-Western Provinces, the Central Provinces, Khandesh, Berar and the Deccan. The following gives comparative data for stations at which the excess was 5°·0 or upwards:—

Station.	Mean Maximum Temperature.		
	Actual, July 1897.	Normal, July.	Variation of actual from normal.
	°	°	°
Chanda	94·8	87·6	+7·2
Nagpur	93·3	87·1	+6·2
Akola	94·0	88·1	+5·9
Secunderabad	91·9	86·1	+5·8
R ipur	91·8	86·1	+5·7
Hoshangabad	91·8	86·1	+5·7
Khandwa	92·7	87·0	+5·7
Malegaon	92·3	86·7	+5·6
Sutna	92·2	86·8	+5·4
Indore	89·3	84·0	+5·3
Jubbulpore	90·8	85·6	+5·2
Amraoti	91·9	86·8	+5·1

The highest temperatures of the month were recorded in the Central Provinces during the period from the 2nd to the 8th, in Central India, Rajputana and the North-Western Provinces during the period from the 3rd to the 10th, and in the Punjab and Sind from the 1st to the 10th.

The following gives data for the hottest stations:—

Station.	Highest maximum temperature recorded in July 1897.	Date on which recorded.	Highest maximum temperature recorded in July previous to 1897.	Year in which recorded.
	°		°	
Jacobabad	115·1	1st	119·5	1878
Mooltan	113·4	10th	116·8	1891
Dera Ismail Khan	111·2	1st	120·5	1891 and 1892.
Peshawar	113·0	4th and 6th	117·0	1892
Rawalpindi	115·0	1st	114·0	1876 and 1882.
Khushab	112·4	1st	119·1	1891
Montgomery	113·1	30th	120·4	1891
Sialkot	111·8	1st	119·5	1878
Sirsa	110·3	8th	118·4	1891
Lucknow	110·8	5th and 6th	113·0	1873
Nagpur	105·1	4th	100·8	1891
Khandwa	101·7	2nd and 4th	102·6	1876
Raipur	102·4	1st	100·0	1881
Seoni	97·0	1st and 5th	98·4	1877
Bickaneer	112·9	10th	114·3	1891
Pachpadra	111·3	10th	112·0	1892
Jodhpur	110·2	10th	?	?

The data of the preceding table indicate that the maximum temperatures in July 1897 were higher than have previously been recorded in July in the greater part of the Central Provinces, but were not nearly so high as have been experienced in previous years in Upper India. A noteworthy feature of the month was the excessvie

day temperatures in Khandesh, Berar, the Central Provinces and the Central Deccan.

The following gives variation data of the mean maximum temperature of the month for the hot area in Madras :—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, July 1897.	Normal, July.	Variation of actual from normal.
	°	°	°
Cocanada	94·5	88·2	+6·3
Masulipatam	95·4	92·1	+3·3
Rajahmundry	94·8	88·9	+5·9
Cuddapah	98·8	93·9	+4·9
Kurnool	94·7	90·4	+4·3

The highest maximum temperatures of the month were registered in this area during the period from the 1st to the 13th. The following gives the most noteworthy :—

STATION.	Highest maximum temperature recorded in July 1897.	Date on which recorded.	Highest maximum temperature recorded in July previous to 1897.	Year in which recorded.
	°		°	
Madras	104·0	1st	105·7	1875
Trichinopoly	103·6	2nd, 15th and 22nd	105·2	1896
Nellore	106·3	12th	105·3	1894
Cuddalore	102·3	1st	105·4	1895
Rajahmundry	107·1	1st and 2nd	103·1	1896
Negapatam	104·2	13th	103·2	1894
Cocanada	107·0	2nd	102·6	1896

The mean minimum or night temperature of the month was above the normal at all stations, with perhaps the exception of Sibsagar (−1°·3), Peshawar (−0°·8) and Dera Ismail Khan (−0°·2).

The variations were less than 2° in amount over the greater part of India, but slightly exceeded 2° in the greater part of the Deccan, Central Madras, the Central Provinces, Berar, Central India, East Rajputana and the south-western districts of the North-Western Provinces. The following gives comparative data for stations at which the excess was more than 2½° in amount :—

PROVINCE.	STATION.	MEAN MINIMUM TEMPERATURE.		
		Actual, July 1897.	Normal, July.	Variation of actual from normal.
		°	°	
Punjab	Lahore	84·3	80·5	+3·8
Rajputana	Jeypore	79·8	76·9	+2·9
	Sambhar	80·7	77·8	+2·9
	Ajmere	79·5	76·7	+2·8
North-Western Provinces.	Jhansi	81·4	78·5	+2·9
Central India	Sutna	79·9	76·7	+3·2
	Nowgong	80·6	78·0	+2·6
Central Provinces	Saugor	76·2	73·5	+2·7
	Khandwa	77·6	74·9	+2·7
Hyderabad	Hyderabad (Dn.)	74·5	71·2	+3·3
Madras	Cuddapah	80·0	77·4	+2·6

The mean temperature of the month was below the normal locally at Sibsagar (−2°·2) and Dhubri (−0°·4) and perhaps at Coimbatore (−0°·4), and Madura, Bhamo and Kendat (each −0°·1) and was in excess at all other stations in India. The variations exceeded 2° over by far the greater part of the interior, and were 4° or upwards in an area including the greater part of the Central Provinces, Berar, Baghelkhand, the Circars and Hyderabad.

The following gives comparative data for these areas :—

PROVINCE.	STATION.	MEAN DAILY TEMPERATURE.		
		Actual, July 1897.	Normal, July.	Variation of actual from normal.
		°	°	°
Central Provinces	Chanda	86·4	81·6	+4·8
	Nagpur	85·2	80·9	+4·3
	Khandwa	85·2	81·0	+4·2
	Raipur	84·5	80·3	+4·2
Berar	Akola	85·2	81·1	+4·1
Hyderabad	Hyderabad	82·7	78·7	+4·0
Circars	Cocanada	87·2(?)	83·2	+4·0
Central India	Sutna	86·1	81·8	+4·3

The mean temperature of the month was largely in excess at Murree, Mount Abu, Pachmarhi and Chikalda, but was practically normal at the remaining hill stations. The following gives comparative data for ten stations :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, July 1897.	Normal, July.	Variation of actual from normal.
	°	°	°
Chikalda	73·3	70·0	+3·3
Pachmarhi	75·0	71·6	+3·4
Murree	72·5	69·9	+2·6
Mount Abu	72·4	70·1	+2·3
Quetta	79·1	79·0	+0·1
Kailang	60·3	61·1	−0·8
Simla	64·8	65·0	−0·2
Mussooree	66·1	65·1	+1·0
Ranikhet	68·9	68·2	+0·7
Darjeeling	61·7	62·1	−0·4

The following table gives temperature data of the month for 56 meteorological divisions of the Empire :—

Province.	Division.	Actual Temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	84·4	74·3	79·4	10·1	17·8	+ 1·1	+ 0·7	+ 0·4
	Lower Burma (Deltaic)	84·9	76·2	80·5	8·8	15·3	+ 0·6	+ 0·2	+ 0·4
	Central do.	89·1	76·4	82·7	12·7	20·3	+ 1·5	+ 0·9	+ 0·6
	Upper do.	91·0	77·0	84·0	14·0	24·4	+ 0·6	+ 0·8	− 0·2
	Arakan	85·5	77·7	81·6	7·8	14·1	+ 0·9	+ 0·3	+ 0·6
Bengal and Assam	Eastern Bengal	86·2	76·7	81·5	9·5	17·7	+ 0·9	+ 0·5	+ 0·4
	Assam (Surma)	90·2	77·1	83·7	13·1	27·3	+ 0·2	0	+ 0·2
	Do. (Brahmaputra)	87·2	77·8	82·5	9·4	18·3	− 0·8	+ 0·1	− 0·9
	Deltaic Bengal	90·0	79·4	84·7	10·6	22·9	+ 1·0	+ 0·4	+ 0·6
	Central do.	91·7	79·4	85·6	12·3	27·6	+ 1·5	+ 0·6	+ 0·9
	North do.	89·3	78·2	83·7	11·1	21·1	+ 0·9	− 0·2	+ 1·1
	Bengal Hills	67·9	55·9	61·9	12·0	19·8	− 0·5	− 0·3	− 0·2
	Orissa	89·6	79·3	84·4	10·3	26·5	+ 1·5	+ 0·5	+ 1·0
	Chota Nagpur	90·7	76·9	83·9	13·8	29·8	+ 3·5	+ 1·5	+ 2·0
	South Bihar	93·4	80·4	85·9	13·1	28·3	+ 3·0	+ 1·3	+ 1·7
	North Do.	92·1	80·0	86·0	12·1	23·5	+ 1·7	+ 0·9	+ 0·8
North-Western Provinces and Oudh.	North-Western Provinces (East)	94·7	81·3	88·0	13·5	33·0	+ 3·4	+ 1·8	+ 1·6
	Oudh (South)	96·3	81·2	88·8	15·1	34·5	+ 4·2	+ 1·9	+ 2·3
	Do. (North)	95·0	79·9	87·5	15·1	33·5	?	?	?
	North-Western Provinces (Central)	95·5	81·8	88·7	13·8	32·5	+ 4·4	+ 2·9	+ 1·5
	Do. do. (West)	94·3	81·2	87·8	13·1	31·2	+ 1·4	+ 1·3	+ 0·1
	Do. do. (East Sub-montane)	93·0	80·3	86·7	12·7	28·0	+ 2·1	+ 0·8	+ 1·3
	Do. do. (West do.)	90·9	77·7	84·3	13·1	30·5	+ 1·2	+ 0·8	+ 0·4
	Do. do. (Hills)	71·6	60·8	66·2	10·8	22·9	+ 0·6	+ 0·5	+ 0·1
Punjab	Punjab (South-East)	94·8	82·5	88·7	12·3	32·8	+ 0·8	+ 2·0	− 1·2
	Do. (South)	96·8	80·6	88·7	16·2	35·3	+ 0·3	+ 1·0	− 0·7
	Do. (Central)	101·9	84·3	93·1	17·6	34·5	+ 3·3	+ [illegible]·8	− 0·5
	Do. (Submontane)	97·6	80·3	89·0	17·4	30·8	+ 4·4	+ 2·6	+ 1·8
	Do. (Hill Districts)	85·5	62·1	73·8	23·3	38·8	+ 2·0	+ 0·4	+ 1·6
	Do. (North)	103·0	78·0	90·5	25·0	44·2	+ 2·9	+ 0·1	+ 2·8
	Do. (West)	104·6	83·8	94·2	20·8	39·0	+ 1·4	+ 0·8	+ 0·6
Bombay and Malabar Coast Districts (Madras).	Malabar Coast	83·6	74·8	79·2	8·7	15·8	+ 0·5	+ 0·5	0
	Madras (South Central)	90·4	73·2	81·8	17·2	26·3	+ 2·2	+ 2·3	− 0·1
	Coorg	69·5	63·5	66·5	6·0	13·3	+ 0·8	+ 1·3	− 0·5
	Mysore	81·0	67·3	74·2	13·8	21·7	+ 1·5	+ 1·1	+ 0·4
	Konkan	83·0	76·4	79·7	6·5	14·5	+ 0·1	+ 0·8	− 0·7
	Bombay Deccan	85·2	71·0	78·1	14·2	23·4	+ 3·1	+ 1·4	+ 1·7
	Hyderabad (North)	91·3	71·7	81·5	19·6	30·7	?	?	?
	Khandesh	90·5	73·3	82·0	17·3	27·1	+ 5·6	+ 2·0	+ 3·6
Central Provinces and Berar.	Berar	93·0	75·7	84·4	17·3	32·3	+ 5·5	+ 2·2	+ 3·3
	Central Provinces (West)	92·6	77·2	85·0	15·4	29·6	+ 5·9	+ 2·4	+ 3·5
	Do. (Central)	90·7	75·8	83·3	15·0	29·1	+ 5·9	+ 2·6	+ 3·3
	Do. (East)	91·6	78·2	84·9	13·4	28·6	+ 4·9	+ 2·2	+ 2·7
Bombay (North)	Gujarat	92·3	79·0	85·7	13·3	24·5	+ 3·3	+ 1·7	+ 1·6
	Kathiawar and Cutch	91·0	79·1	85·1	12·0	24·1	+ 2·3	+ 1·6	+ 0·7
	Sind	100·6	83·4	92·1	17·2	31·8	+ 1·3	+ 1·8	− 0·5
	Baluchistan Hills	98·7	66·9	82·8	31·9	45·1	0	+ 0·2	− 0·2
Rajputana and Central India.	Central India (East)	91·1	77·7	84·4	13·5	27·4	+ 4·2	+ 2·5	+ 1·7
	Rajputana (East), Central India (West)	95·1	80·0	87·5	15·1	31·9	+ 3·5	+ 2·6	+ 0·9
	Do. (West)	100·0	82·2	91·1	17·8	35·6	+ 2·1	+ 1·9	+ 0·2
Madras	East Coast (North)	91·8	79·5	85·7	12·4	28·4	+ 4·4	+ 1·3	+ 3·1
	Hyderabad (South)	92·5	74·7	83·7	17·9	28·3	+ 5·3	+ 2·8	+ 2·5
	Madras (Central)	95·5	77·4	86·5	18·1	27·4	+ 3·8	+ 2·1	+ 1·7
	East Coast (Central)	97·4	79·7	88·6	17·7	33·7	+ 3·3	+ 2·4	+ 2·9
	Do. (South)	97·9	79·5	88·7	18·4	28·4	+ 2·5	+ 1·9	+ 0·6
	Madras (South)	93·9	78·7	86·3	15·2	23·6	?	?	?

The following gives a summary of the more important features of the temperature conditions which obtained during the month :—

At the commencement of the month temperature was more or less above the normal over the whole of India with the exception of Assam, Lower Sind and Baluchistan. The following gives variation data for the 24 hours preceding 8 A.M. of the 1st :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+1·0	+1·0	+1·0
Bengal and Assam	+6·1	+3·3	+4·7
North-Western Provinces and Oudh	+8·7	+5·5	+7·1
Punjab	+5·6	+2·3	+4·0
Sind and Rajputana	+3·2	+1·0	+2·1
Central India and Gujarat	+4·6	+2·0	+3·3
Central Provinces and Berar	+11·2	+4·6	+7·9
Bombay	+5·1	+2·0	+3·6
Madras	+7·6	+2·9	+5·3

The mean temperature of the 1st was more than 10° above the normal at Bareilly (+11°·9), Lucknow (+11°·7), Raipur (+11°·3), Cocanada (+11°·1), and Amraoti (+10° 2). It was, on the other hand, more than 4° below the normal at Quetta (−5°·2) and Sibsagar (−4°·3).

No important change occurred during the next five days. Temperature was excessive during the whole period, more especially in Berar, the Central Provinces and the North-Western Provinces and Central India. The following variation data of the mean temperature for each day from the 1st to the 6th illustrate the conditions of this period :—

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.
	°	°	°	°	°	°
Burma	+1·0	+1·3	+1·0	+0·8	+0·5	+1·3
Bengal	+5·0	+2·9	+4·8	+3·9	+0·2	+0·3
Assam	−1·6	−0·7	+0·3	−0·1	−0·9	−1·6
Bihar	+4·0	+5·8	+5·7	+7·4	+6·4	+4·1
Chota Nagpur	+7·7	+8·7	+8·8	+10·1	+9·1	+7·4
North-Western Provinces and Oudh.	+7·1	+6·2	+7·7	+9·4	+9·2	+7·9
Punjab	+4·0	+3·8	+5·1	+6·5	+6·6	+7·1
Sind and Rajputana	+2·1	+2·6	+2·6	+2·7	+3·1	+5·0
Gujarat and Central India.	+3·3	+4·0	+5·2	+5·9	+6·0	+6·6
Berar	+9·6	+10·2	+10·8	+8·7	+7·8	+7·3
Central Provinces	+7·6	+7·5	+8·5	+9·3	+8·2	+7·3
Bombay	+3·6	+3·4	+3·0	+3·4	+2·9	+2·8
Madras	+5·3	+5·4	+4·2	+4·4	+3·9	+3·1

The highest day temperatures of the month in the Central Provinces, Central India and the North-Western Provinces were generally recorded during this period. Higher temperatures were registered in the Central Provinces than have been previously recorded in the month of July. The following gives the most noteworthy :—

STATION.	Highest maximum temperature recorded in July 1897.	Date on which recorded.	Highest maximum temperature recorded in July previous to 1897.	Year in which recorded.
	°		°	
Allahabad	108·6	5th and 6th	113·4	1876
Lucknow	110·8	5th and 6th	113·0	1873
Bareilly	107·0	1st	111·5	1876
Sutna	103·0	7th	106·5	1876
Jhansi	106·1	4th, 6th and 7th.	113·2	1876
Nagpur	105·1	4th	100·8	1891
Chanda	105·2	3rd and 4th	98·9	1895—96
Raipur	102·4	1st	100·0	1881
Akola	104·7	3rd	109·0	1875
Amraoti	103·3	2nd	99·4	1876

Heavy rain was now falling in the west coast districts and slowly extending into the interior. Local showers were received during the period from the 7th to the 10th which slightly but steadily reduced temperature. Temperature was however during this period more or less considerably above the normal over the interior of India, as is shown by the following data :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				Change from 6th to 10th July.
	7th July.	8th July.	9th July.	10th July.	
	°	°	°	°	°
Burma	+0·2	+1·0	−0·6	+0·9	−0·4
Bengal	+1·9	+1·5	+2·4	+1·9	+1·6
Assam	+1·6	+1·2	+2·2	+0·9	+2·5
Bihar	+4·0	+4·2	+3·8	+2·3	−1·8
Chota Nagpur	+6·1	+4·0	+1·8	−0·8	−8·2
North-Western Provinces and Oudh.	+6·4	+7·7	+4·8	+4·8	−3·1
Punjab	+6·7	+5·7	+5·6	+0·4	−6·7
Sind and Rajputana	+4·7	+5·7	+5·7	+6·8	+1·8
Central India and Gujarat	+7·4	+7·2	+6·4	+5·1	−1·5
Berar	+6·5	+5·3	+4·3	+2·4	−4·9
Central Provinces	+7·1	+7·0	+4·6	+3·4	−3·9
Bombay	+2·2	+0·9	+1·5	+0·8	−2·0
Madras	+1·6	+2·5	+2·2	+3·0	−0·1

The area of greatest excess of temperature was hence transferred from the Central Provinces and North-Western Provinces to Rajputana and Central India, and the maximum excess was slightly reduced in amount. The highest maximum temperatures of the month in Rajputana and Central India were recorded during this period. The following gives data:—

STATION.	Highest maximum temperature recorded in July 1897.	Date on which recorded.	Highest maximum temperature recorded in July previous to 1897.	Year in which recorded.
	°		°	
Ajmere	104·4	8th	110·8	1875
Jeypore	107·0	8th	111·3	1891
Sambhar	104·5	3rd, 6th and 7th	110·0	1891
Bickaneer	112·9	10th	114·3	1891
Mooltan	113·4	10th	116·8	1891
Nowgong	104·0	7th	108·8	1878

Monsoon winds extended over the whole of the interior by the 10th, and gave moderate general rain over the greater part of Northern and Central India from the 11th to the 15th. This rainfall reduced temperature below the normal over the whole of that area. The following gives variation data for this area of low temperature from the 11th to the 15th:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	11th July.	12th July.	13th July.	14th July.	15th July.
	°	°	°	°	°
Burma	−0·3	+0·4	+0·5	+0·1	−0·9
Assam	−1·1	−1·3	−2·8	−0·8	−2·0
Bengal	−0·7	−1·0	−2·5	−2·7	−2·5
Chota Nagpur	0	+0·1	−2·9	−4·3	−4·0
Bihar	+1·6	+0·8	−3·2	−3·7	−2·6
North-Western Provinces and Oudh.	+4·1	+3·0	−1·9	−1·3	−4·0
Central India and Gujarat	+2·4	+0·3	+1·1	+0·4	−0·3
Sind and Rajputana	+3·4	+0·1	−3·5	−4·3	−2·6
Punjab	−0·3	+0·9	−1·0	−1·4	−2·9
Baluchistan (Quetta)	0	−0·2	−3·8	−2·8	−5·6

The Peninsula (chiefly the Central Provinces and Berar) received local showers during this period, but the rainfall was scanty over the whole area, and hence temperature continued in more or less general excess in that area, as is shown by the following data:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	11th July.	12th July.	13th July.	14th July.	15th July.
	°	°	°	°	°
Central Provinces and Berar	+1·8	+2·3	+3·2	+5·3	+1·2
Bombay Deccan	+2·5	+1·5	+2·9	+3·9	+3·9
Madras "	+5·0	+5·4	+4·8	+6·2	+6·1
Bombay Coast	+0·5	−0·3	+0·8	+1·6	+2·1
Madras Coast	+1·8	+3·0	+4·3	+6·6	+2·2

General rain extended to the northern half of the Peninsula on the 16th, and moderate but fairly general rain was received to the north of Lat. 18°N. from the 16th to the 20th. Temperature was hence more or less in defect over the whole of that area during this period. The following gives comparative data:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	16th July.	17th July.	18th July.	19th July.	20th July.
	°	°	°	°	°
Burma	−1·1	−2·5	−1·1	+0·4	+1·3
Assam	−1·7	−2·2	−2·4	−1·3	−0·8
Bengal	−2·3	−2·2	−2·2	−1·6	−0·4
Chota Nagpur	−3·0	−1·6	−1·3	−2·4	+0·1
Bihar	−1·9	−0·8	−1·6	−1·0	+0·5
North-Western Provinces and Oudh.	−5·6	−3·4	−2·8	−1·3	0
Central India and Gujarat	−0·2	+0·3	−0·3	−1·5	−0·7
Sind and Rajputana	−1·4	−0·3	+0·1	+1·6	+1·6
Punjab	−5·5	−2·8	+0·4	+1·9	+1·4
Baluchistan (Quetta)	−6·1	−3·2	−1·8	+1·8	+1·9
Central Provinces and Berar	−1·0	−2·9	−4·0	−1·0	+0·7

Temperature was in moderate excess in Southern India during this period from the 16th to the 19th. The temperature conditions changed rapidly on the 20th and 21st due to the setting in of a partial break in the rains over the greater part of the interior. This break lasted from the 21st to the 29th. The submontane districts of Northern India and the west coast districts received frequent heavy showers during this period.

Temperature was hence in slight to moderate excess over the greater part of the interior and was in moderate defect in the Konkan and the submontane districts of Northern India until the 26th or 27th. The following gives variation data for the larger provinces:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	21st July.	22nd July.	23rd July.	24th July.	25th July.	26th July.
	°	°	°	°	°	°
Burma	+1·1	+1·9	+3·2	+1·7	+2·4	+2·9
Bengal and Assam	+0·9	+0·6	+0·8	+1·6	+1·0	+2·2
North-Western Provinces and Oudh.	+1·2	—0·5	—2·0	—3·2	—1·6	—1·1
Punjab	+0·3	—2·0	—3·4	—3·7	—2·4	—2·7
Sind and Rajputana	+2·3	+0·5	—0·8	+0·9	+3·3	+2·7
Central India and Gujarat	+1·2	+2·8	+2·6	+2·3	+1·8	+1·7
Central Provinces and Berar.	+1·9	+4·0	+3·2	+3·0	+3·0	+2·7
Bombay	+0·5	+1·6	+1·6	+0·6	+1·0	+1·2
Madras	+1·8	+1·5	+0·1	—0·7	+0·4	+1·5

The break in the rains intensified on the 27th and 28th and extended practically over the whole of the interior. Temperature hence increased rapidly in Northern and Central India on the 27th and 28th, and was in large general excess over the whole of that area and the northern half of the Peninsula on the 29th.

Showery weather re-commenced in Bengal on the 29th, and extended up the Gangetic Plain on the 30th and 31st, reducing temperature in Northern India considerably. The following gives variation data for the period from the 26th to the 31st for Northern and Central India and the northern half of the Peninsula:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	26th July.	27th July.	28th July.	29th July.	30th July.	31st July.
	°	°	°	°	°	°
Bengal	+2·1	+2·9	+2·9	+1·9	+1·3	—0·2
Bihar	+2·6	+3·8	+3·8	+2·4	—0·3	+0·5
Chota Nagpur	+3·5	+5·0	+5·2	+3·6	+2·9	+1·2
North-Western Provinces and Oudh.	—1·1	+2·0	+4·9	+5·3	+0·8	—2·2
Central Provinces and Berar.	+2·7	+3·6	+5·4	+5·8	+3·9	+1·0
Central India and Gujarat.	+1·7	+3·0	+4·5	+5·6	+4·0	+2·7
Sind and Rajputana	+2·7	+2·5	+5·8	+7·3	+6·6	+5·0
Punjab	—2·7	—0·1	+3·8	+7·3	+7·1	+1·4
Baluchistan (Quetta)	+2·1	—1·1	—0·3	+3·7	+5·1	+5·2

The variations in Southern India were small in amount during this period.

The following table, giving variation data for the 24 hours preceding 8 A.M. of the 31st, illustrates the temperature conditions obtaining in the Indian area at the end of the month:—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	—0·7	+1·7	+0·5
Bengal and Assam	—0·2	+0·6	+0·2
North-Western Provinces and Oudh	—3·3	—1·1	—2·2
Punjab	+3·5	—0·8	+1·4
Sind and Rajputana	+6·6	+3·3	+5·0
Central India and Gujarat	+3·6	+1·8	+2·7
Central Provinces and Berar	+1·1	+0·9	+1·0
Bombay	+1·1	+1·9	+1·5
Madras	+0·5	+1·1	+0·8

The following gives the variations from the normal of the mean temperature, week by week, during the month and for the whole month:—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF WEEK ENDING				
	10th July.	17th July.	24th July.	31st July.	For whole month.
	°	°	°	°	°
Burma	+0·6	—0·5	+1·2	+1·4	+0·8
Bengal and Assam	+2·5	—2·0	+0·1	+1·7	+1·1
North-Western Provinces and Oudh.	+7·2	—1·3	—1·2	+1·2	+1·9
Punjab	+5·5	—1·9	—0·7	+2·1	+1·8
Sind and Rajputana	+4·8	—1·2	+0·9	+4·6	+2·3
Central India and Gujarat	+6·4	+0·6	+0·9	+3·3	+2·9
Central Provinces and Berar	+6·6	+1·4	+1·1	+3·6	+4·0
Bombay	+2·1	+1·5	+0·9	+1·2	+1·6
Madras	+3·0	+2·6	+0·7	+0·8	+2·5

Winds.

The Bay monsoon current in the centre of the Bay was of normal strength, and at the head of the Bay was slightly stronger than usual on the mean of the month, as is established by the following data:—

Station.	Velocity in miles per diem.		
	Mean actual, July 1897.	Mean normal, July.	Variation from normal.
Port Blair	277	268	+ 9
Diamond Island	297	240	+57
Akyab	77	98	—21
Saugor Island	415	357	+58
False Point	246	277	—31
Chittagong	203	165	+38

Winds were normal in strength in the interior of Bengal and Orissa. They were slightly stronger in Central Bihar, Chota Nagpur, and the eastern districts of the North-Western Provinces. The following gives comparative data of the strength of the winds in these areas in July 1897:—

Division.	Velocity in miles per diem.			
	Average actual, July 1897.	Average normal, July.	Variation from normal.	Percentage variation from normal.
Bengal	194	174	+20	+11
Orissa	161	179	—18	—10
Central Bihar	126	101	+25	+25
Chota Nagpur	233	210	+23	+11
North-Western Provinces (East)	291	119	+172	+145

Hence the Bengal current, so far as is indicated by the strength of the winds in its usual area of extension in July, was on the mean of the month of about normal intensity. Winds were more westerly than usual at Port Blair and the Burma Coast stations as is shown by the following data:—

Station.	Wind direction.		
	Mean actual, July 1897.	Mean normal, July.	Westerly deflection.
			°
Port Blair	S 65° W	S 47° W	+18
Diamond Island	S 50° W	S 42° W	+ 8
Rangoon	S 29° W	S 34° W	— 5
Akyab	S 11° W	S 1° E	+12

Winds were less easterly or more westerly than usual at the interior stations of Bengal, and, as is the usual rule, the deflection was opposite in character or winds were less westerly than usual at Saugor Island and False Point. This is fully shown by the following data:—

Station.	Wind direction.		
	Mean actual, July 1897.	Mean normal, July.	Westerly deflection.
			°
False Point	S 26° W	S 53° W	—27
Saugor Island	S 3° W	S 21° W	—18
Narayanganj	S 9° E	S 18° E	+ 9
Calcutta	S 2° E	S 8° E	+ 6
Burdwan	S 8° W	S 19° E	+27
Berhampore	S 19° E	S 40° E	+21

Winds were approximately normal in steadiness in Bihar and the eastern districts of the North-Western Provinces. They were somewhat less steady than usual in the western districts of the North-Western Provinces and the Punjab, as is shown by the following data:—

Station.	Velocity in miles per diem.			Steadiness.		
	Mean actual, July 1897.	Mean normal, July.	Variation from normal.	Mean actual percentage, July 1897.	Mean normal percentage, July.	Variation from normal.
Patna	126	101	+ 25	39	39	0
Darbhanga	144	121	+ 19	63	56	+ 7
Allahabad	291	119	+145	12	7	+ 5
Roorkee	53	70	— 24	24	33	— 9
Meerut	58	57	+ 2	32	21	+11
Lahore	103	80	+ 29	27	30	— 3
Ludhiana	55	52	+ 6	21	23	— 2
Peshawar	83	107	—22	39	47	— 8

The monsoon trough of low pressure lay further north than usual on the mean of the month. The position

of its axis was defined approximately by the stations for which data are given below :—

	Station.	Steadiness.			Wind direction.	
		Mean actual percentage, July 1897.	Mean normal percentage, July.	Variation from normal.	Mean actual, July 1897.	Mean normal, July.
Stations nearest to axis.	Hazaribagh	13	14	— 1	S 66°W	S 9° E
	Allahabad	12	7	+ 5	N 23°E	N 71° E
	Lucknow	11	15	— 4	N 87°E	N 68° E
	Agra	5	4	+ 1	S	N 84° E
	Lahore	27	30	— 3	S 62° E	S 77° E
Stations to south of axis.	Raipur	60	76	—16	S 56°W	S 69° W
	Sutna	43	45	— 2	S 77°W	N 80° W
	Nowgong	58	46	+12	N 84°W	S 85° W
Station to north of axis.	Darbhanga	63	56	+ 7	S 72° E	S 77° E

The Bombay current was on the mean of the month considerably weaker and less steady than usual on the Konkan, Kathiawar and Sind coasts. The following gives data for three stations :—

Station.	Velocity in miles per diem.			Steadiness.		
	Mean actual, July 1897.	Mean normal, July.	Variation from normal.	Mean actual percentage, July 1897.	Mean normal percentage, July.	Variation from normal.
Kurrachee	363	415	— 52	79	85	—6
Bombay	344	450	—106	79	85	—6
Ratnagiri	233	312	— 79	78	79	—1

The data of the following inland stations at which the exposure of the anemometer is most favourable confirm the inferences drawn from the data of the coast stations :—

Station.	Velocity in miles per diem.			
	Mean actual, July 1897.	Mean normal, July.	Variation from normal.	Percentage variation from normal.
Belgaum	584	647	—63	—10
Pachmarhi	210	252	—42	—17
Chikalda	255	239	+ 16	+ 7
Deesa	347	351	— 4	— 1
Akola	217	210	+ 7	+ 3
Mount Abu	267	278	—11	— 4

Winds were somewhat less westerly and more southerly in and near the west coast districts, as is shown by the following data :—

Station.	Wind direction.		
	Mean actual, July 1897.	Mean normal, July.	Westerly deflection.
Kurrachee	S 62° W	S 68° W	— 6
Bombay	S 58° W	S 74° W	—16
Ratnagiri	S 57° W	S 61° W	— 4
Karwar	S 65° W	S 73° W	— 8
Mount Abu	S 28° W	S 54° W	—26

This deflection is in strict accordance with the abnormal features of the pressure distribution of the month.

Winds were, on the whole, practically normal in strength and steadiness in the South Deccan and Southern India as is shown by the comparative data of six typical stations :—

Station.	Velocity in miles per diem.			Steadiness.		
	Mean actual, July 1897.	Mean normal, July.	Variation from normal.	Mean actual percentage, July 1897.	Mean normal percentage, July.	Variation from normal.
Madras	182	191	— 9	69	67	+ 2
Salem	143	108	+35	61	78	—17
Bellary	222	282	—60	92	88	+ 4
Bangalore	289	217	+72	90	91	— 1
Mercara	222	250	—28	92	90	+ 2
Cochin	143	131	+12	64	51	+13

Winds were also slightly less westerly and more southerly than usual over the greater part of that area.

Winds were generally weaker and more southerly than usual in Berar and the Central Provinces. The following gives data for five stations in illustration :—

Station.	Velocity in miles per diem.			Wind direction.		
	Mean actual, July 1897.	Mean normal, July.	Percentage, variation from normal.	Mean actual, July 1897.	Mean normal, July.	Westerly deflection.
						°
Akola	217	210	+ 7	S 85° W	N 74° W	—21
Buldana	202	219	— 8	S 80° W	N 79° W	—21
Nagpur	205	205	0	S 75° W	S 88° W	—13
Raipur	252	278	— 9	S 56° W	S 69° W	—13
Jubbulpore	69	114	—39	S 68° W	S 89° W	—21

Comparative data of the velocity of the air movement for different parts of the Peninsula are given in the following table :—

DIVISION.	VELOCITY IN MILES PER DIEM.		
	Average actual, July 1897.	Average normal, July.	Variation of actual from normal.
West Coast	219	254	—35
Bombay Deccan	513	517	—4
Berar	210	215	—5
Central Provinces	169	178	—9
Southern India	201	212	—11

The same causes which contributed to the decrease of the air movement on the Bombay and Kathiawar coasts tended to diminish it in Central India, Rajputana and the North-West Punjab. The following gives comparative data for these areas :—

DIVISION.	VELOCITY IN MILES PER DIEM.		
	Average actual. July 1897.	Average normal, July.	Variation from normal.
Central India	134	166	—32
Rajputana	212	223	—11
North-West Punjab	83	107	—24

In Central India and Rajputana the mean wind directions varied somewhat irregularly from the normal, and the variations were apparently of little importance.

The winds of the month at the hill stations in Northern India were, on the whole, weaker and less steady than usual. The following are examples :—

STATION.	VELOCITY IN MILES PER DIEM.			STEADINESS.		
	Mean actual, July 1897.	Mean normal, July.	Variation from normal.	Mean actual, percentage, July 1897.	Mean normal percentage, July.	Variation from normal.
Darjeeling	87	91	— 4	30	32	— 2
Ranikhet	78	59	+ 19	19	25	— 6
Simla	63	86	—23	11	14	— 3
Mount Abu	267	278	—11	47	67	—20

Winds were stronger and steadier than usual at Leh and Kailang.

The mean wind direction at Zanzibar was S 2° E and at the Seychelles S 34° E or 5° more easterly than the mean wind direction in July of the past three years. Winds were slightly weaker and less steady at the Seychelles than the mean as given by the available observations.

The following summarizes the chief features of the air movement over India during the month :—

(1) The Bay monsoon current was almost certainly slightly above its normal strength on the average of the whole month.

(2) Winds were normal in strength and more westerly than usual at Port Blair and the Burma coast stations.

(3) Winds were of normal strength in Bengal and more westerly than usual at the inland stations.

(4) Winds were unsteady in the western half of the Gangetic Plain and East Punjab.

(5) The Bombay monsoon current was considerably below its normal strength on the Bombay and Kathiawar coasts and in the Central Provinces, Central India and Rajputana.

(6) Winds were very variable in direction during the month in Rajputana and Central India, and were more southerly or less westerly than usual in the Central Provinces and the West Coast districts.

(7) The axis of the trough of low pressure lay on the average of the month somewhat further north than usual, stretching from South Bihar to the South-West Punjab.

Humidity and Cloud.

The amount of aqueous vapour present in the air differed very slightly from the normal over the greater part of India and the variations of the mean humidity of the month were hence mainly determined by the temperature conditions of the month. The mean humidity of the month was below the normal over nearly the whole area, and the deficiency was most marked in the area of greatest excess of temperature, including the Central Provinces, Central India, Berar and the Deccan.

The amount of aqueous vapour present in the air was practically normal in Burma, Bengal and Assam, and in slight excess in Arakan and Orissa, and the variations

of the mean relative humidity in these areas were small, as the temperature conditions differed little from the normal. The following gives comparative data :—

DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, July 1897.	Average normal, July.	Variation from normal.	Average actual, July 1897.	Average normal, July.	Variation from normal.
	"	"	"	%	%	
Burma . . .	·885	·882	+·003	88	89	—1
Arakan . . .	·973	·921	+·052	91	89	+2
Assam . . .	·942	·943	—·001	86	85	+1
Bengal . . .	·962	·960	+·002	84	86	—2
Orissa . . .	·930	·918	+·012	82	83	—1

The mean pressure of aqueous vapour was somewhat less than the normal in the Gangetic Plain, the Punjab, East Rajputana, the Central Provinces and the Deccan, and the air was hence more or less considerably drier than usual over the whole of the area as well as in Berar and Central India, in which temperature was more or less largely in excess. The following gives data in illustration :—

DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.			Variation of mean temperature from normal, July 1897.
	Average actual, July 1897.	Average normal, July.	Variation from normal.	Average actual, July 1897.	Average normal, July.	Variation from normal.	
	"	"	"	%	%		°
Bihar	·971	·963	+·008	80	83	— 3	+1·7
Chota Nagpur . .	·779	·811	—·032	76	85	— 9	+2·5
North-Western Provinces and Oudh.	·872	·890	—·018	74	78	— 4	+1·9
Punjab	·799	·830	—·031	57	61	— 4	+1·8
East Rajputana .	·833	·838	—·005	68	74	— 6	+3·3
Central India . . .	·880	·857	+·023	75	79	— 4	+3·3
Berar	·746	·738	+·008	72	78	— 6	+3·9
Central Provinces . .	·807	·811	—·004	74	81	— 7	+3·7
Deccan	·646	·672	—·026	69	75	— 6	+2·8
Mysore	·632	·607	+·025	78	77	+ 1	+0·9

In the following table are given corresponding data for the stations at which the mean humidity of the month was 8 or upwards below the normal :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, July 1897.	Normal, July.	Variation from normal.	Actual, July 1897.	Normal, July.	Variation from normal.
	"	"	"	%	%	
Bellary . . .	·551	·658	—·107	49	63	—14
Hazaribagh . .	·779	·811	—·032	76	85	— 9
Saugor . . .	·762	·786	—·024	71	80	— 9
Hoshangabad . .	·830	·839	—·009	74	83	— 9
Raipur . . .	·807	827	—·020	74	82	— 8
Khandwa . . .	·786	·781	+·005	69	77	— 8
Buldana . . .	·685	·709	—·024	71	79	— 8

The mean humidity percentage of the month was also 8 below the normal locally at Trichinopoly.

There was somewhat more vapour present in the air in Sind, South-West Rajputana, the West Coast districts and the greater part of Southern India. The humidity variations were small in these districts, and were positive in the Konkan and Mysore.

The following gives data for seven representative stations :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, July 1897.	Normal, July.	Variation from normal.	Actual, July 1897.	Normal, July.	Variation from normal.
	"	"	"	%		
Kurrachee . . .	·966	·929	+·037	76	78	— 2
Deesa	·861	·828	+·033	71	74	— 3
Ratnagiri . . .	·881	·864	+·017	89	86	+ 3
Bombay . . .	·906	·907	—·001	88	87	+ 1
Mysore . . .	·641	·608	+·033	78	75	+ 3
Cochin . . .	·863	·834	+·029	87	88	— 1
Madras . . .	·821	·793	+·028	65	67	— 2

The air was somewhat drier than usual at the hill stations in Northern India and at Wellington in the Nilgiris, and considerably drier at Pachmarhi and Chikalda.

The air was also drier at Aden, where the mean humidity of the month was 4 below the normal, and at Muscat, where it was 8 in defect.

It was, on the other hand, slightly damper at Zanzibar and the Seychelles due to an excess of vapour.

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

(1) Normal conditions in Burma.

(2) Slightly decreased humidity over the whole of Northern India, due chiefly to the increased temperature of the month.

(3) Largely decreased humidity in Central India, Berar, the Central Provinces and the Deccan, due in part to a deficiency of aqueous vapour and in part to excessive temperature.

(4) Moderately large deficiency in a part of South Madras, represented by Trichinopoly.

(5) Slightly increased humidity in Assam, Arakan, the Konkan and Mysore, due chiefly to a moderate excess of aqueous vapour.

The variations of the mean cloud amount of the month from the normal differed considerably in character and distribution from those of the absolute and relative humidities.

There was somewhat more cloud than usual in the Bay Islands, Burma, East Bengal and Assam. The excess was greatest in absolute amount in that area at Port Blair (+1·7) and Diamond Island (+1·1). The following table gives comparative data:—

Division.	Mean cloud amount.		
	Average actual, July 1897.	Average normal, July.	Variation from normal.
Burma	9·2	8·6	+0·6
Arakan	8·4	8·7	−0·3
East Bengal	8·5	7·9	+0·6
Assam	8·1	7·9	+0·2

Cloud was also generally in excess in Southern India or the Peninsula to the south of latitude 17° N.

The excess was more than 1 in amount at Bangalore (+1·3) and Ratnagiri (+1·1). It was small in amount at the remaining stations in this area of increased cloud. Cloud was also locally in excess at Quetta (+1·1) and Peshawar (+0·6). It was more or less in defect over the remainder of India. The following gives comparative data:—

Division.	Mean cloud amount.		
	Average actual, July 1897.	Average normal, July.	Variation from normal.
West Bengal	7·0	8·5	−1·5
Bihar	7·3	7·3	0
Chota Nagpur	8·4	9·3	−0·9
Orissa	7·8	8·0	−0·2
North-Western Provinces and Oudh	7·1	7·2	−0·1
Punjab	3·5	3·9	−0·4
Rajputana	6·3	7·2	−0·9
Sind	3·8	4·6	−0·8
Central India	7·0	7·8	−0·8
Berar	7·7	8·3	−0·6
Central Provinces	7·[illegible]	8·1	−0·5
North Deccan	8·5	8·8	−0·3

The deficiency was more than 1 in amount in three smallish areas for which data are given below:—

Area.	Station.	Mean cloud amount.		
		Actual, July 1897.	Normal, July.	Variation from normal.
S.-E. Punjab	Lahore	2·9	4·3	−1·4
Central Provinces	Hoshangabad	6·9	8·3	−1·4
	Pachmarhi	7·6	8·8	−1·2
	Jubbulpore	7·5	8·6	−1·1
West Bengal	Berhampore	6·7	8·7	−2·0
	Burdwan	6·6	8·4	−1·8

The variations at the hill stations were small in amount. Cloud was in slight excess at Wellington and Darjeeling and in slight defect at Leh, Kailang, Simla and Ranikhet. The large variation for Murree (−3·3) is almost certainly due to a very large personal equation of the native observer, who has recently taken over the work from the previous observer (Drill Sergeant at the Lawrence School).

Cloud was on the average of the month in slight excess at Zanzibar (+0·3) and the Seychelles (+0·6) and in large excess at Aden (+1·7).

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

(1) Cloud was in slight to moderate excess in Burma, East Bengal and Assam and also in

the Peninsula south of latitude 17°N. The variations were small except at Port Blair, Diamond Island, Ratnagiri and Bangalore.

(2) Cloud was more or less below the normal over the remainder of India. The deficiency was on the whole most marked in West Bengal, the South-East Punjab and the northern districts of the Central Provinces.

Rainfall.

The distribution of rainfall of the month is shown in Plate IV. It should be noted that the distribution there given is derived from the rainfall data of the meteorological stations in Table I, excluding those classified in that table as hill stations. It hence represents the distribution at the ordinary level of the plains of India and not of any of the hill districts, which it would not be possible to represent in such a chart. Plate V gives the variations of the rainfall of each of the 57 meteorological divisions from the normal.

A general break in the rains obtained at the commencement of the month and continued until the 5th in the coast districts and until the 10th or 11th in Upper India. The monsoon winds strengthened on the 6th and 7th and gave heavy rain in the west coast districts during the next fortnight. A storm formed at the head of the Bay on the 8th and 9th. It drifted westwards and gave a moderate burst of rain to South Bengal, South Bihar, Orissa, Chota-Nagpur and the Central Provinces. A small depression formed about the same time between the Bombay and Kathiawar coasts on the 9th and 10th. It drifted northwards across Kathiawar on the 11th and 12th and filled up on the 13th. It gave moderate rain to Gujarat and Kathiawar during its existence. Its disappearance was followed by a strong advance of monsoon winds from the Bombay and Kathiawar coasts across Rajputana and Central India which gave general rain over North-Western and Central India from the 13th to the 17th or 18th. Strong monsoon winds were also established during this period at the head of the Bay and gave heavy rain in Bengal. A depression formed in Central Bengal on the 13th and 14th. It drifted slowly west-north-westwards up the Gangetic Plain into Baghelkhand and the south-eastern districts of the North-Western Provinces and then re-curved slightly passing into Bundelkhand and Central Rajputana. This storm gave a general and moderate to heavy burst of rain to the greater part of Northern and Central India and Rajputana from the 16th to the 20th.

Fairly general rain continued in North-Western India during the next two or three days, due chiefly to the Bombay current, after which winds fell off on both coasts and the rainfall became light and sporadic. These conditions continued until the 29th when winds increased again in the coast districts and general and heavy rain recommenced and extended rapidly into the interior. The whole of Northern and Central India and the North Deccan with the exception of the West Punjab and Sind received rain on the 30th and 31st.

The rainfall of the month was below the normal in the following areas—

(1) Burma.
(2) Bengal and North Bihar.
(3) Punjab (excepting the southern districts).
(4) Central Provinces and Berar.
(5) Gujarat, Kathiawar and Central India.
(6) Madras except the Malabar and East Coast (Central) divisions.

The deficiency was most marked in the Central Provinces, Bombay Deccan, North Hyderabad, Gujarat, Central Bengal, North Bihar, the Central Punjab, and Central India (East). The rainfall of the month was excessive in Malabar, Konkan and the hills, and the western divisions of the North-Western Provinces and was normal or in moderate excess over the remainder of India.

The following table gives mean actual, mean normal and variation data for the 57 meteorological divisions or districts into which India is divided, in the same form as in previous months, and has been prepared in exactly the same manner as hitherto:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, July 97	Average normal, July.	Average actual, July 1897.	Average normal, July.	Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	40·67	47·11	−6·44
	Lower Burma (Deltaic)*	?	?	20·12	23·49	−3·37
	Central do.*	?	?	11·41	11·58	−0·17
	Upper do.*	?	?	5·38	7·24	−1 86
	Arakan*	?	?	43·51	48·39	−4·88

* NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

Province.	Division.	Number of rainy days. Average actual, July 1897.	Number of rainy days. Average normal, July.	Rainfall. Average actual, July 1897.	Rainfall. Average normal, July.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
Bengal and Assam	Eastern Bengal	17·6	18·4	14·89	18·01	−3·12
	Assam (Surma)*	?	?	21·71	20·61	+1·10
	Do. (Hill Tracts)*	?	?	14·22	28·87	−14·65
	Do. (Brahmaputra)*	?	?	16·55	15·92	+0·63
	Deltaic Bengal	13·4	16·4	10·45	11·81	−1·36
	Central do.	11·3	16·0	8·34	12·29	−3·95
	North do.	16·3	16·7	16·86	19·68	−2·82
	Bengal Hills	23·5	24·6	27·04	35·47	−8·43
	Orissa	13·8	14·2	13·20	11·67	+1·53
	Chota Nagpur	14·9	16·9	13·11	14·15	−1·04
	Bihar (South)	11·9	13·9	13·27	12·74	+0·53
	Do. (North)	11·5	14·4	9·84	13·60	−3·76
North-Western Provinces and Oudh.	North-Western Provinces (East)	13·3	13·3	10·06	11·83	−1·77
	Oudh (South)	11·5	12·3	10·07	10·75	−0·68
	Do. (North)	11·2	12·1	13·06	11·69	+1·37
	North-Western Provinces (Central)	10·8	12·3	9·78	11·80	−2·02
	Do. do. (West)	11·9	9·6	13·39	8·85	+4·54
	Do. do. (Submontane East)	11·3	13·2	11·93	12·50	−0·57
	Do. do. (do. West)	13·5	12·7	19·38	14·67	+4·71
	Do. do. (Hills)	17·5	18·5	27·42	17·06	+10·36
Punjab	Punjab (South-East)	8·5	7·8	7·41	7·68	−0·27
	Do. (South)	5·4	3·1	4·08	2·92	+1·16
	Do. (Central)	4·3	5·5	2·87	4·99	−2·12
	Do. (Submontane)	8·3	8·4	6·71	9·30	−2·59
	Do. (Hill Districts)	14·3	15·1	12·54	16·68	−4·14
	Do. (North)	5·0	4·8	3·47	4·13	−0·66
	Do. (West)	4·4	3·0	2·30	2·57	−0·27
Bombay and Malabar Coast Districts (Madras).	Malabar Coast	27·0	26·8	48·77	34·42	+14·35
	Travancore	17·0	?	17·68	?	?
	Madras (South Central)	3·4	3·9	1·57	2·36	−0·79
	Coorg	25·3	?	33·38	?	?
	Mysore*	?	?	5·41	7·41	−2·00
	Konkan	27·6	26·9	51·65	40·04	+11·61
	Bombay Deccan	11·2	12·2	7·98	9·39	−1·41
	Hyderabad North	10·3	?	6·46	8·46	−2·00
	Khandesh	11·4	11·1	8·04	7·63	+0·41
Central Provinces and Berar.	Berar*	?	?	9·58	10·58	−1·01
	Central Provinces (West)	13·2	14·4	12·88	13·81	−0·93
	Do. (Central)	14·1	17·1	11·65	18·02	−6·36
	Do. (East)	13·2	15·0	12·28	16·07	−3·79
Bombay (North)	Gujarat	14·9	17·1	11·82	18·46	−6·64
	Kathiawar	12·4	11·5	9·12	11·27	−2·15
	Sind	1·9	?	1·93	?	?
	Baluchistan Hills	1·5	?	0·85	0·99	−0·14
Rajputana and Central India.	Central India (East)	12·0	?	9·59	13·71	−4·12
	Rajputana (East) and Central India (West)	11·2	?	9·12	9·09	+0·03
	Rajputana (West)	6·7	?	4·80	3·93	+0·87
Madras	East Coast (North)	12·0	9·9	6·55	6·74	−0·19
	Do. (do.) (*a*)	19·5	19·7	12·75	15·38	−2·63
	Hyderabad (South)	10·0	?	6·80	5·13	+1·67
	Madras (Central)	4·1	6·2	2·27	3·15	−0·88
	East Coast (Central)	6·4	4·9	2·58	2·45	+0·13
	Do. (South)	3·9	4·7	2·07	3·00	−0·93
	Madras (South)	1·8	2·1	0·64	1·08	−0·44

* NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

Assam received numerous local showers from the 1st to the 8th. This was followed by a period of moderate daily rain until the 18th. The rainfall was less regular and steady and occurred chiefly as local showers during the next ten days. It increased again on the 29th and was moderately heavy and fairly general on the 30th and 31st. The rainfall of the month was considerably below the normal of the period in the hill districts. This is shown very clearly by the returns for Cherrapunji. It received a total of 90·46 inches or 24·12 inches less than the normal

fall of the month. The largest fall at that station in 24 hours was 7·78 inches on the 23rd.

The following table gives comparative data for the three divisions of the province :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, July 1897.	Average normal, July.	Variation from normal.	Average actual, July 1897.	Average normal, July.	Variation from normal.
				Inches.	Inches.	Inches.
Assam (Surma) . .	22·4	20·5	+1·9	16·39	19·00	—2·61
„ (Hill Tracts) .	18·2	21·3	—3·1	19·04	24·93	—5·89
„ (Brahmaputra) .	20·4	17·5	+2·9	17·89	16·03	+1·86

A break in the rains held over the greater part of the province of Bengal from the 1st to the 5th. Weather was showery during this period in North and East Bengal. Showery weather extended over the whole province during the next five days. This was followed by a period of general and heavy rain due to two cyclonic storms, the first of which formed in the Bay and passed westwards across the Orissa coast and the second of which formed in Central Bengal and drifted slowly in a west by north direction up the Gangetic Plain between the 14th and the 20th. This period of heavy rain lasted from the 12th to the 17th, and as might be expected from the tracks of the storms, the rainfall was heavy in Orissa, South-West Bengal, Chota Nagpur and South Bihar and was light in North and East Bengal.

The following table giving rainfalls exceeding 6 inches in 24 hours indicates the areas of heaviest downpour during the progress of these storms :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Manbhum . . .	Raghunathpur . .	12th	10·00
Chittagong . .	Chittagong . . .	13th	6·35
Bankura . . .	Bankura . . .	14th	7·98
Monghyr . . .	Jamui	„	9·12
Hazaribagh . .	Barhi	„	7·44
Manbhum . . .	Gobindpur . . .	„	7·32
Bankura . . .	Sonamukhi . . .	„	6·50
Shahabad . . .	Sikroul	15th	10·24
„ . . .	Koath	„	7·48
24-Parganas . .	Diamond Harbour .	„	7·50
Darjeeling . .	Mungpoo . . .	17th	6·44

Showery weather followed this burst from the 21st to the 29th. The rainfall during this period was most scanty in South-West Bengal and was moderately heavy in North Bengal. A strong influx of humid winds commenced on the 29th and gave heavy rain to East Bengal on the 30th and 31st and moderate rain to the remainder of Bengal, Bihar and Orissa and light rain to Chota Nagpur on the same dates.

The following table gives comparative rainfall data for the nine divisions of the province :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL		
	Average actual, July 1897.	Average normal, July.	Variation from normal.	Average actual, July 1897.	Average normal, July.	Variation from normal.
				Inches.	Inches.	Inches.
Eastern Bengal . .	17·6	18·4	—0·8	14·89	18·01	—3·12
Deltaic „ . .	13·4	16·4	—3·0	10·45	11·81	—1·36
Central „ . .	11·3	16·0	—4·7	8·34	12·29	—3·95
North „ . .	16·3	16·7	—0·4	16·86	19·68	—2·82
Bengal Hills . .	23·5	24·6	—1·1	27·04	35·47	—8·43
Orissa . . .	13·8	14·2	—0·4	13·20	11·67	+1·53
Chota Nagpur . .	14·9	16·9	—2·0	13·11	14·15	—1·04
South Bihar . .	11·9	13·9	—2·0	13·27	12·74	+0·53
North „ . .	11·5	14·4	—2·9	9·84	13·60	—3·76

The rainfall of the month was more than 33 per cent. in excess in two districts, *viz.*, Jalpaiguri (34 per cent. in excess) and Puri (40 per cent. in excess).

It was in considerable to large defect (*i.e.*, over 30 per cent.) in the districts for which data are given below :—

DIVISION.	DISTRICT.	RAINFALL.		
		Average actual, July 1897.	Average normal, July.	Percentage variation from normal.
		Inches.	Inches.	
BIHAR . . .	Malda . . .	4·37	12·28	—65
	Bhagalpur . .	5·26	12·73	—59
	Sonthal Parganas .	8·60	13·44	—36
NORTH BENGAL.	Bogra . . .	6·62	13·23	—50
	Pabna . . .	6·24	11·13	—44
	Rangpur . .	9·73	15·56	—37
	Dinajpur . .	9·01	14·29	—37
	Rajshai . . .	8·13	12·02	—32

Division.	Station.	Rainfall. Average actual, July 1897.	Average normal, July.	Percentage variation from normal.
		Inches.	Inches.	
South-West Bengal.	Birbhum	7·59	12·57	—40
	Hooghly	7·51	12·00	—37
	Murshidabad	7·07	11·27	—37
	Midnapore	7·93	12·19	—35
	Nadia	7·32	10·51	—30
East Bengal	Backergunge	12·47	20·33	—39
	Dacca	8·34	13·31	—37
	Faridpur	8·28	11·93	—31
	Noakhali	16·32	23·47	—31
Chota Nagpur	Singhbhum	8·25	13·76	—40

No rain, with the exception of a few light local showers (chiefly in the Bareilly and Almora districts), was received in the North-Western Provinces from the 1st to the 8th. General rain fell over the whole province between the 12th and the 17th, due to a moderate advance of monsoon winds, chiefly from the Bombay coast. The rainfall during this burst was much heavier in the western than the eastern half of the province and was exceptionally heavy in the western, submontane and hill districts. The following gives the most noteworthy falls during this period :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Almora	Tanakpur	14th	11·05
Garhwal	Bironkhal	"	7·16
Bulandshahr	Khurja	"	7·54
"	Bulandshahr	15th	7·90
Naini Tal	Naini Tal	"	14·59
"	Haldwani	"	12·10
"	Kathgodam	"	12·07
"	Ramnagar	"	8·27
"	Rudarpur	"	6·62
"	Kilpuri	"	6·38
"	Satarganj	"	6·10
"	Nagla	"	6·10
Almora	Champawat	"	6·70
Saharanpur	Hardwar	"	6·20
Moradabad	Thakurdwara	16th	6·01
Jalaun	Kunch	17th	8·35
Jhansi	Garotha	"	6·05

A partial break in the rains set in on the 18th and lasted until the 20th. The Almora hill district obtained moderate rain during this period. General rain fell from the 21st to the 25th. The rainfall was heavy in the Pilibhit, Bareilly, Budaon, Gorakhupr and hill districts and light to moderate in the remainder of the province. The following gives the heaviest rainfalls in these districts :—

District.	Station.	Date.	Rainfall recorded during 24 hours preceding 8 A.M. of date.
			Inches.
Garhwal	Bironkhal	21st	7·05
Almora	Tanakpur	22nd	11·35
"	Champawat	"	9·50
Saharanpur	Jaranda	"	8·00
Gorakhpur	Maharájganj	"	7·80
Naini Tal	Naini Tal	"	7·23
Almora	Tanakpur	23rd	12·90
"	Champawat	"	9·60
Naini Tal	Kathgodam	"	8·16
"	Rudarpur	"	7·84
"	Haldwani	"	7·60
"	Satina	"	7·20
Pilibhit	Pilibhit	"	8·75
"	Puranpur	"	8·23
Bareilly	Pandhera	"	8·10
Pilibhit	Puranpur	24th	9·16
"	Bisalpur	"	8·90
"	Pilibhit	"	7·30
Bareilly	Bareilly	"	8·13
"	Karor	"	8·02
"	Nawabganj	"	7·35

Light local showers were received from the 26th to the 28th or 29th when general rain set in again over the province. The total rainfall of the month was in considerable excess in the western half of the province and in North Oudh and was in slight to moderate defect in the central

and eastern districts. The following gives comparative data for each collectorate of the province:—

DISTRICT.	RAINFALL.		
	Average actual, July 1897.	Average normal, July.	Variation from normal.
	Inches.	Inches.	Inches.
Fyzabad	12·47	11·39	+ 1·08
Gonda	14·26	11·82	+ 2·44
Bara Banki	13·11	10·62	+ 2·49
Bahraich	14·89	13·38	+ 1·51
Sitapur	12·23	11·11	+ 1·12
Kheri	12·06	12·49	— 0·43
Sultanpur	10·55	11·84	— 1·29
Partabgarh	10·42	10·06	+ 0·36
Rae Bareli	10·26	9·59	+ 0·67
Unao	8·08	10·56	— 2·48
Lucknow	12·83	10·56	+ 2·27
Hardoi	9·06	11·69	— 2·63
Ghazipur	10·10	10·49	— 0·39
Benares	10·46	12·10	— 1·64
Jaunpur	11·48	12·02	— 0·54
Mirzapur	11·73	12·76	— 1·03
Allahabad	8·02	11·45	— 3·43
Banda	8·31	14·33	— 6·02
Fatehpur	8·54	10·99	— 2·45
Hamirpur	10·66	12·46	— 1·80
Cawnpore	6·35	10·87	— 4·52
Jalaun	16·89	12·18	+ 4·71
Etawah	8·73	10·55	— 1·82
Farukhhabad	11·01	10·76	+ 0·25
Mainpuri	10·23	10·79	— 0·56
Etah	12·41	9·62	+ 2·79
Jhansi	8·93	13·04	— 4·11
Agra	13·88	9·74	+ 4·14
Muttra	11·92	9·08	+ 2·84
Aligarh	14·92	8·25	+ 6·67
Bulandshahr	13·31	8·45	+ 4·86
Meerut	11·71	8·63	+ 3·08
Pilibhit	32·17	16·34	+15·83
Shahjahanpur	15·56	12·41	+ 3·15
Badaun	14·59	11·46	+ 3·13
Bareilly	26·08	15·05	+11·03
Moradabad	21·77	13·12	+ 8·65
Bijnor	18·89	13·13	+ 5·76
Muzaffernagar	8·42	9·12	— 0·70
Saharanpur	13·36	11·17	+ 2·19
Dehra Dun	24·73	29·11	— 4·38
Almora	29·93	18·26	+11·67
Garhwal	16·27	13·26	+ 3·01
Naini Tal	32·71	18·07	+14·64
Gorakhpur	12·62	13·10	— 0·48
Basti	10·16	13·59	— 3·43
Azamgarh	11·60	11·57	+ 0·03
Ballia	13·21	11·41	+ 1·80

A noteworthy feature of the month was the excessive rain in Kumaon and the adjacent plain districts of Bareilly and Pilibhit. The following gives the most noteworthy examples of this excessive rainfall:—

DISTRICT.	STATION.	RAINFALL.		
		Actual, July 1897.	Normal, July.	Variation, from normal.
		Inches.	Inches.	Inches.
Almora	Tanakpur	65·65	?	?
,,	Champawat	51·30	14·37	+36·93
Naini Tal	Naini Tal	53·20	24·29	+28·91
,,	Haldwani	37·69	21·35	+16·34
,,	Rudarpur	32·58	16·32	+16·26
Pilibhit	Pilibhit	37·82	17·01	+20·81
,,	Bisalpur	33·08	14·03	+19·05
Bareilly	Nawabgunj	29·88	16·69	+13·19
,,	Baheri	31·77	16·08	+15·69
,,	Bareilly	26·04	15·24	+10·80

The following is a brief statement of the chief periods of rainfall in the Punjab.

No rain was received over the greater part of the province from the 1st to the 10th. In the Delhi, Karnal, Umballa, Patiala, Jullundur, Hoshiarpur, Gurdaspur and the hill districts occasional local showers were received and some of these local falls were heavy. Thus Rupar in the Umballa district obtained 5·20 inches on the 10th.

The greater part of the province received fairly general rain from the 11th to the 16th. The rainfall during this period was scanty and practically *nil* in the Ferozepore, Montgomery, Lahore and Gujranwala districts. It was very irregularly, distributed over the remainder of the province. The following gives the falls over 4 inches during this period :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Umballa	Dadupur	11th	4·10
Jind State	Safidan	13th	5·30
Hissar	Budhlada	,,	4·50
Karnal	Paniput	,,	4·48
Gurgaon	Hodal	14th	4·15

Little or no rain was received between the 17th and 20th, except in the hill districts where weather was showery throughout. Dharmsala obtained the large amount of 6·67 inches on the 19th, the heaviest reported fall in 24 hours in the Punjab during the month.

The second period of rainfall extended from the 21st to the 24th except in the western and hill districts where it lasted until the 26th. All districts received rain during this period, but it was scanty in the western districts. The following gives the chief falls exceeding 3 inches in amount during this period :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Gurdaspur	Gurdaspur	21st	3·60
Ferozepore	Govindgarh	,,	3·10
Gurgaon	Nuh	22nd	6·40
,,	Rewari	23rd	3·76
Ludhiana	Ludhiana	,,	3·75
Nabha State	Dadahur	,,	3·70
Kangra	Dharmsala	24th	4·74
Shahpur	Shahpur	,,	4·50

Dry weather prevailed generally from the 25th to the 29th when rain recommenced in the eastern and central districts. The rainfall was heavy on the 31st in the Umballa and Kangra districts.

The following table gives comparative data for the 31 districts of the province and shows fully the distribution of the rainfall of the month over the province :—

	RAINFALL.		
	Average actual, July 1897.	Average normal, July.	Variation from normal.
	Inches.	Inches.	Inches.
Hissar	3·97	4·73	—0·76
Ferozepore	2·16	5·03	—2·87
Montgomery	0·69	2·95	—2·26
Gurgaon	7·77	8·29	—0·52
Rohtak	5·98	6·74	—0·76
Delhi	7·69	7·80	—0·11
Karnal	7·40	7·80	—0·40
Lahore	2·14	4·86	—2·72
Umballa	13·12	9·90	+3·22
Ludhiana	7·16	8·06	—0·90
Jullundur	7·94	8·27	—0·33
Hoshiarpur	5·66	9·75	—4·09
Gurdaspur	6·34	12·39	—6·05
Amritsar	3·50	6·35	—2·85
Simla	11·51	12·89	—1·38
Kangra	13·24	19·20	—5·96
Gujranwala	2·19	5·15	—2·96
Sialkot	3·79	8·23	—4·44
Gujarat	4·85	6·23	—1·38
Jhelum	4·75	4·17	+0·58
Rawalpindi	4·98	6·82	—1·84
Peshawar	2·74	2·16	+0·58
Hazara	3·69	6·47	—2·78
Kohat	2·83	3·63	—0·80
Bannu	3·75	1·94	+1·81
Shahpur	4·27	3·31	+0·96
Jhang	1·69	3·36	—1·67
Dera Ismail Khan	2·07	2·29	—0·22
Dera Gazi Khan	2·13	1·96	+0·17
Muzaffargarh	1·73	2·31	—0·58
Mooltan	1·45	1·53	—0·08

British Baluchistan received local showers during two periods, *viz.*, the 9th to the 13th and the 20th and 21st.

The total fall was small in amount and very irregularly distributed. The following gives comparative data :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, July 1897.	Average normal, July.	Variation from normal.	Average actual, July 1897.	Average normal, July.	Variation from normal.
				Inch.	Inch.	Inch.
Baluchistan Hills .	1·5	?	?	0·85	0·99	—0·14

In Kashmir rain was received chiefly from the 12th to the 16th, the 19th to the 21st and on the 30th and 31st. It, however, occurred as local and sporadic showers and was very irregularly distributed. Leh received the unusually heavy fall of 3·75 inches on the 16th. The average rainfall of the month at that station is only 0·48 inch and of the year 3·17 inches.

Rajputana received, on the whole, favourable rain during the month. It occurred chiefly from the 10th to the 15th, the 18th to the 20th and on the 22nd and 23rd and hence during the periods when the Bombay current was most vigorous. The rainfall of the first period was the most general. The following falls exceeding 3 inches were recorded during this period :—

DISTRICT OR STATE.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Banswara . . .	Banswara . . .	10th	4·71
Gwalior	Ali Rajpur . .	,,	3·55
Sirohee	Mount Abu . .	13th	4·52
Bhurtpore . . .	Bhasawar . .	,,	3·37
,, ...	Gopalgarh . .	,,	3·35
,, ...	Paharee . . .	,,	3·25
Jeypore	Malpura . . .	,,	3·30
Kotah	Atroo . . .	14th	4·65
Sirohee	Mount Abu . .	,,	3·89
Odeypore . . .	Kotra . . .	,,	3·44
Jeypore	Bandikui . . .	,,	3·54
,, ...	Dausa . . .	,,	3·45
Bickaneer . . .	Bickaneer . .	,,	3·10
Bhurtpore . . .	Bhurtpore . .	15th	3·55

Heavy falls were received in the eastern and central states during the second period. The following gives the most noteworthy (exceeding four inches) : —

STATE.	STATION.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
Ajmere	Dawer	18th	5·96
,, ...	Todgarh . . .	,,	4·02
Bhopal	Maksudangarh . .	,,	5·47
,, ...	Narsinghgarh . .	,,	5·03
Jeysulmere . . .	Pachpadra . . .	20th	4·27

The eastern states also received moderate rain during the last two days of the month.

The following table is a comparative statement of the rainfall data of the month for the larger states :—

STATE.	RAINFALL.			
	Average actual, July 1897.	Average normal, July.	Variation from normal.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jodhpore . . .	5·08	4·14	+0·94	+23
Jeypore . . .	7·79	8·08	—0·29	— 4
Ulwar	8·04	9·64	—1·60	—17
Bhurtpore . . .	8·61	8·92	—0·31	— 3
Dholpur . . .	10·77	?	?	?
Kotah	9·98	9·57	+0·41	+ 4
Ajmere-Merwara . .	10·04	7·05	+2·99	+42
Oodeypore . . .	9·95	9·76	+0·19	+ 2
Sirohee . . .	12·37	15·73	—3·36	—21

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

1st.—The 9th to the 12th, when light to moderate rain was received in the eastern states and moderate to heavy rain in the western states.

2nd.—The 16th to the 20th. The rainfall during this period accompanied the passage of the third storm of the month through Bundelkhand into Rajputana. The fall was heavy in Rewah and Bundelkhand and moderate to heavy in Gwalior and Bhopal.

3rd.—The 22nd to the 25th. Moderate and fairly general rain was received during this period.

4th.—The 29th to the 31st. The rainfall was irregularly distributed and was moderate in amount in Bundelkhand.

The following gives comparative data for the larger states and divisions :—

STATE.	RAINFALL.			
	Average actual, July 1897.	Average normal, July.	Variation from normal.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Indore	9·21	9·67	—0·46	— 5
Rutlam . . .	8·99	11·05	—2·06	—19
Bhopal Agency . .	8·35	16·60	—8·25	—50
Gwalior . . .	8·60	10·66	—2·06	—19
Nagode . . .	8·63	16·36	—7·73	—47
Maihar . . .	12·14	14·74	—2·60	—18
Rewah . . .	11·47	15·33	—3·86	—25
Bundelkhand . .	10·81	14·96	—4·15	—28

The rainfall of the month was hence in general defect. The deficiency was large in Bhopal and Nagode.

Little or no rain fell in the Central Provinces from the 1st to the 6th. Moderate general rain was received from the 7th to the 12th. The next two days were practically rainless. Fairly general rain was received from the 15th to the 26th. The daily falls were rarely heavy and the only fall exceeding 7 inches recorded during this period was 9·15 inches at Kotal on the 16th. Another short dry period followed, lasting from the 27th to the 28th. Moderate showers giving fairly general rain were again received from the 29th to the 31st. The rainfall was neither so heavy nor so frequent as is usual in July. Thus the actual number of rainy days was only 13·5 as compared with the normal 15·5 and the actual fall per rainy day was 0·91 inch as compared with a normal fall of 1·03 inches.

The following table gives comparative data for the three divisions of the province and also for Berar where the rainfall occurred under the same conditions and during the same periods as in the Central Provinces :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, July 1897.	Average normal, July.	Variation from normal.	Average actual, July 1897.	Average normal, July.	Variation from normal.
				Inches.	Inches.	Inches.
Central Provinces (East).	13·2	15·0	—1·8	12·28	16·07	—3·79
Central Provinces (Central).	14·1	17·1	—3·0	11·66	18·02	—6·36
Central Provinces (West).	13·2	14·4	—1·2	12·88	13·81	—0·93
Berar	14·3	?	?	9·84	11·59	—1·75

Light showers fell in the Konkan from the 1st to the 6th. The monsoon winds strengthened on the 6th and 7th and moderate to heavy rain fell from the 7th to the 12th. Light showers were received from the 13th to the 16th when a moderately vigorous burst of the monsoon set in and continued until the end of the month.

The following gives the mean total and average daily rainfall during these periods :—

	DATE.	AVERAGE ACTUAL RAINFALL DURING 24 HOURS PRECEDING 8 A.M. OF DATE.				
		North Kanara.	Savantavadi.	Ratnagiri.	Kolaba.	Thana.
		Inches.	Inches.	Inches.	Inches.	Inches.
FIRST PERIOD.	7th . . .	1·47	4·58	3·50	0·64	0·34
	8th . . .	2·92	5·12	3·28	1·23	0·91
	9th . . .	3·00	3·03	2·10	0·57	0·40
	10th . . .	3·08	4·18	2·13	0·77	0·63
	11th . . .	1·26	2·29	2·55	1·71	0·80
	12th . . .	1·95	2·63	1·58	2·15	2·51
SECOND PERIOD.	17th . . .	0·46	0·53	4·48	4·50	3·23
	18th . . .	0·82	4·58	4·52	4·68	3·19
	19th . . .	3·45	6·21	4·28	2·81	2·64
	20th . . .	1·72	3·30	3·84	1·77	1·16
	21st . . .	1·41	3·09	2·29	1·47	0·99
	22nd . . .	1·19	3·95	4·44	1·31	0·93
	23rd . . .	1·59	3·39	2·19	1·72	1·06
	24th . . .	0·91	4·69	2·55	2·29	1·64
	25th . . .	1·39	2·09	2·73	2·55	2·20
	26th . . .	1·01	2·97	3·69	3·69	2·25
	27th . . .	1·82	5·30	2·94	1·21	0·62
	28th . . .	4·11	6·47	3·08	0·89	0·25
	29th . . .	2·12	5·09	3·44	2·26	0·74
	30th . . .	1·42	1·43	2·07	2·63	2·81
	31st . . .	0·72	1·06	0·63	0·50	0·52

The total rainfall of the month averaged 51·65 inches in the Konkan and was 11·61 inches, or 29 per cent. above the normal of the month.

The periods of general rain in the Deccan corresponded with the periods of strong winds and heavy rain in the Konkan. The rainfall was general from the 8th to the 12th and the 18th to the end of the month. The rainfall was very scanty and deficient in the Bijapur, Sholapur

and Belgaum districts, as is shown by the following data :—

DISTRICT.	RAINFALL			
	Average actual, July 1897.	Average normal, July.	Variation from normal.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dharwar	4·33	4·85	—0·52	—11
Bijapur	0·90	3·16	—2·26	—72
Belgaum	11·99	15·53	—3·54	—23
Kolhapur	7·49	9·03	—1·54	—17
Satara	15·49	12·92	+2·57	+20
Sholapur	2·66	3·67	—1·01	—28
Ahmednagar	3·54	3·60	—0·06	— 2
Nasik	11·90	11·19	+0·71	+ 6
Khandesh	7·83	5·05	+2·78	+55

The rainfall was hence more or less in defect in the Southern Deccan districts and in Ahmednagar, but was in slight to moderate excess in the Satara, Khandesh and Nasik districts.

Practically no rain fell in Gujarat and Kathiawar during the first week of the month. Moderate daily rain was received from the 9th to the 15th, and light to moderate showers from the 18th to the 27th. The rainfall in both of these areas was in defect. The deficiency averaged 36 per cent. in Gujarat and 19 per cent. in Kathiawar. Lower Sind received a burst of rain from the 10th to the 13th. The heaviest fall in 24 hours was 4·30 inches at Hala on the 12th.

The following table gives comparative data of the rainfall of the month in the six divisions of the Bombay Presidency :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, July 1897.	Average normal, July.	Variation from normal.	Average actual, July 1897.	Average normal, July.	Variation from normal.
				Inches.	Inches.	Inches.
Konkan	27·6	26·9	+0·7	51·65	40·04	+11 61
Bombay Deccan	11·2	12·2	—1·0	7·98	9·39	— 1·41
Khandesh	11·4	11·1	+0·3	8·04	7.63	+ 0·41
Gujarat	14·9	17·1	—2·2	11·82	18·46	— 6·64
Kathiawar	12·4	11·5	+0·9	9·12	11·27	— 2·15
Sind	1·9	?	?	1·93	?	?

The northern coast districts of Madras from Nellore to Ganjam received on the whole normal rain throughout the month. The chief periods were the 7th to the 11th, the 15th to the 20th, the 23rd to the 29th and the 31st. The heaviest and most general rain was received during the second of these periods. The chief feature of the rainfall in these districts was the extreme irregularity of its distribution, some stations receiving excessive rain, whilst others, representing probably considerable areas, had much less than usual. The following gives examples from the data of each district :—

DISTRICT.	STATION.	RAINFALL.		
		Actual, July 1897.	Normal, July.	Variation from normal.
		Inches.	Inches.	Inches.
Ganjam	Parlakimedi	13·04	8·66	+4·38
	Chicacole	3·93	5·80	—1·87
Viragapatam	Bobbili	14·49	8·05	+6·44
	Waltair	2·37	4·60	—2·23
Godavari	Coringa	8·67	4·83	+3·84
	Rajahmundry	8·23	6·07	+2·16
	Cocanada	3·03	5·66	—2·63
Kistna	Nandigama	7·84	5·41	+2·43
	Tiruvur	4·55	10·39	—5·84
Nellore	Ongole	4·73	3·17	+1·56
	Atmakur	1·46	2·96	—1·50

The southern districts including Tinnevelly, Tanjore, Trichinopoly and Madura received occasional light local showers which gave average totals for the month below the small monthly normals. The south central districts including Salem, Coimbatore, Cuddapah, Anantapur, Bellary and Kurnool obtained occasional rain, chiefly from the 19th to the 29th. The rainfall of the month was in moderate to considerable defect in each of these districts except Coimbatore where it was practically normal.

The East Coast south districts had fairly general rain on the 15th, the 21st to 24th and the 28th and 29th, which gave totals differing little from the normal of the month.

The Malabar districts of Madras and probably also Travancore and Coorg received unusually frequent and heavy rain throughout the month. The periods of greatest precipitation were from the 5th to the 13th and the 27th

to the 31st. The following gives the average daily rain during these periods:—

	Date.	Average actual rainfall during 24 hours preceding 8 a. m. of date.			
		Malabar.	South Canara.	Travancore.	Coorg.
		Inches.	Inches.	Inches.	Inches.
First period.	5th	2·98	1·87	1·30	0·80
	6th	1·43	3·77	1·31	1·41
	7th	1·89	4·35	1·43	2·07
	8th	1·56	4·49	1·44	2·06
	9th	3·69	3·45	1·27	3·17
	10th	3·78	4·70	1·46	3·30
	11th	2·43	1·53	0·83	3·00
	12th	2·94	2·65	0·54	2·10
	13th	1·51	2·39	0·10	0·86
Second period.	27th	1·27	2·22	0·51	1·61
	28th	2·64	2·78	1·11	2·20
	29th	2·83	4·13	0·76	1·86
	30th	1·92	1·75	0·74	1·36
	31st	1·30	1·04	0·70	0·96

The rainfall of the month was in large excess. The Malabar district received an average of 40·63 inches or 11·61 inches above the normal and the South Kanara district of 63·25 inches or 21·02 inches in excess.

The following gives comparative rainfall data of the month for the 22 collectorates of the Presidency:—

District.	No. of rainy days.		Rainfall.		
	Actual, July 1897.	Normal, July.	Actual, July 1897.	Normal, July.	Variation from normal.
			Inches.	Inches.	Inches.
Ganjam	12·4	10·1	7·51	7·06	+0·45
Vizagapatam	13·1	12·3	7·60	8·58	−0·98
Godavari	12·1	8·9	6·26	6·13	+0·13
Kistna	10·7	8·3	5·13	5·30	−0·17
Nellore	6·4	4·9	2·58	2·45	+0·13
Chingleput	5·0	6·3	3·02	3·70	−0·68
Madras	4·0	6·9	2·37	3·78	−1·41
North Arcot	6·0	5·1	2·96	3·06	−0·10
South Arcot	4·7	5·0	2·34	3·37	−1·03
Tanjore	1·9	3·9	0·97	2·53	−1·56
Trichinopoly	1·3	2·9	0·89	2·35	−1·46
Madura	1·8	2·4	0·70	1·37	−0·67
Tinnevelly	1·8	1·6	0·57	0·69	−0·12
Malabar	25·6	25·6	40·63	29·02	+11·61
South Canara	29·4	28·4	63·25	42·23	+21·02
Salem	4·0	4·5	1·99	2·97	−0·98
Coimbatore	2·6	3·3	0·98	1·64	−0·66
Nilgiris	14·0	15·4	11·50	13·43	−1·93
Cuddapah	4·0	5·6	2·08	2·95	−0·87
Annantapur	2·8	4·9	1·51	2·32	−0·81
Bellary	4·1	6·4	1·51	2·62	−1·11
Kurnool	7·8	7·2	3·88	4·92	−1·04

Table

Abstract of Observations taken at 8 A.M. at 214 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	I.—Burma Coast and Bay Islands.		...	...	+·009	...	...	...	...	...	...	...	85·1	+1·0	75·9	+0·5	80·5	+0·7	9·2	...	...	...	...	16·8
1	Tenasserim and Bay Islands.	Car Nicobars	?	29·870	?	?	29·954	19th	29·812	28th	·142	79·4	85·1	?	76·6	?	80·9	?	8·5	91·4	3rd	71·9	20th	19·5
		Port Blair	61	29·782	?	29·774	29·839	12th	29·676	8th	·163	80·5	84·4	?	77·2	?	80·8	?	7·2	88·5	14th	73·4	21st	15·1
		Mergui	96	29·795	?	29·824	29·855	17th	29·677	6th	·178	77·6	85·0	?	73·8	?	79·4	?	11·2	90·9	1st	71·3	21st	19·6
		Tavoy	26	29·873	?	29·828	29·940	14th	29·815	1st	·125	74·0	84·0	+0·7	74·0	+0·1	79·0	+0·4	10·0	88·7	2 days	72·2	28th	16·5
		Moulmein	94	29·752	?	29·784	29·836	29th	29·662	4th	·174	77·8	84·2	+1·5	75·2	+1·3	79·7	+1·4	9·0	89·5	24th	72·3	28th	17·2
2	Lower Burma	Rangoon	41	29·760	?	29·738	29·838	11th	29·646	4th	·192	78·8	85·9	+0·9	76·0	+0·3	81·0	+0·6	9·9	89·7	24th	73·9	14th	15·8
		Bassein	27	29·766	+·009	29·728	29·854	22nd	29·656	8th	·198	78·8	85·1	+0·3	75·7	0	80·3	+0·2	9·4	90·2	3 days	73·3	2nd	16·9
		Diamond Island	41	29·753	+·002	29·729	29·846	16th	29·633	8th	·213	79·9	83·8	−0·7?	76·8	+1·8	80·3	+0·6?	7·0	86·6	20th	73·4	4th	13·2
5	Arakan	Akyab	20	29·712	+·019	29·675	29·821	22nd	29·592	8th	·229	80·9	85·5	+0·9	77·7	+0·3	81·6	+0·6	7·8	89·3	2 days	75·2	2 days	14·1
3	Central Burma	Toungoo	183	29·661	+·007	29·727	29·678	17th	29·459	4th	·219	79·0	87·9	+1·5	75·8	+0·9	81·8	+1·2	12·1	93·7	26th	73·2	2 days	20·5
	II.—Burma Inland		...	...	+·009	...	...	...	...	...	...	...	90·9	+0·7	77·0	+0·8	84·0	+0·8	13·9	...	...	...	...	23·7
3	Central Burma	Thayetmyo	134	29·618	+·005	29·694	29·704	11th	29·473	4th	·231	80·8	90·2	+1·4	77·0	+0·9	83·6	+1·2	13·2	94·1	3 days	74·1	19th	20·0
4	Upper Burma	Minbu	?	29·569	+·009	?	29·664	22nd	29·431	4th	·233	80·8	92·2	+1·1	77·5	+0·5	84·9	+0·8	14·7	98·6	2nd	74·6	24th	24·0
		Yamethin	645	29·106	+·012	29·699	29·199	17th	28·962	4th	·237	79·9	92·4	+2·1	75·3	+1·0	83·9	+1·6	17·1	99·0	27th	72·2	19th	26·8
		Mandalay	249?	29·469	+·010	29·665	29·564	22nd	29·334	4th	·230	83·8	95·4	+1·4	79·5	+1·3	87·5	+1·4	15·9	102·1	27th	74·1	17th	28·0
		Kindat	?	29·256	?	?	29·355	22nd	29·157	4th	·198	80·5	88·2	−1·0	77·4	+0·8	82·8	−0·1	10·8	97·3	3rd	75·0	10th	22·3
		Bhamo	?	29·329	?	?	29·474	22nd	29·200	4th	·274	78·7	86·8	−0·6	75·3	+0·5	81·1	−0·1	11·5	93·1	2nd	72·3	18th	20·8
4(a)	Burma Hill Stations.	Taunggyi	?			Not	recorde	d.				68·6	76·7	?	63·7	?	70·2	?	13·0	83·2	26th	59·5	2 days	23·7
		Lashio	?	27·014	+·029	?	27·243	11th	26·923	31st	·320	72·1	83·1	−0·1	69·4	+0·3	76·3	+0·1	13·7	88·5	3 days	64·0	30th	24·5
	III.—Assam		...	...	+·024	...	...	...	...	...	...	...	88·2	−0·3	77·5	+0·1	82·9	−0·2	10·6	...	...	...	...	21·3
7	Surma	Silchar	104	29·587	+·020	29·642	29·707	2 days	29·446	31st	·261	80·0	90·2	+0·2	77·1	0	83·7	+0·1	13·1	97·6	10th	70·3	1st	27·3
9	Brahmaputra	Sibsagar	333	29·330?	?	29·618?	29·432	22nd	29·182	31st	·250	79·8	87·7	−3·1?	76·8	−1·3	82·2	−2·2?	10·9	95·2	9th	74·0	1st	21·2
		Dhubri	115	29·535	+·028	29·604	29·660	23rd	29·347	31st	·313	80·9	86·6	−0·8	78·7	+0·1	82·7	−0·4	7·9	90·2	2 days	74·8	5th	15·4
	IV.—Bengal and Orissa		...	...	+·017	...	...	...	...	...	...	...	89·4	+1·2	78·5	+0·5	84·0	+0·8	10·8	...	...	...	...	2 ·1
6	East Bengal	Chittagong	87	29·601	+·019	29·637	29·739	22nd	29·490	31st	·249	80·4	86·3	+0·8	77·2	+0·8	81·7	+0·8	9·1	91·2	10th	74·1	18th	17·1
		Lungleh	?			Not	recorde	d.				69·3	75·8	?	66·5	?	71·2	?	9·3	79·3	3rd & 10th	63·9	16th	15·4
		Noakhali	43	29·623	?	29·613	29·737	22nd	29·508	31st	·229	81·4	86·0	?	77·8	?	81·9	?	8·2	88·5	6 days	72·8	4th	15·7
		Comilla	36	29·628	?	29·612	29·761	22nd	29·474	31st	·287	80·9	88·0	?	77·1	?	82·5	?	10·9	92·3	3 days	74·8	3 days	17·5
		Sirajganj	49	29·574	?	29·573	29·710	23rd	29·399	31st	·311	81·5	88·5	?	78·4	?	83·5	?	10·1	93·3	1st	73·2	2nd	19·1
		Narayanganj	26	29·618	+·016	29·592	29·760	22nd	29·459	31st	·301	82·5	88·7	+0·4	79·4	+0·2	84·1	+0·3	9·3	94·1	1st	75·2	2nd	18·9
		Barisal	13	29·630	+·026	29·588	29·765	22nd	29·496	31st	·269	82·6	88·6	+2·0	78·9	+0·8	83·8	+1·4	9·7	95·3	1st	75·9	2 days	19·4
		Mymensingh	59	29·595	+·021	29·605	29·727	23rd	29·405	31st	·322	81·3	87·8	+0·3	78·3	+0·3	83·1	+0·3	9·5	92·7	28th	74·6	6th	18·1
10	Deltaic Bengal	Faridpur	46	29·600	?	29·593	29·735	22nd	29·449	31st	·286	82·1	89·1	?	78·8	?	84·0	?	10·3	95·3	1st	72·9	2nd	22·4
		Jessore	33	29·592	+·016	29·572	29·739	22nd	29·460	4th	·279	83·5	90·3	+0·9	79·8	+0·7	85·1	+0·8	10·5	97·0	1st	75·7	14th	21·3
		Calcutta	21	29·593	+·022	29·560	29·728	22nd	29·473	4th	·255	82·3	88·8	+0·8	78·8	+0·4	83·8	+0·6	10·0	97·9	4th	74·7	14th	23·2
		Saugor Island	25	29·577	+·012	29·546	29·710	2 days	29·431	9th	·279	83·6	89·2	+1·4	80·5	+0·1	84·9	+0·8	8·7	94·4	3rd	75·5	2 days	18·9
		Krishnagar	47	29·565	?	29·560	29·705	22nd	29·433	4th	·272	83·2	91·1	?	79·3	?	85·2	?	11·8	98·7	2nd	75·7	14th	23·0
		Midnapore	149	29·453	?	29·548	29·578	22nd	29·351	31st	·227	83·0	91·3	?	79·1	?	85·2	?	12·2	102·3	4th	73·6	6th	28·7

I.

in India, Burma, etc., in July 1897.

Wind Direction, Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity: Mean velocity in miles per hour.	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 June to 31st July 1897.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period, 1st June to 31st July.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	.	...	...	...	...	...	...	27·81	31·38	−2·15	...	...	...	...	I.—Burma Coast and Bay Islands.		
2	1	...	...	1	4	6	...	1	6·3	?	?	91	·919	9·8	22	?	?	15·05	?	?	21·13	?	?	2·65	Car Nicobars*	Tenasserim and Bay Islands.	1
...	..	...	...	1	3	13	13	1	11·6	11·0	+ 5	89	·930	9·4	23	?	?	30·56	15·98	+14·58	46·08	34·77	+11·31	3·24	Port Blair .		
...	4	...	...	...	4	11	6	6	1·3	1·8	− 28	92	·871	5·4	26	?	?	31·30	31·99	− 0·69	71·33	63·43	+ 7·90	3·00	Mergui.		
25	...	...	...	...	...	5	...	1	1·3	?	?	93	·879	8·8	26	?	?	47·69	46·34	+ 1·35	115·83	85·73	+ 30·10	5·22	Tavoy.		
...	...	2	5	6	8	7	3	...	4·2	3·8	+ 11	92	·875	8·8	25	27·75	−2·75	39·64	45·82	− 6·18	76·67	81·54	− 4·87	5·75	Moulmein.		
...	...	...	...	3	13	11	4	...	5·0	5·5	− 9	92	·908	9·2	18	25·36	−7·36	16·92	21·68	− 4·76	32·37	39·19	− 6·82	3·46	Rangoon .	Lower Burma.	2
7	...	...	...	4	12	4	3	1	5·2	4·0	+ 30	93	·917	7·5	22	27·00	−5·00	15·19	24·88	− 9·69	50·36	47·44	+ 2·92	1·74	Bassein.		
1	1	...	...	...	2	20	2	5	11·4	8·9	+ 28	87	·891	9·5	25	24·00	+1·00	25·26	26·28	− 1·02	52·74	49·48	+ 3·26	3·92	Diamond Island.		
...	...	3	5	11	7	2	2	1	3·1	3·8	− 18	94	·994	9·2	27	27·55	−0·55	39·87	51·54	−11·67	89·45	95·53	− 6·08	6·25	Akyab .	Arakan.	5
1	...	...	...	20	9	1	...	...	5·7	4·8	+ 19	91	·919	9·3	22	25·09	−3·09	16·61	17·91	− 1·30	29·33	32·52	− 3·19	2·84	Toungoo .	Central Burma.	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·94	8·15	−1·21	...	...	...	...	II.—Burma Inland.		
...	...	...	...	3	28	...	...	...	3·5	6·7	− 48	79	·825	8·8	12	15·91	−3·91	7·51	6·83	+ 0·68	13·77	13·77	0	1·46	Thayetmyo.	Central Burma.	3
...	...	...	4	19	8	...	...	...	14·0	?	?	82	·875	8·1	7	?	?	2·82	3·38	− 0·56	5·77	7·28	− 1·51	0·70	Minbu .	Upper Burma.	4
...	...	...	..	19	12	...	...	...	11·5	?	?	80	·824	7·6	5	?	?	1·12	4·36	− 3·24	4·32	8·86	− 4·54	0·23	Yamethin.		
1	...	...	...	2	27	1	...	...	10·9	?	?	73	·846	7·2	5	?	?	3·74	3·17	+ 0·57	9·14	9·38	− 0·24	2·57	Mandalay.		
25	...	...	1	2	2	1	...	...	?	?	?	92	·964	8·9	11	?	?	12·45	12·25	+ 0·20	20·01	27·12	− 7·11	6·17	Kindat.		
9	...	1	...	2	2	7	6	4	1·6	?	?	93	·911	9·0	22	?	?	14·01	18·91	− 4·90	29·75	32·57	− 2·82	2·11	Bhamo.		
6	...	...	...	7	9	8	1	...	?	?	?	87	·613	10·0	18	?	?	7·83	?	?	10·92	?	?	1·10	Taunggyi.	Burma Hill Stations.	4(a)
				Not recorded.					?	?	?	92	·724	10·0	18	?	?	14·24	12·79	+ 1·45	22·03	23·02	− 0·99	1·97	Lashio.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17·64	17·46	+0·19	...	...	...	...	III.—Assam.		
25	...	1	1	...	...	1	2	...	2·5	3·1	− 19	91	·935	9·6	27	22·79	+4·21	18·97	19·10	− 0·13	46·26	39·83	+ 6·43	2·13	Silchar .	Surma.	7
11	...	10	1	1	2	6	...	...	4·0	2·8	+ 43	95	·970	9·3	22	19·04	+2·96	19·68	17·10	+ 2·58	31·84	30·79	+ 1·05	3·21	Sibsagar .	Brahmaputra.	9
				Not recorded.					?	3·9	?	90	·955	9·1	21	16·13	+4·87	14·28	16·17	− 1·89	27·68	40·70	−13·02	2·31	Dhubri.		
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13·51	14·53	−1·38	...	...	...	...	IV.—Bengal and Orissa.		
...	...	1	7	15	5	2	1	...	8·4	7·2	+ 17	89	·913	9·1	17	19·81	−2·81	20·30	23·20	− 2·90	41·61	45·89	− 4·28	5·81	Chittagong	East Bengal.	6
				Not recorded.					?	?	?	95	·679	?	31	?	?	41·25	24·39	+16·86	71·38	43·80	+27·58	5·60	Lungleh.		
...	...	...	5	12	8	6	...	...	7·3	?	?	90	·969	7·2	22	20·12	+1·88	17·21	23·74	− 6·53	40·42	47·93	− 7·51	2·56	Noakhali.		
...	...	...	9	15	7	...	...	...	7·1	?	?	85	·896	8·5	13	19·22	−6·22	7·07	16·38	− 9·31	25·82	34·03	− 8·21	1·47	Comilla.		
				Not recorded.					?	?	?	91	·981	9·3	14	14·23	−0·23	5·71	11·50	− 5·79	12·98	22·62	− 9·64	2·10	Sirajganj.		
...	...	...	1	15	10	5	..	...	9·7	7·3	+ 33	90	1·003	8·6	16	18·31	−2·31	8·06	13·78	− 5·72	13·58	26·84	−13·26	1·44	Narayanganj		
17	...	...	1	2	11	...	...	...	4·7	?	?	89	1·002	8·9	20	20·50	−0·50	10·50	15·76	− 5·26	26·67	31·78	− 5·11	2·02	Barisal.		
2	...	...	5	12	7	4	1	...	?	?	?	89	·957	8·0	20	19·27	+0·73	10·00	15·56	− 5·56	17·62	33·74	−16·12	2·10	Mymensingh.		
4	...	...	1	10	15	1	...	...	2·6	?	?	92	1·010	6·1	15	17·16	−2·16	10·34	12·21	− 1·87	27·94	24·59	+ 3·35	2·38	Faridpur .	Deltaic Bengal.	10
17	...	...	...	5	9	...	...	...	1·5	4·6	− 67	88	1·014	7·9	16	17·39	−1·39	10·66	11·21	− 0·55	31·25	23·71	+ 7·54	2·52	Jessore.		
...	...	1	1	9	10	7	3	...	5·2	5·3	− 2	88	·972	7·5	18	18·04	−0·04	13·45	12·46	+0·99	24·43	23·20	+ 1·23	3·32	Calcutta.		
...	...	4	1	2	10	11	2	1	17·1	14·2	+ 20	87	1·007	9·0	17	17·00	0	19·08	15·34	+ 3·74	27·97	25·18	+ 2·79	3·76	Saugor Island.		
...	...	...	5	9	9	4	3	1	5·4	?	?	87	·988	6·6	14	15·92	−1·92	7·44	10·62	− 3·18	18·90	19·95	− 1·05	1·46	Krishnagar.		
4	2	2	...	3	16	4	...	...	2·0	?	?	85	·943	5·3	12	15·65	−3·65	6·63	11·63	− 5·00	20·63	21·05	− 0·42	1·08	Midnapore.		

* Wind observations of 15 days and variables 7.

Table

Abstract of Observations taken at 8 A.M. at 214 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.
11	Central Bengal	Bankura	298	29·276	?	29·522	29·401	22nd	29·163	31st	·238	83·1	92·7	?	79·0	?	85·9	?	13·7	105·1	5th	73·1	14th	32·0
		Raniganj	334	29·260	?	29·540	29·387	22nd	29·156	4th	·231	82·6	93·1	?	79·3	?	86·2	?	13·8	106·3	5th	73·9	14th	32·4
		Burdwan	99	29·508	+·018	29·553	29·641	23rd	29·385	31st	·256	83·7	91·2	+1·0	79·9	+0·5	85·6	+0·8	11·3	101·9	4th	5·8	14th	26·1
		Naya Dumka	489	29·102	?	29·543	29·226	22nd & 23rd.	28·981	14th	·245	83·5	92·2	?	78·7*	?	85·6*	?	13·5	104·5	5th	70·3	18th	34·2
		Berhampore	67	29·537	+·008	29·552	29·678	22nd	29·405	4th	·273	82·8	90·9	+1·5	79·6	+0·9	85·3	+1·2	11·3	100·6	4th	74·8	14th	25·8
		Rampur Boalia.	70	29·538	?	29·557	29·672	23rd	29·392	4th	·280	83·3	90·7	?	79·9	?	85·3	?	10·8	99·1	4th & 5th.	75·6	14th	23·5
		Malda	72	29·527	?	29·550	29·659	22nd	29·376	31st	·283	83·0	92·3	?	80·0	?	86·1	?	12·3	100·1	5th	77·0	14th & 15th.	23·1
		Bogra	61	29·555	?	29·568	29·680	23rd	29·378	31st	·302	81·8	90·5	+2·0	78·6	+0·4	84·5	+1·2	11·9	97·2	1st	73·7	5th	23·5
12	North Bengal	Dinajpur	123	29·495	+·012	29·572	29·621	22nd	29·348	31st	·273	81·9	90·6	+1·5	78·5	−0·4	84·5	+0·6	12·1	97·3	4th	73·7	6th	23·6
		Rangpur	123	29·508	?	29·585	29·637	23rd	29·339	31st	·298	82·1	89·4	?	79·1	?	84·3	?	10·3	93·2	27th	74·2	5th	19·0
		Jalpaiguri	284	29·359	+·024	29·600	29·473	23rd	29·202	31st	·271	79·9	88·6	+0·3	76·7	+0·1	82·6	+0·2	11·9	93·9	9th	71·6	2nd	22·3
		Cooch Behar	?				Not recorded.					81·5	88·4	?	78·4	?	83·4	?	10·0	93·4	9th	74·1	4th	19·3
17	North Bihar	Purnea	125	29·480	+·013	29·558	29·606	23rd	29·337	4th	·269	83·0	91·5	+1·3	79·5	+1·0	85·5	+1·2	12·0	97·3	4th	75·7	23rd	21·6
14	Orissa	Balasore	56	29·558	?	29·549	29·686	22nd	29·428	9th	·258	82·7	90·3	+1·9	78·6	+0·3	84·5	+1·1	11·7	100·5	1st	75·7	12th	24·8
		False Point	21	29·604	+·015	29·566	29·725	22nd	29·445	9th	·280	82·9	88·4	+0·8	78·9	+0·5	83·6	+0·7	9·5	101·5	2nd	72·6	6th	28·9
		Cuttack	80	29·531	+·010	29·553	29·644	22nd	29·401	9th	·243	82·8	91·6	+1·8	79·3	+0·8	85·5	+1·3	12·3	104·4	4th	74·2	16th	30·2
		Shortt's Island	?	20·608		?	29·767	22nd	29·446	9th	·321	83·7	89·1	?	80·2	?	84·7	?	8·9	100·2	1st	72·2	11th	28·0
		Puri	20	29·606	?	29·569	29·715	22nd	29·479	9th	·236	83·2	88·5	?	79·4	?	83·9	?	9·1	94·2	8th & 28th.	73·6	6th	20·6
	V.—Gangetic Plain and Chota Nagpur.		...	...	+·001	...	...	...	...	...	...	...	93·1	+3·1	79·9	+1·4	86·5	+2·3	13·3	...	...	...	...	28·9
15	Chota Nagpur	Hazaribagh	2,007	27·597	−·001	29·531	27·701	23rd	27·509	15th	·192	79·0	87·9	+3·4	75·3	+1·8	81·6	+2·6	12·6	99·2	5th & 7th	71·3	7th & 14th.	27·9
		Ranchi	2,128	27·499	?	29·551	27·600	23rd	27·416	31st	·184	78·1	87·7	+4·0	74·6*	+2·1	81·4*	+3·1	13·1	100·7	5th	71·4	14th	29·3
		Daltonganj	730?	28·859	?	29·535	28·962	22nd	28·763	15th	·199	84·3	94·9	?	79·8	?	87·4	?	15·1	108·1	5th	75·0	24th	33·1
		Chaibassa	760	28·834	?	29·537	28·957	22nd	28·748	31st	·209	82·3	92·2	+3·0	78·0*	+0·7	85·0*	+1·9	14·2	103·5	5th	74·5	14th & 18th.	29·0
16	South Bihar	Gaya	375	29·191	−·009	29·516	29·284	23rd	29·091	15th	·193	84·8	95·3	+3·9	80·1	+1·5	87·7	+2·7	15·2	106·9	5th	74·8	14th	32·1
		Dehri	351	29·214	?	29·515	29·316	22nd	29·086	15th	·230	85·2	93·7	?	81·1	?	87·4	?	12·8	106·4	5th	76·0	23rd	30·4
		Patna	183	29·390	−·007	29·523	29·495	23rd	29·279	4th	·216	84·0	92·4	+2·1	80·7	+1·0	86·6	+1·6	11·7	100·5	5th	76·7	23rd	23·8
		Arrah	190	29·386	?	29·526	29·488	22nd	29·274	4th	·214	84·2	93·1	?	80·3	?	86·7	?	12·8	102·9	5th	77·0	4 days	25·9
		Buxar	239	29·322	?	29·514	29·431	23rd	29·219	4th	·212	84·2	92·6	?	79·6	?	86·1	?	13·0	104·5	5th	75·3	23rd	29·2
17	North Bihar	Bhagalpur	160	29·419	?	29·530	29·545	23rd	29·287	4th	·258	84·3	93·0	?	80·2	?	86·5	?	12·8	101·3	5th	75·6	7th	25·7
		Darbhanga	166	29·429	+·010	29·548	29·534	22rd	29·292	4th	·242	83·2	91·5	+2·2	80·6	+0·8	86·1	+1·5	10·9	98·0	2 days	77·5	30th	20·5
		Muzaffarpur	178	29·399	?	29·529	29·494	23rd	29·265	4th	·229	83·2	91·7	?	79·9	?	85·8	?	11·8	98·7	5th	76·2	30th	22·5
		Motihari	224	29·363	?	29·543	29·462	23rd	29·220	4th	·242	82·8*	92·2	?	79·1	?	85·7	?	13·1	100·0	5th	73·8	30th	26·2
		Chapra	181	29·394	?	29·527	29·496	23rd	29·282	4th	·214	83·9	92·6	?	80·5	?	86·6	?	12·1	101·3	5th	77·1	30th	24·2
18	N.-W. Provs., East.	Benares	267	29·301	+·014	29·521	29·404	23rd	29·217	16th	·187	84·3	93·6	+2·3	80·7	+1·1	87·2	+1·7	12·9	107·8	5th	75·7	23rd	32·1
		Allahabad	309	29·245	0	29·505	29·337	22nd	29·154	16th	·183	86·2	95·8	+4·4	81·8	+2·5	88·8	+3·5	14·0	108·6	5th & 6th.	74·8	23rd	33·8
23	N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·309	+·006	29·521	29·405	23rd	29·190	4th	·215	83·5	93·0	+2·1	80·3	+0·8	86·7	+1·5	12·7	103·3	5th	75·3	24th	28·0
19	South Oudh	Lucknow	368	29·182	−·003	29·505	29·275	25th	29·096	31st	·179	84·9	96·3	+4·2	81·2	+1·9	88·8	+3·1	15·1	110·8	5th & 6th.	76·3	23rd & 25th.	34·5
20	North Oudh	Bahraich	403	29·158	?	29·518	29·253	22nd	29·043	4th	·210	84·1	95·0	?	79·9	?	87·5	?	15·1	107·5	5th	74·0	29th & 30th.	33·5
21	N.-W. Provs. (Central).	Cawnpore	416	29·134	?	29·499	29·222	23rd	29·056	31st	·166	86·0	95·9	?	82·3	?	89·1	?	13·6	109·0	5th	76·0	23rd	33·0
		Mainpuri	516	29·02	?	29·491	29·115	25th	28·948	31st	·167	85·1	95·6	?	81·6	?	88·6	?	14·0	108·3	4th & 5th	75·5	30th	32·8

* Mean of 30 days.

I.—*continued.*

in India, Burma, etc., in July 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity: Mean velocity in miles per hour.	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 June to 31st July 1897.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period, 1st June to 31st July.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
6	...	...	7	5	5	3	5	...	5·6	?	?	83	·931	5·7	10	17·23	− 7·23	18·04	12·68	+ 5·36	26·53	22·64	+ 3·89	7·98	Bankura	Central Bengal	11
15	1	...	3	3	5	4	...	...	2·9	?	?	84	·927	5·7	13	16·46	− 3·46	9·81	13·22	− 3·41	22·08	22·49	− 0·41	1·90	Raniganj.		
2	1	1	4	4	10	7	2	...	4·0	4·3	−7	84	·975	6·6	12	16·27	− 4·27	11·53	11·71	− 0·18	22·79	20·63	+ 2·16	3·93	Burdwan.		
7	1	1	4	7	7	2	...	2	2·3	?	?	78	·886	7·7	15	18·66	− 3·66	11·95	13·71	− 1·76	21·39	22·93	− 1·54	3·40	Naya Dumka		
6	...	...	4	3	14	3	1	...	3·8	5·0	−24	89	·999	7·3	10	16·71	− 6·71	5·54	10·71	− 5·17	12·49	20·09	− 7·60	1·14	Berhampore.		
1	...	1	7	10	8	4	...	...	5·5	?	?	87	1·001	5·9	12	15·03	− 3·03	11·77	11·59	+ 0·18	21·18	21·50	− 0·32	4·95	Rampur Boalia.		
...	2	2	4	9	9	2	1	2	2·7	?	?	89	1·007	5·7	11	15·73	− 4·73	3·84	11·95	− 8·11	13·41	22·29	− 8·88	0·89	Malda.		
		Not	reco	rded.					?	?	?	89	·969	6·1	13	15·84	− 2·84	6·59	13·49	− 6·90	10·11	27·05	−16·94	1·83	Bogra.		
2	...	3	6	14	6	...	...	...	6·6	?	?	89	·970	8·5	16	16·26	− 0·26	8·85	14·38	− 5·53	17·60	29·87	−12·27	2·28	Dinajpur	North Bengal.	12
		Not	reco	rded.					?	?	?	89	·978	8·1	15	15·19	− 0·19	10·73	16·30	− 5·57	32·83	34·92	− 2·09	2·65	Rangpur.		
...	2	8	9	7	1	1	1	2	3·3	?	?	91	·927	7·3	23	20·07	+2·93	39·45	29·24	+10·21	54·13	55·66	− 1·53	5·45	Jalpaiguri.		
7	1	...	11	9	2	...	1	...	3·0	?	?	94	1·010	8·7	22	?	?	24·70	?	?	39·35	?	?	3·13	Cooch Behar		
1	...	6	18	5	1	...	...	...	6·0	2·9	+107	87	·981	9·2	10	17·00	− 7·00	7·17	15·12	− 7·95	12·52	26·08	−13·56	3·12	Purnea	North Bihar.	17
4	...	2	...	...	9	14	2	...	5·1	?	?	88	·995	5·0	12	15·08	− 3·08	7·51	13·04	− 5·53	17·16	22·11	− 4·95	1·70	Balasore	Orissa.	14
1	...	...	1	1	7	11	8	2	10·2	10·5	−3	88	·991	7·9	16	14·77	+ 1·23	21·96	13·41	+ 8·55	28·60	22·78	+ 5·82	4·43	False Point.		
4	...	3	...	...	3	11	8	2	3·1	3·2	−3	80	·897	6·9	15	16·35	− 1·35	10·23	12·91	− 2·68	18·83	24·44	− 5·61	2·04	Cuttack.		
...	...	1	1	...	8	17	...	4	19·8	?	?	84	·974	7·0	10	?	?	15·14	9·37	+ 5·77	21·43	19·91	+ 1·52	3·02	Shortt's Island.		
7	1	...	...	...	1	14	7	1	12·7	?	?	87	·988	6·6	12	13·04	− 1·04	19·91	9·80	+10·11	25·03	17·86	+ 7·17	5·51	Puri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10·18	12·37	−2·19	...	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**		
...	1	...	2	3	5	10	5	5	9·7	8·4	+15	81	·797	8·0	15	18·88	− 3·88	13·12	14·16	− 1·04	24·12	21·79	+ 2·33	3·51	Hazaribagh.	Chota Nagpur.	15
...	...	1	1	2	8	11	4	3	9·9	?	?	82	·779	6·2	18	19·34	− 1·34	10·10	14·30	− 4·20	15·80	22·78	− 6·98	1·69	Ranchi.		
...	...	...	6	2	10	11	2	...	5·4	?	?	80	·925	3·1	14	16·57	− 2·57	8·78	12·92	− 4·14	11·05	18·95	− 7·90	2·12	Daltonganj.		
10	...	...	1	...	...	12	8	...	1·3	?	?	83	·918	7·3	14	16·76	− 2·76	7·80	13·48	− 5·68	13·11	22·01	− 8·90	1·87	Chaibassa.		
4	...	1	5	3	6	6	5	1	6·1	2·9	+110	78	·918	5·8	11	15·69	− 4·69	13·70	13·10	+ 0·60	27·33	19·66	+ 7·67	3·66	Gaya	South Bihar.	16
5	...	...	7	4	5	5	3	2	9·9	?	?	78	·917	5·5	15	14·62	+ 0·38	13·03	11·73	+ 1·30	25·54	17·64	+ 7·90	2·44	Dehri.		
2	...	6	13	3	...	1	4	2	4·6	3·6	+28	85	·991	8·5	11	13·96	− 2·96	9·80	11·75	− 1·95	38·67	19·09	+19·58	2·01	Patna.		
...	1	7	5	5	4	2	6	1	3·4	?	?	85	·986	4·6	14	15·03	− 1·03	16·35	12·11	+ 4·24	40·33	18·25	+22·08	4·06	Arrah.		
2	1	...	12	7	1	...	7	1	5·3	?	?	81	·938	6·5	15	14·07	+ 0·93	11·69	11·68	+ 0·01	16·92	16·88	+ 0·04	3·35	Buxar.		
5	3	4	6	8	3	1	...	1	4·1	?	?	82	·964	7·1	10	15·61	− 5·61	3·18	12·73	− 9·55	12·95	20·27	− 7·32	0·60	Bhagalpur.	North Bihar	17
2	...	2	13	10	1	1	1	1	5·7	5·0	+14	87	·932	6·0	13	14·20	− 1·20	6·88	12·39	− 5·51	13·95	19·95	− 6·00	1·13	Darbhanga.		
4	...	3	12	8	...	...	2	2	5·1	?	?	86	·978	6·0	13	14·34	− 1·34	10·04	12·46	− 2·42	19·39	20·11	− 0·72	1·72	Muzaffarpur		
...	1	5	20	1	3	1	...	...	?	?	?	88*	·985*	3·1	9	12·60	− 3·60	7·04	13·39	− 6·35	15·77	22·57	− 6·80	1·65	Motihari.		
3	...	1	15	4	1	2	3	2	4·3	?	?	84	·980	6·4	13	14·15	− 1·15	12·65	12·06	+ 0·59	31·32	18·34	+12·98	3·17	Chapra.		
8	1	1	7	4	1	4	5	...	4·5	4·8	−6	81	·952	8·4	14	14·27	− 0·27	9·87	10·74	− 0·87	18·14	15·87	+ 2·27	1·60	Benares	N.-W. Provs., East.	18
...	1	1	7	4	5	3	6	4	7·6	4·0	+90	78	·917	7·8	10	14·18	− 4·18	9·52	12·33	− 2·81	14·96	18·02	− 3·06	2·74	Allahabad.		
3	5	10	6	1	...	...	3	3	2·7	2·8	−4	83	·933	5·6	14	13·91	+ 0·09	7·78	13·67	− 5·89	13·68	23·35	− 9·67	2·70	Gorakhpur	N.-W. Provinces (East Sub-montane).	23
6	1	1	12	1	2	4	3	1	3·8	3·9	−3	79	·929	8·2	13	13·64	− 0·64	13·52	11·25	+ 2·27	15·27	16·68	− 1·41	2·49	Lucknow	South Oudh.	19
4	2	...	10	8	2	1	...	4	4·1	?	?	80	·930	4·3	10	?	?	14·48	12·49	+ 1·99	18·02	18·13	− 0·11	6·09	Bahraich	North Oudh.	20
2	...	2	11	1	2	7	5	1	5·6	?	?	74	·898	6·4	8	12·10	− 4·10	5·56	9·99	− 4·43	8·03	13·08	− 5·05	1·58	Cawnpore	N.-W. Provs. (Central)	21
8	1	1	10	1	1	2	4	2	3·7	?	?	76	·912	7·4	12	?	?	8·95	11·07	− 2·12	12·04	14·07	− 2·03	1·37	Mainpuri †		

† Wind observations of 30 days.

able

Abstract of Observations taken at 8 A.M. at 214 Stations

Numbers.	District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
		VI.—Upper Sub-Himalayas.		...	...	+·001	...	...	...	...	...	...	...	95·8	+1·8	80·0	+1·4	87·9	+1·7	15·9	...	...	...	...	34·9
24		N.-W. Provinces, West (Sub-Montane).	Bareilly	568	28·984	+·005	29·511	29·084	25th	28·876	31st	·208	82·8	92·8	+1·1	79·9	+1·3	86·4	+1·2	12·9	107·0	1st	74·6	24th & 25th	32·4
			Dehra Dun	2,233	27·373	−·011	29·529	27·467	25th	27·265	31st	·202	77·6	87·4	+2·1	74·9	+0·7	81·2	+1·4	12·5	97·5	9th	69·5	15th & 16th	28·0
			Roorkee	887	28·663	−·009	29·508	28·772	25th	28·545	29th	·227	82·4	92·4	+0·4	78·4	+0·3	85·4	+0·4	14·0	101·7	2nd	70·6	2nd	31·1
22		N.-W. P., West.	Meerut	738	28·808	+·003	29·503	28·920	25th	28·675	14th	·245	83·4	92·6	−0·2	80·0	+0·4	86·3	+0·1	12·6	105·7	1st	73·4	16th	32·3
26		South-East Punjab.	Delhi	718	28·821	−·002	29·492	28·916	25th	28·702	14th	·214	85·9	94·8	+0·8	82·5	+2·0	88·7	+1·4	12·3	109·2	9th	76·4	16th	32·8
28		Central Punjab.	Lahore	702	28·817	+·006	29·474	28·927	25th	28·676	30th	·251	88·8	101·9	+3·3	84·3	+3·8	93·1	+3·6	17·6	109·1	30th	74·6	23rd	34·5
27		South Punjab	Sirsa	662	28·857	−·002	29·472	28·951	25th	28·751	31st	·200	87·2	100·3	+0·3	82·3	+1·0	91·3	+0·7	18·0	110·3	8th	75·3	15th & 31st	35·0
			Patiala	818	28·722	?	29·497	28·844	25th	28·583	31st	·261	83·7	93·3	?	78·9	?	86·1	?	14·4	107·5	9th	72·0	9th	35·5
29		Punjab (Sub-Montane).	Ludhiana	812	28·721	−·003	29·490	28·842	25th	28·592	29th	·250	85·0	96·9	−1·0?	80·8	+0·8	88·9	−0·1?	16·1	108·9	9th	70·6	23rd	38·3
			Sialkot	830	28·695	+·006	29·479	28·805	25th	28·580	30th	·225	88·1	101·9	+4·4	81·8	+2·6	91·9	+3·5	20·1	111·8	1st	74·6	21st	37·2
			Umballa	892	28·654	?	29·500	28·772	25th	28·534	29th	·238	82·1	94·1	?	78·2	?	86·2	?	15·9	108·0	9th	73·0	3 days	35·0
31		North Punjab	Rawalpindi	1,643	27·875	+·014	29·458	27·987	23rd	27·741	30th	·246	85·1	101·5	+4·1	77·6	+0·9	89·6	+2·5	23·9	115·0	1st	68·7	15th	46·3
		VII.—Indus Valley and North-West Rajputana.		...	...	−·004	...	...	...	...	...	...	...	102·3	+1·5	82·8	+1·1	92·5	1·3	19·5	...	...	...	...	36·4
31		North Punjab	Peshawar	1,110	28·413	−·003	29·432	28·523	23rd	28·238	30th	·285	87·4	104·4	+1·6	78·4	−0·8	91·4	+0·4	25·0	113·0	4th & 6th	70·9	26th	42·1
32		West Punjab	Khushab	612	28·898	?	29·469	29·003	25th	28·729	30th	·274	88·6	102·9	?	83·2	?	93·1	?	19·7	112·4	1st	70·0	25th	42·4
			Montgomery	558	28·941	?	29·452	29·045	23rd	28·771	30th	·274	91·5	107·0	?	84·9	?	95·9	?	22·1	113·1	30th	74·5	15th	38·6
			D. I. Khan	594	28·913	−·009	29·442	29·037	26th	28·706	30th	·331	88·2	103·2	+0·5	82·2	−0·2	92·7	+0·2	21·0	111·2	1st	74·0	16th	37·2
			Mooltan	420	29·063	−·001	29·442	29·172	26th	28·895	30th	·277	90·9	105·4	+2·3	84·9	+1·8	95·2	+2·1	20·5	113·4	10th	75·5	26th	37·9
37		Sind	Jacobabad	186	29·293	+·008	29·435	29·399	2nd	29·105	31st	·294	91·3	108·8	+1·4	86·1	+2·2	97·5	+1·8	22·7	115·1	1st	78·1	13th	37·0
			Hyderabad	96	29·435	?	29·452	29·523	2nd	29·299	31st	·224	86·5	99·9	+1·1	82·4	+1·9	91·2	+1·5	17·5	109·7	10th	74·5	10th	35·2
			Kurrachee	30	29·516	−·014	29·496	29·654	2nd	29·372	31st	·282	85·8	93·2	+1·5	81·8	+1·2	87·5	+1·4	11·4	98·3	10th & 28th	75·0	13th	23·3
51		West Rajputana	Bickaneer	771	28·759	?	29·482	28·883	2nd	28·633	31st	·250	89·2	102·2	+2·1	84·3	+1·9	93·3	+2·0	17·9	112·9	10th	76·0	15th	36·9
			Pachpadra	380	29·145?	?	29·476?	29·330	2nd	29·000	31st	·330	85·3	99·9	?	81·3	?	90·6	?	18·6	111·3	10th	74·0	26th	37·3
			Jodhpur	810	28·761	?	29·523	28·912	2nd	28·644	12th	·268	84·4	97·9	?	81·1	?	89·5	?	16·8	110·2	10th	77·6	20th	32·6
		VIII.—East Rajputana, Central India and Gujarat.		...	...	−·007	...	...	...	...	...	...	...	93·0	+3·4	79·3	+2·3	86·2	+2·8	13·7	...	...	...	...	28·1
50		East Rajputana	Jeypore	1,431	28·149	0	29·519	28·269	2nd	28·044	14th	·225	84·1	95·5	+3·7	79·8	+2·9	87·7	+3·3	15·7	107·0	8th	74·0	14th	33·0
			Kotah	?	28·728	?	?	28·834	1st	28·604	18th	·230	84·8	95·7	?	80·9	?	88·3	?	14·8	108·1	8th	72·6	20th	35·5
			Sambhar	1,254	28·308	+·003	29·505	28·433	2nd	28·206	14th	·227	84·7	96·1	+4·2	80·7	+2·9	88·4	+3·6	15·4	104·5	3 days	74·4	15th & 22nd	30·1
			Ajmere	1,611	27·972	−·009	29·526	28·110	2nd	27·866	31st	·244	82·4	93·2	+2·3	79·5	+2·8	86·4	+2·6	13·7	104·4	8th	73·6	15th	30·8
			Deesa	466	29·119	−·013	29·537	29·295	2nd	28·961	12th	·334	82·7	95·2	+3·8	79·4	+1·9	87·3	+2·9	15·8	104·9	9th	75·0	11th & 19th	29·9
46		Kathiawar and Cutch.	Bhuj	395	29·192	−·003	29·537	29·347	2nd	29·002	12th	·345	83·0	92·0	+1·9?	79·1	+1·0	85·6	+1·5	12·9	102·6	10th	73·9	27th	28·7
			Rajkot	429	29·178	−·018	29·557	29·346	2nd	28·980	11th	·366	81·8	92·8	+2·7	77·7	+2·2	85·3	+2·5	15·1	101·4	3rd & 7th	74·7	26th	26·7
			Veraval	?	29·601	?	29·561	29·779	2nd	29·362	11th	·417	81·8	84·6	?	80·1	?	82·4	?	4·5	88·6	11th	75·3	25th	13·3
			Ghadechi	35	29·584	?	29·564	29·753	2nd	29·380	11th	·373	84·1	94·6	?	79·3	?	87·0	?	15·3	104·1	1st	76·3	14th & 27th	27·8
49		Central India	Nowgong	757	28·812	−·003	29·518	28·910	2nd	28·706	11th	·204	83·7	92·6	+2·6	80·6	+2·6	86·6	+2·6	12·0	104·0	7th	77·0	3 days	27·0
			Indore	1,823	27·829	+·011	29·589	27·978	2nd	27·703	11th	·275	77·8	89·3	+5·3	74·6	+2·3	82·0	+3·8	14·7	98·1	3rd	73·1	8 days	25·0
			Neemuch	1,630	27·934	?	29·568	28·141	2nd	27·891	11th	·253	78·9	90·3	+3·4	75·5	+1·7	83·0	+2·6	14·8	101·8	8th	71·1	18th	30·7
45		Gujarat	Surat	39	29·597	−·038	29·578	29·785	2nd	29·389	11th	·396	82·0	90·4	+3·2	78·9	+1·7	84·7	+2·5	11·5	97·2	7th	76·0	24th	21·2
			Ahmedabad	164	29·450	?	29·560	29·623	2nd	29·271	12th	·352	83·0	94·2	?	79·1	?	86·7	?	15·1	102·3	7th	74·6	25th	27·7
22		N.-W. P., West	Agra	555	28·988	−·005	29·495	29·067	23rd	28·898	31st	·169	85·6	95·8	+2·8	82·4	+2·2	89·1	+2·5	13·4	108·0	4th	77·9	16th & 17th	30·1
21		N.-W. P., Central.	Jhansi	858	28·712	−·002	29·515	28·812	2nd	28·615	11th	·197	85·2	95·1	+4·4	81·4	+2·9	88·3	+3·7	13·7	106·1	3 days	74·4	23rd	31·7

I—*continued.*

in India, Burma, etc., in July 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity: Mean velocity in miles per hour.	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 June to 30st July 1897.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period, 1st June to 31st July.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11·40	11·49	−0·06	...	...	...	...	VI.—Upper Sub-Himalayas.		
8	1	5	5	7	...	3	2	...	4·1	4·1	0	82	·896	7·0	15	13·45	+1·55	27·28	16·18	+11·10	28·23	21·85	+6·38	8·45	Bareilly	N.-W. Provinces, West (Sub-montane).	24
21	1	...	1	5	...	...	2	1	1·2	1·2	0	82	·773	7·8	17	21·27	−4·27	23·07	29·25	−6·18	26·52	38·50	−11·98	5·18	Dehra Dun		
14	...	2	1	12	1	...	...	1	2·1	2·9	−28	78	·855	6·4	9	11·82	−2·82	13·90	12·45	+1·45	17·15	17·16	−0·01	4·97	Roorkee.		
13	...	1	10	2	1	1	3	...	2·1	2·3	− 9	75	·832	7·4	11	10·18	+0·82	14·89	9·54	+5·35	17·35	11·98	+5·37	4·30	Meerut	N.-W. Provinces, West.	22
3	...	...	4	14	...	3	5	2	6·8	4·5	+51	68	·855	8·2	11	8·64	+2·36	5·64	9·22	−3·58	7·59	12·57	−4·98	1·90	Delhi	South-East Punjab.	26
4	1	1	4	11	6	1	2	1	4·3	3·3	+30	65	·864	2·0	3	6·45	−3·45	3·25	6·67	−3·42	5·66	8·51	−2·85	1·76	Lahore	Central Punjab	28
3	...	3	...	10	5	1	8	1	9·7	4·8	+102	68	·867	5·7	7	5·55	+1·45	4·45	4·58	+0·13	5·42	6·49	−1·07	1·20	Sirsa	South Punjab.	27
4	3	12	...	3	3	3	2	1	6·3	?	?	80	·917	5·6	12	?	?	11·08	?	?	11·35	?	?	2·35	Patiala.		
12	1	6	1	6	3	2	...	...	2·4	2·0	+20	71	·843	6·1	8	9·36	−1·36	9·02	10·33	−1·31	11·53	12·74	−1·21	2·92	Ludhiana	Punjab (Sub-montane).	29
2	2	4	10	7	4	2	...	...	4·1	2·5	+64	64	·850	2·2	6	8·45	−2·45	3·53	8·52	−4·99	4·34	11·60	−7·26	1·70	Sialkot.		
19	...	...	7	4	...	1	...	...	1·7	?	?	84	·911	5·5	12	?	?	12·17	10·86	+1·31	12·86	14·69	−1·83	4·36	Umballa.		
18	...	1	9	1	1	...	1	...	2·2	2·1	+ 5	66	·781	2·7	8	8·64	−0·64	8·48	8·75	−0·27	9·22	10·46	−1·24	2·29	Rawalpindi	North Punjab.	31
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·89	2·83	+0·06	...	...	...	...	VII.—Indus Valley and North-West Rajputana.		
9	11	2	1	1	...	1	...	6	3·5	4·4	−20	58	·735	3·5	2	1·91	+0·09	0·54	1·79	−1·25	1·01	2·14	−1·13	0·36	Peshawar	North Punjab.	31
3	1	8	11	2	3	2	1	...	8·4	?	?	60	·797	2·1	5	3·20	+1·80	3·28	2·86	+0·42	5·39	3·56	+1·83	2·00	Khushab	West Punjab.	32
...	...	6	6	7	5	5	1	1	11·5	?	?	57	·817	2·4	3	3·60	−0·60	0·51	3·06	−2·55	0·84	4·35	−3·51	0·23	Montgomery		
5	6	8	...	7	3	...	...	2	3·8	2·4	+58	74	·986	2·2	2	3·64	−1·64	0·68	2·87	−2·19	0·89	3·41	−2·52	0·26	D. I. Khan		
1	1	6	...	13	3	7	...	...	4·3	3·4	+26	60	·861	1·1	3	2·82	+0·18	1·96	2·94	−0·98	2·05	3·53	−1·48	1·60	Mooltan.		
5	3	1	3	10	7	...	...	2	7·4	5·3	+40	62	·911	2·0	2	1·45	+0·55	1·16	1·28	−0·12	1·20	1·40	−0·20	0·86	Jacobabad	Sind.	47
1	2	...	...	1	10	14	3	...	18·9	13·9	+36	68	·843	4·5	2	3·18	−1·18	3·73	2·67	+1·06	3·76	3·00	+0·76	2·43	Hyderabad.		
...	...	...	1	...	3	8	15	4	12·3	17·8	−31	79	·971	6·9	3	3·64	−0·64	3·77	3·47	+0·30	3·77	3·99	−0·22	1·75	Kurrachee.		
1	1	...	2	2	1	12	11	1	9·5	6·7	+42	64	·869	4·7	7	?	?	5·29	3·67	+1·62	5·40	5·33	+0·07	3·10	Bickaneer	West Rajputana.	51
...	2	...	...	...	16	11	...	...	14·0	9·8	+43	80	·967	5·1	5	?	?	7·99	2·64	+5·35	8·01	3·33	+4·68	4·27	Pachpadra†		
2	...	2	...	...	6	17	3	1	5·4	?	?	73	·872	7·1	7	?	?	2·90	3·93	−1·03	3·16	5·45	−2·29	1·01	Jodhpur.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·14	10·79	−1·52	...	...	...	...	VIII.—East Rajputana, Central India and Gujarat.		
2	...	4	2	3	2	7	9	2	4·8	6·2	+23	74	·859	6·0	10	12·90	−2·90	5·85?	9·37	− 3·52	6·10	11·86	−5·76	1·83	Jeypore	East Rajputana.	50
...	3	1	3	1	1	13	5	4	6·0	?	?	72	·852	5·4	15	?	?	9·51	?	?	12·61	?	?	2·64	Kotah.		
6	...	...	3	...	3	2	16	1	8·2	9·1	−10	72	·853	6·8	9	10·20	−1·20	6·21	7·83	−1·62	6·28	9·23	−2·95	1·83	Sambhar.		
2	1	1	2	2	...	4	18	1	7·2	6·9	+ 4	81	·890	5·7	13	10·27	+2·73	8·03	7·29	+0·74	8·25	9·57	−1·32	1·52	Ajmere.		
...	...	1	1	1	6	12	8	2	14·4	14·5	− 1	83	·912	7·4	12	10·73	+1·27	9·02	10·99	−1·97	9·52	13·15	−3·63	2·85	Deesa.		
1	2	2	1	...	2	10	8	5	16·0	16·6	− 4	79	·905	8·5	8	?	?	4·39	6·94	−2·55	4·39	8·88	−4·49	1·30	Bhuj	Kathiawar and Cutch.	46
1	1	...	2	...	4	12	10	1	14·2	14·5	− 2	84	·902	8·6	13	12·91	+0·09	12·37	13·46	−1·09	12·37	18·19	−5·82	4·90	Rajkot		
...	...	...	1	2	2	12	12	2	11·3	?	?	90	·969	7·5	6	?	?	5·93	8·05	−2·12	6·00	13·69	−7·69	3·23	Veraval.		
1	...	1	1	...	4	17	6	1	13·4	?	?	76	·877	7·6	11	?	?	6·86	?	?	7·86	?	?	1·35	Ghadechl.		
3	1	...	4	...	...	3	19	1	4·8	4·2	+14	79	·900	7·0	10	15·73	−5·73	10·32	14·41	−4·09	31·83	20·24	+11·59	4·58	Nowgong	Central India.	49
6	...	2	...	...	3	6	11	3	5·4	6·8	−21	79	·766	7·6	14	13·73	+0·27	9·21	8·51	+0·70	11·19	15·30	−4·11	1·88	Indore.		
...	...	1	2	...	...	12	15	1	7·8	12·2	−36	80	·817	6·9	9	11·73	−2·73	12·81	9·89	+2·92	15·63	14·16	+1·47	4·75	Neemuch.		
...	...	...	...	4	10	10	7	...	8·6	15·7	−45	85	·929	8·5	15	16·45	−1·45	12·48	18·28	−5·80	14·11	28·40	−14·29	2·58	Surat	Gujarat.	45
...	...	4	3	1	2	17	4	...	6·7	?	?	83	·919	8·2	15	?	?	10·88	11·90	−1·02	13·68	15·91	−2·23	2·91	Ahmedabad		
...	...	4	...	9	...	14	...	4	6·3	5·0	+26	78	·949	6·4	14	13·00	+1·00	14·50	11·50	+3·00	18·23	14·04	+4·19	4·89	Agra	N.-W. P., West	22
4	...	2	1	2	...	12	5	5	1·5	4·1	−63	72	·863	4·5	12	14·36	−2·36	7·80	12·60	−4·80	14·14	17·49	−3·35	2·38	Jhansi	N.-W. P., Central	21

† Wind observations of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 214 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 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.
	IX.—Deccan		...	...	+·001	...	...	...	...	...	...	...	91·0	+5·1	74·8	+2·2	82·9	+3·7	16·2	...	...	...	...	28·5
38	Bombay, Deccan	Belgaum	2,524	27·254	−·010	29·714	27·350	2nd	27·117	9th	·233	70·7	77·1	+1·5	67·3	+0·4	72·2	+1·0	9·8	84·2	6th	65·8	1st & 17th	18·4
		Sholapur	1,590	28·138	−·020	29·671	28·256	2nd	27·993	9th	·263	79·2	93·1	+4·3	73·9	+2·6	83·5	+3·5	19·2	97·7	3 days	71·0	26th	26·7
		Poona	1,840	27·877	−·019	29·656	28·015	2nd	27·712	11th	·303	76·5	85·4	+3·6	71·8	+1·2	78·7	+2·4	13·5	95·0	7th	69·9	17th & 18th	25·1
		Bijapur	1,946	27·746?	?	29·632?	27·943?	23rd	27·456?	22nd	·487?	75·0?	85·5?	?	71·9?	?	78·7?	?	13·6?	93·2	5th	67·5?	24th	25·7?
40	Khandesh	Malegaon	1,430	28·239	−·013	29·610	28·388	2nd	28·074	11th	·314	80·5	92·3	+5·6	75·0	+2·0	83·7	+3·8	17·3	99·4	1st	73·1	20th	26·3
		Ahmednagar	2,152	27·564	?	29·641	27·696	2nd	27·401	11th	·295	77·2	88·7	?	71·5	?	80·2	?	17·2	96·3	3rd	68·4	3 days	27·9
41	Berar	Akola	930	28·733	−·001	29·607	28·871	2nd	28·580	9th	·291	81·2	94·0	+5·9	76·3	+2·3	85·2	+4·1	17·7	104·7	3rd	71·2	25th	33·5
		Amraoti	1,215	28·440	+·002	29·608	28·559	2nd	28·300	9th	·259	78·4	91·9	+5·1	75·1	+2·0	83·5	+3·6	16·8	103·3	2nd	72·3	3 days	31·0
42	Central Provinces, West.	Khandwa	1,044	28.599	−·001	29·594	28·754	2nd	28·465	11th	·289	81·0	92·7	+5·7	77·6	+2·7	85·2	+4·2	15·1	101·7	2nd & 4th	74·1	3 days	27·6
		Hoshangabad	1,006	28·615	+·005	29·575	28·756	2nd	28·512	11th	·244	81·1	91·8	+5·7	77·1	+2·1	84·5	+3·9	14·7	100·5	8th	72·7	11th & 20th	27·8
		Nagpur	1,025	28·609	+·001	29·584	28·708	2nd	28·496	9th	·212	80·6	93·3	+6·2	77·0	+2·3	85·2	+4·3	16·3	105·1	4th	71·6	20th	33·5
43	Central Provinces, Central.	Chanda	634	29·038	+·016	29·613	29·134	2nd	28·915	9th	·219	82·4	94·8	+7·2	77·9	+2·4	86·4	+4·8	16·9	105·2	3rd & 4th	71·4	20th	33·8
		Seoni	2,033	27·614	+·006	29·573	27·718	2nd	27·514	9th	·204	77·6	87·8	+4·3	73·0	+0·5	80·5	+2·4?	14·8	97·0	1st & 5th	69·9	18th	27·1
		Jubbulpore	1,327	28·283	+·010	29·554	28·393	2nd	28·175	11th	·218	81·2	90·8	+5·2	76·0	+1·4?	83·4	+3·3?	14·8	99·5	4th & 7th	71·6	18th	27·9
		Saugor	1,807	27·801	+·012	29·538	27·916	2nd	27·689	11th	·227	80·4	89·5	+4·5	76·2	+2·7	82·9	+3·6	13·3	99·8	8th	72·1	18th	27·7
49	Central India	Sutna	1,040	28·532	+·010	29·521	28·634	2nd	28·435	17th	·199	83·4	92·2	+5·4	79·9	+3·2	86·1	+4·3	12·3	103·0	7th	76·1	22nd	26·9
44	Central Provinces, East.	Raipur	970	28·654	+·015	29·567	28·730	23rd	28·556	9th & 10th	·174	81·0	91·9	+5·8	77·2	+2·6	84·6	+4·2	14·7	102·4	1st	73·1	19th	29·3
		Sambalpur	486	29·135	+·017	29·566	29·211	23rd	29·028	9th	·183	83·0	91·3	+4·6	79·2	+1·8	85·3	+2·9	12·1	102·1	4th & 5th	74·2	17th & 18th	27·9
39	Hyderabad (North).	Aurangabad	1,865	27·845	?	29·643	27·945	2nd & 3rd	27·715	11th	·230	78·3	91·7	?	72·3	?	82·0	?	19·4	100·0	3rd	70·0	24th	30·0
		Indur	?			Not	recorded					80·2	92·7	?	76·3	?	84·5	?	16·4	101·4	6th	71·4	23rd	30·0
		Bidar	2,165?	27·567	?	29·658	27·662	2nd	27·440	9th	·222	76·9	89·4	?	66·4	?	77·9	?	23·0	95·7	3rd	63·7	28th & 31st	32·0
53	Hyderabad (South).	Gulbarga	1,502	28·250	?	29·700	28·317	3rd	28·133	11th	·214	77·3	92·2	?	73·1	?	82·7	?	15·1	97·3	15th	70·5	26th	26·8
		Raichur	1,309	28·438	?	29·692	28·529	2nd	28·282	9th	·247	78·7	92·4	?	75·6	?	83·0	?	18·8	97·6	1st	69·1	18th	28·5
		Hyderabad (Deccan).	1,690	28·034	+·006	29·663	28·116	2nd	27·900	9th	·216	77·8	90·8	+4·7	74·5	+3·3	82·7	+4·0	16·3	97·4	1st & 5th	71·2	23rd	26·2
		Secunderabad	1,787	27·944	−·010	29·670	28·031	2nd	27·805	9th	·226	76·9	91·9	+5·8	73·4	+2·2	82·7	+4·0	18·5	100·2	4th & 5th	69·9	23rd	30·3
		Khamamet	373	29·328	?	29·644	29·397	2nd	29·192	9th	·205	83·0	95·4	?	78·8	?	87·2	?	16·6	104·2	2nd	74·3	21st & 22nd	29·9
	X.—West Coast		...	...	−·022	...	...	...	...	...	...	...	83·2	+0·3	75·7	+0·7	79·5	+0·5	7·5	...	...	...	...	15·1
3	Konkan	Bombay	37	29·665	−·036	29·642	29·822	2nd	29·473	11th	·349	80·9	85·0	+0·8	78·0	+0·7	81·5	+0·8	7·0	89·5	2nd & 3rd	75·0	21st & 24th	14·5
		Ratnagiri	110	29·642	−·020	29·690	29·760	2nd	29·470	9th	·290	79·3	83·5	−0·2	76·0	+0·7	79·7	+0·3	7·5	88·4	5th	72·4	3rd	16·0
		Mormugao	60	29·739	?	29·734	29·842	2nd	29·600	9th	·242	78·9	83·2	?	75·9	?	79·6	?	7·3	89·0	1st	73·4	6th & 21st	15·6
		Goa	199	29·594	−·008	29·730	29·701	2nd	29·439	9th	·262	78·7	80·4	?	76·8	?	78·7	?	3·6	86·0	1st	75·0	3 days	11·0
		Karwar	44	29·763	−·022	29·739	29·863	1st	29·629	9th	·234	78·7	82·8	−0·2	75·5	+0·9	79·2	+0·4	7·3	87·8	1st	72·5	23rd	15·3
33	Malabar	Cochin	11	29·878	−·020	29·816	29·935	2nd	29·789	10th	·146	78·4	85·5	+2·2?	75·3	+1·4	80·4	+1·8?	10·2	89·7	2nd	72·2	5th & 6th	17·5
		Calicut	27	29·849	−·020	29·806	29·922	2nd	29·775	9th	·147	77·0	82·5	+0·4	74·1	+0·6	78·3	+0·5	8·4	88·8	2nd	72·0	30th	16·8
		Mangalore	65	29·788	−·025	29·786	29·893	2nd	29·683	9th	·210	77·4	83·3	+0·6	74·5	+0·4	78·9	+0·5	8·8	90·3	2nd	72·9	4 days	17·4
		Trivandrum	198	29·676	?	29·804	29·728	2nd	29·600	10th	·128	77·8	82·9	?	75·4	?	79·2	?	7·5	84·5	3 days	73·0	31st	11·5
	XI.—South India		...	...	−·008	...	...	...	...	...	...	...	91·2	+3·1	75·9	+1·6	83·6	+2·4	15·3	...	...	...	...	26·2
57	Madras (South).	Pamban	37	29·798	?	29·762	29·852	2nd	29·722	10th	·130	83·7	88·9	?	80·3	?	84·6	?	8·6	91·3	18th	77·2	13th	14·1
		Tinnevelly	168	29·675	?	29·772	29·722	2nd	29·564	9th	·158	84·6	96·0	?	79·5	?	87·7	?	16·5	100·3	17th	75·9	8th	24·4
		Madura	447	29·373	−·008	29·752	29·419	17th	29·268	9th	·151	84·3	96·8	−0·5?	76·4	+0·3	86·6	−0·1?	20·4	101·5	2nd	69·1	10th	32·4

I—*continued.*

in India, Burma, etc., in July 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity: Mean velocity in miles per hour.	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 June to 31st July 1897.	Normal rainfall period, 1st June to 31st July.	Variation from normal of period, 1st June to 31st July.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·59	10·91	−2·32	...	...	...	...	IX.—Deccan.		
...	...	...	...	...	...	14	16	1	23·8	27·9	−15	93	·693	9·5	24	22·91	+1·09	16·72	15·37	+ 1·35	22·07	21·96	+ 0·11	3·43	Belgaum	Bombay Deccan.	38
...	...	...	...	...	...	23	6	2	?	12·3	?	67	·671	7·8	4	9·45	−5·45	2·15	2·49	− 0·34	4·96	9·30	− 4·34	1·03	Sholapur.		
...	...	...	...	1	...	17	12	1	18·9	16·9	+12	80	·725	8·3	9	12·73	−3·73	3·86	6·87	− 3·01	8·14	11·60	− 3·46	0·74	Poona.		
6	...	...	...	...	...	13	11	1	8·4	?	?	81?	·710?	7·3	4	6·40	−2·40	1·39	2·43	−1·04	9·59	5·85	+ 3·74	0·42	Bijapur.		
...	...	...	...	...	1	13	16	1	19·7	11·8	+67	73	·756	6·7	7	8·55	−1·55	4·73	4·75	− 0·02	6·52	9·47	− 2·95	1·61	Malegaon	Khandesh.	40
...	...	...	...	...	8	11	11	1	29·4	?	?	77	·719	7·3	4	?	?	1·60	3·09	−1·49	3·10	7·88	− 4·78	0·84	Ahmednagar.		
...	...	...	...	...	...	15	11	5	10·1	8·4	+20	78	·825	7·7	13	13·18	−0·18	9·68	10·81	− 1·13	10·58	16·28	− 5·70	3·39	Akola	Berar.	41
...	1	1	1	...	1	8	16	3	7·7	7·6	+ 1	86	·826	7·0	12	12·73	−0·73	4·40	10·62	− 6·22	8·43	17·46	− 9·03	0·75	Amraoti.		
2	1	...	...	1	1	6	15	5	9·2	8·4	+10	78	·810	5·8	12	11·91	+0·09	7·26	8·82	−1·56	8·23	14·87	− 6·64	1·62	Khandwa	Central Provinces, West.	42
7	...	...	...	...	3	12	7	2	4·7	4·5	+ 4	79	·834	6·6	10	17·27	−7·27	14·20	17·59	− 3·39	20·50	25·79	− 5·29	5·15	Hoshangabad.		
5	1	...	...	...	2	9	9	5	8·9	7·9	+13	80	·825	7·2	11	17·64	−6·64	12·55	14·73	− 2·18	17·51	23·47	− 5·96	4·71	Nagpur.		
1	...	...	1	2	5	10	11	1	5·5	6·2	−11	76	·830	7·2	14	?	?	14·00	18·88	− 4·88	16·04	26·73	−10·69	3·83	Chanda	Central Provinces, Central.	43
...	2	1	...	...	1	13	8	6	5·1	6·2	−18	81	·751	6·9	18	18·64	−0·64	16·15	18·15	− 2·00	19·07	28·72	− 9·65	2·44	Seoni.		
4	...	2	...	3	4	6	12	...	2·8	5·0	−44	80	·844	6·9	17	19·27	−2·27	9·69	20·80	−11·11	17·68	29·90	−12·22	1·75	Jubbulpore.		
...	...	1	...	1	...	10	16	2	6·8	5·1	+33	78	·797	6·1	11	15·64	−4·64	10·72	15·10	− 4·38	12·27	22·50	− 3·23	2·57	Saugor.		
1	2	...	2	1	6	5	12	2	8·3	9·4	−12	77	·856	6·3	13	15·73	−2·73	11·31	15·17	− 3·86	17·06	21·71	− 4·65	2·65	Sutna	Central India.	49
5	1	...	...	...	4	14	6	1	10·6	11·6	− 9	80	·829	7·8	15	16·36	−1·36	9·23	16·47	− 7·24	12·94	25·39	−12·45	2·15	Raipur	Central Provinces, East.	44
...	...	3	...	2	10	15	1	...	5·5	3·6	+53	79	·886	7·1	13	?	?	16·07	22·16	− 6·09	24·31	33·29	− 8·98	5·72	Sambalpur.		
1	...	...	...	...	4	14	9	3	7·5	?	?	76	·735	6·8	13	?	?	4·86	7·37	− 2·51	8·01	13·71	− 5·70	1·16	Aurangabad	Hyderabad (North).	39
...	3	...	...	...	...	5	18	5	15·0	?	?	78	·804	7·0	10	?	?	5·79	10·64	− 4·85	8·56	15·24	− 6·68	0·97	Indur.		
...	1	...	...	...	1	15	13	1	12·7	?	?	86	·803	4·1	8	?	?	8·47	9·29	− 0·82	9·39	15·59	− 6·20	2·20	Bidar.		
...	...	...	...	...	...	23	5	3	12·0	?	?	78	·727	7·1	8	?	?	6·86	4·89	+ 1·97	11·12	9·71	+ 1·41	4·27	Gulbarga.	Hyderabad (South).	53
...	...	...	...	...	9	10	12	...	16·2	?	?	75	·742	5·9	9	?	?	5·97	4·56	+1·41	10·24	8·31	+ 1·93	1·60	Raichur.		
1	...	...	...	...	...	...	29	1	9·9	?	?	76	·720	6·1	11	?	?	7·12	6·90	+ 0·22	8·51	11·75	− 3·24	3·77	Hyderabad (Deccan).		
...	...	...	...	...	...	5	26	...	13·9	13·3	+ 5	71	·655	6·5	11	?	?	9·09	6·90	+2·19	10·19	11·75	− 1·56	3·83	Secunderabad.		
12	...	...	...	1	...	5	12	1	8·0	?	?	76	·859	2·9	16	?	?	9·49	8·87	+0·62	11·07	14·85	− 3·78	1·75	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	42·26	28·98	+13·28	...	...	...	...	X.—West Coast.		
...	1	...	...	2	5	7	15	1	13·5	19·1	−29	88	·942	9·2	26	21·91	+4·09	30·75	27·17	+ 3·58	44·59	46·54	− 1·95	4·68	Bombay.	Konkan.	37
7	...	...	...	1	1	11	9	2	7·5	13·7	−45	91	·901	9·2	28	26·36	+1·64	69·81	35·51	+34·30	85·29	66·77	+18·52	6·87	Ratnagiri.		
...	...	1	...	2	1	6	7	14	9·9	?	?	92	·915	8·5	26	?	?	49·56	31·45	+18·11	73·24	53·44	+19·80	4·35	Mormugao.		
3	...	2	...	...	...	22	4	...	?	?	?	90	·889	9·8	26	?	?	51·10	33·70	+17·40	84·43	63·79	+20·64	6·04	Goa.		
...	3	...	...	...	...	14	14	...	6·6	?	?	87	·845	8·9	29	27·45	+1·55	52·35	38·97	+13·38	95·35	76·21	+19·14	7·70	Karwar.		
10	4	8	1	...	...	2	3	3	5·7	?	?	89	·873	8·5	24	23·91	+0·09	23·53	21·51	+ 2·02	65·97	49·92	+16·05	3·52	Cochin	Malabar.	33
4	3	4	3	3	4	2	1	7	10·0	?	?	92	·848	9·5	28	26·63	+1·37	44·75	29·35	+15·40	93·86	62·57	+31·29	6·93	Calicut.		
8	1	1	3	2	1	4	7	4	2·9	3·2	− 9	92	·872	9·6	29	28·10	+0·90	51·17	36·09	+15·04	96·37	71·12	+25·25	4·74	Mangalore.		
5	20	1	...	...	...	...	1	4	6·6	?	?	87	·838	8·5	14	?	?	7·35	7·08	+ 0·27	25·59	20·03	+ 5·56	1·56	Trivandrum.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·47	5·30	−0·83	...	...	...	...	XI.—South India.		
2	...	...	...	...	3	25	1	...	11·0	?	?	78	·902	2·9	0	1·30	−1·30	0	0·71	− 0·71	0·17	0·75	− 0·58	0	Pamban	Madras (South).	57
...	...	...	...	...	...	5	16	10	8·0	?	?	63	·743	6·1	2	0·90	+1·10	0·24	0·29	−0·05	1·05	0·91	+ 0·14	0·14	Tinnevelly.		
2	6	...	...	...	...	8	3	12	3·8	4·6	−17	63	·748	4·9	2	1·45	+0·55	0·40	2·28	− 1·88	1·20	3·78	− 2·58	0·19	Madura.		

Table

Abstract of Observations taken at 8 A.M. at 214 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
34	Madras, South Central.	Salem	940	28·903	—·013	29·783	28·961	2nd	28·775	9th	·186	79·7	94·8	+2·2	74·6	+2·3	84·7	+2·3	20·2	102·4	2nd	72·0	25th	30·4
		Coimbatore	1,348	28·481	—·011	29·780	28·543	2nd	28·359	9th	·184	75·5	86·0	—2·0?	71·8	+1·2	78·9	—0·4?	14·2	92·4	2nd	70·3	6 days	22·1
35	Coorg	Mercara	3,781	26·158	—·012	?	26·237	2nd	26·058	9th	·179	65·3	69·5	+0·8	63·5	+1·3	66·5	+1·1	6·0	75·0	1st	61·7	7th & 19th.	13·3
36	Mysore	Chitaldroog	7,405	27·406	?	29·732	27·491	2nd	27·283	9th	·208	73·2	83·1	?	69·1	?	76·1	?	14·0	88·6	3rd	67·9	5 days	20·7
		Bangalore	3,021	26·846	—·018	29·768	26·922	2nd	26·728	9th	·194	70·1	83·2	+1·5	66·7	+1·1	75·0	+1·3	16·5	90·3	1st	64·8	25th & 26th.	25·5
		Hassan	3,091	26·788	?	29·789	26·861	2nd	26·667	9th	·194	70·1	76·3	?	65·7	?	71·0	?	10·6	81·9	1st	63·9	1st	18·0
		Mysore	2,518	27·355	?	29·796	27·429	2nd	27·242	9th	·187	72·2	81·5	?	67·5	?	74·5	?	14·0	87·4	1st	65·0	26th	22·4
56	Madras, East Coast, South.	Negapatam	31	29·784	—·003	29·743	29·839	2nd	29·678	9th	·161	85·9	98·1	+3·2	79·5	+1·7	88·8	+2·5	18·6	104·2	13th	75·9	21st	28·3
		Cuddalore	12	29·783	?	29·724	29·837	23rd	29·676	9th	·161	83·7	96·5	?	78·7	?	87·6	?	17·8	102·3	1st	72·2	22nd	30·1
		Trichinopoly	255	29·559	—·014	29·745	29·610	2nd	29·458	9th	·152	84·2	99·5	+2·5	79·4	+2·1	89·4	+2·3	20·1	103·6	3 days	77·3	15th	26·3
		Madras	22	29·760	—·008	29·713	29·827	2nd & 23rd.	29·636	9th	·191	85·0	97·4	+1·8	80·3	+1·8	88·8	+1·8	17·1	104·0	1st	75·0	23rd	29·0
55	Madras, East Coast, Central.	Nellore	71	29·672	?	29·676	29·752	2nd	29·532	9th	·220	86·5	99·4	?	81·1	?	90·3	?	18·3	106·3	12th	74·6	23rd	31·7
		Masulipatam	15	29·698	—·004	29·648	29·756	23rd	29·559	9th	·197	83·5	95·4	+3·3	78·3	+0·4	86·8	+1·9	17·1	106·7	3rd	71·1	12th	35·6
54	Madras, Central	Cuddapah	433	29·336	—·013	29·706	29·420	2nd	29·159	9th	·261	84·7	98·8	+4·9	80·0	+2·6	89·4	+3·8	18·8	105·2	5th	72·7	22nd	32·5
		Kurnool	924	28·829	—·015	29·694	28·924	2nd	28·684	9th	·240	80·1	94·7	+4·3	76·0	+1·8	85·4	+3·1	18·7	100·2	1st	73·0	17th & 24th	27·2
		Bellary	1,475	28·297	—·012	29·709	28·394	2nd	28·149	9th	·245	80·8	93·1	+2·2	76·3	+2·0	84·7	+2·1	16·8	96·2	3 days	73·7	19th	22·5
52	Madras, East Coast, North.	Rajahmundry	112			Not recorded.						82·6	94·8	+5·9	78·9	+1·6	86·8	+3·8	15·9	107·1	1st & 2nd.	73·1	4th	34·0
		Cocanada	26	29·669	+·008	29·621	29·717	22nd	29·526	9th	·191	82·8	94·5	+6·3	79·7	+1·6	87·2	+4·0	14·8	107·0	2nd	74·5	17th	32·5
		Vizagapatam	31	29·636	+·010	29·604	29·712	22nd	29·510	9th	·202	84·1	92·3	+1·1	80·2	+0·7	86·3	+0·9	12·1	104·2	1st	75·9	17th	28·3
		Waltair	?	?	?	?	?	?	?	?	?	82·6	89·5	?	79·2	?	84·4	?	10·3	99·0	1st	75·1	17th	23·9
		Gopalpur	21	29·607	?	29·567	29·707	22nd	29·497	9th	·210	83·4	88·0	?	79·3	?	83·7	?	8·7	96·7	5th	73·6	16th	23·1
	XII.—Hill Stations																							
48	Baluchistan	Sharigh	?	(a) (b) 25·617	?	?	25·700	27th	25·440	31st	·260	(c) 85·1(b)	(c) 99·2(b)	?	(b) (c) 71·5	?	(b) 85·3	?	27·7	105·0	1st & 19th.	61·0	10th	44·0
		Pishin	?			Not recorded.						?	104·9	?	65·1	?	85·1	?	39·8	110·3	5th & 6th.	57·3	16th	53·0
		Quetta	5,502	24·440	+·016	?	24·520	2nd	24·292	31st	·228	78·1	92·6	0	65·5	+0·2	79·1	+0·1	27·1	98·1	30th	56·9	1st	41·2
		Kalat*	?			Not recorded.						(c) 78·6	94·5	?	55·6(c)	?	75·0	-	38·9	99·5	29th & 30th.	48·8	16th	50·7
		Chaman	4,311	25·461	?	?	25·505	2nd	25·247	31st	·258	87·9	102·5	?	76·7	?	89·6	?	25·8	107·2	30th	70·6	15th	36·6
30	Punjab	Leh	11,503			Not recorded.						55·7	76·0	?	48·8	?	62·4	?	27·2	82·7	7th	41·8	1st	40·9
		Srinagar	5,204	24·684	?	?	24·772	2nd	24·527	31st	·245	71·6	86·0	?	63·5	?	74·8	?	22·5	91·9	30th	55·5	1st	36·4
		Skardu	?	22·718	?	?	22·829	2nd	22·516	31st	·313	69·0	84·9	?	60·3	?	72·6	?	24·6	95·1	30th	50·3	1st	44·8
		Dras	?	20·711	?	?	20·806	2nd	20·539	31st	·267	60·8	80·6	?	45·5	?	63·1	?	35·1	88·0	29th	36·1	1st	51·9
		Gilgit	?	(a) 24·462	?	?	24·610	2nd	24·270	31st	·340	77·8	95·9	?	71·0	?	83·5	?	24·9	104·3	30th	63·4	16th	40·9
		Chitral	?			Not recorded.						80·1	96·2	?	65·1	?	80·6	?	31·1	104·2	30th	59·0	2nd	45·2
		Killa Drosh	?			Not recorded.						84·6	96·4	?	71·1	?	83·7	?	25·3	102·8	29th	62·9	25th	39·9
		Para Chinar	6,000	24·285	?	?	24·359	2nd	24·142	31st	·217	74·4	88·8	?	65·6	?	77·2	?	23·2	97·0	7th	59·8	16th & 17th.	37·2
		Cherat	?	25·495	?	?	25·571	10th	25·366	31st	·205	78·3	92·7	?	72·8	?	82·8	?	19·9	104·0	6th	61·0	26th	43·0
		Murree	6,334	23·712	+·016	?	23·802	2nd	23·575	31st	·227	70·0	80·7	+3·5	64·3	+1·6	72·5	+2·6	16·4	89·7	2nd	55·4	15th	34·3
		Poo	?			Not recorded.						?	77·6	?	58·2	?	67·9	?	19·4	82·0	6th & 29th.	50·9	2nd	31·1
		Simla	7,224	22·990	+·017	?	23·058	25th	22·878	31st	·180	63·3	69·8	+0·5	59·7	—0·8	64·8	—0·2	10·1	76·4	1st & 2nd.	55·1	2nd	21·3
25	N.-W. Provinces	Chakrata	7,022	23·156	+·017	?	23·217	25th	23·044	31st	·173	63·5	69·8	—0·1	60·1	+0·1	65·0	0	9·7	76·2	1st & 4th.	56·3	3 days	19·9
		Mussooree	6,705	23·391	?	?	23·444	25th	23·276	31st	·168	64·5	71·0	+1·1	61·2	+0·9	66·1	+1·0	9·8	78·8	1st & 4th.	57·4	22nd & 23rd	21·4
		Ranikhet	6,069	23·957	+·018	?	24·012	10th	23·840	31st	·172	66·6	74·4	+0·7	63·4	+0·6	68·9	+0·7	11·0	82·0	3rd & 4th.	58·0	23rd	24·0
		Muktesar	?	22·739	?	?	22·800	10th	22·621	31st	·179	62·0	71·1	?	58·3	?	61·7	?	12·8	80·5	4th	54·3	24th	26·2

(a) Aneroid uncorrected. (b) Mean of 29 days. (c) Uncorrected.

I—*continued.*

in India, Burma, etc., in July 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity: Mean velocity in miles per hour.	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 June to 31st July 1897.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period, 1st June to 31st July.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
1	...	...	...	...	8	18	4	...	6·0	4·7	+28	77	·787	6·2	6	6·91	−0·91	2·01	3·96	− 1·95	3·54	7·64	− 4·10	0·67	Salem	Madras, South Central.	34
...	...	...	...	...	2	26	2	1	6·1	8·2	−26	85	·750	8·1	5	4·36	+0·64	1·67	1·23	+0·44	6·05	2·66	+ 3·39	0·54	Coimbatore.		
...	...	...	...	...	1	3	26	1	9·4	11·3	−17	96	·611	9·8	28	29·30	−1·30	41·07	42·50	− 1·43	72·67	68·21	+ 4·46	5·12	Mercara	Coorg.	35
...	...	...	...	...	...	17	13	1	13·2	?	?	81	·666	9·3	4	?	?	3·21	2·81	+ 0·40	9·89	5·65	+ 4·24	1·84	Chitaldroog.	Mysore.	36
...	...	...	...	...	...	24	7	...	12·1	8·6	+41	85	·629	8·6	10	9·00	+1·00	3·85	4·59	− 0·74	4·98	8·04	− 3·06	1·08	Bangalore.		
...	...	...	...	...	...	8	21	2	5·6	?	?	88	·644	9·7	14	?	?	6·21	5·02	+ 1·19	10·54	9·14	+ 1·40	1·21	Hassan.		
...	...	...	...	...	...	20	10	1	14·8	?	?	84	·658	9·0	9	?	?	4·29	2·32	+ 1·97	8·07	4·53	+ 3·54	0·88	Mysore.		
1	...	...	...	...	...	17	11	2	7·9	7·1	+11	65	·805	3·6	0	3·64	−3·64	0·03	2·27	− 2·24	0·03	4·01	− 3·98	0·03	Negapatam	Madras, East Coast, South.	56
...	...	...	1	...	3	16	9	2	2·0	?	?	72	·825	4·0	5	5·60	−0·60	2·89	2·79	+ 0·10	4·86	4·28	+ 0·58	1·16	Cuddalore.		
3	...	...	...	...	...	5	20	3	7·2	9·9	−27	58	·681	6·3	1	2·18	−1·18	0·17	1·50	− 1·33	2·88	3·12	− 0·24	0·17	Trichinopoly.		
...	...	...	...	...	1	12	16	2	7·8	8·3	− 6	66	·791	7·7	4	7·00	−3·00	2·37	3·87	− 1·50	5·58	5·98	− 0·40	1·42	Madras.		
16	...	...	...	...	...	1	7	7	8·2	?	?	64	·803	9·5	5	4·70	+0·30	1·67	2·41	− 0·74	2·05	3·87	− 1·82	0·45	Nellore	Madras, East Coast, Central	5
4	...	...	...	...	...	2	11	14	11·1	9·7	+14	79	·895	9·1	12	9·36	+2·64	4·20	5·71	− 1·51	5·27	11·23	− 5·96	0·57	Masulipatam.		
...	1	...	...	...	...	8	10	12	?	?	?	65	·774	8·3	4	6·00	−2·00	4·37	3·90	+ 0·47	5·03	8·01	− 2·98	2·06	Cuddapah.	Madras, Central.	54
1	...	...	...	...	...	8	20	2	?	?	?	70	·718	8·5	9	9·83	−0·83	4·99	4·91	+ 0·08	7·56	8·86	− 1·30	2·05	Kurnool.		
1	...	...	...	...	...	3	26	1	9·3	11·6	−20	54	·566	8·1	1	3·91	−2·91	0·30	1·98	− 1·68	2·95	3·83	− 0·88	0·20	Bellary.		
11	...	...	...	...	...	4	16	...	?	?	?	75	·829	7·7	12	10·10	+1·90	8·23	7·22	+ 1·01	9·47	13·01	− 3·54	2·20	Rajahmundry.	Madras, East Coast, North.	52
...	...	...	..	...	...	16	13	2	7·8	?	?	77	·859	7·8	10	10·00	0	3·02	6·67	− 3·65	6·49	12·04	− 5·55	0·73	Cocanada.		
11	...	...	...	...	1	10	9	...	2·5	4·0	−38	75	·888	8·2	8	10·18	−2·18	1·65	5·09	− 3·44	2·52	8·58	− 6·06	0·25	Vizagapatam.		
...	...	...	...	...	2	16	13	...	15·1	?	?	80	·882	8·2					No rain gauge.						Waltair.		
...	3	...	...	...	3	21	3	1	13·3	11·3	+18	83	·929	4·6	11	11·33	−0·33	5·91	7·90	− 1·99	12·06	13·99	− 1·93	1·36	Gopalpur.		
																									XII.—Hill Stations.		
8	...	3	7	1	...	...	9	2	4·0*	?	?	54 (b)	·654 (b)	2·1 (b)	4	?	?	2·65	2·55	+ 0·10	2·65	3·80	− 1·15	1·51	Sharigh.	Baluchistan	48
				Not recorded.					?	?	?	?	?	?	0	?	?	0	?	?	0	?	?	0	Pishin.		
29	...	...	...	...	1	1	...	...	3·9	5·1	−24	61	·588	1·6	0	1·36	−1·36	0	1·21	− 1·21	0·32	1·33	− 1·01	0	Quetta.		
...	2	...	4	...	14	...	8	2	?	?	?	45	·436	1·1	1	?	?	0·33	0·52	− 0·19	0·33	0·73	− 0·40	0·21	Kalat.*		
...	1	2	1	4	4	12	2	5	12·0	?	?	26	·345	0·2	0	?	?	0	0·29	− 0·29	0	0·51	− 0·51	0	Chaman.		
...	3	2	...	...	6	3	15	2	2·9	1·9	+53	53	·234	4·5	0	?	?	0·09	0·48	− 0·39	0·14	0·70	−0·56	0·07	Leh	Punjab.	30
13	2	1	2	5	2	1	2	3	4·2	?	?	88	·695	3·4	2	?	?	1·96	?	?	4·09	?	?	0·99	Srinagar.		
9	...	12	...	...	1	1	8	...	5·5	?	?	50	·352	4·6	1	?	?	0·14	0·25	− 0·11	0·28	0·79	− 0·51	0·11	Skardu		
28	...	...	...	...	...	...	1	2	1·5	?	?	87	·467	4·2	1	?	?	0·26	0·34	− 0·08	0·89	?	?	0·13	Dras.		
				Not recorded.					?	?	?	53	·465	3·9	1	?	?	0·30	0·94	− 0·64	1·33	1·10	+ 0·23	0·20	Gilgit.		
3	2	8	2	6	9	...	...	1	?	?	?	56	·572	0	0	?	?	0	?	?	1·55	?	?	0	Chitral.		
...	1	...	...	...	1	3	5	...	?	?	?	34	·398	4·1	1	?	?	0·44	?	?	1·01	?	?	0·29	Killa Drosh†		
...	3	4	6	7	1	4	4	2	5·6	?	?	53	·451	3·0	8	?	?	3·11	?	?	3·11§	?	?	0·96	Para Chinar.		
5	4	1	...	...	16	2	1	2	10·3	?	?	62	·561	3·2	4	?	?	2·91	4·78	− 1·87	4·66	5·26	− 0·60	1·65	Cherat.		
5	5	...	1	7	...	...	1	12	6·7	5·7	+18	74	·547	3·1	12	12·00	0	5·67	11·25	− 5·58	7·75	14·12	− 6·37	1·28	Murree.		
19	...	...	1	...	1	1	5	4	?	?	?	?	?	6·2	2	?	?	1·33	1·14	+ 0·19	1·50	1·41	+ 0·09	0·85	Poo.		
15	7	5	1	...	2	1	...	...	2·7	1·6	+69	86	·501	8·6	19	19·27	−0·27	10·37	17·55	− 7·18	13·79	24·34	−10·55	1·58	Simla.		
17	3	2	3	1	5	...	...	...	10·0	4·6	+117	88	·515	6·6	22	?	?	25·03	19·42	+ 5·61	29·08	26·33	+ 2·75	4·05	Chakrata	N.-W. Provinces.	25
...	3	3	6	3	2	1	7	6	?	8·7	?	94	·557	7·6	24	21·91	+2·09	31·31	30·28	+ 1·03	37·18	40·57	− 3·39	4·15	Mussooree.		
12	...	3	5	1	1	1	7	1	2·9	2·1	+38	85	·550	7·8	17	19·18	−2·18	19·05	13·28	+ 5·77	23·37	19·22	+4·15	5·46	Ranikhet.		
...	...	1	7	12	...	...	2	9	3·6	?	?	90	·497	7·8	17	?	?	23·99	?	?	29·49	?	?	6·07	Muktesar.		

* Mean of 30 days. † 21 variable. § For July only.

Table

Abstract of Observations taken at 8 A.M. at 214 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
13	Bengal	Yatung	10,180?			Not recorded.						?	63·7	?	57·0	?	60·3	?	6·7	68·0	8th & 27th.	51·9	22nd	16·1
		Darjeeling	7,421	22·888	+·011	?	22·977	23rd	22·766	31st	·211	61·6	66·3	−0·5	57·1	−0·3	61·7	−0·4	9·2	71·1	9th	54·8	18th	16·3
		Gantok	5,660?	24·415§	?	?	24·540	6th & 7th	24·336	31st	·204	66·5	73·7	?	53·6	?	63·7	?	20·1	78·0	6th	51·0	27th	27·0
	Central India	Mount Abu	3,945	25·802	−·020	?	25·948	2nd	25·675	12th	·273	70·1	77·5	+2·9	67·2	+1·6	72·4	+2·3	10·3	87·2	9th	64·8	15th & 16th	22·4
		Pachmarhi	3,528	26·238	+·019	?	26·361	2nd	26·135	11th	·226	72·2	80·1	+4·3	69·6	+1·8	74·9	+3·1	10·5	88·7	4th & 7th.	66·7	17th	22·0
	South India	Wellington	6,200	24·163	−·032	?	24·225	2nd	24·067	10th	·158	64·3	72·0	+1·2	58·1	0	65·1	+0·6	13·9	76·2	26th & 27th.	53·7	25th	22·5
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·807	?	29·745	29·856	2nd	29·714	9th	·142	81·8	91·3	?	78·3	?	84·8	?	13·0	95·0	14th	75·0	17th & 18th.	20·0
		Colombo	40	29·858	−·021	29·824	29·914	2nd	29·787	9th	·127	81·4	86·4	?	78·1	?	82·3	?	8·3	88·0	18th & 24th.	73·0	4th	15·0
	Persia	Meshed	3,104			Not recorded.						80·8	?	?	66·5	?	?	?	?	?	?	59·8	21st & 22nd	?
		Teheran	?	25·782*	?	?	25·925	9th	25·600	26th	·325	82·8	7·7	?	71·4	?	84·6	?	26·3	106·8	28th	62·1	3rd	44·7
				25·351*	?	?	25·460	9th	25·190	26th	·270													
		Ispahan	?	24·235*	?	?	24·330	9th & 21st	24·140	12th & 26th	·190	81·8	98·6	?	67·4	?	83·0	?	31·2	107·3	30th	61·3	3rd	46·0
				24·574*	?	?	24·690	21st	24·510	12th	·180													
		Bushire†	14	29·476	−·003	29·450	29·571	4th	29·331	31st	·240	91·8	96·1	+0·7	85·5	+1·4	90·8	+1·1	10·6	107·0	2nd	77·4	16th	29·6
		Jask	?	29·508	?	29·460	29·601	23rd	29·399	5th	·202	89·3	96·0	?	84·7	?	90·4	?	11·3	101·3	12th	78·2	2nd & 6th	23·1
	Arabia	Muscat	20	29·497	?	29·464	29·592	2nd	29·374	31st	·218	91·1	94·0	?	89·4	?	91·7	?	4·6	103·8	2nd	82·0	31st	21·8
		Baghdad	220	29·420	−·025	29·608	29·594	3rd	29·189	31st	·405	89·4	107·9	+1·1	79·9	+1·1	93·9	+1·1	28·0	112·6	20th	71·3	24th	41·3
		Aden	94	29·608	−·018	29·632	29·684	1st	29·489	12th	195	87·5	95·8	+3·2	83·9	+2·6	89·8	+2·9	11·9	102·3	26th	69·9	27th	32·4
		Perim	?	29·535	?	?	29·620	2nd	29·471	12th	·149	89·1	97·7	?	75·1	?	86·4	?	22·6	105·1	27th	72·2	29th	32·9
	Afghanistan	Kabul	?			Not recorded.						75·9	91·8	?	61·6	?	76·7	?	30·2	97·1	14th	56·8	22nd	40·3
	Central Asia	Kashgar	?	25·467 (c)	?	?	25·702	26th	25·307	31st	·395	79·2	91·5	?	67·9	?	79·7	?	23·6	99·3	7th	61·3	17th	38·0
	Arabian Sea Islands.	Amini Devi	15																					
		Minicoy	10	29·833	?	?	29·916	5th	29·682	15th	·234	83·0	86·8	?	74·4	?	80·6	?	12·4	89·6	2nd	69·0	2nd, 23rd & 29th.	20·6
	Africa	Zanzibar	73	30·091	?	30·092	30·164	3rd	30·029	24th	·135	74·9	80·1	?	73·5	?	76·8	?	6·6	83·6	26th	70·3	9th	12·8

NOTE.—When a query is inserted against any reading or in the variation returns for any stations the

† Mean of 30 days.
* Aneroid and uncorrected.
§ Mean of 26 days.
(c) Aneroid corrected.

I—*concluded.*

in India, Burma, etc., in July 1897—concluded.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity: Mean velocity in miles per hour.	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 June to 31st July 1897.	Normal rainfall for period, 1st June to 31st July.	Variation from normal of period, 1st June to 31st July.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
				Not recorded.					?	?	?	?	?	?	21	?	?	8·17	·7·88	+ 0·29	15·41	?	?	0·91	Yatung	Bengal.	13
12	1	9	3	4	...	1	1	...	3·6	2·6	+38	96	·530	7·8	23	26·15	−3·15	23·57	32·45	−8·88	38·25	56·14	−17·89	5·49	Darjeeling.		
23	...	1	...	...	1	1	5	...	2·1	?	?	92	·599	?	28	?	?	19·73	22·34	− 2·61	40·02	44·10	−4·08	2·40	Gantok.		
2	...	3	...	4	5	15	2	...	11·2	10·5	+ 7	92	·678	8·1	17	16·73	+0·27	20·25	24·42	− 4·17	20·67	30·55	− 9·88	4·52	Mount Abu	Central India.	
10	...	...	...	...	...	9	10	2	10·1	9·5	+ 6	85	672	7·2	17	23·09	−6·09	17·12	26·69	− 9·57	29·30	36·49	− 7·19	3·13	Pachmarhi.		
11	...	1	...	2	1	12	4	...	5·3	5·8	− 9	70	·421	8·0	10	6·75	+3·25	2·10	3·75	− 1·65	4·85	7·48	− 2·63	0·55	Wellington.	South India.	
																									XIII.—Extra India.		
...	...	...	...	...	...	31	...	...	13·0	?	?	80	·879	3·4	4	?	?	0·95	1·98	−1·03	1·43	3·19	− 1·76	0·35	Trincomalee	Ceylon.	
...	...	...	...	1	2	14	14	...	10·1	9·0	+12	83	·896	5·7	14	?	?	5·40	5·55	−0·15	16·25	12·79	+ 3·46	1·36	Colombo.		
				Not recorded.					?	?	?	50	·527	1·3	0	?	?	0	0·03	−0·03	0·31	0·25	+0·06	0	Meshed.	Persia.	
20	1	...	...	1	3	3	1	...	4·2	?	?	?	?	0·7	0	?	?	0·01	?	?	0·21	?	?	0·01	Teheran, (a)		
2	2	4	6	3	...	2	6	5	3·6	?	?	37	·401	1·2	0	?	?	0	0·10	−0·10	0	0·10	−0·10	0	Ispahan.		
3	4	1	2	1	1	2	3	13	8·7	9·2	−5	63	·928	0·3	0	?	?	0	?	?	0	?	?	0	Bushire.†		
...	1	...	20	2	...	...	3	5	13·8	?	?	76	1·090	1·3	0	?	?	0	0·03	−0·03	0	0·03	−0·03	0	Jask.		
...	2	8	10	1	1	1	2	6	4·5	?	?	73	1·043	1·2	0	?	?	0	0·08	−0·08	0	?	?	0	Muscat	Arabia.	
5	21	...	...	...	...	...	...	5	4·3	?	?	37	·517	0	0	?	?	0	?	?	0	?	?	0	Baghdad.		
1	...	4	6	2	3	14	1	...	11·7†	9·4	+25	71	·915	6·5	1	?	?	0·62	0	+0·62	0·62	0·01	+0·61	0·60	Aden.		
7	1	1	...	...	...	11	5	5	14·3	?	?	70	·949	3·7	0	?	?	0	0·02	−0·02	0	?	?	0	Perim ‡		
6	1	...	2	...	8	4	10	...	?	?	?	40	·357	0·6	0	?	?	0·03	0·39	−0·36	0·09	0·76	−0·67	0·02	Kabul	Afghanistan.	
29	...	...	1	...	...	...	...	1	3·7	?	?	43	·418	3·0	0	?	?	0·11	0·45	−0·34	0·20	0·98	−0·78	0·08	Kashgar	Central Asia.	
...	...	...	...	...	...		19	5	12·9	?	?	82	·928	?	14	?	?	5·37	?	?	5·37 (b)	?	?	0·98	Amini Devi, Minicoy.	Arabian Sea Islands.	
...	...	1	...	2	16	12	...	...	6·2	?	?	86	·739	6·5	7	?	?	4·42	2·12	+2·30	8·28	3·36	+4·92	1·79	Zanzibar.	Africa.	

data for that station are not utilized in calculating the provincial variations.
‡ One variable.

(a) Wind observations of 29 days.

(b) For July only.

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.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Burma Coast and Bay Islands.	Port Blair	...	29·790	29·718	·072	29·761	+·018	29·753	84·2	77·2	7·0	88·5	73·4	15·1	82·2	82·4	79·8	−0·5	74·7	78·8	78·6	77·4
	Rangoon	...	·771	·688	·083	·736	+·003	·713	86·0	76·0	10·0	89·5	73·9	15·6	81·5	81·2	79·1	+0·8	74·5	78·4	77·4	76·8
	Diamond Island	...	·766	·694	·072	·737	+·005	·713	83·7	76·8	6·9	86·5	73·4	13·1	81·1	80·8	79·0	+0·5	75·1	77·5	77·4	76·7
	Cocos Island	111	·737	·669	·068	·710	?	·753?	85·2	76·7	8·5	88·1	73·8	14·3	81·9	81·9	79·7	−0·8	74·1	78·6	78·5	77·1
	Akyab	...	·723	·638	·085	·684	+·015	·646	85·3	77·7	7·6	89·1	75·0	14·1	82·9	83·0	80·5	+0·5	75·7	80·7	80·9	79·1
Assam.	Silchar	...	·592	·481	·111	·547	+·025	·600	90·2	77·1	13·1	97·7	70·5	27·2	84·0	87·1	82·6	+0·4	75·9	79·3	80·4	78·5
	Sibsagar	...	·336	·225	·111	·283	+·006	·567	87·9	76·8	11·1	95·2	74·4	20·8	82·5	86·2	81·3	−1·9	76·2	79·8	81·1	79·0
	Dhubri	...	·541	·430	·111	·494	+·016	·562	86·4	78·8	7·6	90·1	74·6	15·5	82·2	84·6	81·5	+0·3	76·6	79·2	80·4	78·7
Bengal and Orissa.	Chittagong	...	·606	·517	·089	·569	+·013	·603	86·2	76·9	9·3	91·2	74·1	17·1	83·1	83·2	80·4	+0·4	75·6	79·2	79·5	78·1
	Narayanganj	...	·624	·530	·094	·586	+·021	·560	88·5	79·4	9·1	93·1	75·3	17·8	84·5	86·0	83·5	+0·3	76·4	80·7	80·8	79·3
	Calcutta (Alipore)	...	·600	·510	·090	·561	+·024	·528	88·5	78·7	9·8	97·7	74·6	23·1	84·6	86·2	83·6	+0·5	77·2	80·0	80·6	79·3
	Saugor Island	...	·586	·504	·082	·551	+·015	·520	88·9	80·5	8·4	94·4	75·4	19·0	85·8	86·4	83·6	+0·8	78·5	81·4	81·6	80·5
	Burdwan	...	·515	·415	·100	·472	+·018	·517	91·2	79·9	11·3	102·2	75·8	26·4	85·9	88·7	84·4	+0·7	78·2	80·8	81·5	80·2
	Berhampore	...	·542	·447	·095	·502	+·015	·516	90·6	79·6	11·0	100·4	74·8	25·6	86·2	88·5	84·1	+0·8	78·1	81·0	81·7	80·3
	False Point	...	·612	·531	·081	·577	+·013	·539	88·0	78·8	9·2	101·5	72·7	28·8	85·2	85·4	82·3	+0·5	77·3	80·4	80·7	79·5
	Cuttack	...	·540	·456	·084	·507	+·009	·528	90·9	79·3	11·6	104·4	74·2	30·2	85·7	87·3	83·4	+0·9	77·0	78·6	79·3	78·3
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·610	27·526	·084	27·576	+·008	·492	87·6	75·3	12·3	99·2	71·1	28·1	82·5	84·2	80·3	+2·2	71·8	75·5	76·1	74·5
	Patna	...	29·401	29·300	·101	29·357	+·005	·489	92·1	80·7	11·4	100·3	76·9	23·4	87·5	88·8	84·9	+0·9	77·9	81·5	81·5	80·3
	Darbhanga	...	·445	·342	·103	·400	+·022	·516	91·3	80·5	10·8	98·2	77·4	20·8	86·4	88·8	84·6	+0·9	78·1	81·0	82·0	80·4
	Allahabad	...	·253	·158	·095	·208	+·001	·464	95·8	81·8	14·0	108·6	74·7	33·9	89·7	91·7	87·5	+2·8	77·8	81·5	81·3	80·3
	Lucknow	...	·187	·095	·092	·144	−·007	·461	95·8	81·3	14·5	110·8	76·3	34·5	88·4	91·8	87·2	+1·7	77·1	79·7	80·8	79·2
Upper Sub-Himalayas.	Dehra Dun	...	27·396	27·312	·084	27·347	+·001	·496	87·0	74·9	12·1	97·3	69·5	27·8	80·4	82·7	79·6	+0·2	71·4	74·2	75·1	73·6
	Roorkee	...	28·674	28·586	·088	28·627	+·008	·461	92·4	78·4	14·0	101·7	70·7	31·0	86·1	89·6	84·4	−0·2	75·5	77·7	78·6	77·3
	Meerut	...	·819	·731	·088	·772	+·007	·461	91·9	80·0	11·9	102·8	73·6	29·2	86·8	88·9	85·2	−0·3	76·5	77·8	78·5	77·6
	Lahore	...	·824	·724	·100	·773	+·002	·417	101·2	84·2	17·0	109·3	74·4	34·9	93·6	99·8	92·0	+3·7	76·7	80·8	81·6	79·7
	Ludhiana	...	·732	·642	·090	·685	+·006	·444	96·4	80·9	15·5	109·3	70·7	38·6	88·5	93·2	87·4	+0·7	75·7	78·5	79·2	77·8
Indus Valley and N.-W. Rajputana.	Peshawar	...	·414	·307	·107	·360	−·001	·409	103·9	78·4	25·5	113·0	71·3	41·7	93·2	100·6	90·0	+0·4	70·2	77·0	76·7	74·6
	Mooltan	...	29·077	·977	·100	29·026	+·003	·397	105·3	84·9	20·4	113·6	75·5	38·1	96·2	103·3	94·2	+1·9	77·7	81·2	83·0	80·6
	Jacobabad	...	·300	29·176	·124	·237	+·003	·371	108·6	86·0	22·6	114·2	77·9	36·3	98·3	106·6	96·4	+1·7	78·2	82·0	83·1	81·1
	Kurrachee	...	·521	·449	·072	·490	−·014	·469	93·1	81·8	11·3	98·3	74·9	23·4	89·1	89·8	86·1	+2·1	78·4	81·7	82·0	80·7
E. Rajputana, C. India and Gujarat.	Jeypore	...	28·161	28·073	·088	28·118	+·001	·472	95·3	79·8	15·5	106·8	74·1	32·7	88·3	91·8	86·1	+2·2	74·9	78·8	78·9	77·5
	Ajmere	...	27·982	27·892	·090	27·932	−·017	·465	92·9	79·4	13·5	104·5	73·7	30·8	86·1	91·0	84·7	+2·6	75·9	79·3	80·5	78·6
	Deesa	...	29·123	29·016	·107	29·071	−·025	·482	94·8	79·4	15·4	105·1	74·9	30·2	86·5	92·7	86·6	+2·8	75·9	79·2	79·4	78·2
	Nowgong	...	28·819	28·734	·085	28·778	+·001	·474	92·4	80·5	11·9	103·9	76·9	27·0	87·3	89·3	85·2	+2·4	76·5	79·9	80·1	78·9
	Agra	...	·993	·901	·092	·945	−·012	·446	95·7	82·4	13·3	107·9	77·9	30·0	89·8	91·6	88·7	+1·7	78·0	81·9	82·2	80·7
Deccan.	Belgaum	...	27·266	27·203	·063	27·234	−·015	·679	76·8	67·2	9·6	84·1	65·2	18·9	73·0	73·1	70·9	+0·8	66·1	70·2	70·0	68·8
	Sholapur	...	28·140	28·031	·109	28·094	−·024	·600	92·9	73·8	19·1	97·9	71·0	26·9	84·4	88·2	81·2	+3·0	70·1	72·6	73·0	71·9
	Poona	...	27·880	27·814	·066	27·849	−·024	·613	85·3	71·9	13·4	95·0	70·1	24·9	80·4	80·6	77·1	+2·0	69·7	72·7	72·1	71·5
	Akola	...	28·738	28·617	·121	28·677	−·012	·543	93·6	76·2	17·4	104·5	71·0	33·5	86·0	90·3	84·1	+3·6	73·2	77·5	78·4	76·4
	Buldana	2,132	27·561	27·459	·102	27·510	−·017	·544	88·5	72·2	16·3	98·5	69·8	28·7	80·8	84·5	79·4	+3·1	69·3	72·6	73·1	71·7

II.

at 85 Stations in India, Burma, etc., in July 1897.

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.		
																									%	%						
·829	·940	·931	·900	+·002	89	85	85	86	+ 1	9·0	9·6	9·3	+1·7	...	...	...	...	1	5	26	27	3	S 65° W	S 47° W	84	87	277	268	...	...	Port Blair	Burma Coast and Bay Islands.
·836	·932	·894	·887	+·001	93	87	84	88	− 2	9·0	8·3	9·0	0	...	...	...	...	3	26	22	10	1	S 29° W	S 34° W	79	74	117	129	...	...	Rangoon	
·852	·899	·894	·882	+·005	92	85	85	87	0	9·3	9·2	9·3	+1·1	...	...	...	...	1	9	38	9	5	S 50° W	S 42° W	82	80	297	240	...	...	Diamond Island	
·811	·938	·929	·893	−·018	88	86	85	86	− 2	9·1	9·0	9·1	+0·7	...	1	...	...	...	19	38	...	2	S 33° W	S 34° W	87	91	?	?	16·63	2·33	Cocos Island.	
·864	1·023	1·032	·973	+·052	91	91	91	91	+ 2	8·5	8·3	8·4	−0·3	...	...	5	2	13	15	19	7	1	S 11° W	S 1° E	55	67	77	98	...	...	Akyab	
·880	·911	·950	·924	−·008	94	81	74	83	− 2	9·0	7·5	8·3	+0·3	41	2	...	1	1	3	6	6	2	S 66° W	N 60° W	18	3	58*	67	...	...	Silchar	Assam.
·899	·982	·996	·959	+·003	98	88	80	89	+ 5	8·8	7·0	7·9	−0·3	13	1	22	1	1	3	19	1	1	N 86° E	S 18° W	3	20	93*	66	...	...	Sibsagar	
·886	·960	·983	·943	+·003	90	87	83	87	0	8·4	7·6	8·0	+0·6	...	...	...	...	...	...	...	...	...	...	S 65° E	...	20	...	109	...	...	Dhubri	
·869	·947	·962	·926	+·012	94	84	85	88	+ 1	8·9	8·5	8·7	+0·8	...	1	...	5	21	16	13	4	2	S 8° E	S 30° E	61	66	203*	165	...	...	Chittagong	Bengal and Orissa.
·871	·999	·986	·952	−·021	87	84	80	84	− 3	8·5	8·1	8·3	+0·4	...	...	...	...	22	30	8	2	...	S 9° E	S 18° E	84	79	231	182	...	...	Narayanganj	
·919	·964	·973	·952	−·010	94	81	78	84	− 3	7·7	7·7	7·7	−0·6	...	...	3	5	14	19	18	2	1	S 2° E	S 8° E	63	63	126	122	...	...	Calcutta (Alipore).	
·952	1·016	1·020	·996	−·001	92	82	81	85	− 1	8·7	8·1	8·4	+0·2	...	...	2	3	13	23	18	3	...	S 3° W	S 21° W	70	60	115	357	...	...	Saugor Island.	
·945	·985	·981	·970	+·020	92	80	73	82	− 1	6·5	6·7	6·6	−1·8	8	2	...	4	10	17	18	3	...	S 8° W	S 19° E	56	48	97*	103	...	...	Burdwan	
·947	·989	·990	·975	+·012	94	79	74	82	− 5	6·7	6·7	6·7	−2·0	5	1	...	11	12	23	6	3	1	S 19° E	S 40° E	58	50	93*	117	...	...	Berhampore	
·921	·979	·986	·962	+·024	93	81	81	85	0	8·0	8·4	8·2	0	...	2	...	2	8	20	17	13	...	S 26° W	S 53° W	64	63	246*	277	...	...	False Point	
·899	·884	·895	·893	−·004	90	73	71	78	− 2	6·9	7·8	7·4	−0·3	6	6	4	2	5	9	15	13	2	S 52° W	S 49° W	34	42	75	81	...	...	Cuttack	
·739	·798	·799	·779	−·032	85	73	71	76	− 9	8·0	8·8	8·4	−0·9	1	5	2	8	8	9	7	8	14	S 66° W	S 9° E	13	14	233	210	...	...	Hazaribagh	
·923	·998	·979	·967	+·009	88	77	73	79	− 3	8·0	8·3	8·2	0	4	...	8	26	8	...	2	9	5	N 85° E	N 89° E	39	39	126*	101	...	...	Patna	Gangetic Plain and Chota Nagpur.
·930	·990	1·002	·974	+·006	89	79	75	81	− 2	6·2	6·4	6·3	0	2	1	4	25	21	2	2	2	3	S 72° E	S 77° E	63	56	144	121	...	...	Darbhanga	
·902	·965	·945	·937	−·014	84	71	67	74	− 7	7·7	7·5	7·6	−0·2	2	6	6	15	5	4	4	10	10	N 23° E	N 71° E	12	7	291*	119	...	...	Allahabad	
·877	·900	·904	·891	−·025	84	70	64	73	− 4	9·3	7·6	8·5	+0·9	9	4	7	14	5	5	5	8	5	N 87° E	N 68° E	11	15	97*	93	...	...	Lucknow	
·730	·771	·779	·760	−·043	85	76	72	78	− 6	6·4	6·8	6·6	−1·1	7	4	...	3	14	9	6	8	10	S 27° W	S 12° W	23	13	26	26	...	...	Dehra Dun	
·847	·840	·830	8·39	−·033	88	69	62	73	− 4	5·8	6·3	6·1	−0·3	19	...	7	2	21	1	3	...	9	S 63° E	S 37° E	24	33	53	70	...	...	Roorkee	Upper Sub-Himalaya.
·871	·835	·836	·847	−·040	86	68	64	73	− 1	7·2	6·9	7·1	+0·4	17	1	4	22	7	...	...	7	4	N 85° E	S 69° E	32	21	58*	57	...	...	Meerut	
·821	·882	·832	·845	−·009	70	57	45	58	− 3	3·0	2·8	2·9	−1·4	1	3	6	15	15	6	1	12	3	S 62° E	S 77° E	27	30	103	80	...	...	Lahore	
·823	·846	·811	·827	−·040	79	65	55	66	− 3	6·3	5·5	5·9	−0·1	31	...	4	1	16	...	6	1	3	S 37° E	S 40° E	21	23	55	52	...	...	Ludhiana	
·64	·732	·620	·664	−·063	66	48	33	49	− 4	2·9	4·0	3·5	+0·6	11	15	14	9	...	2	4	4	3	N 24° E	N 49° E	39	47	83*	107	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·856	·865	·853	·858	−·011	72	51	40	54	− 4	1·4	2·0	1·7	−0·6	...	...	20	...	24	...	18	..	...	S 40° E	S 23° W	39	32	105*	72	...	...	Mooltan	
·860	·878	·813	·851	+·035	70	48	36	51	− 1	1·5	1·8	1·7	−0·6	10	4	1	7	20	19	1	...	...	S 36° E	S 44° E	58	59	179*	133	...	...	Jacobabad	
·929	·981	·989	·966	+·037	86	71	71	76	− 2	6·6	5·2	5·9	−1·0	...	1	...	1	1	5	27	24	2	S 62° W	S 68° W	79	85	363*	415	...	...	Kurrachee	
·807	·865	·827	·833	−·005	80	66	59	68	− 6	6·5	7·1	6·8	−0·6	...	1	9	6	1	8	18	14	5	S 59° W	N 72° W	32	28	117	133	...	...	Jeypore	E. Rajputana, C. India and Gujarat.
·851	·916	·908	·892	+·092	85	75	65	75	+ 3	5·2	5·6	5·4	−0·7	4	...	1	5	1	5	8	33	5	S 79° W	S 77° W	58	59	171	185	...	...	Ajmere	
·851	·904	·829	·861	+·033	85	73	56	71	− 3	7·2	6·3	6·8	−1·3	...	1	1	1	2	10	24	18	5	S 57° W	S 42° W	68	73	347	351	...	...	Deesa	
·862	·925	·904	·897	+·020	83	73	69	75	− 4	6·6	8·3	7·5	−0·9	3	2	3	7	...	...	4	40	3	N 84° W	S 85° W	58	46	101*	104	...	...	Nowgong	
·903	·987	·978	956	+·051	82	72	69	74	0	6·3	7·1	6·7	0	...	...	17	...	14	...	19	...	12	S	N 84° E	5	4	175*	128	...	...	Agra	
·631	·704	·696	·677	+·008	94	87	86	89	− 1	9·3	9·5	9·4	+0·3	...	...	...	...	...	...	32	29	1	S 67° W	S 68° W	91	87	584	647	...	...	Belgaum	Deccan.
·689	·655	·623	·656	−·008	83	56	48	62	− 6	8·0	8·9	8·5	0	...	...	...	...	...	...	40	11	11	S 66° W	S 76° W	83	83	?	336	...	...	Sholapur	
·699	·713	·688	·700	+·002	89	70	68	76	− 4	8·3	8·5	8·4	−0·5	...	...	...	...	...	...	26	36	...	S 71° W	S 81° W	93	90	442*	386	...	...	Poona	
·779	·832	·811	·807	+·039	87	68	60	72	− 3	7·6	8·5	8·1	−0·4	...	1	...	...	...	...	21	25	15	S 85° W	N 74° W	72	73	217*	210	...	...	Akola	
·683	·701	·672	·685	−·024	87	68	59	71	− 8	6·9	7·6	7·3	−0·8	4	1	...	...	...	4	17	25	11	S 80° W	N 79° W	73	74	202	219	11·22	2·09	Buldana.	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 85 Stations

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
Deccan—*concluded.*	Khandwa	...	28·604	28·488	·116	28·546	−·014	29·527	92·3	77·6	14·7	101·7	74·1	27·6	84·9	90·1	84·0	+4·1	73·4	76·7	77·0	75·7
	Hoshangabad	...	·622	·509	·113	·566	−·008	·511	91·5	77·0	14·5	100·7	72·5	28·2	84·9	89·5	83·4	+3·7	73·8	77·8	78·3	76·6
	Nagpur	...	·614	·509	·105	·562	+·001	·524	92·6	77·0	15·6	105·1	71·6	33·5	84·9	87·6	83·6	+3·4	74·2	77·2	77·2	76·2
	Do. (Sanitary Commr.'s Office)	...	·626	·522	·104	·574	?	·527	93·1	77·0	16·1	105·0	71·4	33·6	85·8	88·4	83·9	?	74·1	77·5	78·0	76·5
	Jubbulpore	...	·288	·187	·101	·238	+·005	·496	90·5	76·0	14·5	99·7	71·7	28·0	84·4	85·9	81·7	+2·5	73·9	77·3	77·9	76·4
	Saugor	...	27·801	27·704	·097	27·753	−·010	·470	89·3	76·2	13·1	100·0	72·1	27·9	83·5	87·2	81·9	+3·9	71·8	76·0	76·0	74·6
	Sutna	...	28·532	28·440	·092	28·487	+·001	·466	92·0	79·8	12·2	103·0	76·1	26·9	87·4	88·1	84·7	+3·1	75·1	78·9	79·2	77·7
	Raipur	...	·661	·556	·105	·609	+·008	·500	91·2	77·1	14·1	103·6	73·0	30·6	85·0	87·1	83·1	+3·5	73·8	76·9	77·4	76·0
	Hyderabad (Deccan).	...	·036	27·927	·109	27·987	−·013	·590	90·5	74·5	16·0	97·5	71·2	25·3	82·4	88·0	81·9	+2·4	70·8	73·7	75·1	73·2
West-Coast.	Bombay	...	29·675	29·609	·066	29·640	−·029	·617	84·9	77·7	7·2	89·7	73·9	15·8	81·9	82·5	81·2	+0·3	75·1	78·9	78·7	77·6
	Ratnagiri	...	·656	·593	·063	·622	−·021	·670	83·3	75·7	7·6	88·3	72·3	16·0	80·4	80·3	79·3	−0·3	73·9	77·7	77·6	76·4
	Karwar	...	·779	·712	·067	·743	−·021	·719	82·6	75·4	7·2	86·2	72·5	13·7	80·0	80·9	79·1	+0·4	73·4	76·1	76·5	75·3
	Cochin	...	·892	·831	·061	·860	−·012	·797	85·1	75·3	9·8	89·9	72·4	17·5	80·7	81·6	79·8	+1·3	73·9	77·2	77·2	76·1
South India.	Salem	...	28·906	28·789	·117	28·860	−·017	·724	94·6	74·6	20·0	102·4	72·0	30·4	85·1	89·2	82·5	+1·8	72·7	75·9	76·8	75·1
	Mercara	...	26·171	26·105	·066	26·150	−·013	?	69·4	63·5	5·9	74·6	61·7	12·9	66·9	66·5	65·8	+1·0	62·6	66·0	65·5	69·9
	Chitaldroog	...	27·413	27·335	·078	27·383	−·019	·697	82·9	69·2	13·7	88·7	67·7	21·0	76·4	78·4	74·9	+1·4	67·1	70·0	70·6	69·2
	Bangalore	...	26·853	26·768	·085	26·822	−·012	·719	83·0	66·7	16·3	88·9	64·6	24·3	75·4	79·8	74·1	+1·8	65·3	68·6	69·3	67·7
	Hassan	...	·795	·736	·059	·777	−·017	·758	76·1	65·7	10·4	80·1	63·9	16·2	73·4	72·8	70·1	+0·6	64·7	68·8	68·1	67·2
	Mysore	...	27·361	27·288	·073	27·325	−·010	·753	81·4	67·5	13·9	86·7	65·1	21·6	76·6	76·5	73·2	−0·1	65·9	70·0	70·0	68·6
	Trichinopoly	...	29·566	29·442	·124	29·516	−·011	·697	99·5	79·4	20·1	103·8	77·2	26·6	91·2	95·4	87·6	+2·0	71·3	74·2	75·2	73·6
	Madras	...	·763	·647	·116	·715	−·007	·665	97·2	80·1	17·1	102·9	75·0	27·9	89·7	91·1	86·5	+1·3	?	77·3	78·7	77·3
	Bellary	...	28·303	28·197	·106	28·259	−·023	·651	92·9	76·2	16·7	96·2	73·5	22·7	85·3	89·4	82·7	+2·2	68·2	70·0	70·8	69·7
	Cocanada	...	29·666	29·562	·104	29·620	+·003	·582	94·0	79·7	14·3	107·0	74·6	32·4	86·4	91·6	86·9	+2·7	75·7	77·6	78·7	77·3
	Vizagapatam	...	·639	·551	·088	·601	+·010	·569	91·9	80·2	11·7	101·0	76·0	25·0	87·7	88·9	85·4	+0·7	76·1	79·7	79·9	78·6
Hill Station, Baluchistan.	Quetta	...	24·447	24·362	·085	24·403	+·017	?	92·5	65·6	26·9	98·3	57·0	41·3	84·7	89·4	78·3	+0·5	58·1	68·5	66·4	64·3
Hill Stations, Punjab.	Leh	...			Not re	corded.			76·3	48·8	27·5	82·7	41·8	40·9	63·5	73·2	60·6	−1·0	42·2	49·5	53·4	48·4
	Srinagar	...	24·687	24·608	·079	24·646	+·015	?	86·0	63·5	22·5	91·7	55·5	36·2	76·1	83·9	74·2	0	61·5	72·5	80·6	71·5
	Murree	...	23·722	23·690	·032	23·705	+·012	?	79·7	64·3	15·4	89·7	55·4	34·3	73·0	77·2	71·6	+2·6	58·0	66·3	69·0	64·4
	Kailang	10,087	20·649	20·607	·042	20·632	−·021	?	74·6	49·4	25·2	79·3	40·6	38·7	65·6	69·5	60·3	−0·8	47·0	55·9	55·0	52·6
	Simla (Ridge)	...	23·001	22·957	·044	22·977	+·011	?	69·5	59·5	10·0	76·4	55·1	21·3	65·2	66·7	64·0	−0·9	58·1	61·9	63·2	61·1
Hill Stations, N.W.P.	Chakrata	...	·167	23·121	·046	23·142	+·01	?	69·5	60·2	9·3	76·2	56·3	19·9	65·4	66·0	64·2	−0·4	59·2	62·2	63·0	67·5
	Ranikhet	...	·968	·905	·063	·929	+·007	?	73·8	63·4	10·4	82·2	57·9	24·3	69·1	70·9	68·1	−0·1	61·4	64·7	65·9	64·0
	Muktesar	...	22·751	22·696	·055	22·723	?	?	70·0	58·3	11·7	80·5	54·3	26·2	64·4	65·9	63·2	?	55·8	61·4	62·3	59·8
Hill Station, Nepal.	Katmandu	4,388	25·418	25·376	·042	25·399	+·00	?	83·8	69·0	14·8	89·4	65·9	23·5	77·5	80·1	75·5	0	67·8	70·9	72·3	70·3
Hill Station, Bengal.	Darjeeling	...	22·903	22·836	·067	22·8	+·013	?	66·1	57·1	9·0	70·9	54·8	16·1	63·0	63·7	60·9	−0·2	57·5	62·2	62·6	60·8
Hill Stations, Central India.	Mount Abu	...	25·816	25·754	·062	25·78	−·	?	77·2	67·2	10·0	87·2	64·6	22·6	72·6	75·2	71·7	+2·3	66·3	69·3	70·2	68·6
	Pachmarhi	...	26·249	26·169	·080	26·209	+·011	?	79·8	69·6	10·2	88·7	66·8	21·9	74·8	78·1	74·8	+3·0	67·7	70·2	71·4	69·8
	Chikalda	3,642	·150	·067	·083	·108	+·008	?	78·8	67·7	11·1	87·8	65·9	21·9	72·9	76·8	73·3	+3·3	66·1	69·4	70·9	68·8

II—*continued.*

in India, Burma, etc., in July 1897—continued.

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.		
																									%	%						
·774	·819	·764	·786	+·005	82	69	56	69	— 8	7·5	8·1	7·8	−0·1	1	1	2	...	1	3	12	23	19	N 85° W	N 85° W	69	82	219	217	...	...	Khandwa.	Deccan—*concluded.*
·796	·865	·830	·830	−·009	86	73	62	74	— 9	6·8	7·0	6·9	−1·4	14	1	1	1	3	6	22	12	2	S 50° W	S 72° W	52	77	107	113	...	...	Hoshangabad.	
·812	·842	·805	·820	+·007	88	72	64	75	−5	7·2	8·5	7·9	−0·8	9	2	1	1	1	3	18	14	8	S 75° W	S 88° W	56	69	205	205	...	...	Nagpur .	
·809	·842	·831	·827	?	87	70	64	74	?	6·8	7·9	7·4	?	9	7	1	1	2	9	19	11	3	S 59° W	?	43	?	67*	?	...	...	Do (Sanitary Commr.'s Office)	
·811	·850	·856	·839	+·020	91	73	71	78	— 4	7·1	7·9	7·5	−1·1	12	2	1	1	6	3	14	17	6	S 68° W	S 89° W	43	64	?	114	...	...	Jubbulpore .	
·727	·803	·756	·762	−·024	81	71	61	71	— 9	6·4	8·4	7·4	+0·7	...	...	2	2	1	1	15	30	7	S 82° W	S 73° W	72	69	163	139	...	...	Saugor .	
·815	·883	·890	·863	+·026	81	70	70	74	— 4	5·8	6·9	6·4	−0·6	4	2	...	6	2	10	5	23	10	S 77° W	N 80° W	43	45	166*	227	...	...	Sutna .	
·791	·819	·811	·807	−·020	86	70	65	74	— 8	7·3	8·5	7·9	−0·5	14	2	...	...	2	3	28	11	2	S 56° W	S 69° W	60	76	252*	278	...	...	Raipur .	
·708	·724	·712	·715	+·002	83	66	55	68	— 5	6·8	7·1	7·0	−0·4	3	...	...	...	..	...	1	57	1	W	N 86° W	94	90	237*	249	...	...	Hyderabad (Deccan).	
·837	·948	·934	·906	−·001	88	93	84	88	+ 1	8·6	8·5	8·6	−0·5	...	...	...	...	2	9	25	23	3	S 58° W	S 74° W	79	85	344	450	...	...	Bombay .	West Coast.
·813	·917	·913	·881	+·017	91	89	88	89	+ 3	9·0	8·9	9·0	+1·1	4	1	1	...	...	4	36	15	1	S 57° W	S 61° W	78	79	233	312	...	...	Ratnagiri .	
·797	·850	·856	·834	+·002	91	83	81	85	— 1	8·4	8·5	8·5	+0·7	1	...	...	...	...	...	35	24	2	S 65° W	S 73° W	89	75	154	123	...	...	Karwar .	
·821	·891	·877	·863	+·029	94	85	82	87	— 1	7·8	8·2	8·0	+0·5	4	3	7	1	...	...	4	17	26	N 54° W	N 83° W	64	51	143	131	...	...	Cochin .	
·781	·773	·755	·770	+·024	91	64	56	70	— 1	6·0	8·2	7·1	+0·7	...	4	1	...	...	8	30	11	8	S 61° W	S 55° W	61	78	143	108	...	...	Salem .	South India.
·559	·628	·619	·662	+·083	94	95	95	95	0	9·8	9·8	9·8	+0·1	...	...	...	...	...	1	12	45	4	S 83° W	N 81° W	92	90	222	250	...	...	Mercara .	
·638	·654	·651	·648	+·025	89	72	68	76	0	9·2	8·9	9·1	0	...	...	...	...	...	...	31	29	2	S 69° W	S 78° W	90	87	274*	291	...	...	Chitaldroog .	
·611	·623	·598	·611	+·002	92	71	60	74	— 3	8·3	7·9	8·1	+1·3	...	...	...	...	...	1	39	20	2	S 61° W	S 73° W	90	91	289*	217	...	...	Bangalore .	
·602	·649	·635	·629	+·040	94	80	79	84	+ 3	9·6	9·5	9·6	+0·4	...	...	...	...	...	...	12	46	4	S 84° W	S 89° W	93	90	119*	125	...	...	Hassan .	
·618	·653	·652	·641	+·033	92	71	72	78	+ 3	9·5	9·5	9·5	+0·6	...	...	...	...	...	...	31	29	2	S 69° W	S 77° W	90	91	356*	368	...	...	Mysore .	
·661	·617	·602	·627	−·061	66	42	37	48	— 8	5·3	6·8	6·1	−1·3	3	...	...	...	...	...	8	41	10	N 89° W	W	87	82	174	243	...	...	Trichinopoly .	
?	·772	·818	·821	+·028	?	56	57	65	— 2	7·4	8·6	8·0	+0·8	...	...	...	...	4	8	18	24	8	S 66° W	S 48° W	69	67	182	191	...	...	Madras .	
·591	·542	·520	·551	−·107	65	45	38	49	—14	8·7	9·0	8·9	+0·6	2	...	...	...	...	...	8	50	2	S 86° W	S 87° W	92	88	222	282	...	...	Bellary .	
·836	·826	·809	·824	−·021	82	67	56	68	— 6	7·5	7·0	7·3	+0·8	...	...	1	...	1	3	28	28	1	S 65° W	S 81° W	84	75	188*	212	...	...	Cocanada .	
·846	·908	·901	·885	+·048	82	70	67	73	+ 2	7·6	8·7	8·2	+1·0	...	...	...	...	...	7	33	22	...	S 56° W	S 71° W	88	75	59	86	...	...	Vizagapatam .	
·415	·529	·408	·451	+·012	65	44	30	46	— 1	1·4	3·9	2·7	+1·1	33	2	...	1	1	4	6	10	5	S 78° W	S 85° W	27	30	67*	91	...	...	Quetta .	Hill Station, Baluchistan.
·214	·233	·236	·228	−·028	62	40	30	44	— 1	4·9	5·0	5·0	−0·1	1	4	5	3	1	6	22	18	2	S 64° W	S 73° W	50	38	69	47	...	...	Leh .	Hill Stations, Punjab.
·526	·762	·997	·762	+·104	89	84	87	87	+ 9	3·2	3·0	3·1	−0·9	15	7	4	1	7	3	1	9	15	N 45° W	N 20° W	26	11	78*	93	...	...	Sirnagar.	
·421	·581	·625	·542	+·016	71	72	68	70	— 5	2·8	3·3	3·1	−3·3	17	12	2	4	2	6	2	2	15	N 25° W	S 19° E	27	20	136*	155	...	...	Murree .	
·304	·365	·307	·325	−·033	86	57	43	62	— 4	5·5	6·5	6·0	−0·4	...	4	...	...	...	4	24	16	14	S 80° W	S 81° W	69	65	65	49	0·47	0·16	Kailang .	
·472	·521	·546	·513	−·020	92	84	84	86	— 2	8·3	9·0	8·7	−0·1	37	8	6	...	1	4	3	1	2	N 3° E.	S 80° W	11	14	63	86	...	...	Simla (Ridge).	
·494	·528	·548	·523	−·023	94	85	86	88	— 3	8·7	8·8	8·8	+0·4	10	5	1	3	3	40	...	...	...	S 9° E	S 75° W	60	45	235	131	...	...	Chakrata .	Hill Stations, N.W.P.
·519	·568	·589	·559	−·022	90	81	79	83	— 3	8·3	8·0	8·2	−0·3	20	6	7	4	2	1	5	13	4	N 49° W	S 62° W	19	25	78*	59	...	...	Ranikhet .	
·427	·517	·527	·490	?	87	86	84	86	?	8·9	8·4	8·7	?	...	1	3	8	21	2	5	5	17	S 41° E	?	11	?	91	?	...	...	Muktesar .	Hill Station, Nepal.
·669	·682	·703	·685	−·003	94	73	69	79	— 1	6·4	6·5	6·5	−0·3	...	1	1	23	1	...	6	22	8	N 72° W	S 67° W	13	10	36	21	9·06	2·13	Katmandu .	
?	·553	·557	?	?	?	95	94	?	?	9·6	9·0	9·3	+0·4	8	3	12	8	13	3	2	7	1	S 85° E	S 75° E	30	32	87	91	...	...	Darjeeling .	Hill Station, Bengal.
·639	·680	·682	·667	+·031	96	86	80	87	— 2	8·0	7·5	7·8	−0·8	1	2	7	2	5	12	27	3	3	S 28° W	S 54° W	47	67	267*	278	...	...	Mount Abu .	Hill Stations, Central India.
·658	·688	·696	·681	+·010	91	81	74	82	— 6	7·5	7·7	7·6	−1·2	22	...	1	...	...	4	16	14	5	S 68° W	N 87° W	48	76	210*	252	...	...	Pachmarhi .	
·625	·681	·689	·665	+·010	92	85	77	85	— 7	7·6	8·5	8·1	−0·9	26	17	3	1	...	1	5	1	8	N 20° W	N 55° W	35	68	255*	239	12·98	3·03	Chikalda .	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 85 Stations

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Hill Station, South India.	Wellington	...	24·175	24·129	·046	24·152	−·017	?	72·0	58·1	13·9	76·4	53·6	22·8	68·2	66·3	63·6	+0·6	54·5	60·1	59·6	58·1
Extra India.	Muscat	...	29·504	29·441	·063	29·473	−·018	29·439	93·2	89·4	3·8	103·9	82·0	21·9	92·2	91·8	90·9	+2·4	78·5	83·4	83·7	81·9
	Aden	...	·618	·488	·130	·550	−·010	·573	95·2	83·8	11·4	101·1	69·7	31·4	90·8	92·0	88·9	+2·6	74·5	81·3	78·3	78·0
	Perim	...	·537	·421	·116	·476	+·007	?	97·4	?	?	101·7	?	?	92·9	94·1	?	?	?	81·3	80·3	?
	Zanzibar	...	30·106	30·002	·104	30·054	−·016	30·054	80·1	73·5	6·6	83·6	70·8	12·8	76·0	79·4	76·7	+0·5	70·7	72·3	72·2	71·7
	Port Victoria (Seychelles)	15	29·980	29·909	·071	29·945	−·048	29·884	81·9	76·6	5·3	83·7	73·3	10·4	80·5	81·3	79·1	+1·4	72·0	75·2	75·4	74·2
	Mauritius	181	?	?	?	30·000	−·023	30·131	?	?	?	83·4	55·9	27·5	?	?	69·8	+1·7	?	?	?	?

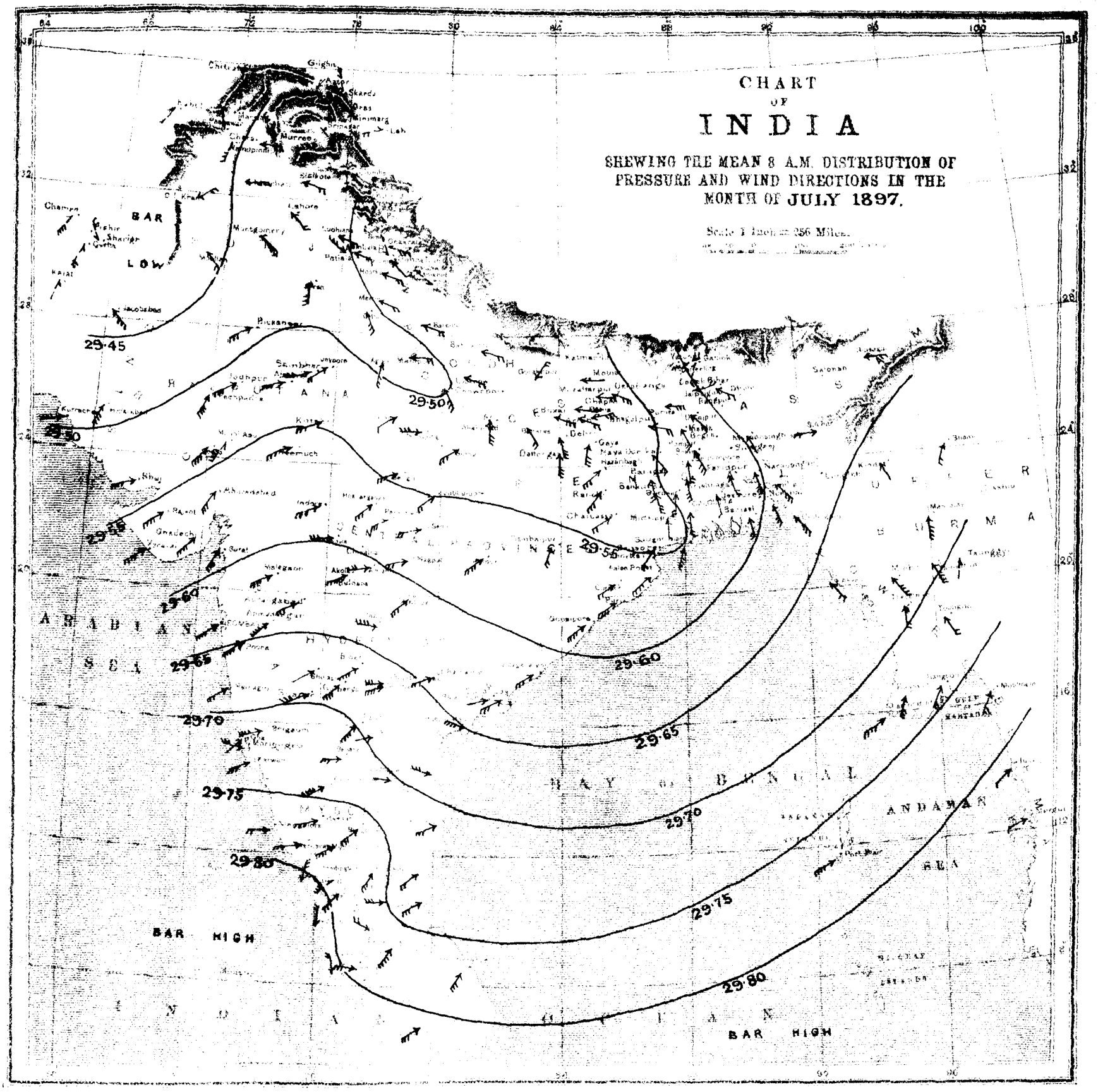
II—*concluded.*

in India, Burma, etc., in July 1897—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.		
																									%	%						
·390	·437	·444	·424	0	80	64	69	71	−3	7·9	9·7	8·8	+0·8	2	...	1	...	2	7	43	5	2	S 43° W	S 79° W	81	66	120	124	...	...	Wellington	Hill Station, South India.
·840	1·032	1·051	·974	−·046	62	70	71	68	−8	1·3	1·0	1·2	−0·3	...	4	20	20	3	...	1	2	12	N 47° E	N 61° E	56	62	108	99	...	...	Muscat	Extra India.
·731	·941	·788	·820	+·017	64	65	53	61	−4	3·5	4·1	3·8	+1·7	2	...	...	5	7	24	23	1	...	S 9° W	S 1° E	74	73	288	261	...	...	Aden	
?	·915	·853	?	?	?	60	54	?	?	1·9	2·2	2·1	−0·4	8	...	1	...	1	...	9	4	10	N 88° W	N 56° W	26	60	360	386	...	...	Perim	
·714	·742	·695	·717	+·027	86	83	69	79	+1	5·2	4·5	4·9	+0·3	...	...	1	...	15	33	13	...	...	S 2° E	S 5° E	84	83	150*	207	...	...	Zanzibar	
·724	·801	·803	·777	+072	79	77	75	77	+3	6·0	6·3	6·2	+0·6	4	...	...	3	39	13	2	...	1	S 34° E	S 29° E	81	86	264	287	6·00	1·55	Port Victoria (Seychelles).	
?	?	?	·515	?	?	?	?	71	−2	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	290	283	1·50	0·64	Mauritius	

G. I. C. P. O.—No. 71 Meteo.—15-11-97.—385.

*Corrected.



LITHO. BY J. N. MUNDLE

Explanation.

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

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

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

LITHO. BY J.N. MUNDLE

Explanation.

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

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

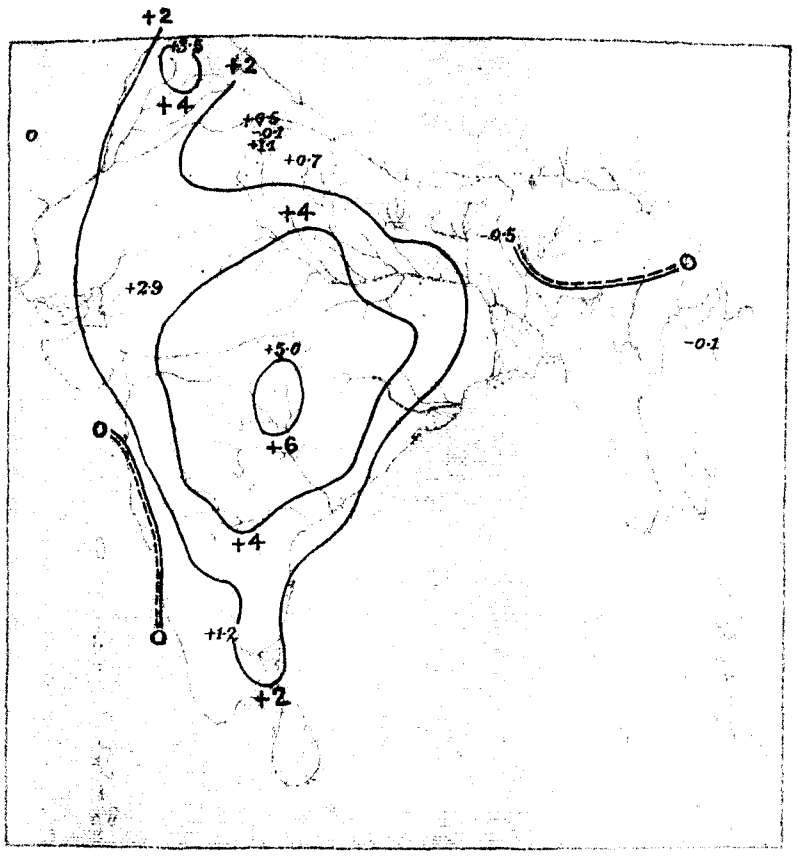
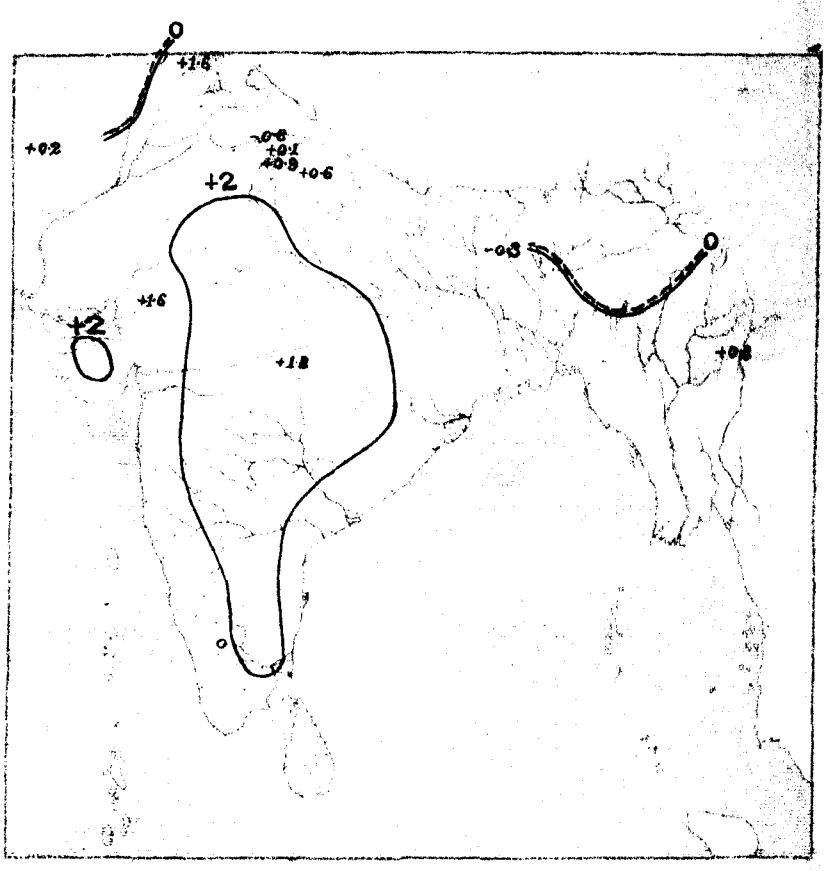


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

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

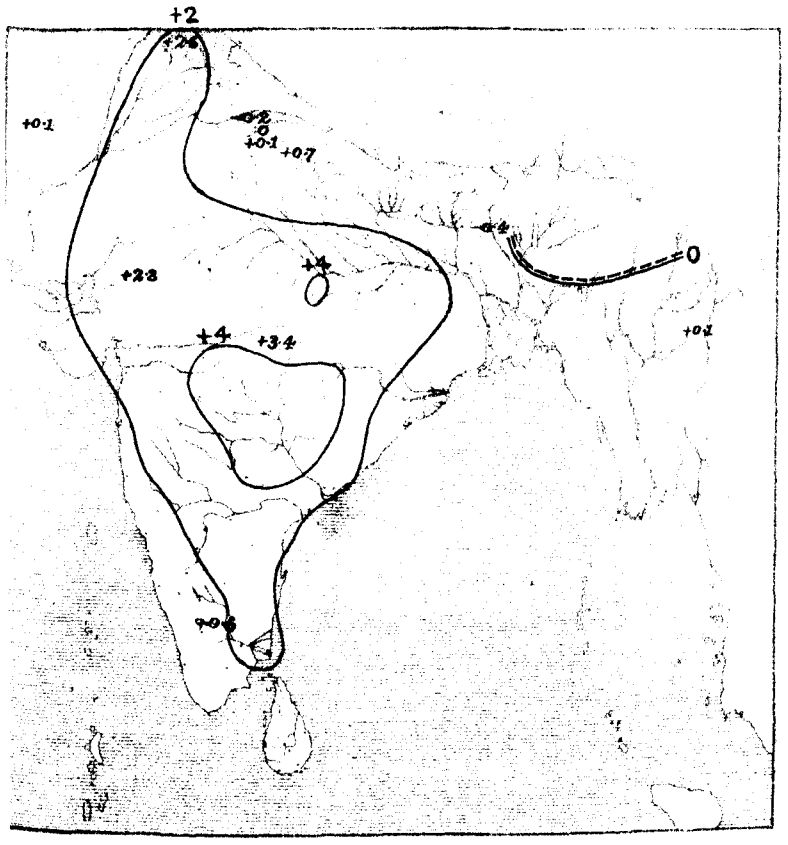
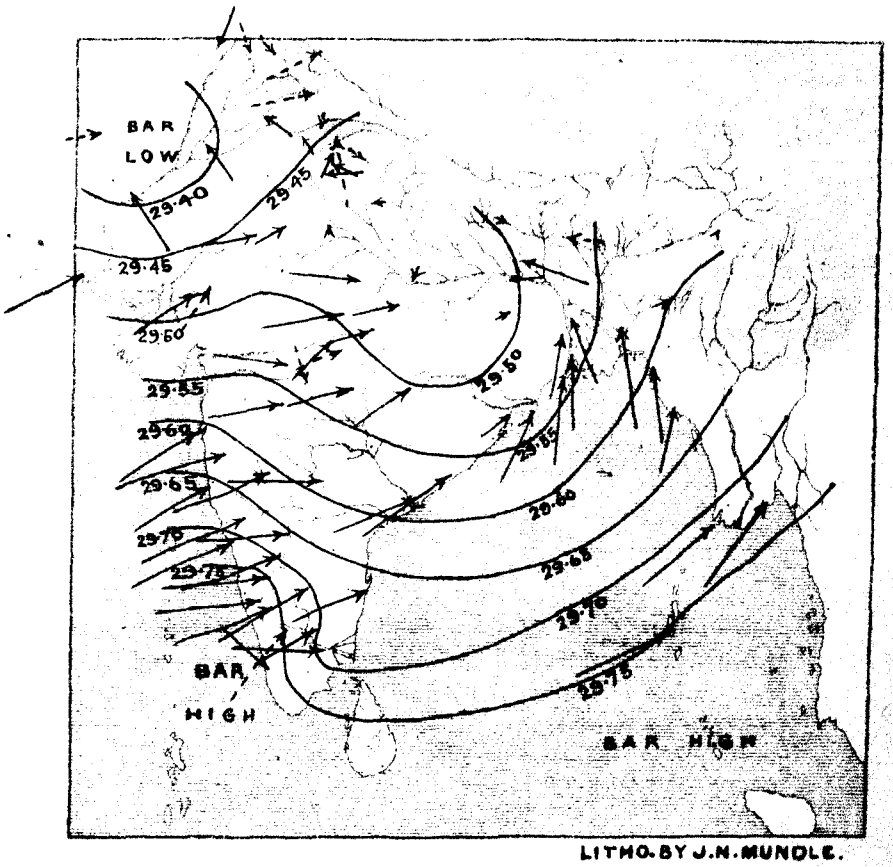


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JULY 1897.

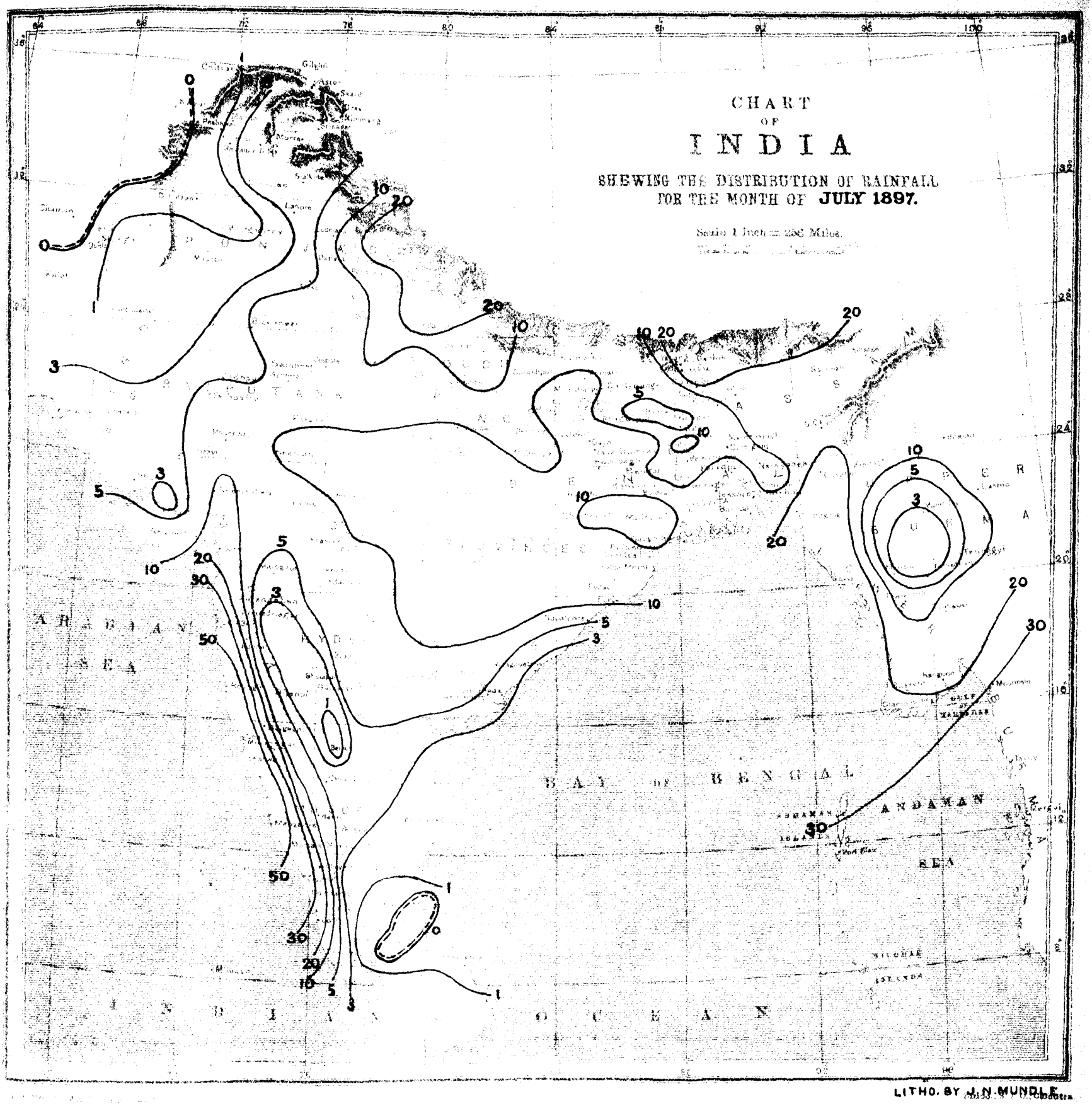


LITHO. BY J. N. MUNDLE.

Explanation.

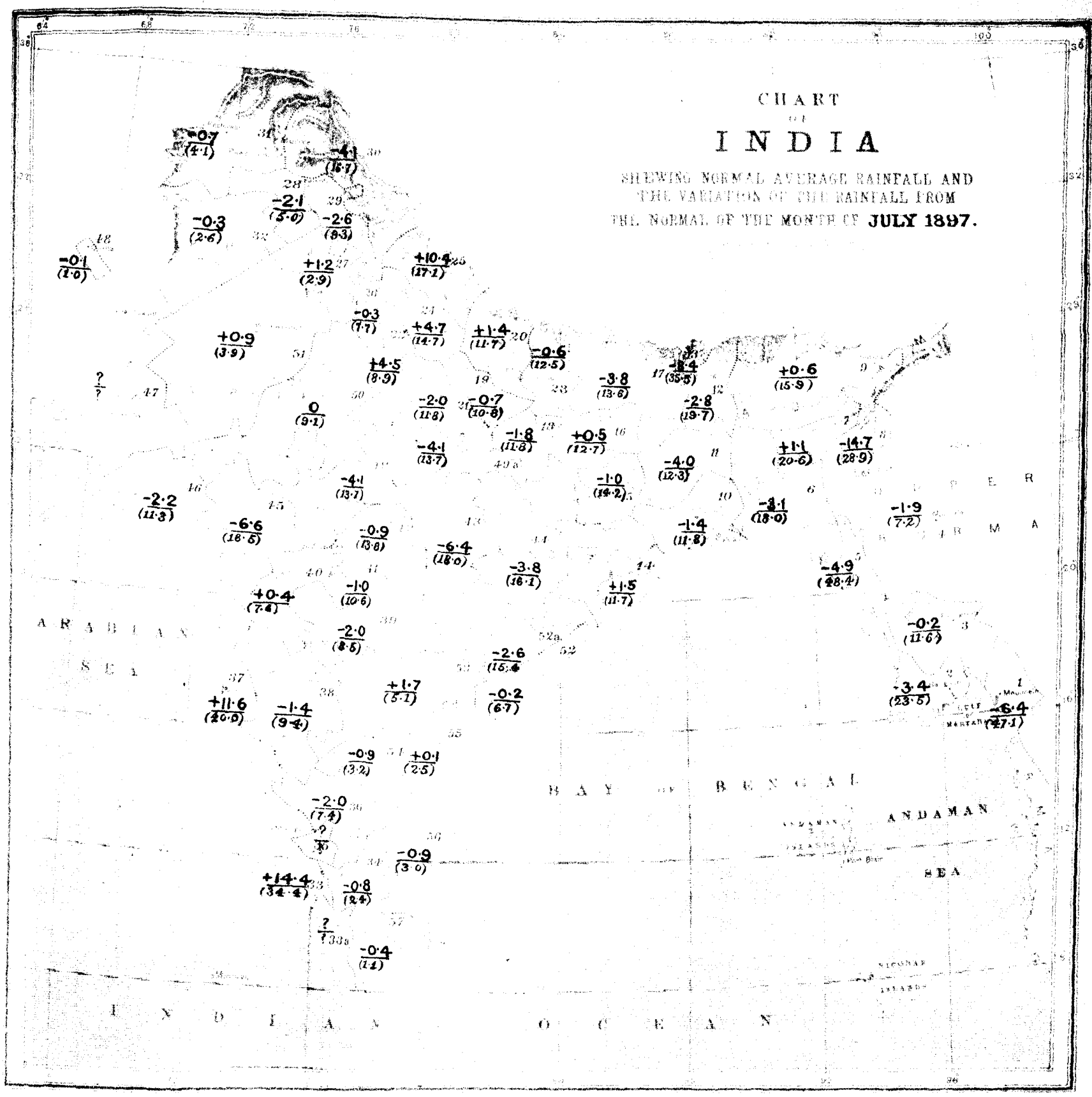
Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value



Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this chart are the rainfall returns of all the observatories in India (182 in number), except those at the Hill Stations over 3,500 feet in elevation. The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those 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 U. N. MUNDLE.

Explanation.

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

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

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FEB 14 1898
WEATHER BUREAU

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, AUGUST, 1897.

INTRODUCTION.

THIS Review of the weather in India during the month of August 1897 is based on observations taken daily at 8 A.M. at 213 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 85 stations. In the rainfall summary the rainfall data of the meteorological observatories and the weekly rainfall telegrams forwarded during the month from District Officers throughout India, 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 August, 1897.

The meteorological conditions of the month of August are very similar to those of July.

The monsoon currents usually prevail with considerable steadiness throughout the month, and give general rain in practically all districts. August is sometimes the month of greatest extension of the monsoon currents and some parts of Upper India usually obtain more rain in August than in July. On the whole, the monsoon currents in August are generally not so strong as in July, and there are also more frequent breaks in the rains in August. Hence the rainfall in India is usually smaller in amount in August than in July.

The variations in the rainfall of August in different years are in part due to variations in the strength of the current from year to year, and in part to the occurrence and line of advance of small cyclonic storms which generally form in the Bay of Bengal, and then march west-north-westwards towards Central and Upper India. These small storms usually pass along the trough of low pressure, which is an important feature in the meteorology of the south-west monsoon period. This trough of low pressure in August generally runs from Orissa in a west-north-westerly direction towards the South-West Punjab or Sind, but its position varies from year to year, and hence the direction of advance of these cyclonic storms also varies.

The following gives a summary of the chief features of the meteorology of the month of August 1897.

The monsoon currents blew with unusual steadiness in the Arabian Sea and the Bay of Bengal, although they were on the average of the month barely of normal strength. The Bay of Bengal was hence unusually free from storms, as only one storm formed and that in the extreme north-west angle and adjacent land area. Numerous shallow depressions, on the other hand, appeared over Northern India. They, however, failed to intensify to any extent, and the rainfall due to these storms was hence generally widely-spread and favourably distributed for agricultural purposes. In these respects the month stands in striking contrast to the corresponding month of 1896. The rains held steadily throughout the whole month and the rainfall of the month was in excess in 48 out of the 56 rainfall divisions.

It averaged 32 per cent. above the normal for the whole Indian area.

At the commencement of the month the monsoon trough of low pressure lay much further north than usual, occupying the submontane districts of the Gangetic Plain. A shallow depression formed on the 1st at its eastern extremity in North Bengal and the adjoining districts of Bihar. Northern and Central India were receiving general rain and temperature was hence in slight to moderate defect over the greater part of that area. Little or no rain was falling in the interior of the Peninsula, in parts of which temperature was hence considerably above the normal. On the 2nd there were two shallow depressions, one in Central Bengal and the other in the eastern districts of the North-Western Provinces and West Bihar. The former filled up during the next 24 hours, and the latter was practically stationary on the 3rd and 4th, but filled up on the 5th. Northern India received moderate to heavy general rain during this period. Temperature was remarkably low locally in Baluchistan from the 1st to the 6th, as is shown by the following data :—

Station.	Temperature.	Variation from normal of temperature of 24 hours preceding 8 A.M. of						
		1st Aug.	2nd Aug.	3rd Aug.	4th Aug.	5th Aug.	6th Aug.	7th Aug.
		°	°	°	°	°	°	°
Quetta	Maximum	−2·3	−6·4	−4·1	−5·0	−2·5	+1·5	+0·9
	Minimum	−3·6	−5·7	−7·7	−10·8	−13·[illegible]	−4·9	−2·4
	Mean	−3·0	−6·1	−5·9	−7·9	−7·8	−1·7	−0·8

The following data show the contrast between the temperature conditions in North-Eastern India and the Gangetic Plain on the one hand and North-Western India and the Peninsula on the other :—

Province.	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 and Assam	−0·7	−1·6	−1·2	−1·6	−1·6	+0·3
North-Western Provinces and Oudh.	−0·6	−0·4	−1·8	−1·1	−2·4	−1·3
Punjab	−3·0	−0·8	+1·4	+2.9	+4·2	+4·1
Sind and Rajputana	+3·6	+3·6	+4·4	+4·3	+4·6	+4·4
Central India and Gujarat	+1·9	+2·3	+2·2	+2·2	+1·5	+1·3
Central Provinces and Berar	+0·7	+1·0	−0·2	+2·1	+2·1	−1·1
Bombay	+2·1	+1·8	+1·7	+2·0	+1·6	+1·2
Madras	+2·4	+2·4	+2·5	+1·9	+3·0	+1·1

The pressure changes were large on the 5th and 6th and displaced the trough of low pressure southwards, so that on the 6th it stretched west-north-westwards from the Orissa coast across Bundelkhand to the South-West Punjab. A shallow depression formed at the eastern extremity on the 6th. The central depression lay over the north-west angle of the Bay and Orissa on the 7th. It apparently passed rapidly westwards into the Central Provinces during the next 48 hours and filled up in that area on the 10th.

The depression gave moderate rain to Orissa and the Central Provinces from the 7th to the 9th. Little or no rain fell during this period over the greater part of Upper India and temperature was hence in large excess, as is shown by the following data :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	7th August.	8th August.	9th August.	10th August.
	°	°	°	°
Baluchistan (Quetta)	−0·8	+1·9	+4·5	+4·5
Sind	+4·6	+6·5	+6·1	+3·1
Punjab	+4·1	+3·1	+0·6	−0·7
Rajputana	+4·8	+4·6	+5·5	+4·1

Moderate rain fell daily at this time in the west coast districts and occasional showers in the Deccan.

The position of the trough of low pressure was practically unchanged on the disappearance of the previous depression. A second depression formed on the 10th and 11th at its eastern extremity in Orissa and South-West Bengal. It developed very slightly on the 12th and 13th, on which days the central depression lay over the north-west angle of the Bay. Temperature was in slight to considerable excess during this period from the 10th to the 13th in which the rainfall was light and sporadic except in Lower Burma and the west coast districts. The depression advanced rapidly during the next 24 hours through the eastern districts of the Central Provinces, Baghelkhand and Bundelkhand on the 15th and 16th, the south-western districts of the North-Western Provinces on the 17th, the South Punjab on the 18th into the Central Punjab on the 19th. It filled up in the latter area during the next 24 hours. The storm, although feeble as measured by the strength of the winds and the depression of the barometer near the centre, was noteworthy for its prolonged existence and vitality. It hence gave more or less general rain over the whole of Northern and Central India. The Hoshangabad, Betul and Balaghat districts of

the Central Provinces received cyclonic downpours on the 14th and 15th, the most important (exceeding 6 inches) being the following:—

DISTRICT.	STATION.	DATE.	Rainfall during 24 hours preceding 8 A.M. of
			Inches.
BETUL	Shahpur	14th August 1897	10·70
BALAGHAT	Balaghat	" "	9·35
HOSHANGABAD	Pachmarhi	" "	8·10
BETUL	Chicholi	" "	8·00
RAIPUR	Drug	" "	7·11
HOSHANGABAD	Seoni	15th "	13·04
"	Harda	" "	8·80
"	Hoshangabad	" "	6·31
SAUGOR	Khurai	16th "	6·15

The rainfall due to this storm reduced temperature below the normal from the 17th to the 20th over Northern and Central India. Temperature, on the other hand, increased in the centre and south of the Peninsula and was in large excess, more especially in the Coromandel coast districts. The following temperature variation data illustrate these features:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	17th August.	18th August.	19th August.	20th August.
	°	°	°	°
Bengal and Assam	—1·2	—0·6	—0·8	—1·6
North-Western Provinces and Oudh.	—0·3	—1·4	—1·1	—1·8
Punjab	—2·5	—2·7	—1·7	—1·9
Sind and Rajputana	—0·5	—2·4	—3·9	—1·3
Central India and Gujarat	—0·8	—1·6	—0·4	—0·8
Central Provinces and Berar	—1·4	+0·8	+0·7	+1·4
Bombay	+1·9	+2·1	+2·5	+2·0
Madras	+3·2	+3·0	+2·5	—0·3

The excessive temperature in the Madras coast districts shown more fully by the following data:—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	17th August.	18th August.	19th August.	20th August.
	°	°	°	°
Trichinopoly	+5·3	+1·8	—2·0	+0·1
Madras	+0·5	—2·7	—0·9	—1·5
Salem	+5·4	+5·3	+2·3	+1·5
Masulipatam	+4·2	+5·3	+5·0	—3·0
Cuddapah	+6·8	+8·1	+3·2	—1·8

Pressure changes were large and somewhat irregular on the 18th and 19th. Their chief result was to displace the trough of low pressure northwards into the submontane districts of Northern India. A shallow depression formed at its eastern extremity in Central Bihar on the 19th. It lay over this area and the eastern districts of the North-Western Provinces on the 20th, 21st and 22nd and drifted on the 23rd into Oudh where it filled up during the next 24 hours. Moderate to heavy rain fell over nearly the whole of Bengal and the North-Western and Central Provinces during this storm.

Pressure was in considerable to large defect in Sind and Cutch from the 15th to the 19th. This condition accompanied the advance of a strongish burst of monsoon winds across the Sind and Kathiawar coasts. These winds gave moderate to heavy rain during the period to Sind, Rajputana and the Punjab. Kurrachee registered the heavy fall of 4·21 inches at 8 A.M. of the 17th and Mooltan of 5·07 inches at the same hour. The disturbance hence gave unusually favourable and well distributed rain over the driest area in India during the monsoon. Temperature was in moderate to large defect over the whole of Northern and Central India during the period from the 21st to the 24th following this general rainfall in Northern and Central India, as will be seen from the following data:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	21st August.	22nd August.	23rd August.	24th August.
	°	°	°	°
Baluchistan (Quetta)	+1·8	—4·0	—10·7	—5·3
Punjab	—4·4	—6·1	—7·2	—5·0
Sind	—0·1	+0·5	+1·1	—0·2
Rajputana	—2·1	—4·1	—1·3	—1·1
North-Western Provinces and Oudh.	—2·7	—3·3	—2·7	—1·2
Bihar	—2·6	—4·3	—2·6	+0·1
Chota Nagpur	—1·6	—1·2	—1·3	+1·5
Bengal	—2·3	—2·7	—1·5	+1·4
Central India and Gujarat	—0·8	—0·5	+0·3	+0·5
Central Provinces and Berar	+1·9	+1·1	+0·4	+0·4
Bombay	+2·0	+2·6	+2·2	+2·0
Madras	+1·1	+1·6	+2·0	+0·7

Large and important pressure changes occurred on the 24th and 25th which displaced the trough of low pressure, more especially the eastern half, considerably southwards. The most important change in the pressure distribution was a large decrease, and hence considerable deficiency, of pressure in Southern India and Ceylon which accompanied and perhaps determined a strongish influx of monsoon winds across the Malabar coast. Malabar received heavy rain from the 24th to the 29th and the south and central districts of the Peninsula moderate and fairly general rain during the same period. Northern and Central India obtained light and somewhat irregularly distributed rain from the 24th to the 28th. Rainfall was generally light and sporadic on the 30th and 31st and a partial break in the rains obtained generally.

The following table shows the temperature conditions for every second day which prevailed from the 25th to the 31st:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	25th August.	27th August.	29th August.	31st August.
	°	°	°	°
Baluchistan (Quetta)	—8·4	—1·0	+3·8	+0·4
Punjab	—2·8	—0·1	—0·2	—1·4
Sind	0	0	+1·4	+0·8
Rajputana	+0·3	+3·8	+3·9	+0·8
North-Western Provinces and Oudh	+0·3	—1·2	+0·8	+0·7
Bihar	+0·3	+1·9	+2·5	+2·0
Chota Nagpur	+3·2	+0·2	0	+2·7
Bengal	+2·1	+0·1	+1·0	+1·4
Central India and Gujarat	+0·5	+2·7	+2·0	+0·6
Central Provinces and Berar	+1·0	+0·3	+1·7	+1·5
Bombay	+2·2	+1·7	+0·5	+1·4
Madras	+0·3	—1·7	—2·5	+0·5

Pressure.—The mean pressure of the Indian area was ·015″ below the normal. The local variations of pressure from the normal were neither large nor important. Pressure was generally in local excess in Northern India and Burma and in defect in the Peninsula. The excess was moderate in amount in the North Punjab and Upper Burma in which it averaged ·026″. Pressure was in moderate local defect in Lower Sind, South-West Rajputana, Cutch and Gujarat, chiefly due to an abnormal deficiency of pressure in the third week of the month. The vertical pressure anomalies were small in amount and of no significance.

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

METEOROLOGICAL PROVINCE.	Variation from normal of mean 8 A.M. pressure of August 1897.	Pressure anomaly, August 1897.
	″	″
Burma Coast and Bay Islands	—·009	+·006
Burma Inland	+·001	+·016
Assam	—·007	+·008
Bengal and Orissa	—·010	+·005
Gangetic Plain and Chota Nagpur	—·020	—·005
Upper Sub-Himalayas	—·003	+·012
Indus Valley and North-West Rajputana	—·009	+·006
East Rajputana, Central India and Gujarat	—·027	—·012
Deccan	—·021	—·006
West Coast	—·016	—·011
South India	—·017	—·002

Temperature.—The mean temperature conditions of the month did not differ largely from the normal, although the rainfall was above the normal in 48 out of the 56 rainfall divisions of the empire. The mean temperature of the month was above the normal over the greater part of the empire.

The mean maximum or day temperature was below the normal in the Punjab, the North-Western Provinces, Bihar, South and West Bengal, Chota Nagpur, Orissa, the eastern districts of the Central Provinces and a part of South Madras. The variations were small over the whole of that area, except the greater part of the Punjab where they exceeded 2°. They were greatest at Dera Ismail Khan (—4°·5) and Lahore (—3° ·6). The day temperature was above the normal elsewhere, but the variations were small and unimportant except in a part of the Deccan and South Madras represented by the stations of Sholapur (+3°·1), Cuddapah (+2°·6), Kurnool (+2° ·5) and perhaps Salem (+2° ·6).

The mean night or minimum temperature of the month was in general excess except in the West Punjab. The variations were small and less than 2° in amount except in Central and East Rajputana, Lower Sind, the Konkan, the Central Deccan (defined by the stations of Sholapur, Hyderabad and probably Bijapur) and a small area in Central Madras represented by Cuddapah and Salem.

The mean temperature of the month was in slight defect over the greater part of Northern India and in excess elsewhere. The only important feature was a moderate excess in the dry area in the Deccan and Central Madras. The excess was more than 2° at Sholapur (+3° ·1), Salem (+2° ·6), Cuddapah (+2° ·4) and Kurnool (+2° ·1) and also

locally at Kurrachee and Karwar (each +2° ·2) on the west coast.

The mean temperature conditions of the month at the hill stations in Northern India were practically normal. Temperature was in moderate excess at Leh and also at Jask and Ispahan in the Persian area.

The following table gives comparative temperature variation data of the month for the eleven meteorological provinces:—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, August 1897.	Mean minimum temperature, August 1897.	Mean daily temperature, August 1897.
	°	°	°
Burma Coast and Bay Islands	+0·8	+0·5	+0·7
Burma Inland	+0·2	+0·8	+0·5
Assam	+0·6	+0·8	+0·7
Bengal and Orissa	—0·1	+0·3	+0·1
Gangetic Plain and Chota Nagpur	—0·4	+0·4	0
Upper Sub-Himalayas	—1·5	+0·7	—0·4
Indus Valley and North-West Rajputana.	—0·7	+0·5	—0·1
East Rajputana, Central India and Gujarat.	+0·4	+1·6	+1·0
Deccan	+0·5	+1·1	+0·8
West Coast	+1·2	+1·6	+1·4
South India	+1·0	+1·3	+1·2

Winds.—The data collected from vessels entering the port of Calcutta indicate that the monsoon current in the Bay was, on the mean of the month, of normal strength.

Winds were normal in strength and direction in Burma and at Port Blair. Winds were also of normal intensity in Bengal, but were more easterly than usual in South Bengal but less easterly in Central Bengal. Winds were normal in direction in the Gangetic Plain, but were generally stronger than usual. The trough of low pressure, separating the areas in which the Bombay and Bengal branches of the monsoon current prevailed, lay slightly further south than usual. The axis was defined on the mean of the month by the following stations: Hazaribagh, Sutna, Jeypore and Mooltan.

The monsoon current in the Arabian Sea was on the average of the month of normal strength. It was unusually steady but began to fall off considerably in the last week of the month. Winds were of normal intensity at the Bombay coast stations, and somewhat stronger than usual in the Deccan and the Central Provinces.

Humidity and Cloud.—The mean humidity conditions of the month were practically normal at Port Blair and in Lower Burma. There was a slight to moderate excess of aqueous vapour in Bengal, Assam, Orissa, Bihar and the eastern districts of the North-Western Provinces. As temperature was however also normal or in slight excess, the mean humidity of the month differed little from the normal at stations in these areas. Humidity was in largish excess in the Punjab, the western and central districts of the North-Western Provinces, Rajputana, Upper Sind and Central India, due to a large excess of aqueous vapour. The excess was greatest at Lahore (+10) and Deesa and Lucknow (each +8). The air was, on the other hand, considerably drier than usual in the West and South Deccan (as represented by Sholapur and Bellary) and in a part of South Madras represented by Trichinopoly. The mean humidity of the month was 10 below the normal at Bellary and 7 at Sholapur.

Cloud was in excess during the month over the whole of Northern and Central India with the exception of the Assam Valley and also in South Madras (as represented by Trichinopoly). The excess was most marked in Baluchistan, the Punjab, Upper Sind and the western districts of the North-Western Provinces, thus indicating the frequent extension of strong monsoon winds into Upper India during the month. The excess averaged 2 at Lahore, Mooltan and Jacobabad, at each of which stations the mean cloud amount was nearly double its normal value. Cloud was in moderate excess in the Central Provinces and the Bombay Deccan and was in considerable excess in Berar, Mysore, the Madras Deccan and Madras coast districts. It was for example 1·6 above the normal at Bangalore, 1·0 above at Bellary and 0·6 above at Sholapur.

The following table gives variation data of the mean aqueous vapour pressure, mean humidity and mean cloud amount of ten meteorological provinces for the month of August 1897:—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean aqueous vapour pressure, August 1897.	Mean humidity, August 1897.	Mean cloud amount, August 1897.
	"		
Burma Coast and Bay Islands	+·026	0	+0·7
Assam	+·033	0	—0·3
Bengal and Orissa	+·008	+1	+0·6
Gangetic Plain and Chota Nagpur	+·025	+2	+0·6
Upper Sub-Himalayas	+·054	+5	+1·4
Indus Valley and North-West Rajputana.	+·045	+3	+1·3
East Rajputana, Central India and Gujarat.	+·093	+6	+0·4
Deccan	+·049	+1	+0·5
West Coast	+·031	—1	+0·8
South India	+·023	0	+0·7

Rainfall.—The rainfall of the month of August was unusually favourable and well distributed. This was chiefly due to the prevalence of steady and strong monsoon currents and to their extension to their farthest limits in the Punjab. The Bay of Bengal was unusually free from cyclonic storms. Numerous shallow depressions formed over the land. They were of slight intensity but of considerable extension and gave widely-distributed and effective rain. A noteworthy feature of the month was the almost entire absence of cyclonic downpours. The only noteworthy example was the heavy rainfall in the Betul, Hoshangabad and Balaghat districts on the 14th and 15th when the most important depression of the month was passing through the Central Provinces.

The chief periods of rainfall were from the 1st to the 10th, the 13th to the 23rd and the 24th to the 29th or 30th. The rainfall during the first period was chiefly due to ordinary monsoon winds, and Bengal, the North-Western Provinces, Baluchistan, Rajputana and Central India received favourable rain during this period. The second period was marked by the advance of two shallow depressions in different directions across Northern India, and by a strongish influx of winds across the Sind and Kathiawar coasts into Upper India. The whole of Northern and Central India, Eerar and the Central Provinces obtained abundant rain during this period. The rainfall of the third period was chiefly due to an advance of humid winds from the Arabian Sea.

The influx was strongest across the Malabar coast and gave heavy rain to the Malabar coast districts and moderate general rain to the southern and central districts of the Peninsula. Rajputana, Central India, Berar, the Central Provinces and North Bombay (*i.e.*, Cutch, Kathiawar and Gujarat) also received moderate general rain during this period.

The rainfall of the month was in excess in ten out of the eleven meteorological divisions. The excess was greatest in the Gangetic Plain, Indus Valley and North-West Rajputana and South India.

The rainfall of the month was below the normal in eight only out of the 56 rainfall divisions. The deficiency was small in amount except in South Hyderabad (24 per cent.) and Assam Hills and Upper Burma (each 16 per cent.) The rainfall was between 0 and 24 per cent. in excess in 22 divisions, between 25 and 49 per cent. in excess in 14 divisions and over 50 per cent. in excess in 12 divisions including several districts in which the rainfall had been very scanty during the previous two months, more especially Madras East Coast Central, West Rajputana, Madras South Central and the North Punjab.

The following table gives comparative rainfall data for the eleven meteorological provinces of the empire :—

METEOROLOGICAL PROVINCE.	RAINFALL.		
	Mean actual for August 1897.	Mean normal for August 1897.	Variation from normal, August 1897.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	30·05	27·79	+2·26
Burma Inland	9·56	8·51	+1·05
Assam	17·35	16·54	+0·81*
Bengal and Orissa	15·05	13·84	+1·27*
Gangetic Plain and Chota Nagpur	13·20	11·62	+1·58
Upper Sub-Himalayas	10·08	11·15	—0·63*
Indus Valley and North-West Rajputana.	6·31	2·49	+3·82*
East Rajputana, Central India and Gujarat.	9·24	8·02	+1·46*
Deccan	10·06	9·32	+0·74*
West Coast	17·81	17·58	+0·23*
South India	6·73	5·45	+1·27*

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

Atmospheric Pressure.

The mean pressure of the Indian land area was ·015″ below the normal. Relatively to this general condition, pressure was in excess to the east and north of a line joining Jacobabad, Ajmere, Gorakhpur, Darbhanga, False Point, Puri, Raipur, Akola, Bellary and Masulipatam and was in defect over nearly the whole of the remainder of India.

The deficiency was moderate in amount over a part of the area including Lower Sind, Cutch, Gujarat and South-West Rajputana. The following gives data for the stations the negative anomalies at which exceeded ·02″ in amount :—

STATION.	Variation from normal of mean 8 A.M. pressure of August 1897.	Pressure anomaly, August 1897.
	″	″
Surat	—·055	—·040
Deesa	—·044	—·029
Rajkot	—·043	—·028
Bombay	—·039	—·024
Kurrachee	—·038	—·023

The positive anomalies exceeded ·02″ in a part of the Punjab and also perhaps locally at Bhamo and Yamethin.

The following gives comparative data for the stations at which the local excess was ·02″ or over :—

STATION.	Variation from normal of mean 8 A.M. pressure of August 1897.	Pressure anomaly, August 1897.
	″	″
Rawalpindi	+·013	+·028
Dera Ismail Khan	+·008	+·023
Sialkot	+·005	+·020
Bhamo	+·014	+·029
Yamethin	+·011	+·026

Pressure was in excess at the hill stations in Northern India, while it was normal or in slight defect at the neighbouring plain stations. The vertical pressure anomalies were hence positive but were small in amount and of little importance, as is shown by the following data for seven pairs of stations :—

HILL STATION.	Variation from normal of pressure. (a)	PLAIN STATION.	Variation from normal of pressure. (b)	Vertical pressure anomaly or (a)–(b).
	″		″	″
Kailang	—·025?	Lahore	+·001	—·026?
Murree	+·007	Peshawar	0	+·007
Simla	+·006	Ludhiana	—·009	+·015
Chakrata	+·018	Roorkee	—·008	+·026
Ranikhet	+·017	Bareilly	+·004	+·013
Darjeeling	+·009	Dhubri	0	+·009
Quetta	+·002	Jacobabad	—·009	+·011

The chief abnormal features of the mean distribution of pressure of the month were as follows :—

(1) Pressure was in slight defect on the average of the whole Indian area.

(2) Pressure was in local excess in North-Eastern and Upper India and in Burma. The deficiency was moderate in amount in the North Punjab and Upper Burma.

(3) Pressure was in local defect in Central, Western and Southern India and the greater part of the Gangetic Plain. The deficiency was moderate in amount in Lower Sind, South-West Rajputana, Cutch and Gujarat.

(4) The vertical pressure anomalies in Northern India were positive and generally small in amount.

Barometric Depressions and Cyclonic Storms of the month.

It was stated in the July monthly review that a depression began to form on the 30th in North-Eastern India. The following gives a history of this depression :—

Pressure at the commencement of the month was in general defect, by amounts increasing from ·05″ in Ceylon to ·13″ along the foot of the hills in the Punjab, Bihar and North Bengal. The trough of low pressure was hence displaced northwards to the submontane districts of Northern India, and a very shallow local depression was shown in North Bengal and the adjacent districts of Bihar. Strong monsoon winds prevailed in the centre of the Arabian Sea, and vessels reported winds ranging in force from 5 to 9 with a high to mountainous and dangerous sea between Socotra and Bombay. Winds were not so strong in the Bay, but ranged between 4 and 7 in the open sea. Weather was squally near the Bengal and Arakan Coasts, and moderate to strong westerly winds prevailed at the head of the Bay. Weather was showery in Burma and the west coast districts, and moderate to heavy general rain was falling in the Central Provinces and North-Eastern India. Two small shallow depressions, one in Central Bengal and the second in West Bihar and the neighbouring districts of the North-Western Provinces, were in existence on the morning of the 2nd. Moderate to heavy general rain had again been received in North-Eastern India, and very heavy rain had fallen on the Tenasserim Coast during the previous 24 hours. The depression in Central Bengal disappeared during the day, and that in West Bihar shifted slightly north-westwards and lay over the eastern submontane districts of the North-Western Provinces at 8 A.M. of the 3rd. It was practically unchanged in position on the 4th and filled up during the next 24 hours, whilst another depression began to form over South-West Bengal, Orissa and Chota Nagpur. The previous depression determined heavy rain to the North-Western Provinces on the 3rd, 4th and 5th, and moderate rain to the Central Provinces during the same period.

Pressure had been throughout this period in considerable to large defect in the Punjab. Gradients were hence much steeper than usual in India and the adjacent seas. The indraught to the Punjab from the north-west gave very dry cool weather to Baluchistan from the 1st to the 7th. Pressure increased rapidly in the Punjab on the

6th, and temperature rose above the normal in Baluchistan during the next 48 hours.

The most important effect of the changes of pressure on the 5th and 6th accompanying the disappearance of the low pressure area in the North-Western Provinces, and the formation of a low pressure area over Chota Nagpur, South-West Bengal and Orissa was to transfer the trough of low pressure southwards. It stretched on the 6th from the Orissa coast through Bundelkhand to the South-West Punjab.

Pressure increased generally during the next 24 hours. The depression in Orissa and Chota Nagpur was unchanged in position, but had filled up slightly. The following 8 A.M. observations of the 7th show its position and intensity at that hour :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
False Point.	29·449	+·034	—·117	W	6	9	0·50	Showery.
Saugor Island.	·446	+·038	—·115	SE	11	10	0·06	,,
Balasore .	·424	+·030	—·123	Calm	2	8	1·12	,,
Burdwan .	·499	+·062	—·058	E	4	10	0·38	Gale.
Chaibassa .	·453	+·083	?	NNE	4	9	0·06	...

Light to strong monsoon winds prevailed over the north of the Bay. The weather at the Ridge station is thus described by Captain Woolward:—

"Winds were of force 1 throughout the day, ranging between south-west and south in direction. The sea was very calm throughout the day; ·5 inch rain fell in light drizzling showers."

Captain Beahan, Commanding the light vessel at the Mutlah station, states that he experienced at that station a heavy southerly swell, frequent passing rain squalls and a fresh southerly breeze, force 3 to 4, during the day.

The depression filled up partially during the next 24 hours and was very faintly indicated at 8 A.M. of the 8th So far as can be judged it passed rapidly along a belt of deficient pressure, the position of which was a little to the south of the axis of the trough of low pressure. It was probably in the central districts of the Central Provinces on the 8th and in the western districts on the 9th. Bengal and the Central Provinces received moderate to heavy rain on the 7th, 8th and 9th. The precipitation had increased on the west coast during the previous week and was now moderately heavy, more especially in Malabar.

The disappearance of the last depression was followed by an extension of humid winds on the 9th and 10th across Central India and Rajputana into the Punjab, and moderate and fairly general rain fell in these areas on the 10th and two following days.

Depression and cyclonic storm of the 12th to the 19th August.—Pressure gave way locally in the north-west of the Bay and adjacent coast districts on the 11th and 12th, and a shallow depression lay over that area on the morning of the 12th. The following observations define its position at 8 A.M. :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch	
F. L. V. *Torch.*	29·498	—·036	?	Variable.	1*	10	...	Light passing showers.
F. L. V. *Hesperus.*	...	...	...	Calm	0*	3	0·09	Moderate S.-W. swell.
Saugor Island.	·480	—·012	—·123	NE	7	9	...	...
Balasore .	·488	—·001	—·100	ENE	2	3	...	Fine.
False Point.	·480	—·035	—·122	N	7	8	0·03	Wind variable.
Puri . .	·498	—·024	?	Calm	8	9	0·20	Gloomy.

* Force.

The depression was of very slight intensity and the air movement feeble. In the centre and south of the Bay monsoon winds of force 4 to 6 held steadily. Captain Beahan, Commander of the Floating Light Vessel *Torch*, describes the weather on the 11th and 12th at the Mutlah station as follows: —

11th.—"A long heavy southerly swell and a gentle southerly breeze during the day."

12th.—"A long heavy southerly swell, passing light misty showers and a moderate east-south-east breeze all through the day. There has been a very strong set of tide to the westward from the 9th of force 3 and 3½ knots."

13th August.—The depression was unchanged in

position at 8 A.M. of the 13th, but was slightly deeper, as is shown by the following observations :—

STATION.	PRESSURE.			WIND.		CLOUD.	RAINFALL.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
F. L. V. *Torch.*	29·443	—·055	?	Variable.	2*	7	...	...
F. L. V. *Hesperus.*	...	...	...	SSW	1*	3	...	Moderate S.-W. swell.
Saugor Island.	·443	—·037	—·158	ENE	8	10	0·10	Sea slight.
Balasore .	·448	—·040	—·139?	Calm	2	3	1·01	...
Shortt's Island.†	·481	—·035	?	N	13	6	0·22	...
False Point.	·445	—·035	—·156	WSW	5	9	0·03	Wind variable.
Puri . .	·476	—·022	?	WNW	6	10	4·32	...

* Force. † 10 A.M. observations.

The shallow depression was hence central near and to the west of Shortt's Island, and had hence commenced to move westwards.

Captain Beahan describes the weather on the 13th as follows :—

"A very heavy long southerly swell and moderate southerly breeze all through the day, and also a 3½ knot set of tide to the west."

Moderately heavy rain had fallen in Orissa and more or less general and heavy rain in the Central Provinces, the North-Western Provinces, the eastern states of Central India and the greater part of the Punjab, due to the continuation of the strong humid current across the North Bombay coast.

The position of the trough of low pressure had been practically unchanged since the 6th, and the feeble storm advanced along it during the next 24 hours.

14th August.—The following 8 A.M. observations of the 14th indicate the position of the storm centre at that hour :—

STATION.	PRESSURE.			WIND.		CLOUD.	RAINFALL.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Raipur .	29·438	—·053	—·171	SW	9	10	1·54	Showery.
Sambalpur .	·440	—·033	—·168	S	7	10	0·36	...
Hazaribagh	·475	—·026	—·115	ESE	11	10	0·26	Showery.
Sutna .	·457	—·052	—·125	E	4	8	0·85	"
Jubbulpore.	·435	—·065	—·164	NNE	2	9	1·28	"

The centre of the depression at that hour was in about Lat. 22½°N. and Long. 82°E.

General rain had been received in the Central Provinces. It was very heavy in the Hoshangabad, Betul and Balaghat districts. The following gives the most noteworthy falls during the previous hours :—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 14th August.
		Inches.
BETUL	Shahpur . . .	10·70
	Chicholi . . .	8·00
BALAGHAT	Balaghat . . .	9·35
HOSHANGABAD	Pachmarhi . . .	8·10

15th August.—The storm had moved about 160 miles in a north-westerly direction and was at 8 A.M. central a little to the south-west of Sutna. The following gives 8 A.M. observations at stations in the storm area :—

STATION.	PRESSURE.			WIND.		CLOUD.	RAINFALL.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Jubbulpore .	29·503	+·068	—·111	WSW	1	10	0·70	Drizzling.
Sutna . .	·488	+·031	·095	E	4	8	1·06	...
Allahabad .	·496	+·038	—·073	E	15	9	0·02	Distant lightning.
Jhansi .	·504	+·013	—·087	ENE	1	8	0·28	...
Saugor . .	·495	+·036	—·091	ENE	6	8	1·81	Showery.
Hoshangabad.	·541	+·053	+·104	WSW	5	10	6·31	Continous rain.

The centre at 8 A.M. was in about Lat. 23¾°N. and Long 80° 10′ E., and pressure was a tenth to an eighth of an inch below the normal in the inner or central area. Gradients were of moderate intensity in the area of depression, and winds were moderate to strong in the Central Provinces, Central India and the eastern districts of the North-Western Provinces. Moderate rain had fallen in Bengal and Bihar and heavy rain in the western districts of the

Central Provinces and Central India. The following gives the most noteworthy falls:—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 15th August.
		Inches.
HOSHANGABAD	Seoni	13·04
	Harda	8·80
	Hoshangabad	6·31
	Sohagpur	5·59
BETUL	Badnur	5·02

16th August.—Pressure had increased over the whole of Northern and Central India and the depression was faintly marked. It had, judging from the pressure abnormals and the wind directions, been almost stationary during the previous 24 hours. The following observations indicate its probable position at 8 A.M:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
Saugor	29·533	+·038	—·063	WNW	10	10	0·94	...
Sutna	·513	+·025	—·072	E	4	8	0·48	Showery.
Allahabad	·512	+·016	—·060	E	15	10	0·04	Distant lightning.
Jhansi	·543	+·039	—·048	NE	1	9	0·15	...
Nowgong	·533	+·036	—·060	N	3	10	0·30	Showery.

The centre of the residual circulation was a little to the south-west of Sutna, but the air movement in the area of depression was light and somewhat irregular.

Moderate rain had been received in the Central Provinces and Central India, and also in North-Eastern India, and local showers in the North-Western Provinces during the previous 24 hours.

It may be noted that pressure had fallen locally in Lower Sind and Cutch during the preceding 48 hours, and was now in largish defect in that area. Strongish winds were again blowing across the Kathiawar and Bombay coasts and were giving moderately heavy and general rain in North Bombay and Rajputana and also in the sub-montane, western and hills divisions of the Punjab.

17th August.—Pressure had fallen in the western districts of the North-Western Provinces and had increased briskly to rapidly in Chota Nagpur, South Bihar, the eastern districts of the North-Western Provinces, Baghelkhand and the greater part of the Central Provinces. The depression had hence again intensified slightly and had moved about 200 miles north-westwards and was central at 8 A.M. about 50 miles north-west of Jhansi in about Lat. 26° N. and Long. 78° E. The following gives 8 A.M. observations in the storm area:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
Jhansi	29·527	—·016	—·068	SW	1	10	0·74	Raining.
Cawnpore	·548	—·003	?	SSE	8	10	0·24	Showery.
Lucknow	·576	—·011	—·007	SE	9	10	0·05	
Agra	·514	—·030	—·068	NE	8	10	0·20	
Manipuri	·509	—·058	?	...	6	10	*Nil*	
Jeypore	·563	0	—·043	NE	5	10	0·32	

The pressure conditions were unchanged in Sind and North Bombay and the Bombay current was hence mainly determined to Upper India. General rain had fallen over nearly the whole of Northern and Central India. The most noteworthy falls of the previous 24 hours had occurred in the driest districts of Upper India. The following gives examples:—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 17th August.
		Inches.
MOOLTAN	Mooltan	5·07
KURRACHEE	Kurrachee	4·21
JHANG	Jhang	3·00
	Chiniot	2·61
DERA ISMAIL KHAN	Bhakkar	2·73
	Dera Ismail Khan	2·27

18th August.—Pressure had increased slightly to briskly in Sind, Gujarat, Central India, Rajputana and the greater part of the North-Western and Central Provinces and fallen slightly to briskly in the Punjab. The storm had hence continued to advance in a north-west direction and was central near Sirsa at 8 A.M., 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.	
Sirsa . .	29·526	—·054	—·033	SE	7	4	...	Dust haze.
Patiala .	·565	—·045	?	NE	4	5	0·31	
Ludhiana	·570	—·020	—·005	SSE	1	8	...	
Lahore .	·566	—·025	+·014	Calm	2	3	...	Fine.
Montgomery	·546	—·030	?	ENE	7	7	...	
Mooltan .	·568	—·006	+·030	NNE	4	8	0·04	

The depression was small and of slight intensity but the cyclonic circulation was well-marked. General rain had again been received over nearly the whole of Northern and Central India, heaviest during the previous 24 hours in Rajputana.

19th August.—The shallow depression had advanced slightly north-westwards and was central a little to the south-east of Montgomery. The following gives 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.	
Sirsa . .	29·502	—·024	—·066	WSW	5	10	·058	Showery.
Ludhiana .	·506	—·064	—·071	SE	2	3	·008	Strong wind.
Lahore .	·504	—·062	—·053	Calm	2	0	...	Clear.
Montgomery	·489	—·057	?	NNE	6	3	...	Fine.
Mooltan .	·515	—·053	—·028	Calm	3	10	0·04	

Winds were now very light in the storm area and the cyclonic circulation was rapidly breaking up. Large changes of pressure were also in progress in North-Eastern India which materially modified the pressure distribution. The rainfall in North-Western and Central India during the preceding 24 hours was much less in amount than during the previous three days.

The depression filled up during the next 24 hours and there was no trace of its existence on the morning of the 20th.

The storm, although it was of slight intensity throughout, had remarkable vitality and drifted slowly but steadily north-westwards from the north-west angle of the Bay to the Central Punjab during the period from the 13th to the 19th. The following gives its position at 8 A.M. of each day and its average rate of motion during the preceding 24 hours :—

Date.	Position of centre at 8 A.M.		Distance travelled during interval.	Average hourly rate of motion during interval.
	Lat. N.	Long. E.		
	° ′	° ′	Miles.	Miles.
13th	21 15	87 30	...	...
14th	22 30	82 0	380	16
15th	23 45	80 10	160	7
16th	24 0	80 0	20	1
17th	26 0	78 10	200	8
18th	29 25	74 25	340	14
19th	30 30	73 45	92	4

The storm formed in the north-west angle of the Bay at the eastern extremity of the trough of low pressure, under the conditions of a strong monsoon in the north of the Bay and strongish monsoon winds blowing across the Central Provinces and the Deccan.

It gave heavy cyclonic downpours on the 14th and 15th in the Balaghat, Hoshangabad, Betul and Saugor districts of the Central Provinces, but during the greater part of its existence the rainfall accompanying it was generally widely distributed and moderate in amount.

Land-formed depression in Bihar and the eastern districts of the North-Western Provinces from the 19th to the 24th.—Pressure fell briskly to rapidly, and locally in Bihar during the 24 hours preceding 8 A.M. of the 19th, and a shallow depression lay over South and Central Bihar at that hour. The weather at the head of the Bay during the inception of the storm is shown clearly by Captain Beahan's notes of the weather experienced from the 17th to the 20th on board the Floating Light Vessel *Torch* at the Matlah station :—

17th.—" A slight southerly sea and moderate south-south-west breeze (force 4) during the day."

18th.—"Sea slight, wind variable and moderate in force and between west and south-south-west in direction with passing rain squalls."

19th.—"A choppy west-south-west sea and heavy passing rain squalls all through the day. Force of wind during the squalls was 8."

20th.—"A strong south-west breeze, passing rain squalls and a heavy south-west sea during the day. During the night from 9 P.M. to midnight a fresh west-south-west gale with continuous very heavy rain and a heavy west-south-west sea and much lightning to the west."

Moderate general rain had fallen over the whole of Bengal, Bihar and Chota Nagpur during the 24 hours preceding 8 A.M. of the 19th. The following data give the position of the depression at 8 A.M.:—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Hazaribagh	29·561	—·079	—·047	WSW	10	10	1·04	Showery.
Gaya . .	·538	—·103	—·054	WSW	5	10	1·07	,,
Patna. .	·536	—·096	—·063	E	2	10	0·17	,,
Darbhanga.	·565	—·074	—·050	ESE	2	8	0·41	...
Benares .	·586	—·062	+·004	WNW	6	10	1·40	Raining.

20th August.—The depression had been displaced slightly westwards during the previous 24 hours and was now in West Bihar and the eastern districts of the North-Western Provinces. The following gives 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.			
	"	"	"				Inches.	
Gaya . .	29·579	+·041	—·018	S	4	9	1·74	Showery.
Patna .	·572	+·036	—·033	SE	2	10	0·81	,,
Gorakhpur .	·588	+·023	—·008	E	1	7	0·02	,,
Allahabad .	·608	+·012	+·019	WNW	12	10	1·27	Heavy rain
Benares .	·553	—·033	—·035	W	6	10	4·78	Continuous rain.

The centre of the depression was about 60 miles to the north-east of Allahabad. General rain had again fallen in Bengal, Bihar and Chota Nagpur. Moderate to heavy rain had been received in the North-Western Provinces. The rainfall was very heavy in the Benares, Mirzapur, Ghazipur and Jaunpur districts. The Bombay current was, as for some days past, largely determined to the Punjab and had given general rain to nearly the whole of Sind, Rajputana and the Punjab during the previous 24 hours. The submontane and hill districts of the Punjab, more especially, had received favourable rain.

21st August.—The depression was almost unchanged in position and character at 8 A.M., as is indicated by the comparison of the following data with those of the 20th:—

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	
Gaya .	29·622	+·043	+·018	WSW	11	10	0·52	Showery.
Patna .	·594	+·022	—·019	SSE	8	10	0·40	,,
Gorakhpur.	·551	—·037	—·052	ENE	2	6	0·10	,,
Allahabad .	·563	—·045	—·031	WNW	15	10	4·80	Continuous rain.
Benares .	·548	—·005	—·046	W	10	10	4·70	,,

The centre of the depression was apparently about 50 miles to the north of Benares. Bengal and Bihar had obtained light rain during the previous 24 hours. Heavy rain had fallen in the Benares, Allahabad and Banda districts of the North-Western Provinces and moderate to heavy rain over the remainder of that province.

The pressure conditions in Upper India were unchanged and general rain had again fallen over the greater part of Rajputana and the Punjab. It was generally moderate in amount, but was excessive in the Sialkot, Gurdaspur, Lahore, Gurgaon, Rohtak, Delhi and Kangra districts. The following gives the rainfalls exceeding five inches in these districts:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 21st August 1897.
		Inches.
Gurdaspur	Gurdaspur . . .	9·56
	Aliwal . . .	6·90
	Tibri	6·60
	Pathankot . . .	6·41
	Batala	5·51
	Madhopur . .	5·05

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 21st August 1897.
		Inches.
LAHORE	Kasur	6·55
ROHTAK	Jhajjar	6·25
KANGRA	Dera	5·70
SIALKOT	Zafarwal	5·62
GURGAON	Palwal	5·33

The Gurdaspur district had received an average of 5·81 inches during the 24 hours preceding 8 A.M. of the 21st and the Gurgaon district of 2·38 inches.

22nd August.—The depression in the Gangetic Plain was again practically unchanged in position, 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.			
	"	"	"				Inches	
Patna	29·540	—·054	—·080	SE	5	10	0·74	Showery.
Gaya	·572	—·050	—·038	Calm	12	10	0·26	"
Gorakhpur	·520	—·031	—·093	ENE	2	10	0·28	"
Allahabad	·559	—·004	—·040	WSW	12	10	1·96	...
Benares	·551	+·003	—·048	WSW	11	10	2·25	Showery.

The data indicate that there was a well-defined cyclonic circulation in the low pressure area the centre of which was about 50 miles to the north of Benares.

General and well-distributed rain had again fallen over nearly the whole of Northern and Central India. Little or no rain had been received for some days previous in the Peninsula to the south of Lat. 20° N., except in the west coast districts where light to moderate showers fell daily.

23rd August.—Pressure had increased very rapidly in Upper India, thus considerably modifying the pressure distribution. The shallow depression in the Gangetic Plain had moved westwards about 160 miles and lay over Oudh at 8 A.M. The following data indicate its position at that hour :—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Cawnpore	29·549	0	?	WNW	4	10	0·01	...
Lucknow	·544	—·014	—·063	Calm	1	10	1·28	Showery.
Allahabad	·576	+·017	—·026	WSW	7	10	0·87	"
Bahraich	·576	+·006	?	ESE	4	10	2·21	Continuous rain.
Bareilly	·603	+·062	—·002	N	1	10	0·38	Showery.

Light to moderate rain had fallen in the Gangetic Plain and numerous light showers in Rajputana and the Punjab. General rain had, on the other hand, recommenced in the Central Provinces.

The depression in the Gangetic Plain filled up during the next 24 hours.

During the remainder of the month pressure changed rapidly and irregularly. Pressure gave way briskly to rapidly in the Bay area on the 24th, and increased briskly in Sind. The trough of low pressure stretched in a north-west direction from the Circars coast to the South-East Punjab from the 25th to the 27th, and a tendency was shown to the development of a low pressure area at its eastern extremity. This distribution of pressure was accompanied by moderate to general rain over the greater part of the Peninsula, more especially in the southern and central districts. Heavy rain fell in the Malabar coast districts from the 24th to the 29th.

Pressure increased over the Peninsula and decreased in Northern India on the 28th and 29th, and the rainfall diminished *pari passu* in the Deccan and Southern India. Pressure at the end of the month was normal in Southern India, but was more or less in excess in Northern India, the excess being most marked in Sind and the West Punjab, where it averaged a tenth of an inch. Ordinary monsoon weather with occasional rain, local rather than general in character, prevailed in that area from the 24th to the end of the month.

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

The only report received was from Chitral in which it was stated that there was a snow storm on the mountains above 15,000 feet near Drosh on the 21st.

Summary of Special Storm Reports.

The following gives a statement of the chief local storms, of which reports were received during the month:—

4th.—Severe thunderstorm at Salem from 4 P.M. to 5-15 P.M.

9th.—Severe thunderstorm at Kotah in which 5 men were killed by lightning. Severe duststorm with rain at Hyderabad (Sind) from north-west. The storm began at 7-30 P.M. and lasted two hours.

13th.—Duststorm followed by rain at Salem from 4 P.M. to 5 P.M.

20th.—Severe squall from 9 P.M. to 10 P.M. at the Ridge station near the mouth of the Hooghly. The force of wind was 10 during the squall. It fell to 4 shortly after 10 P.M. The rainfall during the squall amounted to 1·3 inches.

28th.—Duststorm with rain at Salem from 4-30 P.M. to 5-15 P.M. The velocity of the strongest winds averaged 25 miles per hour.

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

Arabian Sea.—At the commencement of the month strongly marked monsoon conditions obtained generally over the Arabian Sea. The winds were strongest in the centre where they ranged in force between 5 and 9. From this region they decreased in all directions and were of force 2 to 4 in the south-east where they were lightest. The mean intensity of the air movement was 4·5 or 0·2 above the normal of the month. A high to mountainous and dangerous sea was running generally. Winds fell off and the sea moderated considerably during the next two days, so that on the morning of the 3rd, winds of force 2 to 6 and a moderate sea were experienced by the great majority of vessels. Winds increased rapidly during the day, more especially in the west of the sea and averaged 4·1 at 8 A.M. of the 4th. An increasing monsoon prevailed generally until the 7th, at 8 A.M. of which day the mean intensity of the air movement was 4·5 and the strongest winds experienced were of force 7. The monsoon current was somewhat unsteady during the next five days, its average strength fluctuating between 4·5 and 3·9. Winds strengthened very rapidly on the 12th all over the Arabian Sea and at 8 A.M. of the 13th were blowing with an average force of 4·9. A moderate to fresh monsoon obtained over the sea during the next three days. The mean wind force at 8 A.M. of the 16th was 4·3. Winds took off rather rapidly during the next forty-eight hours, and on the morning of the 18th their average intensity was only 3·6.

A fairly steady moderate monsoon prevailed generally over the Arabian Sea from the 19th to the 27th, at 8 A.M. of which day the average strength of the current was 3·8 or 0·5 less than the normal. During the last four days of this period winds were more westerly than usual in the south-east of the sea off the Malabar and Ceylon coasts and ranged in force between 4 and 6. The monsoon current decreased rapidly in intensity on the 27th and following days and was from 15 to 25 per cent. below its normal intensity during the remainder of the month.

Bay of Bengal.—Except in the north-west angle where the winds were very unsteady, being under the influence of the varying pressure conditions over the neighbouring land area, an unusually steady and moderate to strong monsoon prevailed generally over the Bay during the first eleven days of the month. The air movement was from 3 to 20 per cent. stronger than usual during the greater part of the period, and the strongest winds throughout were experienced in the centre of the sea. This is shown strikingly by the data of Port Blair, where the winds were on the average of the period at least 40 per cent. above their normal strength. On the 12th ordinary monsoon winds, force 4 to 6, prevailed over the Bay, except in the north-west, where a depression was in the process of formation, and winds were irregularly cyclonic in direction and light in force. The mean intensity of the air movement as recorded on board 23 vessels was 4·4. The depression developed slightly during the day and marching westwards passed inland across the North Orissa coast on the 13th. It was a feeble disturbance, and its influence on the weather was but slight. The strongest winds in the depression area in the Bay did not exceed 6 or 7 in force. With the passage inland of the depression the winds returned to their normal directions on the 14th, on which day a moderate to strong monsoon (average force 4·4) obtained over the Bay.

The monsoon current fell off very rapidly during the next 24 hours and on the morning of the 15th was very feeble, its average strength being only 3·4 or 0·6 below the normal intensity in August. A light to moderate monsoon obtained generally during the next five days. Winds decreased further in strength on the 20th

more especially in the centre and south, and on the morning of the 21st were only of force 2·9 or nearly 30 per cent. weaker than usual. This weakness of the monsoon current is shown clearly by the data of Port Blair, where the average hourly movement decreased from 13 miles on the 14th to 4 miles on the 19th Winds, however, began to increase again, and on the morning of the 22nd averaged 3·7 in force for all parts of the Bay. No significant change occurred during the next six days, the monsoon current remaining below its normal strength. There was a feeble tendency to the formation of a depression in the west of the Bay from the 25th to the 27th, but it failed to develop.

The pressure conditions changed largely and rapidly during the remainder of the month. Gradients decreased rapidly over the north and centre of the Bay, and the winds hence fell off considerably and became very unsteady and irregular except in the extreme south, where a moderate monsoon continued to prevail. The mean intensity of the air movement averaged 3·1 or nearly 25 per cent. below the normal during this period from the 29th to the 31st.

From the preceding account of the weather in the Indian Seas it will be seen that the monsoon currents were stronger and steadier than usual during the first-half of the month and more or less below their normal strength during the second-half. On the average of the whole month, however, the Bay current and the Arabian Sea currents were very slightly weaker than usual, and practically normal. The most noteworthy feature of the marine meteorology of the month was the almost total absence of cyclonic disturbances over the sea area.

Conditions were fairly normal in the equatorial belt where moderate to strong south-east trade winds obtained during the greater part of the month. So far as can be judged from the scanty data available, it is almost certain that although approximately normal in direction and steadiness, the trade winds were not so strong as usual in August.

Temperature of the Air.

The variations of the mean temperature conditions of the month from the normal were similar to those of the preceding month, but were generally smaller in amount. This was mainly due to the similarity of the rainfall distribution of the two months.

The mean maximum or day temperature of the month was higher than usual over the whole area except the greater part of Bengal, the Gangetic Plain, the Punjab, North Rajputana and Gujarat, and also in Orissa, Chota Nagpur, South Bihar, the eastern districts of the Central Provinces and a part of South Madras represented by the stations of Coimbatore and Madura. The excess was more than 2° in a part of Madras and the Deccan defined by the stations for which comparative data are given below :—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, August 1897.	Normal, August.	Variation of actual from normal, August 1897.
	°	°	°
Sholapur	91·5	88·4	+3·1
Cuddapah	95·3	92·7	+2·6
Salem	94·0	91·4	+2·6
Kurnool	91·6	89·1	+2·5

The excess was hence greatest and most marked in the dry tract in the Bombay Deccan, including the districts of Sholapur and Bijapur.

The mean maximum temperature of the month was generally below the normal by small amounts in Northern India. The deficiency was moderately large in the greater part of the Punjab. The following gives data for this area :—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, August 1897.	Normal, August.	Variation of actual from normal, August 1897.
	°	°	°
Dera Ismail Khan	96·2	100·7	—4·5
Lahore	92·4	96·0	—3·6
Peshawar	95·8	99·0	—3·2
Sirsa	95·3	97·5	—2·2
Ludhiana	93·2	95·3	—2·1

The mean minimum or night temperature of the month was above the normal over the whole of India except the West Punjab and perhaps locally at Sambalpur (—0°·8), Calcutta (—0°·2), Sibsagar and Burdwan (each —0°·1) and Vizagapatam (—0°·5). The variations were in almost all

cases small in amount. They exceeded 2° at stations in four areas for which data are given below :—

Province.	Station.	Mean minimum temperature. Actual, August 1897.	Normal, August.	Variation of actual from normal, August 1897.
		°	°	°
Lower Sind	Kurrachee	80·9	78·4	+2·5
Rajputana	Ajmere	77·3	74·5	+2·8
	Sambhar	78·2	75·8	+2·4
	Deesa	77·6	75·4	+2·2
	Jeypore	77·1	75·0	+2·1
Konkan	Karwar	76·7	74·1	+2·6
	Ratnagiri	77·0	74·8	+2·2
Central Madras	Salem	74·3	71·8	+2·5
	Cuddapah	78·6	76·5	+2·1

The mean temperature of the month was above the normal over the whole of India, with the exception of a part of Northern India. The positive variations were nowhere large in amount, but slightly exceeded 2° in two areas, for which data are given below, and also locally at Karwar :—

Province.	Station.	Mean daily temperature. Actual, August 1897.	Normal, August.	Variation of actual from normal, August 1897.
		°	°	°
Lower Sind	Kurrachee	86·0	83·8	+2·2
Deccan and Central Madras.	Sholapur	82·5	79·4	+3·1
	Salem	84·2	81·6	+2·6
	Cuddapah	87·0	84·6	+2·4
	Kurnool	83·4	81·3	+2·1
Konkan	Karwar	80·3	78·1	+2·2

The mean temperature of the month was below the normal over the greater part of the Punjab, the North-Western Provinces, South Bihar, South and West Bengal, Orissa and the eastern districts of the Central Provinces, but the variations were generally very small in amount and exceeded 2° only at Dera Ismail Khan (—3°·2) and Peshawar (—2°·2).

The variations of the temperature conditions of the month at the hill stations were generally similar to those of the neighbouring plain districts but smaller in amount. The following gives comparative data for eight stations :—

Station.	Mean daily temperature. Actual, August 1897.	Normal, August.	Variation of actual from normal, August 1897.
	°	°	°
Mount Abu	69·8	68·1	+1·7
Pachmarhi	71·5	70·8	+0·7
Wellington	64·7	64·0	+0·7
Ranikhet	67·5	67·3	+0·2
Darjeeling	61·7	61·7	0
Murree	67·0	67·6	—0·6
Chakrata	64·0	64·4	—0·4
Simla	63·4	63·6	—0·2

A noteworthy feature of the month was the increased temperature at Muscat, Zanzibar, Kailang and Leh. The following gives comparative data for these stations :—

Station.	Mean daily temperature. Actual, August 1897.	Normal, August.	Variation of actual from normal, August 1897.
	°	°	°
Leh	63·6	61·2	+2·4
Muscat	87·3	85·7	+1·6
Zanzibar	77·7	76·3	+1·4
Kailang	60·5	60·2	+0·3

The following table gives 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 Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	83·9	74·4	79·2	9·6	18·6	+0·8	+0·7	+0·1
	Lower Burma (Deltaic)	85·0	76·2	80·6	8·8	16·6	+0·7	0	+0·7
	Central do.	88·8	76·6	82·7	12·3	19·0	+1·3	+1·1	+0·2
	Upper do.	90·1	76·7	83·4	13·5	22·7	0	+0·7	—0·7
	Arakan	84·4	77·5	81·0	6·9	14·6	0	+0·3	—0·3

Province.	Division.	Actual temperature.					Variation from normal of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Bengal and Assam	Eastern Bengal	84·8	76·4	80·6	8·3	15·4	−0·2	+0·5	−0·7
	Assam (Surma)	90·3	77·0	83·7	13·3	21·3	+1·1	+0·3	+0·8
	Do. (Brahmaputra)	87·7	78·6	83·2	9·1	17·1	+0·1	+1·3	−1.2
	Deltaic Bengal	87·9	78·5	83·2	9·4	16·2	−0·4	0	−0·4
	Central do.	88·4	78·3	83·4	10·1	17·1	0	+0·2	−0·2
	North do.	89·1	78·4	83·8	10·7	18·3	+0·8	+0·7	+0·1
	Bengal Hills	67·6	55·0	61·4	12·6	19·9	+0·2	−0·2	+0·4
	Orissa	87·3	78·6	82·9	8·6	17·9	−0·5	+0·1	−0·6
	Chota Nagpur	85·8	75·0	80·4	10·7	18·9	−0·4	+0·5	−0·9
	Bihar (South)	89·0	78·9	83·9	10·1	19·4	−0·4	−0·2	−0·2
	Do. (North)	89·3	79·2	84·3	10·1	17·7	+0·2	+1·2	−1·0
North-Western Provinces and Oudh.	North-Western Provinces (East)	89·0	78·9	84·0	10·1	20·2	−0·8	+0·3	−1·1
	Oudh (South)	90·0	79·1	84·6	10·9	20·0	−0·6	+0·6	−1·2
	Do. (North)	89·9	78·9	84·4	11·0	21·4	?	?	?
	North-Western Provinces (Central)	89·4	78·2	83·8	11·2	20·6	+0·5	+1·2	−0·7
	Do. do. (West)	89·8	79·0	84·4	10·9	20·2	−0·8	+0·5	−1·3
	Do. do. (Submontane East)	89·8	79·3	84·6	10·5	19·1	−0·3	+0·4	−0·7
	Do. do. (do. West)	87·1	76·1	81·6	10·9	21·3	−1·2	+0·1	−1·3
	Do. do. (Hills)	68·9	60·6	64·8	8·4	17·7	−0·7	+0·9	−1·6
Punjab	Punjab (South-East)	90·0	79·8	84·9	10·2	23·2	−1·5	+0·6	−2·1
	Do. (South)	93·1	79·3	86·2	13·8	26·3	−2·2	+0·6	−2·8
	Do. (Central)	92·4	80·9	86·7	11·5	29·5	−3·6	+2·0	−5·6
	Do. (Submontane)	92·8	79·0	85·9	13·8	28·3	−1·0	+1·1	−2·1
	Do. (Hills)	82·7	62·9	72·8	19·8	37·3	−1·3	+0·6	−1·9
	Do. (North)	94·5	76·3	85·4	18·3	40·5	−1·7	−0·2	−1·5
	Do. (West)	97·6	80·5	89·1	17·1	36·2	−2·7	−0·8	−1·9
Bombay and Malabar Coast Districts (Madras).	Malabar	83·6	75·2	79·4	8·4	14·1	+1·1	+1·2	−0·1
	Madras (South Central)	90·6	73·2	81·9	17·5	24·8	+0·7	+2·0	−1·3
	Coorg	70·3	64·1	67·2	6·2	12·8	−0·2	+2·0	−2·2
	Mysore	81·1	67·6	74·4	13·5	21·8	+0·8	+1·8	−1·0
	Konkan	84·1	77·4	80·7	6·7	10·7	+1·3	+2·0	−0·7
	Bombay Deccan	84·8	70·5	77·8	14·3	25·2	+1·2	+1·8	−0·6
	Hyderabad (North)	85·7	67·8	76·7	17·9	25·3	?	?	?
	Khandesh	87·3	72·2	79·8	15·1	26·8	+1·9	+2·0	−0·1
Central Provinces and Berar.	Berar	86·9	74·1	80·5	12·9	20·6	+0·2	+1·2	−1·0
	Central Provinces (West)	86·1	75·3	80·7	10·8	18·6	0	+1·2	−1·2
	Do. (Central)	85·3	74·0	79·6	11·3	20·3	+0·4	+0·7	−0·3
	Do. (East)	86·2	76·0	81·1	10·3	18·6	−0·7	−0·1	−0·6
Bombay (North)	Gujarat	87·9	77·6	82·8	10·4	18·9	−0·4	+1·2	−1·6
	Kathiawar & Cutch	89·2	77·3	82·7	11·9	19·7	+0·5	+1·3	−0·8
	Sind	97·3	81·4	89·4	15·9	31·2	+1·3	+2·0	−0·7
	Baluchistan Hills	93·5	63·7	78·7	29·8	47·8	−0·8	−0·9	+0·1
Rajputana and Central India.	Central India (East)	85·9	75·4	80·7	10·5	18·4	+0·6	+1·4	−0·8
	Rajputana (East), Central India (West)	89·8	77·9	83·9	11·9	20·4	+0·5	+2·4	−1·9
	Do. (West)	94·6	79·7	87·2	14·8	27·6	−0·2	+0·6	−0·8
Madras	East Coast (North)	89·5	78·6	84·0	10·9	20·7	+0·9	−0·1	+1·0
	Hyderabad (South)	88·7	73·8	81·3	14·9	24·3	+0·9	+1·6	−0·7
	Madras (Central)	93·0	76·3	84·7	16·7	27·4	+2·1	+1·8	+1·3
	East Coast (Central)	94·6	79·2	87·0	15·4	26·2	+0·3	+1·1	−0·8
	Do. (South)	95·5	77·6	86·6	17·9	30·6	+1·6	+1·1	+0·5
	Madras (South)	94·2	78·3	86·3	15·9	23·5	−0·9	+0·8	−1·7

The variations of the temperature conditions from the normal throughout the month were generally moderate in amount and were, as usual in August, determined almost solely by the rainfall distribution. Temperature was from the 1st to the 5th generally below the normal in Northern India and above it in Central India and the

Peninsula. The following gives variation data for the nine large provincial areas for the period :—

PROVINCIAL AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	1st August.	2nd August.	3rd August.	4th August.	5th August.
	°	°	°	°	°
Burma	+1·2	+0·5	+0·8	+0·3	+0·2
Bengal and Assam	—0·7	—1·6	—1·2	—1·6	—1·6
North-Western Provinces and Oudh.	—0·6	—0·4	—1·8	—1·1	—2·4
Punjab	—3·0	—0·8	+1·4	+2·9	+4·2
Sind and Rajputana	+3·6	+3·6	+4·4	+4·3	+4·6
Central India and Gujarat	+1·9	+2·3	+2·2	+2·2	+1·5
Central Provinces and Berar	+0·7	+1·0	—0·2	+2·1	+2·1
Bombay	+2·1	+1·8	+1·7	+2·0	+1·6
Madras	+2·4	+2·4	+2·5	+1·9	+3·0

The most noteworthy feature of this period was the unusually low temperature prevailing in Baluchistan, as is shown by the following variation data for Quetta :—

AREA.	Temperature.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
		1st Aug.	2nd Aug.	3rd Aug.	4th Aug.	5th Aug.	6th Aug.	7th Aug.
		°	°	°	°	°	°	°
BALUCHISTAN (QUETTA).	Maximum	—2·3	—6·4	—4·1	—5·0	—2·5	+1·5	+0·9
	Minimum	—3·6	—5·7	—7·7	—10·8	—13·0	—4·9	—2·4
	Mean	—3·0	—6·1	—5·9	—7·9	—7·8	—1·7	—0·8

Temperature was normal or in slight excess at the inland stations in Persia, and the low temperature in Baluchistan was hence restricted to that area and was apparently due to purely local conditions, the chief of which was probably the unusual dryness of the air due to indraught from the drier regions of Central and Western Asia to the area of very low and deficient pressure in Upper India.

Temperature increased rapidly in Upper and North-Eastern India and fell in the Central Provinces on the 5th and 6th, and was from the 6th to the 8th in defect chiefly in the Central Provinces and North Deccan where rainfall was most general during this period. The most important feature of the period from the 6th to the 10th was the excessive temperature which prevailed in Sind, the Punjab and Rajputana. The following data illustrate this feature :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	6th August.	7th August.	8th August.	9th August.	10th August.
	°	°	°	°	°
Baluchistan (Quetta)	—1·7	—0·8	+1·9	+4·5	+4·5
Sind	+3·0	+4·6	+6·5	+6·1	+3·1
Punjab	+4·1	+4·1	+3·1	+0·6	—0·7
Rajputana	+5·4	+4·8	+4·6	+5·5	+4·1

Temperature was in general excess except in the Punjab on the 10th, as is shown by the following comparative data for the nine large provincial areas :—

PROVINCIAL AREA.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 10th August.	Mean minimum temperature, 10th August.	Mean temperature, 10th August.
	°	°	°
Burma	+ 1·4	+0·7	+1·1
Bengal and Assam	+ 1·4	+1·3	+1·4
North-Western Provinces and Oudh	+ 1·5	+1·9	+1·7
Punjab	— 3·0	+1·6	—0·7
Sind and Rajputana	+ 3·9	+1·1	+2·5
Central India and Gujarat	+ 2·2	+1·9	+2·1
Central Provinces and Berar	+ 0·6	+1·5	+1·1
Bombay	+ 0·6	+0·8	+0·7
Madras	+ 2·4	+2·3	+2·4

Temperature continued in general excess (with local exceptions due to local rain) from the 11th to the 15th. The excess was on the whole most marked in the Coromandel coast districts, due to the prevalence of strongish westerly winds. The following gives variation data for four stations illustrating this feature :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	11th August.	12th August.	13th August.	14th August.	15th August.
	°	°	°	°	°
Negapatam	+5·8	+6·0	+5·1	+5·6	+5·8
Madras	+5·3	+3·3	+0·5	+2·8	+4·8
Cuddapah	+5·5	+5·7	+2·1	+4·8	+5·3
Trichinopoly	+1·6	+4·1	+3·7	+2·9	+4·2

Rain was fairly general in Northern India, but scanty in the Peninsula from the 16th to the 23rd. Temperature was hence throughout below the normal in Northern India and above it in the Peninsula, as is shown by the following comparative data for every second day from the 16th to the 24th :—

PROVINCIAL AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	16th Aug.	18th Aug.	20th Aug.	22nd Aug.	24th Aug.
	°	°	°	°	°
Bengal and Assam	−1·2	−0·6	−1·6	−2·0	+1·0
North-Western Provinces and Oudh	+0·9	−1·4	−1·8	−3·3	−1·2
Punjab	−1·5	−2·7	−1·9	−6·1	−5·0
Sind and Rajputana	+0·5	−2·4	−1·3	−2·1	−0·7
Central India and Gujarat	+0·6	−1·6	−0·8	−0·5	+0·5
Central Provinces and Berar	−0·9	+0·8	+1·4	+1·1	+0·4
Bombay	+1·2	+2·1	+2·0	+2·6	+2·0
Madras	+2·9	+3·0	−0·3	+1·6	+0·7

Conditions changed on the 24th and 25th, and rain decreased in Northern India for some days, and, on the other hand, fell in increasing amounts in the Peninsula, more especially in the southern and central districts. The northern districts of the Peninsula and Central India received general and moderate rain from the 27th to the 29th, and the southern half of the Peninsula heavy rain from the 24th to the 29th from an advance of monsoon winds across the Malabar and South Konkan coasts.

Hence during the last week of the month the temperature variations were opposite in character to those which obtained during the preceding nine or ten days, temperature being generally in defect over the greater part of the Peninsula and in excess in Northern India. The data of the following table illustrate these facts:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	25th Aug.	26th Aug.	27th Aug	28th Aug.	29th Aug.	30th Aug.	31st Aug.
	°	°	°	°	°	°	°
Bengal and Assam	+1·9	+1·3	+0·4	+1·0	+0·8	+1·0	+1·5
North-Western Provinces and Oudh.	+0·3	−0·4	−1·2	+1·9	+0·8	−0·2	+0·7
Punjab	−2·8	−0·7	−0·1	−0·8	−0·2	−1·6	−1·4
Sind and Rajputana	+0·2	+1·5	+2·2	+3·0	+2·9	+0·8	+0·3
Central India and Gujarat	+0·5	+0·9	+2·7	+1·7	+2·0	+0·7	+0·6
Central Provinces and Berar	+1·0	+1·7	+0·3	+1·1	+1·7	+0·7	+1·5
Bombay	+2·2	+2·2	+1·7	+1·4	+0·5	−0·1	+1·4
Madras	+0·3	−1·3	−1·7	−2·1	−2·5	−0·4	+0·5

The following table, giving the variations of the maximum, minimum and mean temperatures from the normal for the 24 hours preceding 8 A.M. of the 31st, indicates the temperature conditions prevailing at the end of the month :—

PROVINCIAL AREA.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 31st August.	Mean minimum temperature, 31st August.	Mean temperature, 31st August.
	°	°	°
Burma	+3·4	+1·2	+2·3
Bengal and Assam	+1·7	+1·3	+1·5
North-Western Provinces and Oudh	+0·2	+1·2	+0·7
Punjab	−3·4	+0·7	−1·4
Sind and Rajputana	0	+0·6	+0·3
Central India and Gujarat	−0·4	+1·5	+0·6
Central Provinces and Berar	+1·5	+1·4	+1·5
Bombay	+2·1	+0·6	+1·4
Madras	−0·7	+1·6	+0·5

The following gives the variations of the mean daily temperature from the normal, week by week, during the month in nine of the larger provinces or political divisions of the empire :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE FOR WEEK ENDING				
	7th August.	14th August.	21st August.	28th August.	For August 1897.
	°	°	°	°	°
Burma	+0·6	+0·8	0	+0·6	+0·6
Bengal and Assam	−0·9	+1·6	−1·0	+0·3	+0·1
North-Western Provinces and Oudh	−0·7	+1·7	−0·8	−0·9	−0·1
Punjab	+1·8	+0·5	−2·2	−3·2	−0·8
Sind and Rajputana	+4·2	+2·4	−1·2	+0·6	+1·3
Central India and Gujarat	+1·8	+2·1	−0·4	+0·9	+1·1
Central Provinces and Berar	+0·2	+0·4	0	+0·9	+0·4
Bombay	+1·6	+0·8	+1·8	+2·0	+1·5
Madras	+2·0	+1·8	+1·7	−0·1	+1·2

Winds.

Winds were, on the average of the month, normal in strength and direction at Port Blair and the Burma coast stations.

The monsoon current was approximately of normal velocity in Bengal, and slightly stronger than usual in the Gangetic Plain. The following gives comparative data :—

AREA.	VELOCITY IN MILES PER DIEM.			
	Mean actual, August 1897.	Mean normal, August.	Variation from normal, August 1897.	Percentage variation from normal.
Bengal Coast	265	277	—12	— 4
„ Inland	116	116	0	0
Bihar	127	104	+23	+22
Chota Nagpur	214	185	+29	+16
North-Western Provinces and Oudh.	97	79	+18	+23

These figures hence suggest that the current in the Bay was probably of normal strength. The data collected from the logs of vessels indicate that the mean strength of the winds (in Beaufort Scale) was 3·8 or 0·2 in defect of the normal (4·0).

Winds were in August 1897 somewhat more easterly than usual in South Bengal, more especially at the coast stations. They were, on the other hand, less easterly than usual at Burdwan and Berhampore in Central Bengal. In the following table are given data showing the amount of the easterly deflection in the mean winds of the month and corresponding data of the last month for six stations :—

STATION.	WIND DIRECTION.					
	Mean actual, July 1897.	Mean normal, July.	Easterly deflection.	Mean actual, August 1897.	Mean normal, August.	Easterly deflection.
			°			°
False Point . . .	S 26° W	S 53° W	+27	S 38° W	S 47° W	+ 9
Saugor Island . .	S 3° W	S 21° W	+18	S 3° E	S 13° W	+16
Calcutta . . .	S 2° E	S 8° E	— 6	S 14° E	S 14° E	0
Dacca	S 9° E	S 18° E	— 9	S 21° E	S 15° E	+ 6
Burdwan . . .	S 8° W	S 19° E	—27	S 6 E	S 28° E	—22
Berhampore. . .	S 19° E	S 40° E	—21	S 19° E	S 41 E	—22

It will thus be seen that the variations of the direction of the lower air motion in Bengal from the normal were similiar in character in the two months.

The mean position of the trough of low pressure during the month was (as in August 1895 and in July 1896) somewhat further south than usual, more especially in its eastern half, due chiefly to its abnormal position in the latter half of the month. The following table gives data showing the unsteadiness or variability of the winds at the stations nearest the axis of the trough :—

STATION.	STEADINESS.		
	Mean actual percentage, August 1897.	Mean normal percentage, August.	Variation from normal, August 1897.
	%	%	
Hazaribagh.	21	8	+13
Allahabad	13	4	+ 9
Sutna	6	40	—34
Nowgong	14	44	—30
Jeypore	6	43	—37
Lahore	26	25	+ 1
Mooltan	23	27	— 4

The mean position of the axis during the month was hence defined by these stations.

Winds were generally normal in direction in Bihar, the greater part of the North-Western Provinces, the Punjab and Sind, and only differed to any important extent from the normal at stations near the axis of the trough of low pressure.

The following data illustrate this feature of the irregular variation of the mean wind directions of the month from the normal at stations near the axis of the trough of low pressure :—

STATION.	WIND DIRECTION.	
	Mean actual, August 1897.	Mean normal, August.
Hazaribagh	S 5° E	S 4° W
Allahabad	N 72° E	N 16° E
Sutna	N 25° W	N 74° W
Jeypore	N 20° W	N 66° W
Mooltan	N 88° E	S 12° W

The Bombay monsoon current was of normal strength as judged by the mean velocity of the winds at the west coast stations. Winds at the interior stations under the influence of that current only were slightly stronger than usual.

The following table gives the mean daily wind velocity at twelve stations:—

	Station.	Velocity in miles per diem.			
		Mean actual, August 1897.	Mean normal, August.	Variation from normal, August 1897.	Percentage variation from normal.
Coast	Bhuj	367	359	+ 8	+ 2
	Rajkot	348	273	+75	+27
	Bombay	362	376	—14	— 4
	Rutnagiri	221	244	—23	— 9
Inland	Deesa	271	278	— 7	— 3
	Sholapur	389	296	+93	+31
	Belgaum	567	517	+50	+10
	Akola	214	200	+14	+ 7
	Khandwa	195	199	— 4	— 2
	Nagpur	198	160	+38	+24
	Bellary	201	263	—62	—24
	Trichinopoly	188	198	—10	— 5

The preceding table gives data for stations under the sole influence of the Bombay current during the month. The marine data indicate that the current in the Arabian Sea was practically of normal strength on the mean of the month.

The data for all the hill stations in Central and Southern India show that the winds at those stations were above their normal strength to a slight extent during the month. The following gives comparative data for four stations:—

Hill station.	Velocity in miles per diem.			
	Actual, August 1897.	Normal, August.	Variation from normal, August 1897.	Percentage variation from normal.
Mount Abu	266	254	+12	+ 5
Chikalda	301	266	+35	+13
Mercara	227	208	+19	+ 9
Wellington	98	88	+10	+11

Winds were practically normal in direction at the Konkan coast stations, as is shown by the following data:—

Station.	Wind direction.	
	Mean actual, August 1897.	Mean normal, August.
Bombay	S 74° W	S 81° W
Ratnagiri	S 86° W	S 72° W
Karwar	S 86° W	N 87° W

The mean wind directions of the month at stations in Mysore, the Deccan and the Central Provinces differed to no important extent from the normal.

Winds were less steady than usual in South Madras, but differed little from the normal in direction.

It is interesting to note, in connection with the meteorology of the month in India, that winds were normal in direction, but not so strong as usual in August at the Seychelles and Zanzibar.

The chief features of the mean air movement over the Indian area during the month were:—

(1) The monsoon currents were of normal strength in the Arabian Sea and Bay of Bengal, and steadier than usual.

(2) The winds were practically of normal intensity in the Bombay, Burma and Bengal coast districts.

(3) They were on the whole feebler than usual in Southern India.

(4) They were stronger and steadier than the normal in the interior of Northern India, indicating the extension of the monsoon currents to their utmost limits in the Punjab during the greater part of the month.

Humidity and Cloud.

The mean pressure of the aqueous vapour in the air was slightly larger than usual in Burma, Assam, Bengal (except the southern districts), Orissa and Bihar. It was slightly below the normal in Chota Nagpur. As temperature was considerably in excess in these areas the relative humidity of the month was normal over the greater part of the

area. The following gives comparative data for this area :—

AREA.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.
	"	"	"	%	%	
(Andamans) Port Blair.	·927	·893	+·034	86	86	0
Burma Coast . .	·894	·880	+·014	89	89	0
Bengal . . .	·957	·952	+·005	87	86	+1
Assam . . .	·964	·932	+·032	86	86	0
Orissa . . .	·935	·918	+·017	86	83	+3
Bihar	·976	·957	+·019	84	83	+1
Chota Nagpur . .	·784	·799	—·015	84	85	—1

The air was much damper, both absolutely and relatively, over the large area including the Punjab, the North-Western Provinces, Rajputana, Upper Sind and Central India.

In the following table are given comparative data for this area of increased humidity in August 1897 :—

DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.
	"	"	"	%	%	
Punjab . . .	·884	·848	+·036	71	65	+ 6
North-Western Provinces and Oudh.	·941	·882	+·059	85	81	+ 4
Rajputana . . .	·896	·800	+·096	81	75	+ 6
Upper Sind . . .	·902	·821	+·081	62	57	+ 5
Central India . .	·937	·852	+·085	87	80	+ 7

The excess in the mean relative humidity was more than 6 at the stations for which data are given below :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, August 1897.	Normal, August.	Variation from normal, August 1897.	Actual, August 1897.	Normal, August.	Variation from normal, August 1897.
	"	"	"	%	%	
Lahore . . .	·925	·868	+·057	75	65	+10
Deesa	·914	·800	+·114	83	75	+ 8
Lucknow . . .	·999	·915	+·084	88	80	+ 8
Ajmere . . .	·906	·791	+·115	83	76	+ 7
Nowgong . . .	·964	·868	+·096	88	81	+ 7

The air was slightly drier than usual in the west coast districts and over the greater part of the Deccan and in a part of South Madras represented by Trichinopoly. The deficiency was most marked in the areas represented by stations for which data are given below :—

	STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
		Actual, August 1897.	Normal, August.	Variation from normal, August 1897.	Actual, August 1897.	Normal, August.	Variation from normal, August 1897.
		"	"	"	%	%	
DECCAN AND SOUTH INDIA.	Bellary .	·585	·658	—·073	53	63	—10
	Sholapur .	·653	·660	—·007	62	69	— 7
	Trichinopoly.	·687	·708	—·021	56	60	— 4
	Hyderabad	·750	·725	+·025	76	79	— 3
WEST COAST.	Karwar .	·851	·828	+·023	83	87	— 4
	Bombay .	·890	·878	+·012	85	87	— 2
	Kurrachee	·926	·869	+·057	77	79	— 2

The air was hence abnormally dry in the West Deccan area extending from Sholapur to Bellary.

The mean absolute and relative humidities were above the normal in the Central Provinces, Berar, Mysore and the Madras coast districts. The variations were small to moderate in amount, and indicated that the humidity conditions were approximately normal in these areas.

The mean humidity of the month was, on the whole, in slight excess at the hill stations in Northern and Central India. The following gives data for four stations :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, August 1897.	Normal, August.	Variation from normal, August 1897.	Actual, August 1897.	Normal, August.	Variation from normal, August 1897.
	"	"	"	%	%	
Murree . . .	·552	·551	+·001	84	82	+2
Simla	·530	·528	+·002	92	91	+1
Ranikhet . . .	·591	·572	+·019	90	88	+2
Mount Abu . . .	·668	·609	+·059	93	91	+2

The following summarizes the chief abnormal features of the mean hygrometric conditions of the month :—

(1) Humidity was on the mean of the month normal in Burma and at Port Blair.

(2) It was normal or in slight excess in Assam, Bengal, Bihar, Chota Nagpur, the eastern districts of the North-Western Provinces, the Central Provinces and Berar.

(3) The air was much damper in the Punjab, the western and central districts of the North-Western Provinces, Rajputana, Upper Sind and Central India.

(4) The air was slightly drier in the Konkan and Lower Sind, and was considerably drier than usual in the West and South Deccan and in a part of Madras represented by the station of Trichinopoly. The deficiency in the mean humidity of the month was greatest at Bellary (—10) and Sholapur (—7).

The variations in the amount of cloud differed considerably in their distribution from those of the humidity of the air stratum near the earth's surface. Cloud was in excess over the whole of India, with the exception of Assam, Central Bengal and South Bihar and locally at Kurrachee, Bombay, Nagpur and Poona (each —0·2), and at Saugor (—0·3) and Trichinopoly (—0·9). The following gives comparative data for Burma and North-Eastern India :—

AREA.	MEAN CLOUD AMOUNT.		
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.
(Andamans) Port Blair	8·6	7·5	+1·1
Burma	9·1	8·3	+0·8
Assam	7·7	8·0	—0·3
Bengal	8·6	8·1	+0·5
Orissa	8·5	7·7	+0·8
Chota Nagpur	9·9	9·0	+0·9
Bihar (South)	8·1	8·2	—0·1
North-Western Provinces (East)	8·6	7·8	+0·8
Oudh (South)	8·5	7·6	+0·9

Cloud was in large excess in Upper India, by amounts exceeding 1·0 in Baluchistan, the Punjab, Upper Sind and the western half of the North-Western Provinces. The excess was more than 1·5 at the stations in these areas for which data are given below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, August 1897.	Normal, August.	Variation from normal, August 1897.
Lahore	5·9	3·7	+2·2
Mooltan	4·1	2·2	+1·9
Jacobabad	4·2	2·3	+1·9

Cloud was in moderate to considerable excess in Berar, the Central Provinces, the Deccan and the Madras coast districts, as is shown by the following statement :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, August 1897.	Normal, August.	Variation from normal, August 1897.
Berar	9·1	8·0	+1·1
Central Provinces	8·2	7·9	+0·3
Bombay Deccan	8·8	8·6	+0·2
Madras "	8·8	7·8	+1·0
Mysore	8·9	8·1	+0·8
Madras Coast	7·6	6·7	+0·9

It is noteworthy that there was a moderate to considerable excess of cloud in the dry areas of the Deccan and South Madras in which, as shown above, the mean humidity of the month was considerably below the normal. This is indicated by the following data :—

STATION.	MEAND CLOUD AMOUNT.			Variation of mean, humidity of August 1897 from normal.
	Actual, August 1897.	Normal, August.	Variation from normal, August 1897.	
Bangalore	8·2	6·6	+1·6	— 1
Salem	7·5	6·3	+1·2	+ 1
Hyderabad (Deccan)	7·9	6·8	+1·1	— 3
Bellary	8·8	7·8	+1·0	—10
Sholapur	9·0	8·4	+0·6	— 7

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

(1) There was a moderate excess of amount of cloud over by far the greater part of the country. The excess was large in Upper India and the greater part of the Deccan and Madras coast districts. It was actually greatest in the South-East Punjab.

(2) A noteworthy feature was the excess of cloud in the very dry area of decreased humidity in the Deccan, more especially at Sholapur, Bellary and Hyderabad.

(3) There was a local moderate deficiency of cloud in two areas, *viz.*, (1) Assam, Central Bengal and South Bihar (2) the area represented by Bombay and Poona. The deficiency was absolutely greatest at Sibsagar and Trichinopoly (each —0·9), but it is doubtful whether the variations at these two stations are correct (more especially Sibsagar where there has been a recent change of observer).

Rainfall.

The rainfall in August is generally heavy over the greater part of India, for the rain bearing currents which are fully established in July are maintained throughout the whole of August, though their strength in August is usually not so great as in July. In August also there is a greater probability of the occurrence of more or less prolonged breaks in the rains, so that, on the whole, the rainfall in August is usually lighter than in July. The average distribution of the precipitation in August is, however, very similar to that in July. The areas of heaviest rainfall are the west coast districts of the Peninsula, Arakan, Lower Pegu, Tenasserim, Assam, the Sikkim-Himalayas, South-East Bengal and parts of Central Bengal and of the Central Provinces. On the other hand, the rainfall is light and scanty in Central Burma, the southern districts of Madras, including Tinnevelly, Madura and parts of Coimbatore and Salem, Upper Sind and the West Punjab. The normal rainfall in August varies from average amounts of thirty-eight inches in Tenasserim and thirty-two inches in Arakan to about two inches in Sind, the West Punjab and South Madras.

The rainfall of August 1897 was not only abundant, but unusually favourably distributed, in which respect it stands in striking contrast to the rainfall of the corresponding month of the year 1896. The monsoon currents were unusually steady and of normal strength throughout the month. The pressure and other conditions were favourable so that the currents penetrated to their extreme limits in the North Punjab and Baluchistan during the greater part of the month. Numerous depressions of small intensity and considerable extent formed during the month as is usually the case during the extension of the humid currents of the south-west monsoon over the Indian area. They were, with perhaps one exception, initiated over the land and were hence of slight intensity. They gave widely distributed rain, and the month was hence singularly free from cyclonic downpours in all parts of India except a few districts in the Central Provinces which received excessive rain on the 14th and 15th from the third storm of the month.

The chief periods of most general rain were as follows:—

(1) From the 1st to the 10th. Bengal, the North-Western Provinces, Rajputana, the Central Provinces, Berar and Central India obtained moderate to heavy rain during this period.

(2) From the 13th to the 23rd, during which the whole of Northern and Central India, Berar and the Central Provinces obtained moderate to heavy rain.

(3) From the 24th to the 29th or 30th. The rainfall during this period was chiefly due to an influx of humid winds across the west coast. It was most vigorous in Malabar and hence Malabar, Southern India, and the Deccan received heavy rain, and North Bombay, the Central Provinces, Berar, Central India and Rajputana favourable rain.

The preceding remarks have stated the chief periods during which the rainfall of the month occurred. Its actual distribution and variation from the normal are fully exhibited in Plates IV and V. The following give a summary of the most important features of the rainfall of the month:—

(1) Rainfall was in slight to moderate defect in eight rainfall divisions and was more or less in excess in the remaining 48 rainfall divisions. It averaged 24 per cent. in defect in South Hyderabad, 16 per cent. in Upper Burma, and was in slight defect in Assam Hills, Bengal Hills, Orissa, North Bengal, North Bihar and Rajputana East and Central India West.

(2) It was between 1 and 24 per cent. in excess in 22 divisions, including Tenasserim, Lower Burma (Deltaic), Central Burma, Eastern Bengal, Assam (Brahmaputra), Deltaic Bengal, Central Bengal, Chota Nagpur, South Bihar, North-Western Provinces Central, North-Western Provinces Submontane East and West, North-Western Provinces Hills, South-East Punjab, Punjab Submontane, Punjab Hills, Konkan, Bombay Deccan, Berar, Central India East and Madras Central.

(3) It was between 25 and 49 per cent. in excess in 14 divisions, including Arakan, Assam (Surma), North Oudh, North-Western Provinces West, South Punjab, Central Punjab, Mysore, Khandesh, Central Provinces Central, Central Provinces East, Gujarat, Madras East Coast North, Madras East Coast South and Madras South.

(4) It was more than 50 per cent. in excess in the following divisions, *viz.*, North-Western Provinces East, Oudh South, North Punjab, West Punjab, Malabar, Madras South Central, Central Provinces West, Kathiawar, Sind, Baluchistan hills, West Rajputana and Madras East Coast Central.

(5) The rainfall of the month was hence most largely in excess (relatively to the normal) in the North-Western Provinces and Central Provinces and parts of the Punjab, Madras and North Bombay.

The following table gives comparative rainfall data of the month for the 56 rainfall divisions of India. In the majority of these divisions the data are based on the rainfall statements of the month published by the Provincial Governments, but in the cases of Burma, Assam and Mysore for which the statements were not received in time, the data are derived from the weekly telegrams received from district officers in those provinces:—

Province.	Division.	Number of rainy days. Average actual, August 1897.	Number of rainy days. Average normal, August.	Rainfall. Average actual, August 1897.	Rainfall. Average normal, August.	Rainfall. Variation from normal, August 1897.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	41·19	38·40	+ 2·79
	Lower Burma (Deltaic)*	?	?	24·96	20·73	+ 4·23
	Central do.*	?	?	14·17	13·56	+ 0·61
	Upper do.*	?	?	8·61	10·29	— 1·68
	Arakan*	?	?	48·54	33·35	+ 15·19
Bengal and Assam	Eastern Bengal	19·3	18·0	19·79	16·22	+ 3·57
	Assam (Surma)*	?	?	28·95	22·92	+ 6·03
	Do. (Hills)*	?	?	22·60	26·83	— 4·23
	Do. (Brahmaputra)*	?	?	14·14	13·66	+ 0·48
	Deltaic Bengal	17·5	15·9	13·46	12·19	+ 1·27
	Central do.	17·5	14·9	12·33	11·31	— 1·02
	North do.	17·2	15·9	15·89	16·78	— 0·89
	Bengal Hills	24·8	22·4	23·87	27·98	— 4·11
	Orissa	17·3	15·1	11·20	11·98	— 0·78
	Chota Nagpur	19·7	16·3	15·56	13·87	+ 1·69
	Bihar (South)	16·1	13·5	12·48	11·74	+ 0·74
	Do. (North)	14·8	14·0	10·99	12·60	— 1·61
North-Western Provinces and Oudh.	North-Western Provinces (East)	17·4	12·5	20·02	10·79	+ 9·23
	Oudh (South)	16·4	11·9	18·32	10·47	+ 7·85
	Do. (North)	15·7	11·7	13·85	10·44	+ 3·41
	North-Western Provinces (Central)	15·3	11·8	12·47	10·55	+ 1·92
	Do. do. (West)	11·7	9·3	9·60	7·70	+ 1·90
	Do. do. (Submontane, East)	14·9	12·2	13·11	10·78	+ 2·33
	Do. do. (do. West)	15·8	12·2	15·96	13·11	+ 2·85
	Do. do. (Hills)	21·7	18·5	18·59	16·52	+ 2·07
Punjab	Punjab (South-East)	7·5	7·4	6·78	5·91	+ 0·87
	Do. (South)	7·1	4·8	5·57	4·13	+ 1·44
	Do. (Central)	7·5	5·1	6·70	4·75	+ 1·95
	Do. (Submontane)	9·7	7·9	8·83	8·25	+ 0·58
	Do. (Hills)	18·0	15·3	18·58	16·67	+ 1·91
	Do. (North)	8·0	5·4	7·78	4·78	+ 3·00
	Do. (West)	6·3	2·7	5·53	2·07	+ 3·46
Bombay and Malabar Coast Districts, Madras.	Malabar	25·5	21·8	33·69	20·13	+ 13·56
	Travancore	18·6	?	18·57	?	?
	Madras (South Central)	7·8	5·6	5·89	3·49	+ 2·40
	Coorg	24·2	?	33·55	?	?
	Mysore*	?	?	7·32	5·21	+ 2·11
	Konkan	25·8	23·8	28·74	23·96	+ 4·78
	Bombay Deccan	9·7	10·1	7·00	6·14	+ 0·86
	Khandesh	12·5	8·6	7·69	5·99	+ 1·70
Central Provinces and Berar.	Berar	14·4	?	10·29	8·89	+ 1·40
	Central Provinces (West)	16·1	12·8	15·52	9·87	+ 5·65
	Do. do. (Central)	19·3	14·1	17·38	12·86	+ 4·52
	Do. do. (East)	19·3	13·2	17·79	12·54	+ 5·25
Bombay (North)	Gujarat	17·6	13·2	13·32	9·46	+ 3·86
	Kathiawar	13·5	7·4	11·14	6·28	+ 4·86
	Sind	6·3	?	4·80	1·94	+ 2·86
	Baluchistan Hills	2·6	?	2·23	0·75	+ 1·48
Rajputana and Central India.	Central India (East)	16·2	?	14·32	12·28	+ 2·04
	Rajputana (East) and Central India (West)	11·0	?	8·37	9·63	— 1·26
	Rajputana (West)	7·9	?	6·39	3·86	+ 2·53
Madras	East Coast (North)	13·8	10·1	9·56	7·18	+ 2·38
	Do. (do.) (a)	19·5	17·7	13·51	12·75	+ 0·76
	Hyderabad (South)	?	?	4·34	5·74	— 1·40
	Madras (Central)	6·6	5·9	4·68	4·30	+ 0·38
	East Coast (Central)	7·0	5·2	5·02	3·06	+ 1·96
	Do. (South)	9·5	7·4	6·98	5·16	+ 1·82
	Madras (South)	5·2	3·3	2·81	2·02	+ 0·79

* The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

Arakan, Tenasserim and Lower Burma received steady daily rain during the month. The northern districts obtained frequent rain, but the rainfall was smaller than usual in a large part of Upper Burma, including the

districts of Yamethin, Meiktila, Magwe, Minbu, Pakokku, Myingyan and Sagaing for which data are given below :—

District.	Rainfall.		
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.
	Inches.	Inches.	Inches.
Yamethin	6·11	?	?
Meiktila	3·13	?	?
Magwe	3·34	?	?
Minbu	4·92	?	?
Pakokku	8·22	?	?
Myingyan	3·35	?	?
Sagaing	3·24	?	?

Normal averages for these districts are not yet available, as sufficient data have not yet been collected to give satisfactory normals.

The rainfall of the month was almost certainly in moderate defect in these districts excepting perhaps Pakokku and Yamethin.

The following gives data for the five divisions of the province :—

Division.	Rainfall.		
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.
	Inches.	Inches.	Inches.
Tenasserim	41·19	38·40	+2·79
Lower Burma	24·96	20·73	+4·23
Central do.	14·17	13 56	+0·61
Upper do.	8·61	10·29	—1·68
Arakan	48·54	33·35	+15·19

The rainfall of the month was favourable in Assam. Cachar received moderate general rain from the 1st to the 6th during which period the Assam Valley obtained light daily showers, more or less local in character. Numerous light local showers fell during the next two days. This sporadic precipitation was followed by somewhat heavier and more general rain in Cachar, extending from the 9th to the 12th. Light to moderate local showers were received during this period in the Assam Valley.

General and moderately heavy rain set in on the 17th and continued during the remainder of the month. The heaviest fall in 24 hours at Cherrapunji was 6·59 inches, registered on the 3rd. The total rainfall of the month at that station was 58·64 inches or 80 per cent. of the normal.

The following gives comparative data of the rainfall of the month for the plains districts of Assam :—

District.	Rainfall.		
	Average actual, August 1897.	Average normal, August.	Variation from normal August 1897.
	Inches.	Inches.	Inches.
Cachar	23·39	17·97	+5·42
Sylhet	22·59	23·09	—0·50
Goalpara	14·85	12·23	+2·62
Kamrup	14·35	11·61	+2·74
Darrang	13·91	10·03	+3·88
Nowgong	10·72	14·64	—3·92
Sibsagar	18·70	14·26	+4·44
Lakhimpur	18·60	17·44	+1·16

Rain fell generally in Bengal from the 1st to the 9th. The precipitation was heavy on the 2nd and 4th, more especially in North and South-West Bengal, and was moderate to large in amount in Bihar. A short period of showery weather followed, lasting from the 10th to the 12th. This partial break was most marked in North Bengal and Bihar. General and moderately heavy rain fell daily over the whole province from the 14th to the 25th or 26th. Falls in 24 hours of 2 to 4 inches were of frequent occurrence during this period. The largest recorded fall in 24 hours during this period was 7·00 inches at Demagiri registered on the 25th. The rainfall was hence moderate in amount and well distributed over the whole province. During the remainder of the month local showers gave occasional rain. This sporadic rainfall was most general in South-West and North Bengal and Orissa and was very light in Bihar and Chota Nagpur.

The following gives a summary of the rainfall data of the month, published in the Calcutta Gazette, for the nine divisions of the province :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.	Average actual, August, 1897.	Average normal, August.	Variation from normal Augus 1897.
				Inches.	Inches.	Inches.
Eastern Bengal	19·3	18·0	+1·3	19·79	16 22	+3·57
Deltaic ,,	17·5	15·9	+1·6	13·46	12·19	+1·27
Central ,,	17·5	14·9	+2·6	12·33	11·31	+1·02
North ,,	17·2	15·9	+1·3	15·89	16·78	—0·89
Bengal Hills	24·8	22·4	+2·4	23·87	27·98	—4·11
Orissa	17·3	15·1	+2·2	11·20	11·98	—0·78
Chota Nagpur	19·7	16·3	+3·4	15·56	13·87	+1·69
South Bihar	16·1	13·5	+2·6	12·48	11·74	+0·74
North ,,	14·8	14·0	+0·8	10·99	12·60	—1·61

The preceding data indicate that the rainfall was slightly below the normal in Orissa, North Bengal, Sikkim and North Bihar. The deficiency was more than 33 per cent. in the district of Champaran only (—44 per cent.)

The rainfall of the month was 33 per cent. or upwards in excess in the districts, for which data are given below:—

DIVISION.	DISTRICT.	RAINFALL.		
		Average actual, August 1897.	Average normal, August.	Percentage variation from normal.
		Inches.	Inches.	
SOUTH-WEST BENGAL	Khulna	18·67	11·78	+58
	Murshidabad	15·61	11·12	+40
NORTH BENGAL	Rajshahi	15·05	10·67	+41
	Rangpur	16·75	12·37	+35
EAST BENGAL	Dacca	16·34	12·26	+33

The range of variation of the rainfall of the month from the normal was hence much smaller than is usually the case in August in Bengal.

The rainfall of the month was abundant and well-distributed in the North-Western Provinces. The first period of rainfall was from the 1st to the 6th. The eastern and southern districts obtained moderate to heavy rain. The rainfall during this period was, on the other hand, scanty in the western districts, including Meerut, Bulandshahr, Muzaffarnagar and Saharanpur.

A partial break obtained from the 7th to the 16th, during which local showers only were received. They were most frequent and heaviest in the western districts.

General rain fell over the whole province from the 17th to the 27th, chiefly due to the influence of two feeble cyclonic storms. The rainfall during this period was heaviest in the districts of Jaunpur, Azamgarh, Benares, Mirzapur, Allahabad and Banda in the east and south-east of the Province, and in the submontane districts of Bareilly and Badaun. The district of Jaunpur, for example, obtained an average of 5·4 inches on the 22nd, Mirzapur of 5·13 inches, Benares of 4·36 inches on the 20th, and Allahabad of 3·8 inches on the 21st.

Light local showers of little importance were received during the last four days of the month.

The following is a summary of the published rainfall data for the month:—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.	Average actual, August 1897.	Average normal, August.	Variation from normal August 1897.
				Inches.	Inches.	Inches.
North-Western Provinces, East.	17·4	12·5	+4·9	20·02	10·79	+9·23
South Oudh	16·4	11·9	+4·5	18·32	10·47	+7·85
North "	15·7	11·7	+4·0	13·85	10·44	+3·41
North-Western Provinces, Central.	15·3	11·8	+3·5	12·47	10·55	+1·92
North-Western Provinces, West.	11·7	9·3	+2·4	9·60	7·70	+1·90
North-Western Provinces, East Submontane.	14·9	12·2	+2·7	13·11	10·78	+2·33
North-Western Provinces, West Submontane	15·8	12·2	+3·6	15·96	13·11	+2·85
North-Western Provinces, Hills.	21·7	18·5	+3·2	18·59	16·52	+2·07

The table shows that the rainfall of the month was in moderate to large excess over the whole province. The excess averaged 86 per cent. in the eastern division, 75 per cent. in South Oudh, 33 per cent. in North Oudh, and ranged between 13 per cent. in the Hills and slightly over 18 per cent. in each of the remaining four divisions.

The following table gives comparative data for the 48 districts of the province:—

DISTRICT.	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Fyzabad	17·24	10·13	+7·11	+70
Gonda	14·93	11·42	+3·51	+35
Bara Banki	12·35	9·97	+2·38	+24
Bahraich	18·48	10·52	+7·96	+76
Sitapur	7·57	9·62	—2·05	—21
Kheri	12·84	11·48	+1·36	+12
Sultanpur	20·52	11·60	+8·92	+77
Partabgarh	25·39	9·18	+16·21	+177
Rai Bareli	22·72	10·58	+12·14	+115
Unao	14·00	10·47	+3·53	+34
Lucknow	12·05	10·68	+1·37	+13
Hardoi	15·43	10·06	+5·37	+53
Ghazipur	19·72	9·92	+9·80	+99
Benares	21·11	10·84	+10·27	+95
Jaunpur	18·31	11·92	+6·39	+54
Mirzapur	21·98	11·63	+10·35	+89
Allahabad	19·43	9·88	+9·55	+97
Banda	16·96	12·12	+4·84	+40

DISTRICT.	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Fatehpur	13·82	9·92	+3·90	+39
Hamirpur	10·01	9·57	+0·44	+ 5
Cawnpore	13·39	9·89	+3·50	+35
Jalaun	12·09	10·07	+2·02	+20
Etawah	14·75	10·22	+4·53	+44
Farukhabad	13·11	9·96	+3·15	+32
Mainpuri	11·01	10·88	+0·13	+ 1
Etah	11·96	9·32	+2·64	+28
Jhansi	10·76	11·50	—0·74	— 6
Agra	10·36	8·28	+2·08	+25
Muttra	8·80	7·19	+1·61	+22
Aligarh	9·54	7·36	+2·18	+30
Bulandshahr	12·08	7·65	+4·43	+58
Meerut	8·22	7·97	+0·25	+ 3
Pilibhit	13·21	13·72	—0·51	— 4
Shahjahanpur	13·42	9·88	+3·54	+36
Badaun	17·58	8·87	+8·71	+98
Bareilly	17·20	11·01	+6·19	+56
Moradabad	13·36	10·85	+2·51	+23
Bijnor	15·90	12·21	+3·69	+30
Muzaffarnagar	7·41	8·08	—0·67	— 8
Saharanpur	9·58	11·26	—1·68	—15
Dehra Dun	31·59	29·32	+2·27	+ 8
Almora	18·44	15·64	+2·80	+18
Garhwal	17·20	13·65	+3·55	+26
Naini Tal	19·71	19·31	+0·40	+ 2
Gorakhpur	10·29	10·70	—0·41	— 4
Basti	14·77	11·38	+3·39	+30
Azamgarh	16·43	11·17	+5·26	+47
Ballia	11·13	9·66	+1·47	+15

Rain occurred at frequent intervals during the month in the Punjab. The periods of most general rain were the 1st and 2nd, the 11th to the 17th, the 19th to the 23rd and the 29th to the 31st. The precipitation during the first period occurred chiefly in the South and Central Punjab. The whole of the Punjab received rain during the second period from the 11th to the 17th. The precipitation was heaviest aud most general in the northern districts. The following gives data for the three districts which received the largest amounts during the period from the 12th to the 14th :—

DISTRICT.	AVERAGE ACTUAL RAINFALL DURING 24 HOURS PRECEDING 8 A.M. OF			TOTAL RAINFALL OF PERIOD
	12th August.	13th August.	14th August.	12th to 14th August 1897.
	Inches.	Inch.	Inch.	Inches.
Peshawar	0·98	0·91	0·84	2·73
Rawalpindi	0·49	0·56	0·89	1·94
Hazara	1·34	0·55	0·67	2·56

The hill districts obtained general and moderately heavy rain during this period. The largest fall was 5·59 inches at Dharmsala on the 11th.

The rainfall of the third period was also equally general with that of the preceding period, but was more irregularly distributed. It was very heavy in the Gurgaon, Rohtak, Delhi, Rawalpindi and Jhelam districts. The Gurgaon districts obtained an average of 2·31 inches on the 21st and of 1·09 inches on the 22nd, the Rohtak district of 2·49 inches on the 21st, the Delhi district of 2·65 inches and the Lahore district of 1·61 inches on the 21st.

The rainfall of the last period was much more restricted in its distribution and occurred chiefly in the submontane northern and hill districts.

The following gives a comparative statement of the rainfall of the month in the seven divisions of the province :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.
				Inches.	Inches.	Inches.
South East Punjab	7·5	7·4	+0·1	6·78	5·91	+ 0·87
South "	7·1	4·8	+2·3	5·57	4·13	+ 1·44
Central "	7·5	5·1	+2·4	6·70	4·75	+ 1·95
Punjab Submontane	9·7	7·9	+1·8	8·83	8·25	+ 0·58
" Hills	18·0	15·3	+2·7	18·58	16·67	+ 1·91
North Punjab	8·0	5·4	+2·6	7·78	4·78	+ 3·00
West "	6·3	2·7	+3·6	5·53	2·07	+ 3·46

The rainfall of the month was hence in general excess. The excess was greatest, relatively to the normal, as well as in actual amount, in the northern and western divisions.

Little or no rain fell at the higher stations (exceeding 3,000 feet in elevation) in Baluchistan. The lower level stations on the railway had more frequent rain than usual, which was received during three periods, *viz.*, the 8th to the 11th, the 15th to the 19th and on the 29th and 30th. The rain fell chiefly during thunderstorms and was more or

less local. The large amount of 4·37 inches was registered at Mushkaf on the 10th. The rainfall was in large excess at the lower level stations. The following gives five examples:—

STATION.	RAINFALL.		
	Actual, August 1897.	Normal, August.	Variation from normal.
	Inches.	Inches.	Inches.
Sunari	11·65	2·88	+8·77
Harnai	10·50	2·24	+8·26
Spintangi	7·24	2·34	+4·90
Shahrig	6·47	2·10	+4·37
Mushkaf	6·18	0·05	+6·13

Rajputana obtained rain chiefly during two periods. The first period was from the 1st to the 11th, when the rainfall was moderate and due to ordinary monsoon conditions in Upper India. The rainfall during this period was heaviest and most general in the eastern and south-western states including Jeypore, Kotah, Bhurtpore, Dholpur and Sirohee. It was scanty in the north-western states and also in Ulwar.

The second period of rainfall was from the 13th to the 21st. The greater part of the rainfall during this period was due to a strong advance of humid winds across the Sind and Kathiawar coasts. The following gives the more noteworthy falls during the period:—

STATE.	STATION.	DATE.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ulwar	Mandawar	13th Aug. 1897	4·59
Jodhpore	Phalodi	14th "	3·20
Jhallawar	Jhalrapatan	15th "	3·62
Jeypore	Siwal Madhopur	16th "	8·06
Tonk	Tonk	" "	5·73
Ajmere	Harmara	" "	3·21
Ulwar	Bansur	17th "	6·58
Jodhpore	Jataran	" "	4·85
Ulwar	Mandawar	18th "	5·00
"	Ulwar	" "	4·90
Dholpur	Dholpur	20th "	4·25
Sirohee	Mount Abu	" "	3·98
Ulwar	Thana Ghazi	21st "	3·06

A few local showers were received during the remainder of the month.

The following gives comparative data of the rainfall of the month in the larger states:—

STATE.	RAINFALL.			
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.	Percentage variatione from normal.
	Inches.	Inches.	Inches.	
Jeysulmere	6·23	2·30	+3·93	+171
Jodhpur	6·24	4·20	+2·04	+ 49
Bickaneer	10·51	3·02	+7·49	+248
Ajmere	7·57	6·60	+0·97	+ 15
Oodeypore	11·53	8·53	+3·00	+ 35
Jeypore	7·82	9·61	—1·79	— 19
Ulwar	7·82	9·65	—1·83	— 19
Bhurtpore	6·86	8·39	—1·53	— 18
Dholpur	10·73	?	?	?
Kerowlee	8·07	10·52	—2·45	— 23
Kotah	8·53	9·76	—1·23	— 13

The rainfal of the month was hence in large excess in the western states, in slight excess in the south-western and central states and in slight defect in the eastern states.

Central India received general rain from the 1st to the 10th, the 13th to the 22nd, and the 26th to the end of the month. The rainfall during the first period was heavy in East Gwalior, Rewah and Bundelkhand, and moderate in Bhopal and West Gwalior and was well distributed over the whole area. During the second period general rain fell daily. The rainfall, as during the first period, was heaviest and most continuous in the eastern districts. The only falls exceeding 5 inches were 5·58 inches at Sheopur in the Gwalior state and 5·26 inches at Ashta in the Bhopal state on the 16th. The 16th, 17th, 20th, and 21st were, on the whole, the days of heaviest and most general rain.

The rainfall during the last period occurred chiefly in the western districts, and was lighter and more irregularly distributed than in the previous periods.

The following table gives comparative data of the rainfall of the month for the larger states:—

STATE.	RAINFALL.			
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rewah	16·38	14·12	+2·26	+16
Bundelkhand	14·39	13·12	+1·27	+10
Gwalior	11·36	10·50	+0·86	+ 8
Bhopal	13·25	13·27	—0·02	0
Indore	8·29	7·59	+0·70	+ 9
Rutlam	14·83	10·26	+4·57	+45
Nagode	13·18	12·72	+0·46	+ 4
Maihar	15·95	13·55	+2·40	+18

The data indicate that the rainfall was normal or in very slight excess over the whole area.

The Central Provinces received daily rain throughout the month. The periods of heaviest and most general rain were from the 1st to the 6th, the 11th to the 16th, and the 24th to the 27th.

The rainfall during the first of these periods was due to ordinary monsoon conditions. The following gives the heaviest falls:—

DISTRICT.	STATION.	DATE.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Bilaspur	Korba	1st Aug. 1897	6·99
Sambalpur	Raigarh	" "	3·80
"	Sambalpur	2nd "	4·60
Bhandara	Bhandara	" "	3·84
Saugor	Banda	3rd "	4·65
Jubbulpore	Murwara	" "	3·62
Saugor	Saugor	" "	3·47
"	Khurai	" "	3·36
Sambalpur	Sambalpur	6th "	4·38
Raipur	Drug	" "	3·88

A shallow depression passed through the Central Provinces during the second period. The storm gave heavy downpours during its passage through the eastern districts of the province. The following gives the most noteworthy falls:—

DISTRICT.	STATION.	DATE.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Raipur	Drug	11th Aug. 1897	6·38
Hoshangabad	Hoshangabad	13th "	9·09
Betul	Shahpur	14th "	10·70
Balaghat	Balaghat	" "	9·35
Hoshangabad	Pachmarhi	" "	8·10
Betul	Chicholi	" "	8·00
Raipur	Drug	" "	7·11
Hoshangabad	Seoni	15th "	13·04
"	Harda	" "	8·80
"	Hoshangabad	" "	6·31
Saugor	Khurai	16th "	6·15

The rainfall due to the storm was hence most excessive in the Betul and Hoshangabad districts.

The rainfall during the third period was everywhere moderate in amount and well-distributed over the province.

Berar received general rain during the same periods as the Central Provinces. The rainfall was generally moderate in amount and well distributed. Some large falls were received during the passage of the depression referred to above through the Central Provinces. The most noteworthy was 10·4 inches at the hill station of Chikalda on the 14th.

The rainfall of the month was in moderate to large excess over the whole of the Central Provinces, excepting the Narsinghpur district (where it was locally in moderate defect) and in Berar. The excess was largest and most marked in the districts of Hoshangabad, Betul, and Balaghat, which received heavy rain during the storm of the third week of the month and in the Bhandara and Mandla districts. The following gives comparative data for each district:—

DISTRICT.	RAINFALL.		
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.
	Inches.	Inches.	Inches.
Sambalpur	21·15	15·04	+6·11
Bilaspur	16·49	12·47	+4·02
Raipur	16·37	10·14	+6·23
Chanda	17·82	11·10	+6·72
Bhandara	23·99	12·98	+11·01
Balaghat	20·09	16·61	+3·48
Seoni	12·64	11·78	+0·86
Mandla	21·92	12·73	+9·19
Narsinghpur	9·88	13·58	−3·70
Saugor	15·14	11·88	+3·26
Damoh	15·91	13·10	+2·81
Jubbulpore	17·65	13·58	+4·07
Wardha	12·34	8·46	+3·88
Nagpur	15·16	9·72	+5·44
Chindwara	9·20	7·77	+1·43
Hoshangabad	23·20	13·57	+9·63
Betul	15·52	8·87	+6·65
Nimar	10·55	7·13	+3·42

The rainfall of the month was above the normal to a moderate extent over the greater part of the Bombay Presidency, chiefly due to the prevalence of steady and

strong monsoon currents in the Arabian Sea during the month.

The Konkan division received daily rain throughout the month. The rainfall was very heavy from the 6th to the 9th, but gradually fell off and was light during the last week of the month. The following large amounts were recorded during the period from the 6th to the 9th :—

DISTRICT.	STATION.	Date.	Rainfall in 24 hours preceding 8 A.M. of date.
			Inches.
Kolaba	Matheran	6th August 1897	8·10
Poona	Lanoli	7th "	11·03
Satara	Malcolmpeth	7th "	8·69
Thana	Umbargaon	7th "	8·65
Kolaba	Matheran	7th "	8·48
Thana	Vada	8th "	8·05
Satara	Malcolmpeth	8th "	7·64
"	"	9th "	8·72
Thana	Thana	9th "	8·27

The mean rainfall of this division for the month was 28·74 inches, 4·78 inches or 20 per cent. above the normal.

Rain fell in moderate amounts daily in the Deccan districts and Khandesh from the 1st to the 23rd, when a break set in over the Deccan districts, which lasted until the end of the month. Khandesh, on the other hand, obtained a moderately heavy and general fall from the 27th to the 30th. The rainfall was very irregularly distributed and was below the normal of the month in the Sholapur, Ahmednagar and Bijapur districts and above it in the remaining districts. Data are given below showing the character of the rainfall of the month in the nine districts comprised in these two rainfall divisions of the Bombay Presidency :—

DISTRICT.	Average actual, August 1897.	Average normal August.	Variation from normal, August 1897.
	Inches.	Inches.	Inches.
Dharwar	4·59	4·00	+0·59
Bijapur	1·42	5·19	−3·77
Belgaum	8·02	7·36	+0·66
Satara	13·05	6·40	+6·65
Sholapur	1·54	5·37	−3·83
Poona	9·66	8·82	+0·84
Ahmednagar	2·22	3·77	−1·55
Nasik	10·32	7·97	+2·35
Khandesh	8·80	3·88	+4·92

The Gujarat and Kathiawar divisions obtained daily general rain from the 1st to the 22nd and again from the 27th to the 30th. The rainfall was heaviest from the 16th to the 22nd, when it was such as usually occurs during a moderately strong influx of monsoon winds across the Kathiawar and North Bombay coasts. The heaviest fall in 24 hours was 5·20 inches at Halol on the 16th. The rainfall of the month was in large excess in both divisions by amounts averaging 41 per cent. for Gujarat and 77 per cent. for Kathiawar. Cutch and Sind obtained moderate to heavy showers during two periods, *viz.*, from the 8th to the 12th and the 15th to the 20th. Local heavy downpours, probably accompanying thunderstorms, occurred at several stations in Sind. The most noteworthy were 5·1 inches at Kurrachee, registered on the 16th, 3·1 inches at Umarkot and 2·85 inches at Halla on the 10th.

The following is a comparative statement of the rainfall data of the presidency, as published in the Bombay Government Gazette :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.
				Inches.	Inches.	Inches.
Konkan	25·8	23·8	+2·0	28·74	23·96	+4·78
Bombay Deccan	9·7	10·1	−0·4	7·00	6·14	+0·86
Khandesh	12·5	8·6	+3·9	7·69	5·99	+1·70
Gujarat	17·6	13·2	+4·4	13·32	9·46	+3·86
Kathiawar	13·5	7·4	+6·1	11·14	6·28	+4·86
Sind	6·3	?	?	4·80	1·94	+2·86

The rainfall of the month was hence in moderate excess in the southern half of the presidency, and in large excess, relatively to the normal, in the northern half, including Kathiawar, Gujarat, Cutch and Sind.

The Malabar coast districts of Madras received unusually abundant rain. General rain fell daily from the 1st to the 30th. The average daily rainfall exceeded one inch during two periods, *viz.*, the 5th to the 13th and the 24th to the 20th. The Malabar district received an average of 3·86 inches on the 10th and 3·19 inches on the 11th and the South Canara district 3·21 inches on the 11th.

The average total rainfall of the Malabar district was 32·26 inches (96 per cent. above the normal) and of the South Canara district 36·22 inches or 42 per cent. above the normal. The rainfall of the month was hence in very large excess.

The northern coast districts had more frequent and heavier rain than usual. The periods of most general rain were the 6th to the 14th, the 19th and 20th and the 26th to the 29th. The rainfall of the month was in moderate to large excess over the whole area by amounts ranging from 0·52 inch in Vizagapatam to 5·01 inches (87 per cent.) in excess in Godavari. The rainfall was, it should, however, be noted, very irregularly distributed. Thus in the Vizagapatam district the civil or head-quarters station of Waltair received only 2·82 inches or barely half of its normal amount (5·20 inches).

The Coromandel coast districts (including the divisions of east, south and east coast central) had moderately heavy rain during two periods, *viz.*, from the 17th to the 20th and from the 25th to the 30th. The South Arcot district received an average of 1·2 inches on the 25th and of 1·23 inches on the 26th and the Chingleput district of 1·19 inches on the 17th and of 1·18 inches on the 18th.

The southern division, including the Madura and Tinnevelly districts, and the Coimbatore district received more frequent local showers than usual and the rainfall of the month was in moderate excess. The Salem district obtained moderate rain during the same two periods as the Coromandel Coast districts, but the rainfall of the month was in considerable excess in this district.

The central division obtained moderate rain from the 25th to the 30th and light showers during the first fortnight of the month. The rainfall of the month was in slight defect in the Kurnool, Bellary and Anantapur districts and in large excess (2·58 inches or 59 per cent.) in Cuddapah.

The following gives a summary of the rainfall data for the eight divisions of the Presidency :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.
				Inches.	Inches.	Inches.
Malabar . . .	25·5	21·8	+3·7	33·69	20·13	+13·56
Madras, South-Central .	7·8	5·6	+2·2	5·89	3·49	+2·40
„ East Coast North	13·8	10·1	+3·7	9·56	7·18	+2·38
„ „ (a)	19·5	17·7	+1·8	13·51	12·75	+0·7
„ Central . .	6·6	5·9	+0·7	4·68	4·30	+0·3
Madras East Coast Central.	7·0	5·2	+1·8	5·02	3·06	+1·96
„ East Coast South	9·5	7·4	+2·1	6·98	5·16	+1·82
„ South . .	5·2	3·3	+1·9	2·81	2·02	+0·79

The following table gives a comparative statement of the rainfall of the month in each Collectorate of the Presidency :—

District.	Number of rainy days.		Rainfall.		
	Average actual, August 1897.	Average normal, August.	Average actual, August 1897.	Average normal, August.	Variation from normal, August 1897.
			Inches.	Inches.	Inches.
Ganjam . . .	14·6	11·1	9·76	7·69	+2·07
Vizagapatam . .	14·0	12·5	9·78	9·26	+0·52
Godavari . . .	15·4	8·3	10·78	5·77	+5·01
Kistna . . .	11·4	8·6	7·97	5·84	+2·13
Nellore . . .	7·0	5·2	5·02	3·06	+1·96
Chingleput . .	9·8	8·3	6·80	5·12	+1·68
Madras . . .	11·0	8·2	7·83	4·48	+3·35
North Arcot . .	10·0	7·6	7·59	5·43	+2·16
South Arcot . .	12·2	8·2	9·33	6·04	+3·29
Tanjore . . .	8·0	6·6	5·46	4·61	+0·85
Trichinopoly . .	7·8	5·9	5·35	4·34	+1·01
Madura . . .	6·8	4·3	3·67	2·75	+0·92
Tinnevelly . .	3·2	2·0	1·72	1·02	+0·70
Malabar . . .	23·6	19·6	32·26	16·45	+15·81
South Canara . .	28·9	24·8	36·22	25·43	+10·79
Salem . . .	9·4	6·9	6·99	4·58	+2·41
Coimbatore . .	5·6	4·0	4·36	2·19	+2·17
Nilgiris . . .	16·9	14·0	18·05	8·97	+9·08
Cuddapah . . .	8·1	6·2	6·95	4·37	+2·58
Anantapur . .	5·7	5·7	3·65	3·98	—0·33
Bellary . . .	5·4	6·4	3·05	3·67	—0·62
Kurnool . . .	6·8	4·7	4·45	5·27	—0·82

Table

Abstract of Observations taken at 8 A.M. at 213

Number of Districts.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	I.—Burma Coast and Bay Islands.		...	...	−·009	...	...	...	...	...	...	...	85·1	+0·8	75·9	+0·5	80·5	+0·7	9·2	...	...	...	...	17·2
1	Tenasserim and Bay Islands.	Car Nicobars	?	29·841*	?	?	29·942	23rd	29·729	25th	·213	80·2*	86·2†	?	75·9*	?	81·0†	?	10·3	90·2	4th	73·1	11th	17·1
		Port Blair	61	29·783	?	29·775	29·892	20th	29·675	5th	·217	81·3	85·5	?	77·7	?	81·6	?	7·8	88·1	30th	72·4	25th	15·7
		Mergui	96	29·802	?	29·830	29·892	20th	29·723	4th	·169	77·8	84·5	?	74·4	?	79·4	?	10·1	90·3	20th	70·6	6th	19·7
		Tavoy	26	29·868	+·003	29·825	29·962	20th	29·749	5th	·213	77·4	83·6	+1·1	73·9	+0·4	78·8	+0·8	9·7	88·7	13th & 31st.	72·2	3rd	16·5
		Moulmein	94	29·752	−·004	29·784	29·885	20th	29·600	5th	·285	77·1	83·7	+0·5	74·8	+0·9	79·3	+0·7	8·9	91·0	30th	73·3	7 days	17·7
2	Lower Burma	Rangoon	41	29·772	−·016	29·750	29·922	20th	29·623	5th	·299	78·5	85·3	+0·4	76·0	+0·3	80·7	+0·4	9·3	89·7	30th	72·9	2nd	16·8
		Bassein	27	29·778	−·012	29·741	29·943	20th	29·634	6th	·309	79·1	85·4	+1·0	75·3	−0·3	80·4	+0·4	10·1	91·2	2nd	72·9	3 days	18·3
		Diamond Island	41	29·769	−·010	29·745	29·936	20th	29·639	6th	·297	80·9	84·3	−0·1	77·3	?	80·8	?	7·0	89·1	23rd	74·4	2 days	14·7
5	Arakan	Akyab	20	29·728	−·012	29·691	29·872	31st	29·569	6th	·303	80·1	84·4	0	77·5	+0·3	81·0	+0·2	6·9	89·8	31st	75·2	2 days	14·6
3	Central Burma	Toungoo	183	29·608	−·010	29·734	29·746	20th	29·426	5th	·320	78·6	88·1	+1·8	76·0	+1·1	82·1	+1·5	12·1	95·2	31st	74·7	20th	20·5
	II.—Burma Inland		...	...	−·001	...	...	...	...	...	...	...	90·0	+0·2	76·7	+0·8	83·4	+0·5	13·3	...	...	...	...	21·0
3	Central Burma	Thayetmyo	134	29·634	−·015	29·710	29·778	20th	29·476	5th	·302	80·5	89·5	+0·7	77·1	+1·1	83·3	+0·9	12·4	92·1	3 days	74·6	8th	17·5
4	Upper Burma	Minbu	?	29·588	+·004	?	29·718	20th	29·426	5th	·292	80·0	90·3	−0·4	77·4	+0·6	83·9	+0·1	12·9	93·6	23rd	75·1	6th	18·5
		Yamethin	645	29·123	+·011	29·719	29·261	20th	28·956	5th	·305	78·8	90·1	−0·1	74·9	+0·6	82·5	+0·3	15·2	96·0	31st	72·7	27th	23·3
		Mandalay	249	29·489	−·011	29·686	29·614	28th	29·338	5th	·276	82·9	94·8	?	78·7	+1·4	86·8	?	16·1	101·1	11th	76·1	26th	25·0
		Kindat	?	29·287?	?	?	29·407	30th	29·117	5th	·290	79·4	87·2	?	76·4	+0·2	81·8	?	10·8	92·8	10th	72·0	9th	20·8
		Bhamo	?	29·359	+·008	?	29·482	28th	29·233	4th	·249	79·1	88·3	+0·4	75·9	+0·8	82·2	+0·6	12·4	94·1	6th	73·3	29th	20·8
4(a)	Burma Hill Stations.	Taunggyi	?			Not recorded.						68·3	75·7	?	64·2	?	70·0	?	11·5	82·2	12th	62·5	22nd	19·7
		Lashio	?	27·002	+·010	?	27·114	27th	26·909	4th	·205	72·5	84·6	+2·1	69·5	+0·8	77·1	+1·5	15·1	92·0	12th	67·0	4 days	25·0
	III.—Assam		...	...	−·007	...	...	...	...	...	...	...	88·5	+0·6	78·1	+0·8	83·3	+0·7	10·5	...	...	...	...	18·8
7	Surma	Silchar	104	29·612	−·004	29·668	29·761	30th	29·444	5th	·317	80·1	90·3	+1·1	77·0	+0·3	83·7	+0·7	13·3	96·6	15th	75·2	21st	21·3
9	Brahmaputra	Sibsagar	333	29·368?	−·016	29·656?	29·515	27th	29·213	5th	·302	80·2	88·7	?	77·7	−0·1	83·2	?	11·0	95·2	15th	74·5	20th	20·7
		Dhubri	115	29·568	0	29·637	29·733	27th	29·399	1st	·334	81·9	86·6	+0·1	79·5	+1·3	83·1	+0·7	7·1	90·2	2 days	75·8	16th	14·4
	IV.—Bengal and Orissa		...	...	−·010	...	...	...	...	...	...	...	87·3	−0·1	78·0	+0·3	82·7	+0·1	9·3	...	...	...	...	16·9
6	East Bengal	Chittagong	87	29·619	−·020	29·654	29·766	27th	29·446	1st	·320	80·0	85·2	0	76·4	+0·4	80·8	+0·2	8·8	90·2	12th	74·1	2 days	16·1
		Lungleh	?			Not recorded.						69·2	74·3	?	66·7	?	70·5	?	7·6	79·1	11th	63·5	22nd	15·6
		Noakhali	43	29·643	?	29·633	29·796	30th	29·478	1st	·318	80·3	84·5	?	77·3	?	80·9	?	7·2	87·5	8th	73·8	22nd & 28th.	13·7
		Comilla	36	29·649	?	29·633	29·804	30th	29·479	1st	·325	80·5	87·4	?	76·5	?	82·0	?	10·9	91·3	12th	73·8	20th & 22nd.	17·5
		Sirajganj	49	29·616*	?	29·614*	29·785	30th	29·437	1st	·348	81·4	86·3	?	78·7†	?	82·4†	?	7·6	89·8	13th	75·7	20th	14·1
		Narayanganj	26	29·644	−·010	29·618	29·807	30th	29·469	1st	·338	81·4	87·2	−0·5	79·4	+0·5	83·3	0	7·8	90·1	31st	76·2	22nd	13·9
		Barisal	13	29·650	−·010	29·608*	29·813	27th	29·475	5th	·338	80·9	86·0	−0·3	78·1	+0·2	82·1	−0·1	7·9	90·3	25th	73·4	22nd	16·9
		Mymensingh	59	29·623	−·003	29·634	29·788	27th	29·452	1st	·336	81·1	87·1	−0·1	78·3	+0·7	82·7	+0·3	8·8	91·7	13th	76·1	2 days	15·6
10	Delta Bengal	Faridpur	46	29·621	?	29·615	29·769	28th	29·462	5th	·307	80·9	87·1	?	78·3	?	82·8	?	8·8	90·8	1st	74·9	22nd	15·9
		Jessore	33	29·623	−·008	29·603	29·790	31st	29·451	5th	·339	82·0	88·2	−0·5	78·8	+0·1	83·5	−0·2	9·4	92·0	31st	75·2	22nd	16·8
		Calcutta	21	29·624	−·005	29·581	29·798	31st	29·464	5th	·334	81·2	86·3	−0·8	77·9	−0·2	82·2	−0·5	8·4	89·4	2 days	74·2	2 days	15·2
		Saugor Island	25	29·605	−·024	29·574	29·787	31st	29·440	6th	·347	82·3	87·4	+0·2	79·7	+0·1	83·6	+0·2	7·7	90·9	31st	76·5	20th	14·4
		Krishnagar	47	29·602	?	29·597	29·770	30th	29·431	5th	·339	81·9	88·9	?	78·1	?	83·5	?	10·8	91·8	12th & 13th.	75·2	22nd	16·6
		Midnapore	149	29·482	?	29·578	29·649	30th	29·313	6th	·336	81·8	89·2	?	78·1	?	83·6	?	11·1	93·8	1st	75·6	22nd	18·2

* Mean of 30 days. † Mean of 29 days.

I.

Stations in India, Burma, etc., in August 1897.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 June to 31st August 1897.	Normal rainfall for period, from 1st June to 31st August.	Variation from normal of period, 1st June to 31st August.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29·09	27·79	+ 2·28	...	...	...	...	**I.—Burma Coast and Bay Islands.**		
...	...	...	...	...	4	12	...	...	5·3	?	?	91*	·940*	9·1*	17	?	?	b20·32	?	?	41·45	?	?	2·82	Car Nicobar	Tenasserim and Bay Islands.	1
2	...	...	...	1	3	13	11	1	10·0	9·6	+ 4	89	·923	8·5	19	?	?	15·49	15·20	c + 0·29	61·57	49·97	+11·60	3·95	Port Blair		
...	3	...	...	...	3	7	8	10	1·5	1·6	− 6	92	·880	5·6	24	?	?	30·19	28·85	+ 1·34	101·52	92·28	+ 9·24	4·70	Mergui.		
24	...	...	...	...	2	2	1	2	1·7	?	?	94	·884	8·4	25	?	?	42·74	43·19	− 0·45	158·57	129·63	+28·94	6·08	Tavoy.		
...	...	1	4	4	12	7	2	1	3·6	3·2	+13	94	·881	9·3	28	26·18	+ 1·82	40·48	38·96	+ 1·52	117·15	120·50	− 3·35	5·65	Moulmein.		
...	1	...	...	3	7	12	8	...	4·4	4·7	− 6	93	·912	9·2	25	22·73	+ 2·27	23·24	18·19	+ 5·05	55·61	57·38	− 1·77	2·22	Rangoon	Lower Burma.	2
6	...	...	...	4	9	9	2	1	4·9	3·4	+44	94	·938	7·6	27	25·27	+ 1·73	27·24	23·25	+ 3·99	77·60	70·69	+ 6·91	3·00	Bassein.		
...	...	...	1	4	5	15	5	1	10·9	6·7	+63	87	·901	8·5	21	22·10	− 1·10	27·47	22·69	+ 4·78	80·21	72·17	+ 8·04	3·32	Diamond Islands.		
...	1	9	8	4	4	2	1	2	3·5	3·2	+ 9	95	·984	9·0	27	26·09	+ 0·91	45·74	41·26	+ 4·48	135·19	136·79	− 1·60	5·77	Akyab	Arakan.	5
...	...	...	4	18	9	...	...	...	5·1	3·9	+31	92	·918	9·6	24	23·91	+ 0·09	18·01	18·50	− 0·49	47·34	51·02	− 3·68	3·80	Toungoo.	Central Burma.	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·56	8·51	+ 1·05	...	...	...	...	**II.—Burma Inland.**		
...	...	...	...	8	23	...	...	...	3·4	5·9	−42	81	·837	9·1	17	12·36	+ 4·64	6·19	6·57	− 0·38	19·96	20·34	− 0·38	1·16	Thayetmyo.	Central Burma.	3
...	...	...	3	20	8	...	...	...	11·6	?	?	86	·886	8·6	14	?	?	6·86	5·10	+ 1·76	12·63	13·56	− 0·93	2·13	Minbu	Upper Burma.	4
1	...	...	...	22	8	...	...	...	11·0	?	?	87	·851	7·9	11	?	?	5·59	5·89	− 0·30	9·91	12·82	− 2·91	2·22	Yamethin.		
2	...	2	...	1	26	...	...	...	9·1	?	?	79	·887	7·6	9	?	?	4·16	3·88	+ 0·18	13·20	12·84	+ 0·36	0·51	Mandalay.		
27	1	...	...	...	...	1	1	1	?	?	?	97	·984	8·8	18	?	?	16·72	13·21	+ 3·51	36·73	40·33	− 3·60	2·32	Kindat.		
10	3	3	1	1	5	3	4	1	1·7	?	?	93	·926	7·5	18	?	?	17·93	16·38	+ 1·55	47·68	48·74	− 1·06	3·80	Bhamo.		
10	...	...	...	3	5	8	5	...	?	?	?	88	·626	10·0	23	?	?	13·47	?	?	24·39	?	?	1·60	Taunggyi	Burma Hill Stations.	4(a)
			Not	recorded.					?	?	?	93	·770	9·8	18	?	?	12·84	12·73	+ 0·11	34·87	35·51	− 0·64	2·65	Lashio.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17·35	16·54	+ 0·81	...	...	...	...	**III.—Assam.**		
31	...	...	...	...	...	...	...	...	2·6	3·0	−13	91	·936	9·3	24	21·82	+ 2·18	21·81	19·66	+ 2·15	68·07	59·49	+ 8·58	3·15	Silchar	Surma.	7
13	...	2	...	5	2	8	...	1	3·3	2·7	+22	95	·974	8·8	19	17·78	+ 1·22	22·83	16·19	+ 6·64	54·67	46·98	+ 7·69	4·79	Sibsagar	Brahmaputra.	9
...	...	6	10	6	3	3	3	...	5·8	3·2	+81	83	·872	7·9	14	14·47	− ·47	7·41	13·76	− 6·35	35·09	54·46	−19·37	1·65	Dhubri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.	14·92	13·93	+ 0·99	...	...	...	...	**IV.—Bengal and Orissa.**		
...	...	3	6	14	7	...	1	...	7·7	6·1	+26	91	·930	8·7	18	18·42	− 0·42	19·82	19·76	+ 0·06	61·43	65·65	− 4·22	2·81	Chittagong	East Bengal.	6
			Not	recorded.					?	?	?	96	·636	?	29	?	?	31·39	20·18	+11·21	102·77	63·98	+38·79	2·57	Lungleh.		
...	...	...	12	12	4	3	...	...	6·3	?	?	90	·938	6·2*	21	23·04	− 2·04	28·75	24·99	+ 3·76	69·17	72·92	− 3·75	3·92	Noakhali.		
...	...	...	11	14	6	...	...	...	6·2	?	?	87	·902	8·2	17	17·67	− 0·67	21·05	16·40	+ 4·65	46·87	50·43	− 3·56	3·84	Comilla.		
			Not	recorded.					?	?	?	91	·976	7·8	20	13·85	+ 6·15	11·46	10·93	+ 0·53	24·44	33·55	− 9·11	1·56	Sirajganj.		
...	...	1	4	16	7	2	1	...	8·8	6·0	+47	91	·977	9·0	14	17·38	− 3·38	15·38	12·32	+ 3·06	28·96	39·16	− 10·20	3·66	Narayanganj.		
25	...	...	1	2	2	1	...	...	1·4	?	?	91	·963	9·6	20	18·77	+ 1·23	14·23	12·53	+ 1·70	40·90	44·31	− 3·41	2·20	Barisal.		
8	...	...	6	15	2	...	...	...	?	?	?	89	·953	7·9	18	19·19	− 1·19	15·10	14·46	+ 0·64	32·72	48·20	−15·48	2·46	Mymensingh.		
13	...	...	...	8	10	...	...	...	1·6	?	?	93	·983	7·1	21	15·96	+ 5·04	17·62	12·23	+ 5·39	45·56	36·82	+ 8·74	3·13	Faridpur	Deltaic Bengal	10
23	...	...	1	6	1	...	...	...	0·9	4·1	−78	91	·999	8·8	17	17·12	− 0·12	9·95	11·35	− 1·40	41·20	35·06	+ 6·14	2·75	Jessore.		
1	...	...	10	7	1	9	2	1	4·6	5·3	−13	90	·968	8·9	22	18·12	+ 3·88	11·74	12·95	− 1·21	36·17	36·15	+ 0·02	1·83	Calcutta.		
...	...	3	4	5	6	10	3	...	15·6	12·4	+26	90	·991	9·1	18	16·81	+ 1·19	10·69	15·22	− 4·53	38·66	40·40	− 1·74	3·25	Saugor Island.		
1	...	...	7	10	7	3	3	...	4·8	?	?	90	·982	7·7	14	14·12	− 0·12	11·16	10·54	+ 0·62	30·06	30·49	− 0·43	3·14	Krishnagar.		
4	1	3	4	5	11	3	...	...	1·7	?	?	88	·961	5·9	19	15·85	+ 3·15	12·37	12·33	+ 0·04	33·00	33·38	− 0·38	2·85	Midnapore.		

(b) Rain of 30 days.

(c) Wind observations of 16 days and 14 Variables.

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

Number of Districts.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M. in inches. 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.	Temperature of Air. 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.
11	Central Bengal.	Bankura	298	29·306?	?	29·553?	29·479	30th	29·133	6th	·346	81·2	88·6	?	77·9	?	83·3	?	10·7	92·1	24th & 25th.	75·1	22nd	17·0
		Raniganj	334	29·301	?	29·583	29·481	30th	29·145	6th	·336	80·6	88·5	?	77·9	?	83·2	?	10·6	92·7	13th	75·4	22nd	17·3
		Burdwan	99	29·548	−·006	29·594	29·727	30th	29·376	1st	·351	81·7	88·8	−0·4	78·8	−0·1	83·9	−0·3	10·0	94·4	1st	74·8	22nd	19·6
		Naya Dumka	489	29·142	?	29·588	29·313	27th	28·981	1st	·332	80·9	87·4	?	77·0	?	82·2	?	10·4	91·5	13th	73·3	17th	18·2
		Berhampore	67	29·576	−·013	29·591	29·749	30th	29·396	1st	·353	81·5	88·1	−0·4	78·5	0	83·3	−0·3	9·5	91·9	31st	75·8	21st	16·1
		Rampur Boalia	70	29·579	?	29·598	29·745	30th	29·411	1st	·334	82·3	88·2	?	78·8	?	83·5	?	9·4	92·1	13th	76·6	21st	15·5
		Malda	72	29·565	?	29·589	29·739	27th	29·368	1st	·371	81·5	88·9	?	79·2	?	84·1	?	9·7	93·6	13th	76·0	26th	17·6
		Bogra	61	29·588	?	29·601	29·759	27th	29·418	1st	·341	81·7	88·7	+0·8	78·6	+0·6	83·7	+0·7	10·1	92·2	13th	76·4	22nd	15·8
12	North Bengal	Dinajpur	123	29·535	−·005	29·610	29·700	27th	29·336	1st	·364	81·7	89·2	+0·5	78·5	+0·1	83·9	+0·3	10·7	94·8	13th	75·2	31st	19·6
		Rangpur	123	29·539	?	29·618	29·706	27th	29·357	1st	·349	82·4	89·3	?	79·0	?	84·2	?	10·3	94·7	15th	76·2	31st	18·5
		Jalpaiguri	284	29·391	−·001	29·625	29·552	27th	29·203	1st	·349	80·3	88·9	+1·1	77·3	+1·2	83·1	+1·2	11·6	93·4	12th	75·6	22nd	17·8
		Cooch Behar	?	29·518	?	29·621	29·680	27th	29·344	1st	·336	82·6	89·0	?	78·9	?	84·0	?	10·1	93·6	6th	76·3	21st	17·3
17	North Bihar	Purnea	125	29·519	−·004	29·598	29·691	27th	29·312	1st	·379	82·0	89·2	0	79·4	+1·5	84·4	+0·8	9·8	95·2	13th	76·2	17th	19·0
14	Orissa	Balasore	56	29·585	−·006	29·577	29·765	31st	29·403	6th	·362	81·7	87·7	+0·4	77·9	+0·1	82·8	+0·3	9·8	92·4	25th	74·3	19th	18·1
		False Point	21	29·631	−·008	29·593	29·797	31st	29·453	6th	·344	82·3	86·4	−0·6	78·5	+0·3	82·4	−0·2	7·9	90·5	25th	74·6	22nd	15·9
		Cuttack	80	29·556	−·023	29·578	29·726	31st	29·371	6th	·355	80·8	87·9	−1·4	78·2	0	83·0	−0·7	9·7	93·4	25th	74·2	4th	19·2
		Shortt's Island	?	29·639	?	?	29·806	31st	29·441	1st	·365	82·7	86·8	?	79·4	?	83·1	?	7·4	92·0	25th	74·8	21st	17·2
		Puri	20	29·633	?	29·596	29·798	31st	29·448	6th	·350	82·9	87·6	?	79·2	?	83·4	?	8·4	93·2	25th	74·1	12th	19·1
	V.—Gangetic Plain and Chota Nagpur.		...	...	−·020	...	...	...	...	...	...	...	88·6	−0·4	78·2	+0·4	83·4	0	10·4	...	...	...	...	19·1
15	Chota Nagpur	Hazaribagh	2,007	27·626	−·023	29·574	27·782	3 days	27·459	6th	·323	75·6	83·3	−0·3	73·5	+0·6	78·4	+0·2	9·8	89·2	31st	71·3	21st	17·9
		Ranchi	2,128	27·524?	?	29·590?	27·688	30th	27·349	6th	·339	74·9	82·5	−0·4	72·9	+0·9	77·7	+0·3	9·6	86·7	25th & 31st.	69·9	22nd	16·8
		Daltonganj	730?	28·886	?	29·568	29·058	30th	28·713	6th	·345	81·2	89·1	?	77·1	?	83·1	?	12·0	94·1	31st	74·0	5th & 20th.	20·1
		Chaibassa	760?	28·862	?	29·571	29·045	31st	28·667	6th	·378	79·5	88·1	−0·5	76·6	0	82·4	−0·3	11·5	92·4	26th	71·5	20th	20·9
16	South Bihar	Gaya	375	29·234	−·020	29·562	29·398	27th	29·090	6th	·308	81·2	90·1	0	78·2	−0·3	84·2	−0·2	11·9	96·9	31st	74·6	21st	22·3
		Dehri	351	29·247	?	29·551	29·408	30th	29·083	6th	·325	82·0	88·3	?	79·1	?	83·7	?	9·2	93·8	13th	76·0	4 days	17·8
		Patna	183	29·431	−·022	29·565	29·612	27th	29·275	1st	·337	82·3	88·6	−0·7	79·5	0	84·1	−0·4	9·1	94·5	13th	75·7	2 days	18·8
		Arrah	190	29·425	?	29·566	29·596	27th	29·276	6th	·320	82·4	89·4	?	79·4	?	84·4	?	10·0	94·4	8th & 13th.	75·0	22nd	19·4
		Buxar	239	29·358	?	29·551	29·530	28th	29·209	6th	·321	81·9	88·4	?	78·1	?	83·3	?	10·3	93·0	3 days	74·3	21st	18·7
17	North Bihar	Bhagalpur	160	29·466	?	29·578	29·647	27th	29·286	1st	·361	82·9	89·6	?	78·8	?	84·2	?	10·8	94·7	13th	76·6	22nd & 31st.	18·1
		Darbhanga	166	29·466	−·016	29·585	29·641	27th	29·305	1st	·336	82·8	88·7	+0·3	80·0	+0·9	84·4	+0·6	8·7	93·0	13th	77·5	2 days	15·5
		Muzaffarpur*	178	29·443	?	29·574	29·617	27th	29·278	1st	·339	81·9	88·7	?	79·3	?	84·0	?	9·4	93·7	13th	76·7	22nd	17·0
		Motihari	224	29·402	?	29·586	29·559	30th	29·244	1st	·315	82·0	90·2	?	78·4	?	84·3	?	11·8	95·0	13th & 14th.	75·9	22nd	19·1
		Chapra	181	29·431	?	29·565	29·601	27th	29·286	1st	·315	82·3	89·2	?	79·2	?	84·2	?	10·0	93·8	31st	76·6	21st & 22nd.	17·2
18	N.-W. P., East	Benares	267	29·334	−·017	29·556	29·513	30th	29·182	6th	·331	81·4	88·7	−0·9	78·9	+0·1	83·8	−0·4	9·8	94·3	13th	73·7	21st	20·6
		Allahabad	309	29·286	−·024	29·549	29·472	30th	29·128	6th	·344	82·2	89·2	−0·6	78·9	+0·4	84·1	−0·1	10·3	95·8	13th	75·8	18th & 21st	19·8
23	N.-W. P. (East Submontane).	Gorakhpur	256	29·349	−·016	29·562	29·517	30th	29·198	1st	·319	82·6	89·8	−0·3	79·3	+0·4	84·6	+0·1	10·5	96·4	13th	77·3	4 days	19·1
19	South Oudh	Lucknow	368	29·231	−·019	29·556	29·410	30th	29·076	1st	·334	81·8	90·0	−0·6	79·1	+0·6	84·6	0	10·9	96·8	13th	76·8	3rd & 18th.	20·0
20	North Oudh	Bahraich	403	29·207	?	29·569	29·377	30th	29·035	1st	·342	82·5	89·9	?	78·9	?	84·4	?	11·0	96·4	15th	75·0	27th	21·4
21	N.-W. Provinces (Central).	Cawnpore	416	29·181	?	29·549	29·353	30th	29·031	6th	·322	81·9	89·8	?	78·5	?	84·2	?	11·3	96·3	13th	75·0	27th	21·3
		Mainpuri	516	29·078	?	29·550	29·243	30th	28·932	1st	·311	81·7	89·3	?	78·1	?	83·7	?	11·2	95·3	13th	75·5	3 days	19·8

* Mean of 30 days.

1—*continued.*

in India, Burma, etc., in August 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 June to 31st August 1897.	Normal rainfall for period from 1st June to 31st August.	Variation from normal of period 1st June to 31st August.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Districts.
6	...	...	12	4	3	2	4	...	5·1	?	?	88	·931	8·0	20	16·77	+ 3·23	10·93	12·89	− 1·96	37·46	35·53	+ 1·93	2·60	Bankura	Central Bengal.	11
10	...	2	7	4	3	4	...	1	2·9	?	?	92	·968	7·7	19	16·23	+ 2·77	9·47	13·23	− 3·76	31·55	35·72	− 4·17	2·60	Raniganj.		
9	...	1	8	1	4	6	2	...	2·9	3·6	−19	89	·970	9·0	25	16·91	+ 8·09	14·77	11·37	+ 3·40	37·52	32·00	+ 5·52	1·72	Burdwan.*		
8	...	1	9	4	5	3	1	...	1·7	?	?	86	·908	9·3	22	18·20	+ 3·80	15·96	13·63	+ 2·33	37·35	36·56	+ 0·79	3·77	Naya Dumka.		
8	...	...	8	7	6	1	1	...	2·8	4·2	−33	91	·984	8·7	21	16·35	+ 4·65	14·01	11·77	+ 2·24	26·50	31·86	− 5·36	2·71	Berhampore.		
5	1	6	6	5	5	3	...	...	4·8	?	?	91	1·011	8·1	15	15·19	− 0·19	16·04?	11·01	+ 5·03	37·22	32·51	+ 4·71	2·72	Rampur Boalia.		
...	1	2	4	8	8	6	2	...	2·0	?	?	92	·984	6·7	20	14·31	+ 5·69	12·72	10·35	+ 2·37	26·13	32·64	−16·51	1·99	Malda.		
			Not	rec	orde	d.			?	?	?	89	·962	7·5	19	16·08	+ 2·92	12·38	11·97	+ 0·41	22·49	39·02	−16·53	2·06	Bogra.		
...	...	2	13	11	4	1	...	...	6·2	?	?	89	·960	8·1	18	15·96	+ 2·04	11·54	12·56	− 1·02	29·14	42·43	−13·29	1·88	Dinajpur	North Bengal.	12
			Not	rec	orde	d.			?	?	?	89	·984	7·1	15	13·50	+ 1·50	19·41	12·41	+ 7·00	52·24	47·33	+ 4·91	4·53	Rangpur.		
...	8	9	8	3	1	...	...	2	3·2	?	?	91	·940	6·1	24	19·04	+ 4·96	19·94	25·74	− 5·80	74·07	81·40	− 7·33	3·79	Jalpaiguri.		
11	...	3	9	6	1	1	...	...	2·4	?	?	90	1·005	7·1	17	?	?	13·33	21·51	− 8·18	52·68	80·12	−27·44	3·10	Cooch Behar		
1	...	3	21	4	1	...	...	1	5·5	2·3	+133	89	·979	9·0	17	17·16	− 0·16	17·96	13·90	+ 4·06	30·48	39·73	− 9·25	4·13	Purnea	North Bihar.	17
12	...	1	2	1	1	13	1	...	3·3	?	?	90	·979	6·0	18	16·00	+ 2·00	12·19	11·99	+ 0·20	29·35	34·10	− 4·75	2·50	Balasore	Orissa.	14
2	1	...	...	4	3	9	12	...	8·5	9·5	−11	88	·978	8·6	20	16·00	+ 4·00	12·40	13·56	− 1·16	41·00	36·34	+ 4·66	3·52	False Point.		
11	...	1	1	2	1	8	6	1	2·8	2·6	+ 8	87	·913	7·8	18	16·15	+ 1·85	13·28	12·37	+ 0·91	32·11	36·81	− 4·70	1·76	Cuttack.		
...	2	...	1	3	5	16	4	...	14·6	?	?	89	·957	7·5	20	?	?	10·86	8·93	+ 1·93	32·29	28·84	+ 3·45	2·44	Shortt's Island		
8	1	...	1	2	1	8	9	1	12·7	?	?	87	·984	6·4*	13	13·27	− 0·27	9·57	10·38	− 0·81	34·60	28·24	+ 6·36	4·32	Puri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13·20	11·62	+1·58	...	...	...	...	V.—Gangetic Plain and Chota Nagpur.		
1	1	...	6	5	4	7	4	3	8·9	7·5	+19	90	·795	9·9	20	17·69	+ 2·31	9·39	13·11	− 3·72	33·51	34·90	− 1·39	1·63	Hazaribagh.	Chota Nagpur.	5
2	2	4	6	2	4	7	2	1	9·6	?	?	92‡	·797‡	8·9	20	17·69	+ 2·31	12·74	13·84	− 1·10	28·54	36·62	− 8·08	3·09	Ranchi.		
...	...	3	8	3	5	9	2	1	5·7	?	?	85	·902	4·2	16	15·77	+ 0·23	14·76	12·36	+ 2·40	25·81	31·31	− 5·50	2·90	Daltonganj.		
10	1	1	2	1	2	7	6	1	1·3	?	?	91	·916	8·2	22	16·73	+ 5·27	15·21	13·04	+ 2·17	28·32	35·05	− 6·73	3·36	Chaibassa.		
2	...	4	11	3	4	4	3	...	5·8	2·6	+123	87	·934	7·9	16	14·04	+ 1·96	14·32	12·50	+ 1·82	41·65	32·16	+ 9·49	2·30	Gaya	South Bihar.	16
3	...	...	10	6	3	7	2	...	6·5†	?	?	87	·952	7·0	17	14·08	+ 2·92	14·80	12·62	+ 2·18	40·34	30·26	+10·08	3·27	Dehri.		
4	...	2	14	8	1	2	...	...	5·3	3·2	+66	90	·995	8·4	16	13·27	+ 2·73	8·51	11·30	− 2·79	47·18	30·39	+16·79	1·64	Patna.		
1	2	7	3	10	4	4	...	...	4·5	?	?	89	·991	5·9	11	13·31	−2·31	6·23	11·51	− 5·28	46·56	29·76	+16·80	1·10	Arrah.		
2	1	...	16	4	...	1	6	1	5·5	?	?	88	·964	7·5	16	13·38	+ 2·62	14·23	11·33	+ 2·90	31·15	28·21	+ 2·94	3·75	Buxar.		
9	...	3	5	10	2	1	1	...	2·9	?	?	87	·983	8·1	13	13·62	− 0·62	14·63	10·90	+ 3·63	27·58	31·07	− 3·49	2·42	Bhagalpur	North Bihar.	17
1	...	1	14	14	1	...	...	...	5·2	4·4	+18	88	·981	6·5	17	14·20	+ 2·80	11·99	12·47	− 0·48	25·94	32·42	− 6·48	2·51	Darbhanga.		
3	...	4	13	8	...	...	1	1	4·9	?	?	89	·975	6·7	18	13·31	+ 4·69	10·76	10·28	+ 0·48	30·15	30·39	− 0·24	2·80	Muzaffarpur.*		
...	1	4	24	1	1	...	...	...	?	?	?	89	·976	3·0	14	13·25	+ 0·75	6·53	12·19	− 5·66	22·30	34·76	−12·46	1·65	Motihari.		
6	...	...	15	6	1	1	1	1	3·9	?	?	89	·976	7·8	15	12·65	+ 2·35	6·67	10·37	− 3·70	37·99	28·71	+ 9·28	1·41	Chapra.		
3	...	...	13	3	2	2	6	2	6·0	4·2	+43	90	·977	8·4	16	14·27	+ 1·73	21·18	11·83	+ 9·35	39·32	27·70	+11·62	4·78	Benares	N.-W. P. East.	16
...	1	2	11	4	2	2	5	4	8·6	5·6	+54	89	·978	8·5	18	13·91	+ 4·09	22·90	11·10	+11·80	37·86	29·12	+ 8·74	4·80	Allahabad.		
3	2	13	10	2	1	...	...	...	2·0	2·3	−13	88	·972	6·7	19	13·55	+ 5·45	12·61	11·93	+ 0·68	26·29	35·28	− 8·99	2·08	Gorakhpur	N.-W. P. (East Submontane).	23
6	...	2	15	4	...	1	3	...	2·8	3·0	−7	92	·999	7·8	17	12·36	+ 4·64	10·04	11·78	− 1·74	25·31	28·46	− 3·15	1·70	Lucknow	South Oudh.	19
9	...	...	10	11	...	...	...	1	2·8	?	?	8	·963	4·5	16	?	?	20·56	9·50	+11·06	38·58	27·63	+10·95	4·88	Bahraich	North Oudh.	20
3	1	2	7	7	1	3	4	3	3·7	?	?	90	·986	7·2	22	11·70	+10·30	14·64	10·21	+ 4·43	22·67	23·29	− 0·62	2·47	Cawnpore	N.-W. Provinces (Central).	21
			Not	rec	orde	d.			2·8	?	?	88	·958	7·7	18	?	?	14·43	9·84	+ 4·59	26·17	23·91	+ 2·56	2·77	Mainpuri.		

† Mean of 22 days. ‡ Mean of 19 days.

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	VI.—Upper Sub-Himalayas		...	...	−·003	...	...	...	...	...	...	..	90·9	−1·5	78·3	+0·7	84·6	−0·4	12·6	...	...	...	...	26·0
24	N.-W. Provinces, West (Submontane).	Bareilly	568	29·042	+·004	29·573	29·200	30th	28·874	1st	·326	81·1	88·3	−1·8	78·2	+0·2	83·3	−0·8	10·1	93·4	12th	73·6	12th	19·8
		Dehra Dun	2,233	27·425	−·009	29·592	27·569	28th	27·252	4th	·317	75·8	83·9	0	73·3	+0·1	78·6	+0·1	10·6	91·0	7th	70·0	23rd	21·0
		Roorkee	887	28·720	−·008	29·570	28·879	27th	28·540	4th	·339	80·5	89·0	−1·7	76·9	−0·1	83·0	−0·9	12·1	95·2	7th	72·1	23rd	23·1
22	N.-W. P., West	Meerut	738	28·864	−·003	29·563	29·021	30th	28·699	4th	·322	81·9	88·9	−1·7	78·6	+0·3	83·8	−0·7	10·3	94·7	5th	75·4	22nd & 27th.	19·3
26	South-East Punjab.	Delhi	718	28·877	−·009	29·553	29·038	30th	28·716	4th	·322	82·8	90·0	−1·5	79·8	+0·6	84·9	−0·5	10·2	99·2	5th	75·9	23rd	23·3
28	Central Punjab.	Lahore	702	28·881	+·002	29·546	29·044	27th	28·694	4th	·350	84·3	92·4	−3·6	80·9	+2·0	86·7	−0·8	11·5	104·6	5th	75·1	3 days	29·5
27	South Punjab	Sirsa	662	28·911	−·015	29·532	29·072	31st	28·752	1st	·320	83·9	95·3	−2·2	80·1	+0·6	87·7	−0·8	15·2	103·3	5th	73·8	23rd	29·5
		Patiala	818	28·773	?	29·552	28·938	27th	28·595	4th	·343	82·5	90·8	?	78·5	?	84·6	?	12·3	98·0	5th	75·0	23rd	23·0
29	Punjab (Submontane).	Ludhiana	812	28·778	−·009	29·552	28·937	27th	28·589	4th	·348	83·1	93·2	−2·1	79·8	+1·0	86·5	−0·6	13·4	102·5	5th	75·1	23rd	27·4
		Sialkot	830	28·762	+·005	29·557	28·948	27th	28·562	4th	·386	83·1	94·2	+0·1	78·5	+1·2	86·4	+0·7	15·7	108·2	5th	71·6	22nd	36·6
		Umballa	892	28·707	?	29·555	28·876	27th	28·534	4th	·342	82·0	91·1	?	78·7	?	84·9	?	12·4	97·0	5th & 17th.	76·0	3 days	21·0
31	North Punjab	Rawalpindi	1,643	27·938	+·013	29·538	28·105	27th	27·748	5th	·357	80·7	93·2	−0·2	75·9	+0·8	84·6	+0·3	17·3	105·1	5th & 6th.	66·2	23rd	38·9
	VII.—Indus Valley and N.-W. Rajputana.		...	...	−·009	...	...	...	...	...	...	...	96·5	−0·7	80·2	+0·5	88·4	−0·1	16·3	...	...	...	...	33·0
31	North Punjab	Peshawar	1,110	28·481	0	29·512	28·647	28th	28·283	5th	·364	83·1	95·8	−3·2	76·6	−1·2	86·2	−2·2	19·2	109·5	5th	67·4	24th	42·1
32	West Punjab	Khushab	612	28·974	?	29·551	29·142	27th	28·767	5th	·375	84·8	95·9	?	80·2	?	88·1	?	15·7	107·3	5th	70·5	23rd	36·8
		Montgomery	558	29·006	?	29·524	29·175	31st	28·819	5th	·356	86·3	98·8	?	80·3	?	89·6	?	18·5	109·5	6th	73·0	1st	36·5
		D. I. Khan	593	28·998	+·008	29·533	29·163	28th	28·778	5th	·385	84·3	96·2	−4·5	79·5	−1·8	87·9	−3·2	16·7	106·2	6th	72·0	23rd	34·2
		Mooltan	420	29·136	−·005	29·519	29·303	31st	28·934	5th	·369	86·5	99·4	−0·8	82·1	+0·2	90·8	−0·3	17·3	109·4	8th & 9th.	72·0	23rd	37·4
47	Sind	Jacobabad	186	29·352	−·009	29·496	29·531	31st	29·193	5th	·338	88·0	103·6	0	82·9	+1·6	93·3	+0·8	20·7	114·2	5th	74·6	11th	39·6
		Hyderabad	96	29·480	?	29·527	29·692	31st	29·331	1st	·361	84·0	97·3	+2·0	80·3	+1·8	88·8	+1·9	17·0	104·1	4th	71·0	10th	33·1
		Kurrachee	30	29·571	−·038	29·551	29·759	31st	29·434	1st	·325	84·0	91·0	+1·8	80·9	+2·5	86·0	+2·2	10·1	94·3	7th & 10th.	73·5	29th	20·8
51	West Rajputana	Bickaneer	771	28·800	?	29·531	28·974	31st	28·686	1st	·288	84·7	96·1	−0·2	81·0	+0·6	88·6	+0·2	15·1	103·6	6th & 7th.	74·5	31st	29·1
		Pachpadra	380?	29·177	?	29·511	29·330	31st	29·049	1st	·281	82·7	94·6	?	79·2	?	86·9	?	15·4	101·5	9th	75·0	24th & 26th.	26·5
		Jodhpur	810	28·808	?	29·565	28·979	31st	28·697	1st	·282	81·6	93·0	?	79·0	?	86·0	?	14·0	101·2	7th	74·1	21st	27·1
	VIII.—East Rajputana, Central India and Gujarat.		...	...	−·027	...	...	...	...	...	...	...	88·7	+0·4	77·2	+1·6	82·8	+1·0	11·4	...	...	...	...	19·6
50	East Rajputana	Jeypore	1,431	28·201	−·012	29·583	28·359	30th	28·078	1st	·281	80·6	90·5	+0·6	77·1	+2·1	83·8	+1·4	13·4	95·0	31st	74·0	3 days	21·0
		Kotah	?	28·770	?	?	28·920	30th	28·651	6th	·269	82·4	90·0	?	79·3	?	84·7	?	10·7	96·0	9th	76·1	23rd	19·9
		Sambhar	1,254	28·356	−·015	29·564	28·509	30th	28·237	1st	·272	81·5	92·0	?	78·2	+2·4	85·1	?	13·8	97·5	3 days	74·4	14th	23·1
		Ajmere	1,611	28·020	−·024	29·585	28·179	30th	27·904	1st	·275	79·7	87·4	−0·1	77·3	+2·8	82·4	+1·4	10·1	92·6	5th	73·6	21st	19·0
		Deesa	466	29·165	−·044	29·586	29·329	31st	29·059	1st	·270	80·5	89·3	+1·0	77·6	+2·2	83·5	+1·6	11·7	93·8	6th	75·0	24th	18·8
46	Kathiawar and Cutch.	Bhuj	395	29·237	?	29·584	29·417	31st	29·129	1st	·288	81·1	89·7	+1·2	77·3	+1·1	83·5	+1·2	12·4	94·5	9th	72·9	25th	21·6
		Rajkot	429	29·227	−·043	29·608	29·408	31st	29·122	7th	·286	79·9	88·4	−0·3	75·9	+1·4	82·2	+0·6	12·5	93·9	6th	72·3	26th	21·6
		Veraval	?	29·653	?	29·613	29·827	31st	29·541	9th	·286	80·2	82·9	?	78·4	?	80·7	?	4·5	85·6	25th	75·3	10th	10·3
		Ghadechi	35	29·629	?	29·609	29·788	31st	29·499	7th	·289	81·9	95·7	?	77·5	?	84·3	?	18·2	99·6	6th	74·3	21st	25·3
49	Central India	Nowgong	757	28·852	−·024	29·563	29·020	30th	28·678	6th	·342	80·2	87·2	−1·1	78·3	+1·6	82·7	+0·3	8·9	93·0	13th	75·0	4th & 6th.	18·0
		Indore	1,823	27·863	−·016	29·635	28·005	31st	27·729	8th	·276	75·1	83·8	+1·2	72·5	+1·3	78·2	+1·3	11·3	87·2	5 days	70·1	3 days	17·1
		Neemuch	1,630	28·036	?	29·618	28·185	31st	27·913	6th	·272	78·1	86·4	+1·9	73·8	+1·5	80·1	+1·7	12·6	91·8	9th & 29th.	70·6	25th	21·2
45	Gujarat	Surat	39	29·643	−·055	29·625	29·804	31st	29·515	7th	·289	80·9	86·5	−0·4	77·4	+1·2	82·0	+0·4	9·1	91·6	26th	73·5	7th	18·1
		Ahmedabad	164	29·497	?	29·608	29·661	31st	29·389	7th	·272	80·8	89·3	?	77·7	?	83·6	?	11·6	95·2	4th	75·6	21st	19·6
22	N.-W. P., West	Agra	555	29·038	−·020	29·550	29·205	30th	28·905	1st	·300	82·5	90·7	+0·2	79·5	+0·9	85·1	+0·6	11·2	95·5	13th & 29th.	77·4	5th & 13th.	18·1
21	N.-W.P., Central	Jhansi	858	28·755	−·019	29·566	28·922	30th	28·597	6th	·325	81·0	89·0	+0·5	77·9	+1·2	83·5	+0·9	11·1	95·1	13th	74·4	30th	20·7

I—continued.

in India, Burma, etc., in August 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 June to 31st August 1897.	Normal rainfall for period from 1st June to 31st August.	Variation from normal of period, 1st June to 31st August.	Heaviest rainfall during month	Station.	Meteorological Province or District.	Number of District.
																		10·09	11·15	−0·62					VI.-Upper Sub-Himalayas.		
...	...	...	..	..	..	...	...	...	...	...	...	...	...	...	...	...	...				...	...	...	...	Bareilly .	N.-W. Provinces, West (Submontane).	24
11	1	4	9	4	...	2	...	...	2·4	3·6	− 33	91	·962	7·9	18	12·18	+5·82	17·11	14·51	+ 2·60	45·34	36·36	+ 8·98	5·57	Dehra Dun.		
24	...	2	1	...	1	2	...	1	0·7	1·1	− 36	90	·812	9·0	24	21·30	+2·70	30·55	30·00	+ 0·55	57·07	68·50	−11·43	4·97	Roorkee.		
18	...	1	1	9	1	1	...	...	1·3	2·5	− 48	87	·904	7·2	18	11·64	+6·36	11·36	13·59	− 2·23	28·51	30·75	− 2·24	3·20	Meerut .	N.-W. P., West	22
17	...	...	10	2	...	...	2	...	1·3	2·1	− 38	84	·902	8·2	9	11·36	−2·36	5·96	10·59	− 4·63	23·31	22·57	+ 0·74	1·30	Delhi .	South-East Punjab,	26
2	...	...	1	19	...	1	7	1	5·9	4·1	+ 44	82	·917	7·7	9	9·82	−0·82	8·61	9·35	− 0·74	16·20	21·92	− 5·72	2·61	Lahore .	Central Punjab,	28
10	...	...	5	10	3	...	2	1	2·5	2·9	− 14	81	·839	5·2	9	6·45	+2·55	9·87	5·83	+ 4·04	15·53	14·34	+ 1·19	3·85	Sirsa .	South Punjab.	27
...	...	...	...	11	6	1	10	3	10·8	4·6	+135	80	·936	4·8	6	5·55	+0·45	5·64	4·11	+ 1·53	11·06	10·60	+ 0·46	2·80	Patiala.		
4	2	20	..	...	3	1	1	...	4·7	?	?	87	·962	6·8	12	?	?	5·26	?	?	16·61	?	?	0·85	Ludhiana .	Punjab (Submontane),	29
13	...	2	...	12	1	3	...	...	2·2	1·4	+ 57	83	·933	6·5	12	7·82	+4·18	5·81	6·94	− 1·13	17·34	19·68	− 2·34	2·08	Sialkot.		
7	2	5	10	3	1	1	...	2	2·6	2·3	+ 13	79	·888	4·0	13	9·27	+3·73	7·21	10·87	− 3·66	11·55	22·47	−10·92	2·45	Umballa.		
19	...	...	6	5	...	...	...	1	1·2	?	?	89	·973	6·8	5	?	?	4·72	7·75	− 3·03	17·58	22·44	− 4·86	2·92	Rawalpindi.	North Punjab.	31
22	...	...	5	2	1	1	...	...	1·4	1·6	− 13	80	·844	4·8	13	9·91	+3·09	9·00	9·16	− 0·16	18·22	19·62	− 1·40	2·95			
																		6·31	2·49	+ 3·82					VII.—Indus Valley and N.-W. Rajputana.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...				...	...	...	...	Peshawar .	North Punjab.	31
10	7	2	2	...	...	3	...	7	2·8	4·0	− 30	75	·844	5·6	4	1·82	+2·18	4·76	2·70	+ 2·06	5·77	4·84	+ 0·93	1·53	Khushab .	West Punjab.	32
6	2	9	10	...	...	2	2	...	3·8	?	?	76	·903	3·4	7	2·70	+4·30	9·27	2·01	+ 7·26	14·66	5·57	+ 9·09	3·41	Montgomery.		
3	2	4	7	7	2	4	2	...	3·8	?	?	74	·918	4·7	6	3·20	+2·80	4·60	2·34	+ 2·26	5·44	6·69	− 1·25	1·90	D. I. Khan.		
10	8	8	...	3	...	2	...	...	2·3	2·1	+ 10	84	·934	3·4	7	2·27	+4·73	5·02	1·43	+ 3·59	5·91	4·84	+ 1·07	2·27	Mooltan.		
6	2	6	1	10	...	4	...	2	3·1	3·2	− 3	74	·920	3·8	3	2·00	+1·00	8·74	1·58	+ 7·16	10·79	5·11	+ 5·68	5·07	Jacobabad	Sind,	47
11	2	1	6	6	3	1	1	...	4·2	4·0	+ 5	74	·971	3·9	3	1·64	+1·36	2·45	1·27	+ 1·18	3·65	2·67	+ 0·98	1·32	Hyderabad.		
2	1	1	1	...	7	15	2	2	17·0	13·8	+ 23	76	·869	4·3	6	3·36	+2·64	6·52	2·51	+ 4·01	10·28	5·51	+ 4·77	2·38	Kurrachee.		
...	1	1	1	...	...	6	18	4	11·4	17·2	− 34	80	·929	7·6	4	2·36	+1·64	6·44	1·55	+ 4·89	10·21	5·54	+ 4·67	4·21	Bickaneer .	West Rajputana	51
...	...	...	2	2	9	13	5	...	7·0	6·2	+ 13	83	·982	6·4	12	?	?	10·51	3·12	+ 7·39	15·91	8·45	+ 7·46	2·35	Pachpadra.		
...	...	1	...	1	23	5	1	...	14·1	9·7	+ 45	83	·921	6·4	7	?	?	2·82	3·78	− 0·96	10·83	7·11	+ 3·72	1·40	Jodhpur.		
4	...	1	...	...	8	14	4	...	3·6	?	?	85	·885	7·8	9	?	?	8·30	5·15	+ 3·15	11·46	10·60	+ 0·86	2·60			
																		9·24	8·08	+ 1·36					VIII.—East Rajputana Cen. India and Gujarat.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...				...	...	...	...	Jeypore .	East Rajputana.	50
2	1	7	4	1	1	6	6	3	4·3	5·5	− 22	85	·893	7·4	13	11·50	+1·50	7·32	10·07	− 2·75	13·42	21·93	− 8·51	1·79	Kotah.		
5	3	...	3	3	...	8	8	1	4·4	?	?	80	·888	6·4	11	?	?	8·79	8·92	− 0·13	21·40	22·34	− 0·94	1·71	Sambhar.		
5	1	1	6	...	1	...	17	...	6·7	8·1	− 17	81	·875	7·9	9	10·50	−1·50	6·10	7·88	− 1·78	12·38	17·11	− 4·73	1·82	Ajmere.		
2	...	2	2	3	..	3	17	2	5·7	5·5	+ 4	88	·891	6·8	13	9·82	+3·18	12·39	7·63	+ 4·76	20·64	17·20	+ 3·44	2·55	Deesa.		
...	...	...	2	...	4	14	9	2	11·4	12·0	− 5	91	·944	9·2	13	10·09	+2·91	7·29	7·60	− 0·31	16·81	20·75	− 3·94	1·97	Bhuj .	Kathiawar and Cutch,	46
1	...	...	...	1	...	11	15	3	15·3	14·9	+ 3	83	·882	8·3	9	?	?	5·26	2·70	+ 2·56	9·65	11·58	− 1·93	1·58	Rajkot.		
...	...	...	...	...	1	13	14	3	14·5	11·6	+ 25	88	·894	8·8	12	7·82	+4·18	8·22	4·98	+ 3·24	20·59	23·17	− 2·58	2·53	Veraval.		
1	2	...	...	...	...	12	14	2	11·3	?	?	91	·933	8·8	13	?	?	8·95	2·12	+ 6·33	14·95	15·81	− 0·86	3·08	Ghadechi.		
...	...	...	...	...	1	21	6	3	9·8	?	?	81	·886	7·8	12	?	?	6·37	?	?	14·23	?	?	1·58	Nowgong .	Central India.	49
1	2	2	6	...	2	5	11	2	3·2	3·	− 6	92	·959	8·2	14	14·09	−0·09	10·8	14·23	− 3·65	42·41	34·47	+ 7·94	2·12	Indore.		
4	...	...	1	...	...	12	10	4	4·7	6·1	− 23	90	·797	9·5	11	10·45	+0·55	8·29	7·83	+ 0·46	19·48	23·13	− 3·65	3·98	Neemuch.		
...	1	2	2	1	...	9	14	2	5·5	11·9	− 46	83	·803	8·1	11	11·00	0	8·28	10·55	− 2·27	23·91	24·71	− 0·8	3·00	Surat .	Gujarat,	45
6	1	...	...	...	2	17	3	2	6·7	13·6	− 51	88	·938	8·3	22	12·82	+9·18	16·04	7·89	+ 8·15	30·15	36·29	− 6·14	3·45	Ahmedabad.		
2	...	...	...	...	...	18	9	2	5·6	?	?	89	·925	9·3	16	?	?	11·53	8·56	+ 2·97	25·21	24·47	+ 0·74	3·07	Agra .	N.-W. P., West.	22
1	...	2	...	13	...	11	...	4	5·1	4·4	+ 16	88	·974	7·5	14	10·73	+3·27	13·99	7·67	+ 6·32	32·22	21·71	+10·51	2·68	Jhansi .	N.W.P., Central.	21
9	...	4	3	1	...	7	2	5	1·3	3·9	− 67	87	·924	6·5	17	14·45	+2·55	8·43	12·50	− 4·07	22·57	29·99	− 7·42	1·23			

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	IX.—Deccan		...	...	−·021	...	...	...	...	...	...	...	86·4	+0·5	73·1	+1·1	79·8	+0·8	13·3	...	...	...	...	22·1
38	Bombay (Deccan)	Belgaum	2,524	29·279	−·019	29·742	27·365	21st	27·180	8th	·185	70·8	77·4	+1·3	67·5	+1·3	72·5	+1·3	9·9	82·2	26th & 27th.	62·9	30th	19·3
		Sholapur	1,590	28·170	−·025	29·705	28·282	31st	28·056	7th & 8th.	·226	77·9	91·5	+3·1	73·5	+3·1	82·5	+3·1	18·0	96·7	27th	70·0	30th	26·7
		Poona	1,840	27·914	−·030	29·702	28·037	31st	27·792	8th	·245	74·3	82·0	+0·3	70·4	+0·9	76·2	+0·6	11·6	89·0	28th	65·4	30th	23·6
		Bijapur	1,946	27·834	?	29·721	27·930	31st	27·720	10th	·210	75·3	88·0	?	70·6	?	79·7	?	17·4	93·7	28th & 31st.	67·0	30th	26·7
40	Khandesh	Malegaon	1,430	28·274	−·032	29·654	28·416	31st	28·142	7th	·274	77·9	88·0	+1·9	73·4	+2·0	80·7	+2·0	14·6	93·9	26th	67·2	25th	24·7
		Ahmednagar	2,152	27·598	?	29·684	27·718	31st	27·485	8th	·233	75·6	86·6	?	71·0	?	78·8	?	15·6	93·3	26th	64·5	25th	28·8
41	Berar	Akola	930	28·771	−·014	29·652	28·901	31st	28·635	8th	·266	78·0	87·5	+0·4	74·5	+1·3	81·0	+0·9	13·0	91·9	21st	71·7	30th	20·2
		Amraoti	1,215	28·469	−·016	29·644	28·598	31st	28·322	8th	·276	75·8	86·3	−0·1	73·6	+1·1	80·0	+0·5	12·7	92·2	21st	71·3	29th	20·9
42	Central Provinces (West).	Khandwa	1,044	28·633	−·022	29·635	28·779	31st	28·489	8th	·290	77·6	85·7	0	75·3	+1·5	80·5	+0·8	10·4	89·2	21st	72·6	29th	16·6
		Hoshangabad	1,006	28·647	−·020	29·614	28·796	31st	28·509	8th	·287	77·5	85·4	+0·2	75·0	+1·2	80·2	+0·7	10·4	90·3	9th	73·2	6th & 15th.	17·1
		Nagpur	1,025	28·627	?	29·606	28·757	31st	28·481	8th	·276	78·5	86·9	−0·4	75·5	+0·9	81·2	+0·3	11·4	91·1	5th & 21st.	72·6	6th & 7th.	18·5
43	Central Provinces (Central).	Chanda	634	29·066	?	29·646	29·185	20th	28·932	6th	·253	79·0	88·2	+0·4	75·4	+0·3	81·8	+0·4	12·8	95·2	29th	71·4	7th	23·8
		Seoni	2,033	27·631	−·023	29·598	27·782	31st	27·480	6th	·302	75·6	83·2	−0·1	72·1	+0·4	77·7	+0·2	11·1	87·0	25th	69·9	6th & 7th.	17·1
		Jubbulpore	1,327	28·305	−·023	29·584	28·453	31st	28·143	6th	·310	78·3	85·5	+0·7	74·6	+0·7	80·1	+0·7	10·9	92·0	31st	71·1	6th	20·9
		Saugor	1,807	27·832	?	29·582	27·983	30th	27·679	6th	·304	77·3	84·1	+0·6	73·7	+1·2	78·9	+0·9	10·4	89·8	30th	70·6	3rd	19·2
4	Central India	Sutna	1,040	28·566	−·021	29·563	28·727	30th	28·400	6th	·327	79·8	86·1	+0·4	77·0	+1·3	81·0	+0·9	9·1	91·4	13th	74·1	22nd & 26th.	17·3
44	Central Provinces (East).	Raipur	970	28·682	−·010	29·602	28·828	31st	28·524	6th & 14th	·304	78·4	86·2	0	75·4	+0·6	80·8	+0·3	10·8	91·8	31st	72·1	6th & 7th.	19·7
		Sambalpur	486	29·160	−·027	29·594	29·326	31st	28·958	6th	·368	80·2	86·2	−1·3	76·5	−0·8	81·4	−1·1	9·7	91·6	31st	74·2	5 days	17·4
39	Hyderabad (North).	Aurangabad	1,865?	27·873	?	29·681	27·969	31st	27 768	8th	·201	75·8	86·4	?	70·5	?	78·5	?	15·9	91·4	25th	68·2	20th & 30th.	23·2
		Indur	?				Not recorded.					77·5	86·3	?	74·3	?	80·3	?	12·0	91·3	4th & 6th.	71·6	30th	19·7
		Bidar	2,165?	27·592	?	29·694	27·696	20th	27·469	8th	·227	74·3	85·0	?	61·2	?	73·1	?	23·8	90·3	5th & 22nd.	59·4	30th	30·9
53	Hyderabad (South).	Gulbarga	1,502	28·273	?	29·726	28·382	31st	28·113	7th	·269	76·9	90·6	?	72·7	?	81·6	?	17·9	95·9	22nd	70·1	30th	25·8
		Raichur	1,309	28·460	?	29·717	28·563	21st	28·348	8th	·215	78·2	91·2	?	73·5	?	82·4	?	17·7	96·1	19th	68·1	9th	28·0
		Hyderabad (Deccan).	1,690	28·057	−·011	29·692	28·157	21st	27·925	8th	·232	76·4	86·3	+0·2	73·6	?	80·0	?	12·7	92·4	19th	71·7	29th	20·7
		Secunderabad	1,787	27·968	?	29·701	28·072	21st	27·832	8th	·240	75·4	87·0	+0·9	72·3	+1·6	79·7	+1·3	14·7	93·1	19th	67·9	6th	25·2
		Khamamet	373	29·358	?	29·676	29·478	21st	29·219	8th	·259	80·3	88·5	?	76·8	?	82·7	?	11·7	94·0	4th	72·3	3 days	21·7
	X.—West Coast		...	...	−·026	...	...	...	...	...	...	...	83·8	+1·2	76·4	+1·6	80·1	+1·4	7·4	...	...	...	...	12·2
7	Konkan	Bombay	37	29·713	−·039	29·690	29·854	31st	29·583	8th	·271	80·6	85·3	+1·4	77·8	+1·1	81·6	+1·3	7·5	87·5	25th	76·0	11th & 21st.	11·5
		Ratnagiri	110	29·679	−·022	29·727	29·783	31st	29·575	8th	·208	79·8	84·2	+0·8	77·0	+2·2	80·7	+1·5	7·2	86·9	29th & 31st.	74·9	5th	12·0
		Mormugao	60	29·768	?	29·763	29·862	21st	29·670	8th	·192	80·5	84·9	?	77·3	?	81·1	?	7·6	86·5	30th	76·4	11 days	10·1
		Goa	199	29·612	−·021	29·748	29·699	21st	29·496	8th	·203	79·8	82·0	?	78·0	?	80·0	?	4·0	84·0	3 days	76·0	31st	8·0
		Karwar	44	29·787	−·025	29·763	29·877	21st	29·684	26th	·193	79·7	83·9	+1·8	76·7	+2·6	80·3	+2·2	7·2	85·2	19h & 22nd.	73·5	6th	11·7
33	Malabar	Cochin	11	29·883	−·023	29·821	29·938	4th	29·794	26th	·144	78·0	84·2	+1·0	75·1	+1·0	79·7	+1·0	9·1	87·7	17th	72·2	10th	15·5
		Calicut	27	29·854	−·024	29·811	29·923	4th	29·735	26th	·188	77·8	83·5	+0·8	75·0	+1·3	79·2	+1·1	8·5	87·3	22nd	72·5	10th & 11th.	14·8
		Mangalore	65	29·803	−·027	29·801	29·890	21st	29·686	26th	·204	78·2	83·9	+1·5	75·1	+1·3	79·5	+1·4	8·8	86·8	1st	72·9	29th	13·9
		Trivandrum	198	29·672	?	29·802	29·737	20th	29·578	26th	·159	77·9	82·6	?	75·5	?	79·1	?	7·1	84·5	17th & 20th.	72·5	6 days	12·0
	XI.—South India		...	...	−·017	...	...	...	...	...	...	...	89·8	+1·0	75·3	+1·3	82·6	+1·2	14·6	...	...	...	...	24·2
57	Madras (South)	Pamban	37	29·792	?	29·756	29·862	20th	29·734	26th	·128	83·9	90·5	?	79·2	?	84·9	?	11·3	92·3	5 days	75·7	29th	16·6
		Tinnevelly	168	29·672	?	29·769	29·745	20th	29·583	26th	·162	84·8	96·5	?	79·5	?	88·0	?	17·0	100·8	18th	75·9	27th & 28th.	24·9
		Madura	447	29·372	−·024	29·753	29·454	21st	29·268	26th	·186	83·3	95·6	−0·8	76·3	+0·8	86·0	−0·1	19·3	100·5	2nd & 17th.	71·5	12th	29·0

I—*continued.*

in India, Burma, etc., in August 1897—continued.

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.	SW.	W.	NW.	Mean velocity in miles per hour.	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 June to 31st August 1897.	Normal rainfall for period, 1st June to 31st August.	Variation from normal of period, 1st June to 31st August.				
...	...	...	..	...	...	...	...	...	...	...	..	...	...	...	...	...	...	9·87	9·17	+0·69	...	...	...	...	IX.—Deccan.		
...	1	1	...	...	...	10	18	1	23·5	20·7	+ 14	92	·694	9·0	19	17·64	+ 1·36	12·43	8·74	+ 3·69	34·50	30·70	+ 3·80	1·70	Belgaum	Bombay (Deccan).	38
...	...	...	...	...	...	19	7	5	21·9	11·0	+ 99	70	·668	8·7	3	11·27	− 8·27	1·53	7·39	− 5·86	6·49	16·69	−10·20	0·67	Sholapur.		
...	...	...	...	...	...	11	18	2	14·9	14·0	+ 6	86	·729	8·5	12	7·82	+ 4·18	5·06	3·22	+ 1·84	13·20	14·82	− 1·62	0·98	Poona.		
...	...	...	...	...	...	12	15	4	8·4	?	?	81	·715	7·5	2	7·00	− 5·00	0·81	3·60	− 2·79	10·40	9·45	+ 0·95	0·45	Bijapur.		
1	1	...	...	...	...	13	14	2	18·5	10·0	+ 85	79	·747	8·0	7	6·91	+ 0·09	6·53	4·07	+ 2·46	13·05	13·54	− 0·49	4·54	Malegaon	Khandesh.	40
...	2	...	...	...	1	14	10	4	29·4	?	?	78	·693	7·7	6	?	?	1·09	3·84	− 2·75	4·19	11·72	− 7·53	0·34	Ahmednagar.		
...	...	...	...	...	...	11	13	7	9·0	7·9	+ 14	87	·833	8·5	14	9·73	+ 4·27	5·81	7·44	− 1·63	16·39	23·72	− 7·33	1·03	Akola	Berar.	41
...	2	...	...	1	...	4	20	4	7·8	6·1	+ 28	93	·831	8·2	13	9·73	+ 3·27	8·55	6·80	+ 1·75	16·98	24·26	− 7·28	1·83	Amraoti.		
...	...	...	...	...	...	4	23	4	8·3	7·6	+ 9	87	·816	8·5	13	9·91	+ 3·09	12·30	7·14	+ 5·16	20·53	22·01	− 1·48	3·54	Khandwa	Central Provinces (West).	42
8	...	...	1	...	3	10	7	2	3·1	3·4	− 9	93	·879	9·1	18	15·09	+ 2·91	25·15	14·52	+10·63	45·65	40·31	+ 5·34	9·09	Hoshangabad.		
7	1	1	...	1	1	4	11	5	8·2	8·0	+ 3	88	·858	8·5	19	12·82	+ 6·18	13·04	10·25	+ 2·79	30·55	33·72	− 3·17	2·25	Nagpur.		
4	...	...	...	2	1	10	12	2	4·8	5·4	− 11	87	·863	8·9	20	?	?	16·15	13·87	+ 2·28	32·19	40·60	− 8·41	2·67	Chanda	Central Provinces (Central).	43
...	2	3	1	2	...	9	8	6	4·5	4·8	− 6	92	·821	6·3	20	17·73	+ 2·27	10·48	12·90	− 2·42	29·55	41·62	−12·07	2·46	Seoni.		
11	...	1	1	...	...	5	10	3	1·9	4·6	− 59	90	·878	8·0	24	16·00	+ 8·00	19·67	16·12	+ 3·55	37·35	46·02	− 8·67	4·93	Jubbulpore.		
1	1	2	3	2	1	3	16	2	5·8	4·3	+ 35	89	·839	7·9	19	14·55	+ 4·45	14·05	13·53	+ 0·52	33·32	36·03	− 2·71	3·47	Saugor.		
1	...	2	9	1	3	2	10	3	7·6	7·9	− 4	91	·927	7·7	18	13·45	+ 4·55	15·62	12·07	+ 3·55	32·68	33·78	− 1·10	2·13	Sutna	Central India	49
4	...	...	3	1	2	14	7	...	11·1	7·3	+ 52	90	·866	8·7	14	14·45	− 0·45	13·33	12·66	+ 0·67	26·27	38·05	−11·78	1·83	Raipur	Central Provinces (East).	44
...	...	2	3	4	10	12	...	...	6·0	3·0	+100	86	·882	7·6	21	?	?	27·10	17·09	+10·01	51·41	50·38	+ 1·03	4·60	Sambalpur.		
7	...	...	...	...	3	18	3	...	5·5	?	?	84	·750	9·1	13	?	?	5·96	5·56	+ 0·40	13·97	19·27	− 5·30	1·78	Aurangabad	Hyderabad (North).	39
...	1	...	...	...	...	7	19	4	11·2	?	?	87	·814	8·6	18	?	?	15·68	10·19	+ 5·49	24·24	25·43	− 1·19	3·47	Indur.		
...	3	...	...	...	...	10	15	3	10·8	?	?	89	·755	7·6	9	?	?	5·61	9·85	− 4·24	15·00	25·44	−10·44	1·39	Bidar.		
1	...	...	...	...	...	23	...	7	15·4	?	?	79	·735	8·5	4	?	?	1·54	6·43	− 4·89	12·66	16·14	− 3·48	0·42	Gulbarga	Hyderabad (South).	53
...	...	...	...	1	9	11	9	1	13·0	?	?	77	·750	6·5	6	?	?	1·89	6·20	− 4·31	12·13	14·51	− 2·38	0·80	Raichur.		
3	1	...	...	...	...	...	23	4	8·9	?	?	82	·752	7·7	9	?	?	3·05	8·17	− 5·12	11·56	19·92	− 8·36	0·55	Hyderabad (Deccan).		
...	...	...	...	...	...	3	21	7	11·2	10·0	+ 12	76	·677	7·4	10	?	?	3·63	8·17	− 4·54	13·82	19·92	− 6·10	0·86	Secunderabad.		
17	...	...	...	...	...	3	10	1	6·5	?	?	82	·849	3·6	14	?	?	10·46	8·70	+ 1·76	21·53	23·55	− 2·02	2·20	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17·81	17·58	+0·23	...	..	...	...	X.—West Coast.		
...	1	...	1	1		10	17	1	15·2	15·8	− 4	88	·923	9·2	20	19·64	+ 0·36	13·82	11·43	+ 2·39	58·41	57·97	+ 0·44	2·44	Bombay	Konkan.	37
4	1	...	...	...	1	10	14	1	8·5	10·3	− 17	89	·909	9·3	26	24·36	+ 0·64	17·50	24·65	− 7·15	102·79	91·42	+11·37	2·49	Ratnagiri.		
1	3	1	...	...	..	...	1	25	12·3	?	?	90	·939	7·9	24	?	?	11·85	22·22	−10·37	85·09	75·66	+ 9·43	1·75	Mormugao.		
3	3	1	...	...	...	15	8	1	?	?	?	89	·907	9·4	22	?	?	11·93	20·32	− 8·39	96·36	84·11	+12·25	2·00	Goa.		
4	2	...	1	...	...	8	14	2	7·3	?	?	85	·852	7·8	27	23·36	+ 3·64	11·53	24·45	−12·92	106·88	100·66	+ 6·22	1·62	Karwar.		
6	7	5	...	1	...	1	4	7	6·4	?	?	90	·868	8·1	25	17·91	+ 7·09	23·77	13·31	+10·46	89·74	63·23	+26·51	2·67	Cochin	Malabar.	33
5	2	5	2	2	...	3	3	9	11·2	?	?	90	·853	8·4	22	17·88	+ 4·12	29·24	15·82	+13·42	123·10	78·39	+44·71	4·01	Calicut.		
6	2	1	2	3	...	1	7	9	3·7	2·9	+ 28	92	·895	9.5	29	23·90	+ 6·10	35·13	21·13	+14·00	131·50	92·25	+39·25	4·83	Mangalore.		
1	20	4	...	...	...	...	2	4	7·9	?	?	86	·833	8·8	15	?	?	5·53	4·91	+ 0·62	31·12	24·94	+ 6·18	0·99	Trivandrum.		
...	...	...	...	...	...	...	.	...	...	...	...	...	...	...	...	...	...	6·73	5·45	+1·27	...	...	...	...	XI.—South India.		
4	1	2	...	1	1	17	5	...	8·8	?	?	77	·903	2·8	1	0·30	+ 0·70	2·83	0·23	+2·60	3·00	0·98	+ 2·02	2·65	Pamban.	Madras (South).	5
...	2	...	...	...	1	7	9	12	7·5	?	?	62	·743	5·3	3	1·00	+ 2·00	1·59	0·49	+1·10	2·64	1·40	+ 1·24	1·13	Tinnevelly.		
4	6	1	...	1	1	1	2	15	3·4	3·7	− 8	66	·756	5·2	8	5·36	+ 2·64	4·17	4·00	+0·17	5·37	7·78	− 2·41	1·35	Madura.		

Table

Abstract of Observations taken at 8 A.M. at 213 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.
34	Madras (South Central).	Salem	940	28·911	−·023	29·792	29·001	20th	28·811	26th	·190	79·3	94·0	+2·6	74·3	+2·5	84·2	+2·6	19·7	99·4	5th	72·0	19th & 29th.	27·4
		Coimbatore	1,348	28·489?	−·020	29·785?	28·566	21st	28·393	26th	·173	76·5	87·2	−1·3	72·0	+1·4	79·6	+0·1	15·2	91·4	19th & 24th.	69·3	10th	22·1
35	Coorg	Mercara	3,781	26·169	−·010	?	26·241	21st	26·064	26th	·177	65·5	70·3	−0·2	64·1	+2·0	67·2	+0·9	6·2	75·5	24th	62·7	31st	12·8
36	Mysore	Chitaldroog	2,405	27·428	?	29·759	27·520	21st	27·335	8th	·185	73·0	82·1	?	69·3	?	75·7	?	12·8	87·2	21st	65·9	26th	21·3
		Bangalore	3,021	26·861	−·020	29·782	26·953	21st	26·763	26th	·190	70·7	82·5	+0·8	67·3	+1·8	74·9	+1·3	15·2	88·8	19th	65·3	27th	23·5
		Hassan	3,091	26·803	?	29·800	26·893	21st	26·704	26th	·189	71·0	77·2	?	66·1	?	71·6	?	11·1	83·0	25th	63·7	30th	19·3
		Mysore	2,518	27·365	?	29·806	27·452	21st	27·264	26th	·188	72·7	82·5	?	67·8	?	75·2	?	14·7	88·9	24th	66·0	17th	22·9
56	Madras (East Coast, South).	Negapatam	31	29·789	−·016	29·748	29·869	20th	29·679	26th	·190	83·7	94·9	+2·0	77·9	+0·9	86·4	+1·5	17·0	101·2	12th & 16th.	69·5	26th	31·7
		Cuddalore	12	29·789	?	29·7[illegible]0	29·895	20th	29·680	26th	·215	82·5	94·4	?	76·5	?	85·5	?	17·9	102·3	2nd	71·2	25th	31·1
		Trichinopoly	255	29·565	−·025	29·752	29·650	21st	29·439	26th	·181	82·7	97·6	+1·6	78·1	+1·8	87·8	+1·7	19·5	104·1	3rd	72·9	22nd & 25th.	31·2
		Madras	22	29·769	−·023	29·721	29·887	20th	29·658	26th	·229	82·9	95·0	+1·3	78·0	+0·7	86·5	+1·0	17·0	102·0	1st	73·5	18th & 26th	28·5
55	Madras (East Coast, Central).	Nellore	71	29·689	?	29·692	29·797	20th	29·586	6th	·211	84·7	97·5	?	79·8	?	88·7	?	17·7	102·8	3 days	73·6	3rd	29·2
		Masulipatam	15	29·724	−·015	29·674	29·813	21st	29·612	6th & 8th.	·231	82·5	91·6	+0·3	78·6	+1·1	85·2	+0·7	13·0	98·2	8th	75·1	26th & 29th.	23·1
54	Madras (Central)	Cuddapah	433	29·356	−·029	29·727	29·463	21st	29·262	8th	·201	82·4	95·3	+2·6	78·6	+2·1	87·0	+2·4	16·7	101·2	3rd & 18th	72·7	26th & 27th.	28·5
		Kurnool	923	28·847	?	29·714	29·952	21st	29·734	8th	·218	78·8	91·6	+2·5	75·1	+1·6	83·4	+2·1	16·5	96·7	19th	70·9	27th & 28th.	25·8
		Bellary	1,475	28·323	−·014	29·740	28·422	21st	28·219	26th	·203	79·6	92·0	+1·2	75·2	+1·8	83·6	+1·5	16·8	97·7	19th	69·7	27th	28·0
52	Madras (East Coast, North).	Rajahmundry	112			Not	record	ed.				80·6	89·2	?	77·4	+0·2	83·3	?	11·8	96·0	3rd	73·1	20th & 24th.	22·9
		Cocanada	26	29·691	+·002	29·652	29·819	21st	29·559	6th	·260	81·5	89·3	+1·0	78·8	+0·3	84·1	+0·7	10·5	97·1	19th	75·5	28th	21·6
		Vizagapatam	31	29·664	−·002	29·633	29·817	21st	29·518	6th	·299	83·4	91·8	+0·8	79·1	−0·6	85·5	+0·2	12·7	100·2	5th	76·2	15th	24·0
		Waltair	?				Not	record	ed.			82·0	89·6	?	78·4	?	84·0	?	11·2	94·4	5th & 15th.	75·3	6th	19·1
		Gopalpur	21	29·633	?	29·594	29·789	31st	29·460	6th	·329	82·7	87·5	?	79·0	?	83·2	?	8·5	90·2	1st & 25th.	75·1	20th	15·1
	XII.—Hill Stations.																							
43	Baluchistan	Sharigh	?	25·658*	?	?	25·790	30th & 31st.	25·520	1st	·270	81·3‡	94·8‡	?	69·4‡	?	82·1	?	25·4	104·0	6th	61·0	23rd	43·0
		Quetta	5,502	24·478	+·002	?	24·611	31st	24·343	1st	·268	73·7	89·9	−0·8	61·0	−0·9	75·5	−0·9	28·9	95·6	9th	46·4	25th	49·2
		Kalat	?			Not	record	ed.				73·2‡	91·1	?	52·2‡	?	71·7	?	38·9	98·5	9th	41·8	23rd	56·7
		Chaman	4,311	25·475	?	?	25·633	31st	25·341	1st	·292	82·7	98·2	?	72·3	?	85·3	?	25·9	105·2	9th & 11th.	63·1	24th	42·1
30	Punjab	Leh	11,503			Not	record	ed				57·5	77·7	?	52·2	?	65·0	?	25·5	85·7	10th	44·0	25th	41·7
		Srinagar	5,204	24·712	?	?	24·873	28th	24·547	1st	·326	69·9	83·3	?	65·0	?	74·2	?	18·3	89·8	5th & 16th.	54·5	23rd	35·3
		Skardu	?	22·695	?	?	22·818	28th	22·524	1st	·324	69·3	86·7	?	62·9	?	74·8	?	23·8	98·1	10th	51·8	25th	46·3
		Dras	?	20·705	?	?	20·847	28th	20·560	1st	·287	62·0	80·2	?	48·7	?	64·5	?	31·5	89·0	15th	39·1	23rd & 25th	49·9
		Gilgit	?	24·382	?	?	24·510	23rd	24·270	14th & 22nd.	·240	78·0	92·2	?	72·5	?	82·3	?	19·7	105·9	10th	59·1	23rd	46·8
		Chitral				Not	record	ed,				79·0	93·7	?	67·0	?	80·3	?	26·7	98·4	12th	57·0	25th	41·4
		Killa Drash	?			Not	record	ed.				83·2	94·6	?	72·5	?	83·5	?	22·1	98·2	7 days	62·3	22nd & 24th.	35·9
		Para Chinar	6,000	24·314	?	?	24·460	28th	24·165	1st	·295	70·8	84·9	?	64·2	?	74·5	?	20·7	91·3	5th	54·8	23rd	36·5
		Cherat	?	25·539	?	?	25·683	28th	25·384	1st	·299	72·9	83·1	?	69·5	?	76·3	?	13·6	98·5	6th	62·0	23rd	36·5
		Murree	6,344	23·741	+·007	?	23·876	27th	23·594	1st	·282	65·5	71·7	−2·4	62·3	+1·3	67·0	−0·6	9·4	82·6	5th	51·9	23rd	30·7
		Poo	?			Not	record	ed,				?	77·5†	?	59·0†	?	68·3†	?	18·5	82·2	4th & 5th.	52·4	23rd	29·8
		Simla	7,224	23·021	+·006	?	23·150	27th	22·878	1st	·272	62·6	67·2	−0·2	59·5	−0·2	63·4	−0·2	7·7	71·6	7th	55·2	23rd	16·4
25	North-Western Provinces.	Chakrata	7,022	23·191	+·018	?	23·325	27th	23·040	1st	·285	63·2	67·5	−1·7	60·4	+0·9	64·0	−0·4	7·1	75·2	7th	56·3	23rd	18·9
		Mussooree	6,705	23·423	?	?	23·670	27th	23·270	1st	·400	63·7	68·5	−0·3	60·9	+1·2	64·7	+0·5	7·6	74·3	7th	57·9	23rd	16·4
		Ranikhet	6,069	23·594	+·017	?	24·132	27th	23·838	1st	·294	66·2	72·2	−0·2	62·7	+0·6	67·5	+0·2	9·5	76·5	7th & 8th.	60·0	23rd	16·5
		Muktesar	?	22·761	?	?	22·891	27th	22·619	1st	·272	61·2	67·4	?	58·2	?	62·8	?	9·2	74·5	7th	55·6	23rd	18·9

* Aneroid uncorrected. † Mean of 29 days. ‡ Uncorrected.

I—*continued.*

in India, Burma, etc., in August 1897—continued.

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.	SW.	W.	NW.	Mean velocity in miles per hour.	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 June to 31st August, 1897.	Normal rainfall for period, 1st June to 31st August.	Variation from normal of period, 1st June to 31st August.				
3	1	...	...	...	5	17	4	1	5·2	4·2	+ 24	80	·806	6·9	11	11·78	− 0·78	4·87	7·66	− 2·79	8·41	15·30	− 6·89	1·40	Salem	Madras (South Central).	34
..	...	...	...	...	3	21	7	...	5·6	7·4	− 24	83	·761	8·2	7	2·91	+ 4·09	2·06	1·19	+ 0·87	8·11	3·85	+ 4·26	0·54	Coimbatore.		
...	1	...	...	...	...	...	24	6	9·4	8·9	+ 6	96	·611	9·8	29	26·30	+ 2·70	37·39	26·25	+11·14	110·06	94·46	+15·60	3·24	Mercara	Coorg.	35
...	...	...	...	...	...	12	15	4	12·5	?	?	83	·675	9·4	6	?	?	3·98	2·95	+ 1·03	13·87	8·60	+ 5·27	1·29	Chitaldroog	Mysore.	36
...	...	...	...	...	...	14	13	4	10·6	7·6	+ 39	86	·651	8·6	7	10·73	− 3·73	4·66	5·80	− 1·14	9·57	13·84	− 4·27	1·05	Bangalore.		
...	...	...	...	...	...	6	19	6	4·6	?	?	86	·649	9·3	12	?	?	10·29	2·85	+ 7·44	20·83	11·99	+ 8·84	3·14	Hassan.		
...	...	...	...	...	...	18	12	1	12·0	?	?	85	·675	8·9	10	?	?	5·75	3·15	+ 2·60	13·82	7·58	− 6·24	1·62	Mysore.		
4	...	...	...	...	1	16	9	1	6·9	5·7	+ 21	72	·831	5·5	6	5·91	+ 0·09	3·72	3·84	− 0·12	3·75	7·85	− 4·10	1·25	Negapatam	Madras (East Coast, South).	56
...	1	...	...	...	5	15	10	...	1·5	?	?	80	·891	3·1	10	8·00	+ 2·00	6·77	5·12	+ 1·65	11·63	9·40	+ 2·23	2·00	Cuddalore.		
3	...	...	...	...	...	6	20	2	7·9	8·2	− 4	66	·736	7·2	7	5·36	+ 1·64	4·67	4·67	0	7·55	7·79	− 0·24	2·04	Trichinopoly.		
2	..	...	1	...	1	11	14	2	7·1	7·3	− 3	74	·839	7·6	11	8·27	+ 2·73	7·83	4·56	+ 3·27	13·41	10·54	+ 2·87	2·80	Madras.		
10	...	...	...	...	...	...	13	18	8·5	?	?	71	·838	10·0	5	5·50	− 0·50	4·02	3·30	+ 0·72	6·07	7·17	− 1·10	1·94	Nellore	Madras (East Coast, Central).	55
2	1	...	...	1	1	4	11	11	9·1	7·8	+ 17	82	·913	8·7	12	9·00	+ 3·00	4·73	7·04	− 2·31	10·00	18·27	− 8·27	0·93	Masulipatam		
...	...	...	...	...	...	1	11	19	?	?	?	73	·808	7·8	9	7·90	+ 1·10	7·69	6·38	+ 1·31	12·72	14·39	− 1·67	1·49	Cuddapah	Madras (Central)	54
3	...	...	...	...	...	3	24	1	?	?	?	74	·722	8·4	9	9·33	− 0·33	6·88	5·85	+ 1·03	14·44	14·71	− 0·27	2·40	Kurnool.		
5	...	...	...	...	...	...	24	2	8·4	10·7	− 21	61	·616	8·1	3	4·55	− 1·55	1·23	2·58	− 1·35	4·18	6·41	− 2·23	0·48	Bellary.		
13	...	...	...	...	...	2	16	...	?	?	?	82	·858	8·2	15	9·10	+ 5·90	10·08	7·35	+ 2·73	19·55	20·36	− 0·81	1·65	Rajahmundry	Madras (East Coast, North)	52
...	...	...	2	...	1	15	11	2	7·3	?	?	83	·896	8·0	15	9·10	+ 5·90	8·04	5·71	+ 2·33	14·53	17·75	− 3·22	1·11	Cocanada.		
10	...	...	...	1	...	12	8	...	1·6	2·9	− 45	78	·890	8·4	4	10·64	− 6·64	2·82	5·89	− 3·07	5·34	14·47	− 9·13	1·23	Vizagapatam		
...	1	1	2	1	1	18	7	...	15·5	?	?	81	·889	8·4	..	?	?	...	?	?	...	?	?	...	Waltair.		
2	2	...	1	3	1	20	1	1	13·0	9·1	+ 43	85	·936	4·3	13	11·44	+ 1·56	8·62	8·56	+ 0·06	20·68	22·20	− 1·52	2·05	Gopalpur.		
																									XII.—Hill Stations.		
8	1	2	7	4	1	...	8	...	3·6	?	?	60	·633	2·1	7	?	?	6·81	2·10	+ 4·71	9·46	5·90	+ 3·56	1·57	Sharigh	Baluchistan.	48
28	1	...	...	1	1	...	...	...	2·4	4·5	− 47	62	·514	2·6	0	0·91	− 0·91	0	0·70	− 0·70	0·32	2·03	− 1·71	0	Quetta.		
...	...	...	3	1	14	4	3	2	?	?	?	44	·369	2·3	0	?	?	0	0·52	− 0·52	0·33	1·25	− 0·92	0	Kalat.*b*		
...	1	...	2	6	3	15	3	1	10·4	?	?	34	·373	1·5	0	?	?	0	0	0	0	0·51	− 0·51	0	Chaman.		
...	...	2	1	...	4	7	14	3	2·1	1·6	+ 31	65	·306	5·7	1	?	?	0·37	0·49	− 0·12	0·51	1·19	− 0·68	0·24	Leh	Punjab.	30
10	4	1	...	8	5	1	...	2	4·6	?	?	90	·673	6·9	10	?	?	4·72	?	?	8·81	?	?	1·03	Srinagar.		
12	2	3	...	...	...	3	9	2	6·6	?	?	59	·417	5·8	0	?	?	0·32	1·33	− 1·01	0·60	2·12	− 1·52	0·09	Skardu (Kashmir).		
30	...	...	...	...	...	...	...	1	1·4	?	?	89	·506	5·9	2	?	?	0·77	0·43	+ 0·34	1·66	?	?	0·52	Dras.		
			Not	rec	ord	ed.			?	?	?	75	·731	5·3	3	?	?	0·76	0·36	+ 0·40	2·09	1·46	+ 0·63	0·40	Gilgit.		
6	3	3	...	6	12	...	...	1	?	?	?	59	·589	0·3	1	?	?	0·19	?	?	1·74	?	?	0·10	Chitral.		
...	1	2	...	...	...	...	17	...	?	?	?	44	·495	6·4	2	?	?	0·85	?	?	1·86	?	?	0·60	Killa Dras.††		
...	3	6	4	10	6	1	...	1	4·8	?	?	67	·503	4·2	7	?	?	2·81	?	?	5·92**	?	?	0·70	Para Chinar.		
4	6	3	...	11	7	...	...	...	8·8	?	?	80	·631	5·9	13	?	?	7·75	3·21	+ 4·54	12·41	8·47	+ 3·94	2·08	Cherat.		
16	2	...	...	3	...	1	1	8	5·1	4·8	+ 6	84	·528	3·7	19	15·64	+ 3·36	17·94	14·28	+ 3·66	25·69	28·40	− 2·71	3·50	Murree.		
...	1	1	1	2	1	3	14	6	?	?	?	?	?	7·6†	8	?	?	2·03	0·45	+ 1·58	3·53	1·86	+ 1·67	0·46	Poo.*a*		
18	3	2	...	...	7	1	...	...	1·9	1·6	+ 19	92	·523	8·1	24	19·45	+ 4·55	19·54	17·98	+ 1·56	33·33	42·32	− 8·99	2·30	Simla.		
19	3	1	1	...	7	...	...	...	7·2	4·3	+ 67	94	·541	8·0	24	?	?	28·72	18·59	+ 10·13	57·80	44·92	+ 12·88	4·20	Chakrata	North-Western Provinces.	25
...	3	4	6	8	...	2	4	4	?	8·1	?	97	·575	8·6	29	22·18	+ 6·82	42·28	32·39	+ 9·89	79·46	72·96	+ 6·50	6·05	Mussooree.		
21	...	2	2	1	1	...	2	2	1·4	1·9	− 26	92	·588	8·4	28	17·82	+ 10·18	17·51	13·91	+ 3·60	40·88	33·13	+ 7·75	3·41	Ranikhet.		
...	1	...	5	13	3	1	1	7	1·8	?	?	95	·516	9·2	21	?	?	14·42	?	?	43·91	?	?	2·75	Muktesar.		

b Wind observations of 27 days. *a* Wind observations of 29 days. ** For July and August only. †† Eleven variables.

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal of month.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
13	Bengal	Yatung	10,480?				Not	record	ed.			?	63·3	?	55·6	?	59·4	?	7·7	68·0	6th & 12th.	51·9	29th	16·1
		Darjeeling	7,421	22·922	+·009	?	23·049	27th	22·772	1st	·277	61·3	66·2	+0·2	57·1	+0·4	61·7	0	9·7	71·1	7th	55·8	3 days	15·3
		Gantok	5,660?	24·416	?	?	24·545	27th	24·307	1st	·238	65·8	73·4	?	53·0	?	63·2	?	20·4	79·2	8th	51·0	3 days	28·2
	Central India	Mount Abu	3,945	25·838	−·031	?	25·984	31st	25·740	1st	·244	68·2	73·6	+1·7	66·0	+1·6	69·8	+1·7	7·6	78·6	9th	63·4	23rd	15·2
		Pachmarhi	3,528	26·255	−·019	?	26·408	31st	26·115	6th	·293	69·7	75·2	+0·4	67·8	+0·9	71·5	+0·7	7·4	79·7	3 days	64·7	6th & 7th.	15·0
	South India	Wellington	6,200	24·177	−·027	?	24·250	21st	24·089	26th	·161	63·5	71·0	+0·2	58·3	+1·1	64·7	+0·7	12·7	76·7	17th	55·1	21st	21·6
XIII.—Extra India.																								
	Ceylon	Trincomalee	12	29·813	?	29·751	29·877	21st	29·718	26th	·159	81·7	91·5	?	77·9	?	84·8	?	13·6	99·0	13th	74·0	21st	25·0
		Colombo	40	29·861	−·025	29·827	29·917	4th	29·774	26th	·143	80·8	85·9	?	78·0	?	82·0	?	7·9	88·0	8th & 21st	74·0	10th	14·0
	Persia	Meshed	3,104			Not re	corded.					76·0	?	?	60·9	?	?	?	?	?	?	51·9	22nd	?
		Teheran *a*	?	25·847 25·369	?	?	26·025 25·470	31st 31st	25·710 25·300	17th 17th	·315 ·170	82·3	96·1	?	70·0	?	83·1	?	26·1	102·1	9th	62·7	31st	39·4
		Ispahan *a*	?	24·285 24·661	?	?	24·440 24·800	31st 31st	24·140 24·520	1st 1st	·300 ·280	78·0	96·0	?	62·7	?	79·4	?	33·3	101·2	6th	54·6	26th	46·6
		Bushire	14	29·529	−·015	29·502	29·688	31st	29·332	1st	·356	90·0	95·2	−1·3	83·9	+0·3	89·6	−0·5	11·3	104·5	2nd	76·5	29th	28·0
		Jask ?	?	29·570	?	29·522	29·785	31st	29·388	1st	·397	90·2	96·0	?	86·2	?	91·2	?	9·8	103·2	6th	81·2	23rd & 26th.	22·0
	Arabia	Muscat	20	29·552	?	29·519	29·738	31st	29·354	1st	·384	87·3	89·4	?	85·7	?	87·6	?	3·7	95·3	7th	80·6	3rd	14·7
		Baghdad	220?	29·470	−·037	29·659	29·630	28th	29·142	1st	·488	87·4	107·1	−0·7	79·0	+0·9	93·1	+0·1	28·1	114·9	2nd	75·2	6th	39·7
		Aden	94	29·616	−·034	29·640	29·697	4th	29·457	2nd	·240	83·5	94·0	+2·1	78·6	−1·9	86·4	+0·1	15·4	99·8	10th	74·9	16th & 18th.	24·9
		Perim	?	29·547	?	?	29·620	3rd	29·486	1st	·134	90·2	95·9	?	?	?	?	?	19·9	101·1	19th & 29th.	?	?	?
	Afghanistan	Kabul	?				Not	record	ed.			71·4	90·0	?	60·5	?	75·2	?	29·5	97·1	9th	49·4	22nd & 23rd.	47·7
	Central Asia	Kashgar *b*	?	25·504	?	?	25·727	24th	25·326	1st	·401	73·4	88·6	?	67·3	?	78·0	?	21·3	99·2	13th	56·3	24th	42·9
	Arabian Sea Islands.	Minicoy	10	29·859	?	?	29·933	17th	29·761	1st	·172	81·6	86·4	?	60·8	?	73·6	?	25·6	89·5	4th	49·0	28th	40·5
	Africa	Zanzibar	73	30·091	?	30·091	30·158	11th	30·027	2nd	·131	75·5	81·8	?	73·8	?	77·8	?	8·0	83·0	4 days	71·9	18th & 28th	11·1

a Aneroid uncorrected.

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

b Aneriod corrected.

I—*concluded.*

in India, Burma, etc., in August 1897—concluded.

Wind Direction. Number of winds from									Wind Velocity.			Hydrometry, S.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.	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 June to 31st August 1897.	Normal rainfall for period, 1st June to 31st August.	Variation from normal of period, 1st June to 31st August.				
			Not	rec	ord	ed.			?	?	?	?	?	?	28	?	?	11·18	9·30	+ 1·88	26·59	?	?	1·00	Yatung .	BENGAL.	13
6	...	5	10	5	...	2	2	1	3·5	3·4	+ 3	96	·524	8·7	26	24·35	+1·65	27·62	25·61	+ 2·01	65·87	81·75	−15·88	2·69	Darjeeling.		
31	...	...	...	...	...	...	...	...	3·2	?	?	92	·587	?	30	?	?	24·89	24·98	− 0·09	64·91	69·08	− 4·17	2·27	Gantok.		
3	...	2	...	3	3	14	4	2	11·1	10·8	+ 3	97	·668	9·2	18	18·50	−0·50	20·87	22·39	− 1·52	41·64	52·94	−11·30	3·98	Mount Abu	CENTRAL INDIA.	
9	1	...	...	...	...	1	10	...	?	7·5	?	93	·682	9·1	26	21·18	+4·82	31·81	19·74	+12·07	61·11	56·23	+ 4·88	6·73	Pachmarhi.		
12	2	1	...	3	...	11	1	1	4·2	3·8	+ 11	79	·471	9·0	13	10·89	+2·41	7·12	4·19	+ 2·93	11·97	11·67	+ 0·30	1·66	Wellington.	SOUTH INDIA.	
																									XIII.—Extra India.		
3	...	...	...	...	...	28	...	...	9·4	?	?	83	·906	3·3	8	?	?	6·73	4·61	+2·12	8·16	7·80	+0·36	2·52	Trincomalee	CEYLON.	
...	...	...	...	1	1	9	19	1	11·7	8·7	+34	85	·896	7·7	12	?	?	9·10	4·19	+4·91	25·35	16·98	+8·37	1·94	Colombo.		
						Not	recor	ded.	?	?	?	48	·435	Not recorded.	0	?	?	0	0·02	−0·02	0·31	0·27	+0·04	0	Meshed .	PERSIA.	
27	1	...	...	...	3	...	...	...	2·2	?	?	35	·378	0·6	0	?	?	0	0·09	−0·09	0·21	?	?	0	Teheran.		
8	1	1	11	8	...	1	...	1	3·1	?	?	34	·330	0·4	0	?	?	0	0	0	0	0·10	−0·10	0	Ispahan.		
...	2	2	5	3	...	4	...	15	8·4	7·8	+ 8	70	·987	0·3	0	?	?	0	?	?	0	?	?	0	Bushire.		
...	...	...	26	3	1	...	...	1	12·7	?	?	81	1·167	0·7	0	?	?	0	0	0	0	0·03	−0·03	0	Jask.		
...	...	7	12	5	2	1	1	3	4·1	?	?	80	1·033	2·1	0	?	?	0	?	?	0	?	?	0	Muscat .	ARABIA.	
1	24	1	...	...	...	...	...	5	5·3	?	?	44	·572	0·5	0	?	?	0	?	?	0	?	?	0	Baghdad.		
3	...	...	6	3	3	15	...	1	11·5*	10·8	+ 6	71	·817	3·5	0	?	?	0	0·21	−0·21	0·62	0·22	+0·40	0	Aden.		
2	..	1	...	...	...	18	...	5	18·7	?	?	66	·926	2·8	0	?	?	0	0·38	−0·38	0	0·40	−0·40	0	Perim. ‡		
14	1	1	4	...	4	2	5	...	?	?	?	57	·441	1·0	3	?	?	0·57	0·17	+0·40	0·66	0·93	−0·27	0·22	Kabul .	AFGHANISTAN.	
28	1	1	...	...	...	...	...	1	3·3	?	?	56	·459	5·9	5	?	?	1·33	0·48	+0·85	1·53	1·46	+0·07	0·36	Kashgar .	CENTRAL ASIA.	
...	1	...	...	...	...	6	14	10	12·0	?	?	83	·892	?	12	?	?	12·13	?	?	17·50†	?	?	2·98	Minicoy .	ARABIAN SEA ISLANDS.	
...	...	...	...	1	19	11	...	...	6·4	?	?	81	·742	4·4	2	?	?	2·24	?	?	?	?	?	1·92	Zanzibar .	AFRICA.	

the data for that station are not utilized in calculating the Provincial variation.
* Mean of 25 days.

† For July and August only.

‡ Five variable.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 85

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.
Burma Coast and Bay Islands.	Port Blair	...	29·795	29·711	·084	29·749	+·002	29·741	85·5	77·7	7·8	88·1	72·4	15·7	83·4	83·5	80·7	+ 0·8	75·6	79·7	79·4	78·2
	Rangoon	...	·785	·690	·095	·744	−·010	·721	85·2	76·0	9·2	89·6	73·0	16·6	81·1	80·1	78·7	+ 0·2	74·5	78·5	77·4	76·8
	Diamond Island	...	·790	·702	·088	·742	−·003	·718	84·2	77·3	6·9	89·1	74·5	14·6	81·3	81·0	79·6	+ 1·1	75·5	77·9	77·6	77·0
	Cocos Island	111	·749	·668	·081	·704	?	·7467	86·1	77·6	8·5	89·8	74·4	15·4	83·4	81·9	80·4	− 0·6	75·1	79·9	78·5	77·8
	Akyab	...	·742	·652	·090	·701	−·006	·664	84·5	77·6	6·9	90·0	75·0	15·0	82·1	82·7	80·2	0	75·9	80·4	80·7	79·0
Assam.	Silchar	...	·619	·491	·128	·564	−·010	·618	90·2	77·0	13·2	96·6	75·3	21·3	83·3	87·0	83·0	+ 0·6	76·1	79·2	80·0	78·4
	Sibsagar	...	·377	·249	·128	·313	−·014	·598	89·0	77·6	11·4	95·2	74·5	20·7	83·3	87·5	82·0	− 0·3	76·8	80·1	82·1	79·7
	Dhubri	...	·578	·466	·112	·527	−·005	·596	86·5	79·5	7·0	90·2	75·9	14·3	83·4	83·8	81·4	+ 0·8	77·2	80·0	80·1	79·1
Bengal and Orissa.	Chittagong	...	·636	·532	·104	·591	−·013	·625	85·3	76·5	8·8	90·3	74·1	16·2	82·4	82·8	79·9	+ 0·2	75·9	79·1	79·5	78·2
	Narayangunge	...	·658	·551	·107	·611	−·007	·585	87·4	79·4	8·0	90·1	76·4	13·7	83·1	85·1	83·0	+ 0·2	76·4	80·0	80·5	79·0
	Calcutta (Alipore)	...	·636	·537	·099	·592	−·004	·559	86·3	78·0	8·3	89·4	74·2	15·2	83·4	83·1	81·9	− 0·6	76·8	79·7	79·9	78·8
	Saugor Island	...	·620	·525	·095	·578	−·013	·546	87·5	79·7	7·8	90·7	76·7	14·0	84·6	84·9	82·6	+ 0·2	77·8	80·9	80·8	79·3
	Burdwan	...	·557	·448	·109	·510	−·005	·555	88·7	78·8	9·9	92·4	74·8	17·6	84·4	85·0	82·4	− 0·8	77·6	80·2	80·5	79·4
	Berhampore	...	·585	·483	·102	·541	−·009	·555	83·1	78·5	9·6	91·9	75·6	16·3	84·8	85·5	82·3	− 0·8	77·3	80·5	80·9	79·6
	False Point	...	·645	·553	·092	·604	−·014	·566	86·5	78·4	8·1	90·7	74·6	16·1	83·7	83·9	81·4	− 0·1	77·0	80·0	79·8	78·9
	Cuttack	...	·571	·473	·098	·529	−·018	·551	88·1	78·2	9·9	93·6	74·1	19·5	83·5	84·6	81·9	− 0·6	76·8	78·7	79·2	78·2
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·641	27·544	·097	27·595	−·024	·527	83·4	73·5	9·9	89·2	71·3	17·9	78·1	80·2	77·3	0	71·3	74·3	75·1	73·6
	Patna	...	29·448	29·332	·116	29·395	−·020	·529	88·6	79·4	9·2	94·4	75·7	18·7	84·9	86·9	83·1	− 0·4	77·9	80·8	81·3	80·0
	Darbhanga	...	·479	·375*	·104	·432	−·006	·551*	88·7*	80·1	8·6	93·0	77·3	15·7	85·9	86·8*	83·4*	+ 0·5	78·4	80·9	80·9*	80·1
	Allahabad	...	·300	·188	·112	·248	−·025	·508	89·2	78·9	10·3	95·4	75·6	19·8	84·6	87·0	82·9	− 0·3	77·3	80·5	81·2	79·7
	Lucknow	...	·243	·133	·110	·189	−·029	·510	89·9	79·1	10·8	96·7	76·8	19·9	84·8	85·5	83·3	− 1·2	78·1	81·2	81·6	80·3
Upper Sub-Himalayas.	Dehra Dun	...	27·451	27·359	·092	27·398	−·006	·561	83·8	73·3	10·5	90·8	70·2	20·6	78·0	79·9	77·0	− 1·0	71·6	74·3	75·8	73·9
	Roorkee	...	28·737	28·639	·098	28·684	−·004	·524	88·8	76·9	11·9	95·5	71·9	23·6	83·5	86·8	81·7	− 1·3	76·6†	78·4	79·9	78·3
	Meerut	...	·881	·787	·094	·827	−·006	·520	88·6	78·5	10·1	94·8	75·4	19·4	84·2	86·9	83·0	− 0·8	77·7	78·9	79·5	78·7
	Lahore	...	·898	·805	·093	·844	+·001	·502	92·6	80·9	11·7	104·4	75·1	29·3	87·4	90·1	85·8	− 0·8	77·8	80·4	80·6	79·6
	Ludhiana	...	·794	·699	·095	·741	−·004	·506	93·3	79·8	13·5	102·6	75·1	27·5	86·8	89·4	85·2	− 0·5	77·2	80·3	80·1	79·2
Indus Valley and N.-W. Rajputana.	Peshawar	...	·491	·393	·098	·435	+·003	·500	95·7	76·7	19·0	109·5	67·7	41·8	87·9	92·8	85·2	− 2·0	72·8	77·8	78·4	76·3
	Mooltan	...	29·155	29·068	·087	29·105	+·008	·482	99·4	82·2	17·2	109·6	72·2	37·4	91·2	96·1	89·7	− 0·2	76·6	81·1	82·4	80·0
	Jacobabad	...	·370	·253	·117	·304	−·018	·442	103·4	82·9	20·5	114·4	74·4	40·0	93·8	100·7	92·2	+ 0·6	77·3	82·2	83·1	80·9
	Kurrachee	...	·580	·501	·079	·543	−·047	·523	90·9	80·8	10·1	94·3	73·7	20·6	86·8	88·0	84·8	+ 2·7	77·0	80·3	80·6	79·4
E. Rajputana, Central India, and Gujarat.	Jeypore	...	28·217	28·117	·100	28·166	−·020	·532	90·5	77·1	13·4	94·8	73·9	20·9	84·1	87·8	82·4	+ 1·0	75·3	78·2	78·5	77·3
	Ajmere	...	·033	27·937	·096	27·982	−·038	·530	87·3	77·3	10·0	93·0	73·6	19·4	82·7	85·9	81·4	+ 1·5	74·9	78·4	79·8	77·7
	Deesa	...	29·173	29·073	·100	29·121	−·051	·535	89·3	77·5	11·8	93·8	74·8	19·0	83·8	86·4	82·4	+ 0·9	76·1	79·2	79·5	78·2
	Nowgong	...	28·866	28·769	·097	28·819	−·022	·523	87·2	78·2	9·0	93·0	75·0	18·0	83·2	84·6	81·8	+ 0·2	76·3	80·1	80·6	79·0
	Agra	...	29·052	·950	·102	·998	−·028	·505	90·7	79·5	11·2	95·4	77·5	17·9	86·3	87·4	84·8	− 0·1	77·2	81·4	81·9	80·2
Deccan.	Belgaum	...	27·289	27·211	·078	27·250	−·025	·693	77·6	67·5	10·1	83·9	62·9	21·0	73·4	74·0	71·0	+ 1·5	66·7	70·3	70·5	69·2
	Sholapur	...	28·171	28·049	·122	28·117	−·036	·624	91·5	73·4	18·1	96·6	69·8	26·8	83·3	89·0	81·3	+ 3·2	70·2	72·0	73·1	71·8
	Poona	...	27·920	27·842	·078	27·882	−·034	·655	82·2	70·3	11·9	89·0	65·4	23·6	77·5	79·0	74·4	+ 0·8	69·0	72·2	72·3	71·2
	Akola	...	28·777	28·666	·111	28·719	−·022	·596	87·4	74·4	13·0	91·9	71·7	20·2	81·7	85·3	80·7	+ 1·1	73·0	76·6	77·8	75·8
	Buldana	2,132	27·595	27·495	·100	27·543	−·031	·595	82·8	70·7	12·1	87·8	68·0	19·8	77·5	80·4	76·4	+ 1·1	69·1	72·4	74·0	71·9
	Khandwa	...	28·643	28·535	·108	28·587	−·030	·580	85·7	75·3	10·4	89·2	72·6	16·6	80·7	83·6	79·4	+ 1·1	73·0	75·8	77·1	75·3

* Mean of 30 days. † Mean of 25 days.

II.

Stations in India, Burma, etc., in August 1897.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from											Wind Steadiness.		Velocity.		Rainfall.			
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.	Station.	Meteorological Province.
																									%	%						
·863	·964	·953	·927	+·034	91	84	83	86	0	8·6	8·5	8·6	+1·1	1	...	1	...	4	4	28	23	1	S. 58° W.	S. 49° W.	76	82	241	242	...	...	Port Blair	Burma Coast and Bay Islands.
·836	·943	·905	·895	+·007	93	89	88	90	0	9·0	9·1	9·1	+0·2	...	1	...	...	5	18	26	11	1	S. 35° W.	S. 38° W.	74	65	105	110	...	...	Rangoon	
·862	·915	·901	·893	+·020	92	85	85	87	0	8·8	8·9	8·9	+0·9	...	...	...	5	5	9	28	14	1	S. 39° W.	S. 45° W.	66	78	290‡	193	...	...	Diamond Island.	
·836	·975	·933	·915	+·011	88	85	86	86	−2	8·3	8·6	8·5	+0·1	...	...	...	...	4	15	38	5	...	S. 33° W.	S. 41° W.	85	91	?	?	15·90	2·60	Cocos Island	
·875	1·018	1·024	·972	+·059	92	93	91	92	+4	9·6	9·1	9·4	+1·2	...	1	7	3	10	10	15	13	3	S. 29° W.	S. 1° E.	35	63	84	85	...	...	Akyab	
·888	·944	·935	·962	+·042	95	83	73	84	−1	8·8	8·0	8·4	+0·4	39	1	1	1	2	4	4	8	2	S. 61° W.	S. 81° W.	18	7	57‡	61	...	...	Silchar	Assam.
·912	·986	1·028	·975	+·026	96	86	79	87	+2	8·1	6·7	7·4	−0·9	15	...	11	4	13	1	14	...	4	S. 41° E.	S. 21° W.	21	15	84‡	63	...	...	Sibsagar	
·905	·983	·978	·955	+·027	90	86	84	87	0	6·5	8·0	7·3	−0·3	4	1	10	14	5	8	12	8	...	S. 35° E.	S. 43° E.	23	19	136‡	97	...	...	Dhubri	
·888	·953	·965	·935	+·029	97	86	86	90	+3	8·6	9·0	8·8	+1·1	...	...	2	3	23	17	14	2	1	S. 11° E.	S. 25° E.	68	61	184‡	142	...	...	Chittagong	Bengal and Orissa.
·870	·984	·980	·945	−·018	87	87	81	85	−2	8·7	8·0	8·4	+0·6	...	...	...	4	32	13	12	1	...	S. 21° E.	S. 15° E.	76	75	212	162	...	...	Narayanganj.	
·910	·967	·979	·952	−·005	95	84	87	89	+1	8·8	9·0	8·9	+0·6	...	...	4	11	14	11	17	3	2	S. 14° E.	S. 14° E.	48	56	112	115	...	...	Calcutta (Alipore).	
·931	1·037	·999	·980	−·008	92	85	83	87	0	9·0	8·8	8·9	+1·0	...	...	1	4	19	18	15	5	...	S. 3° E.	S. 13° W.	68	57	326	315	...	...	Saugor Island.	
·932	·976	·982	·963	+·020	94	83	82	86	+3	8·2	9·0	8·6	+0·3	8	1	2	12	5	16	12	5	1	S. 6° E.	S. 28° E.	42	48	71‡	86	...	...	Burdwan.	
·923	·936	·995	·968	+·014	91	82	81	86	−1	8·4	7·9	8·2	−0·5	11	...	...	10	14	15	9	2	1	S. 19° E.	S. 41° E.	52	47	69‡	99	...	...	Berhampore	
·911	·978	·967	·952	+·019	91	85	83	87	+2	8·6	8·8	8·7	+0·8	1	1	...	3	9	12	15	21	...	S. 38° W.	S. 47° W.	58	53	204‡	238	...	...	False Point	
·904	·921	·928	·918	+·015	93	80	78	81	+3	8·2	8·2	8·2	+0·8	8	1	2	4	2	9	22	12	2	S. 45° W.	S. 41° W.	50	37	67	65	...	...	Cuttack	
·742	·802	·808	·784	−·015	89	84	79	84	−1	9·9	9·9	9·9	+0·9	1	2	...	14	11	8	9	7	10	S. 5° E.	S. 4° W.	21	8	214	185	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·940	·999	·995	·978	+·025	93	83	78	85	+2	8·4	7·7	8·1	−0·1	2	...	6	25	16	5	2	5	1	S. 69° E.	S. 79° E.	58	38	127‡	96	...	...	Patna	
·950	·991	·979*	·973	+·012	92	80	77*	83	−1	6·5	6·5*	6·5	+0·3	...	...	2	26	27	4	...	1	1	S. 65° E.	S. 77° E.	83	60	127	111	...	...	Darbhanga	
·919	·992	·991	·967	+·021	93	84	78	85	+2	8·7	8·5	8·6	+0·8	...	2	5	22	5	3	4	12	9	N. 72° E.	N. 16° E.	13	4	208‡	134	...	...	Allahabad	
·951	1·016	1·029	·999	+·084	95	85	84	88	+8	8·7	8·3	8·5	+0·9	8	5	3	29	4	...	6	4	3	N. 85° E.	N. 65° E.	39	14	71‡	70	...	...	Lucknow	
·753	·804	·842	·836	+·073	92	84	83	86	−1	8·6	8·7	8·7	+1·0	25	...	1	3	10	8	7	5	3	S. 4° W.	S. 26° W.	27	14	17	24	...	...	Dehra Dun	Upper Sub-Himalayas.
·910†	·905	·920	·915	+·051	94	79	73	83	+5	7·5	7·1	7·3	+0·9	23	1	2	2	27	3	1	1	2	S. 45° E.	S. 24° E.	43	22	?	58	...	...	Roorkee	
·939	·918	·912	·923	+·0[illegible]	95	78	72	82	+5	8·3	7·0	7·7	+1·2	29	1	...	21	6	...	1	3	1	S. 81° E.	S. 55° E.	34	10	38‡	48	...	...	Meerut	
·912	·944	·919	·925	+·057	86	73	67	75	+10	6·0	5·7	5·9	+2·2	8	5	1	11	13	7	2	11	1	S. 44° E.	S. 80° E.	26	25	59	69	...	...	Lahore	
·903	·949	·903	·913	+·041	89	75	67	77	+4	7·2	7·4	7·3	+1·5	29	1	8	...	17	3	...	1	3	S. 67° E.	S. 59° E.	26	11	52	39	...	...	Ludhiana	
·766	·831	·751	·796	+·0[illegible]	83	64	54	67	+6	4·6	4·0	4·3	+1·4	12	12	9	14	2	...	3	2	8	N. 39° E.	N. 41° E.	39	51	68‡	93	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·843	·927	·924	·899	+·020	77	64	56	66	+4	3·4	4·8	4·1	+1·9	7	...	24	..	13	1	13	...	4	N. 88° E.	S. 12° W.	23	27	72‡	67	...	...	Mooltan	
·866	·944	·895	·902	+·081	77	60	46	62	+5	3·6	4·8	4·2	+1·9	33	...	1	8	13	6	...	1	...	S. 50° E.	S. 44° E.	36	59	100‡	101	..	...	Jacobabad	
·881	·949	·948	·926	+·057	84	75	72	77	−2	6·5	6·4	6·5	−0·2	...	2	2	1	...	...	26	28	3	S. 73° W.	S. 67° W.	71	88	336‡	357	...	...	Kurrachee	
·852	·892	·861	·863	+·0[illegible]	82	75	67	78	+2	7·5	7·7	7·6	+0·2	...	3	17	9	1	3	15	9	5	N. 20° W.	N. 66° W.	6	43	103	118	...	...	Jeypore	East Rajputana, Central India and Gujarat.
·837	·922	·913	·906	+·115	89	83	77	83	+7	6·3	6·4	6·4	+0·4	11	1	5	...	6	...	7	28	4	S. 87° W.	S. 82° W.	45	64	135	156	...	...	Ajmere	
·885	·941	·917	·914	+·111	94	83	74	83	+8	8·4	7·8	8·1	+0·1	...	2	...	2	1	7	23	20	7	S. 66° W.	S. 52° W.	68	75	271	278	...	...	Deesa	
·913	·923	·992	·964	+·056	94	87	81	88	+7	8·3	9·0	8·7	+0·3	...	6	...	21	1	...	8	23	3	N. 78° W.	N. 89° W.	14	44	68‡	79	...	...	Nowgong	
·903	1·011	1·017	·977	+·079	90	81	73	82	+6	7·7	7·8	7·8	+1·2	...	...	4	...	26	...	18	...	14	S. 4° W.	S. 53° W.	29	7	149‡	146	...	...	Agra	
·649	·706	·704	·6[illegible]	+·030	96	86	84	89	0	9·0	8·7	8·9	+0·2	...	4	2	1	...	...	22	28	4	S. 80° W.	S. 71° W.	73	89	567	517	...	...	Belgaum	Deccan.
·699	·616	·615	·653	−·007	85	57	45	62	−7	8·9	9·1	9·0	+0·6	...	...	...	...	...	...	36	15	11	S. 70° W.	W.	85	81	389‡	296	...	..	Sholapur	
·695	·726	·708	·708	+·115	94	77	72	81	+1	8·5	8·2	8·4	−0·2	...	...	...	...	...	...	10	50	2	S. 84° W.	S. 85° W.	95	89	410‡	327	...	...	Poona	
·795	·852	·851	·85[illegible]	+·059	94	79	71	81	+5	9·0	8·8	8·9	+0·7	...	1	...	1	...	...	13	28	19	N. 84° W.	N. 67° W.	80	32	214	200	...	...	Akola	
·695	·734	·761	·730	+·0[illegible]	92	78	72	81	0	9·5	9·0	9·3	+1·5	2	...	...	...	...	...	14	31	15	N. 89° W.	N. 65° W.	83	76	157	95	8·21	1·74	Buldana	
·786	·831	·853	·823	+·05[illegible]	90	80	73	81	+2	8·9	8·2	8·6	+1·0	...	2	...	1	...	...	5	33	21	N. 75° W.	N. 81° W.	84	84	195	199	...	...	Khandwa	

‡ Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 85

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature Wet-bulb. Mean minimum.	Temperature Wet-bulb. Mean 10 hours.	Temperature Wet-bulb. Mean 16 hours.	Temperature Wet-bulb. Mean daily.
Deccan—*concld.*	Hoshangabad	...	28·660	28·545	·115	28·601	−·031	29·557	85·6	75·0	10·6	90·5	73·1	17·4	80·6	83·3	79·1	+0·8	74·1	77·6	79·0	76·9
	Nagpur	...	·640	·529	·111	·583	−·029	·553	87·1	75·5	11·6	92·3	72·5	19·8	81·2	83·8	80·8	+0·6	73·9	76·6	77·3	75·9
	Nagpur (Sanitary Commissioner's Office).	...	·654	·539	·115	·595	?	·554	87·6	75·5	12·1	92·4	72·0	20·4	82·2	85·6	81·0	?	74·1	77·2	78·5	76·6
	Jubbulpore	...	·315	·213	·102	·262	−·030	·531	85·6	74·6	11·0	92·2	71·2	21·0	80·8	82·1	78·7	+0·8	74·0	77·0	77·9	76·3
	Saugor	...	27·841	27·747	·094	27·792	−·025	·526	84·2	73·6	10·6	90·1	70·5	19·6	79·8	82·2	77·8	+1·2	71·9	75·8	76·8	74·8
	Sutna	...	28·571	28·473	·098	28·523	−·025	·513	86·3	76·9	9·4	91·4	74·1	17·3	82·6	83·8	80·5	+0·1	75·1	78·7	79·2	77·7
	Raipur	...	·694	·584	·110	·637	−·014	·538	86·4	75·3	11·1	92·8	72·0	20·8	81·1	83·5	80·4	+0·5	73·9	77·0	77·5	76·1
	Hyderabad (Deccan).	...	·064	27·950	·114	·011	−·019	·626	86·2	73·6	12·6	92·3	71·8	20·5	79·8	84·6	79·5	+2·2	70·9	73·7	75·5	73·4
West Coast.	Bombay	...	29·724	29·646	·078	29·682	−·045	·659	85·3	77·8	7·5	87·4	76·1	11·3	82·2	82·5	80·9	+1·0	75·1	78·5	78·2	77·3
	Ratnagiri	...	·692	·616	·076	·651	−·031	·698	84·3	76·7	7·6	87·0	74·9	12·1	81·7	81·7	79·9	+1·1	74·9	78·5	78·4	77·3
	Karwar	...	·801	·719	·082	·757	−·030	·733	83·9	76·6	7·3	85·2	73·5	11·7	81·6	82·3	80·0	+2·2	74·3	77·0	77·2	76·2
	Cochin	...	·893	·820	·073	·854	−·023	·791	84·4	75·1	9·3	87·8	72·1	15·7	80·4	81·1	79·1	+0·5	73·7	77·1	77·4	76·1
South India.	Salem	...	28·908	28·784	·124	28·860	−·033	·727	93·7	74·3	19·4	99·3	72·0	27·3	84·6	87·2	81·2	+1·4	73·0	76·0	76·8	75·3
	Mercara	...	26·180	26·101	·079	26·154	−·018	?	70·4	64·1	6·3	75·3	62·9	12·4	67·1	66·7	66·3	+1·0	63·3	65·9	65·7	65·6
	Chitaldroog	...	27·432	27·335	·097	27·393	−·016	·706	82·2	69·3	12·9	86·9	66·0	20·9	76·5	79·2	75·0	+1·5	67·4	70·4	71·2	69·7
	Bangalore	...	26·863	26·762	·101	26·825	−·019	·715	82·5	67·3	15·2	89·1	65·4	23·7	75·7	78·8	74·0	+1·7	66·0	69·3	69·8	68·4
	Hassan	...	·810	·728	·082	·781	−·022	·757	77·3	66·1	11·2	83·0	63·7	19·3	74·2	74·1	70·9	+1·1	65·2	69·0	68·7	67·6
	Mysore	...	27·369	27·274	·095	27·322	−·017	·741	82·5	67·8	14·7	88·7	66·2	22·5	77·4	78·8	74·2	+0·5	66·5	70·7	70·8	69·3
	Trichinopoly	...	29·569	29·439	·130	29·518	−·024	·700	97·1	78·1	19·0	103·9	72·9	31·0	90·1	93·0	85·4	+1·3	72·1	75·1	76·3	74·5
	Madras	...	·771	·654	·117	·721	−·025	·671	94·8	78·0	16·8	101·4	73·3	28·1	87·6	87·9	84·3	+0·3	?	78·0	79·2	78·0
	Bellary	...	28·328	28·211	·117	28·279	−·025	·673	91·9	75·2	16·7	97·6	69·7	27·9	84·1	89·4	82·5	+1·7	68·5	70·8	71·6	70·3
	Cocanada	...	29·700	29·587	·113	29·649	+·004	·610	89·3	78·8	10·5	97·3	75·7	21·6	84·2	87·1	83·5	+0·4	76·4	77·8	78·2	77·5
	Vizagapatam	...	·668	·558	·110	·618	−·012	·587	92·0	79·4	12·6	100·0	76·2	23·8	86·9	88·7	84·9	−0·1	76·6	79·0	79·3	78·3
Hill Stations, Baluchistan.	Quetta	...	24·484	24·397	·087	24·438	−·004	?	89·8	61·1	28·7	95·6	46·5	49·1	81·2	86·6	74·6	−0·4	53·8	64·7	64·5	61·0
Hill Stations, Punjab.	Leh	...			Not recorded.				77·7	52·2	25·5	85·7	43·9	41·8	65·9	73·3	63·6	+2·4	46·4	53·4	56·3	52·0
	Srinagar	...	24·719	24·631	·088	24·673	+·005	?	83·4	65·0	18·4	89·7	54·5	35·2	74·0	81·0	73·6	+1·1	63·1	71·5	78·1	70·9
	Murree	...	23·759	23·714	·045	23·735	+·006	?	72·6	61·6	11·0	84·3	51·9	32·4	68·0	70·2	66·6	−0·3	59·0	64·7	66·0	63·2
	Kailang	10,087	20·672	20·616	·056	20·646	−·025?	?	73·2	51·9	21·3	79·3	44·1	35·2	64·5	67·2	60·5	+0·3	50·3	57·7	56·7	54·9
	Simla (Ridge)	...	23·038	22·982	·056	23·008	+·006	?	67·3	59·5	7·8	71·6	55·2	16·4	64·3	64·7	62·8	−0·6	58·7†	62·2	63·1	61·3
Hill Stations, N.-W. P.	Chakrata	...	·209	23·150	·059	·177	+·008	?	67·4	60·3	7·1	73·7	56·4	17·3	64·5	64·5	63·3	−0·1	59·9	63·1	63·4	62·1
	Ranikhet	...	24·010	·938	·072	·959	+·004	?	72·2	62·6	9·6	76·5	60·0	16·5	68·7	68·4	66·6	−0·2	61·8	65·6	66·4	64·6
	Muktesar	...	22·776	22·717	·059	22·747	?	?	67·3	58·2	9·1	74·2	55·6	18·6	63·1	63·8	61·9	?	57·8	61·6	61·8	60·4
Hill Station, Nepal.	Katmandu	4,388	25·439	25·386	·053	25·416	−·021?	?	83·8	69·0	14·8	87·4	67·7	19·7	78·0	79·5	75·3	+0·3	68·0	71·2	72·2	70·5
Hill Station, Bengal.	Darjeeling	...	22·938	22·871*	·067	22·909	+·011	?	66·1*	57·1	9·0	71·1	55·7	15·4	63·2	63·4*	60·9*	+0·3	57·7	62·1	62·2*	60·7
Hill Stations, Central India.	Mount Abu	...	25·854	25·783	·071	25·816	−·045	?	73·8	66·0	7·8	78·5	63·4	15·1	70·6	71·8	69·4	+1·9	65·3	68·8	69·6	67·9
	Pachmarhi	...	26·271	26·185	·086	26·226	−·021	?	75·4	67·8	7·6	79·9	64·8	15·1	71·5	73·5	70·5	+1·0	67·6	69·3	70·5	69·1
	Chikalda	3,642	·169	·085	·084	·125	−·015	?	73·3	66·5	6·8	79·2	64·9	14·3	69·8	72·0	68·9	+1·3	66·2	68·6	69·9	68·2

* Mean of 27 days. † Mean of 30 days.

II—*continued.*

Stations in India, Burma, etc., in August 1897—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind steadiness.		Wind velocity.		Rainfall.			
														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.	Station.	Meteorological Province.
																									%	%						
·832	·910	·937	·893	+·067	96	87	83	89	+ 4	8·6	8·0	8·3	+0·4	20	...	1	...	1	2	22	15	1	S. 61° W.	S. 74° W.	55	75	73	90	...	...	Hoshangabad.	Deccan—*concld.*
·823	·862	·858	·848	+·051	93	81	75	83	+ 4	8·5	8·3	8·4	−0·2	3	4	3	3	3	...	8	26	12	N. 78° W.	N. 80° W.	53	64	198	191	...	...	Nagpur.	
·825	·875	·890	·863	?	93	80	73	82	?	7·6	7·3	7·5	?	...	2	3	6	1	13	26	10	1	S. 37° W.	?	55	?	60‡	?	...	...	Nagpur (Sanitary Commissioner's Office).	
·832	·882	·902	·872	+·060	97	84	83	88	+ 4	8·5	9·0	8·8	+0·5	11	...	4	1	4	1	14	19	8	S. 79° W.	N. 87° W.	45	64	?	101	...	...	Jubbulpore.	
·763	·845	·856	·821	+·026	92	83	78	84	− 1	6·6	6·0	6·3	−0·3	13	2	4	4	4	...	8	21	6	N. 88° W.	S. 79° W.	34	67	139	110	...	...	Saugor.	
·853	·936	·942	·910	+·073	92	84	82	86	+ 6	7·1	7·6	7·4	+0·5	4	3	5	13	5	5	3	16	8	N. 25° W.	N. 74° W.	6	40	155‡	186	...	...	Sutna.	
·822	·875	·864	·854	+·027	93	83	76	84	+ 2	8·7	8·5	8·6	+0·5	12	...	1	6	1	...	33	7	2	S. 49° W.	S. 75° W.	53	64	259‡	194	...	...	Raipur.	
·725	·758	·766	·750	+·025	87	75	66	76	− 3	8·1	7·7	7·9	+1·1	17	2	...	...	...	...	...	13	10	N. 80° W.	N. 81° W.	82	84	203‡	203	...	...	Hyderabad (Deccan).	
·835	·928	·928	·890	+·012	88	84	82	85	− 2	8·7	8·5	8·6	−0·2	...	1	1	...	1	...	25	30	4	S. 74° W.	S. 81° W.	82	83	362	376	...	...	Bombay.	West Coast.
·842	·936	·930	·903	+·054	91	87	86	88	+ 2	8·2	8·3	8·3	+1·0	4	2	...	...	...	...	29	20	7	S. 86° W.	S. 72° W.	74	68	221	244	...	...	Ratnagiri.	
·818	·867	·867	·851	+·023	89	81	79	83	− 4	7·1	7·8	7·5	+0·3	...	4	...	...	...	...	22	24	12	S. 86° W.	N. 87° W.	78	73	179	87	...	...	Karwar.	
·816	·888	·895	·866	+·034	93	86	84	88	+ 1	8·2	8·5	8·4	+2·0	6	2	4	...	...	...	2	15	33	N. 54° W.	N. 78° W.	72	62	152	133	...	...	Cochin.	
·796	·785	·782	·788	+·036	94	66	61	74	+ 1	6·6	8·3	7·5	+1·2	2	3	3	1	...	4	22	13	14	S. 83° W.	S. 57° W.	58	75	124	93	...	...	Salem.	South India.
·576	·627	·622	·668	+·089	96	94	95	95	+ 1	9·7	10·0	9·9	+0·5	...	1	...	...	...	...	3	44	14	N. 81° W.	N. 73° W.	92	89	227	208	...	...	Mercara.	
·650	·669	·663	·661	+·041	91	73	67	77	+ 1	8·8	9·4	9·1	+0·5	...	...	...	...	...	1	25	30	6	S. 74° W.	S. 83° W.	87	87	259‡	259	...	...	Chitaldroog.	
·624	·642	·625	·630	+·018	94	72	65	77	− 1	8·4	7·9	8·2	+1·6	...	1	...	...	...	1	26	23	11	S. 78° W.	S. 79° W.	81	90	253‡	188	...	...	Bangalore.	
·614	·648	·640	·634	+·044	95	77	76	83	+ 2	9·1	9·5	9·3	+0·5	...	...	...	...	...	...	9	45	8	S. 89° W.	N. 87° W.	92	89	110‡	106	...	...	Hassan.	
·634	·668	·657	·653	+·023	93	71	68	77	+ 2	8·9	9·1	9·0	+0·5	1	...	.	...	...	...	19	34	8	S. 82° W.	S. 84° W.	87	86	288‡	333	...	...	Mysore.	
·708	·671	·682	·687	−·021	74	48	45	56	− 4	5·7	7·1	6·4	−0·9	10	...	...	1	...	1	9	37	4	S. 84° W.	N. 84° W.	72	82	188	198	...	...	Trichinopoly	
?	·834	·876	·873	+·055	?	64	67	75	+ 3	7·2	8·0	7·6	+1·0	...	1	1	2	11	8	10	24	5	S. 54° W.	S. 41° W.	48	60	166	166	...	...	Madras.	
·614	·587	·554	·585	−·073	70	50	40	53	−10	8·5	9·0	8·8	+1·0	2	...	...	...	...	...	1	54	5	N. 87° W.	N. 87° W.	93	87	201	263	...	...	Bellary.	
·881	·871	·847	·866	+·016	89	75	67	77	+ 1	6·8	6·9	6·9	+0·2	...	...	3	2	3	4	21	28	1	S. 64° W.	S. 82° W.	68	79	176‡	198	...	...	Cocanada.	
·879	·891	·876	·882	+·025	88	70	65	74	+ 1	8·5	8·1	8·3	+1·5	...	1	4	1	6	1	35	14	...	S. 50° W.	S. 70° W.	65	67	38	66	...	...	Vizagapatam	
·351	·444	·380	·392	+·008	62	41	30	44	− 1	2·4	2·8	2·6	+1·3	51	3	...	...	...	...	...	3	5	N. 45° W.	N. 80° W.	14	34	40‡	76	...	...	Quetta.	Hill Station, Baluchistan.
·267	·300	·307	·291	+·027	68	47	38	51	+ 3	5·8	6·4	6·1	+0·9	...	...	3	6	1	4	23	19	6	S. 64° W.	S. 69° W.	55	39	51	39	...	...	Leh.	Hill Stations, Punjab.
·560	·753	·941	·751	+·136	90	88	88	89	+12	5·1	5·3	5·2	+1·2	13	10	5	2	10	7	...	2	13	N. 9° E.	N. 51° W.	14	5	88‡	82	...	...	Srinagar.	
·476	·577	·602	·552	+·001	86	85	82	84	+ 2	2·5	3·6	3·1	−3·4	35	8	3	3	1	...	...	...	12	N. 9° W.	S. 4° W.	29	14	119‡	132	...	...	Murree.	
·253	·423	·373	·383	+·028	91	69	57	72	+ 4	7·9	8·0	8·0	+1·5	...	4	...	...	1	6	14	24	13	S. 86° W.	S. 76° W.	69	63	57	41	2·21	0·57	Kailang.	
·487†	·541	·562	·530	+·002	95†	90	92	92	+ 1	9·8	9·9	9·9	+1·0	46	3	2	...	1	8	2	...	...	S. 8° E.	S. 76° W.	10	14	42	81	...	...	Simla (Ridge).	
·511	·564	·574	·550	+·009	97	93	94	95	+ 3	9·6	9·7	9·7	+1·1	18	1	1	1	3	38	...	...	...	S. 5° E.	S. 75° W.	63	46	182	111	...	...	Chakrata.	Hill Station, N.-W.P.
·544	·601	·628	·591	+·019	95	86	90	90	+ 2	9·5	9·5	9·5	+0·8	41	1	3	...	...	2	2	12	1	N. 88° W.	S. 58° W.	19	25	37‡	50	...	...	Ranikhet.	
·478	·535	·534	·516	?	98	92	90	93	?	9·7	9·0	9·4	?	...	3	5	4	29	4	5	1	11	S. 49° E.	?	34	?	42	?	...	...	Muktesar.	
·675	·687	·709	·690	+·013	95	72	70	79	− 2	6·6	7·2	6·9	−0·2	...	1	...	32	1	1	...	19	8	N. 61° E.	N. 77° W.	16	5	29	8	10·00	2·05	Katmandu.	Hill Station, Nepal.
...	·551	·548*	...	...	...	95	94*	...	...	9·4	9·7*	9·6	+0·7	2	6	14	14	5	2	4	6	5	N. 54° E.	S. 81° E.	33	26	90	95	...	...	Darjeeling.	Hill Station, Bengal.
·620	·683	·702	·668	+·059	96	91	90	93	+ 2	9·2	9·0	9·1	+0·6	2	2	4	1	5	4	31	7	6	S. 48° W.	S. 60° W.	53	73	266‡	254	...	...	Mount Abu	Hill Stations, Central India.
·674	·694	·713	·694	+·035	99	90	86	92	+ 2	9·0	8·7	8·9	+0·2	13	1	...	...	2	...	21	23	2	S. 70° W.	N. 84° W.	64	75	?	206	...	...	Pachmarhi.	
·642	·688	·707	·679	+·036	98	94	90	94	0	9·4	8·7	9·1	+0·2	13	27	3	...	1	1	...	3	14	N. 16° W	N. 41° W.	62	74	301‡	266	27·75	10·04	Chikalda.	

‡ Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 85

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Hill Station, S. India.	Wellington	...	24·189	24·124	·065	24·157	—·019	?	70·9	58·3	12·6	76·5	55·1	21·4	67·1	65·8	63·4	+0·7	56·1	61·5	61·3	59·6
Extra India.	Muscat	...	29·561	29·493	·068	29·527	—·038	29·494	89·3	85·7	3·6	95·3	80·6	14·7	88·3	88·6	87·3	+1·6	79·7	83·3	82·9	82·0
	Aden	...	·631	·489	·142	·557	—·033	·580	92·5	78·6	13·9	98·1	74·7	23·4	86·9	89·6	85·0	+0·2	72·8	77·9	76·2	75·6
	Perim	...	·548	·442	·106	·492	—·002	?	96·0	?	?	101·1	?	?	93·3	93·1	?	?	?	81·1	82·6	?
	Zanzibar	...	30·101	·993	·108	30·047	—·007	30·047	82·0	73·8	8·2	83·2	71·9	11·3	77·3	81·1	77·7	+1·4	70·7	72·8	72·0	71·8
	Port Victoria (Seychelles).	15	29·998	·917	·081	29·958	—·015	29·897	81·6	76·6	5·0	83·3	71·9	11·4	80·3	81·1	79·0	+0·9	71·7	74·6	74·7	73·7
	Mauritius	181	?	?	?	30·020	—·006	30·151	?	?	?	83·1	55·6	27·5	?	?	69·9	+2·2	?	?	?	?

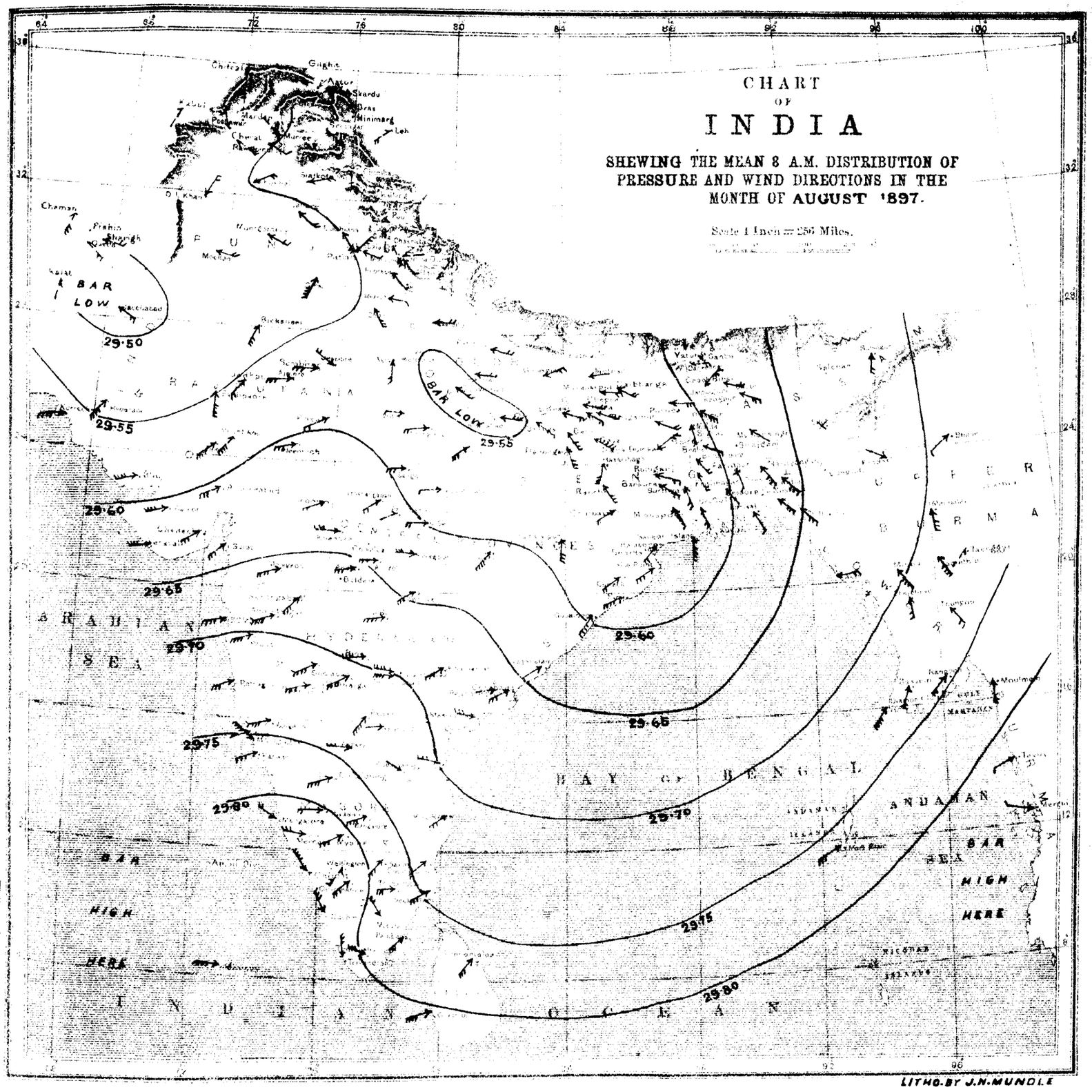
II—*concluded.*

Stations in India, Burma, etc., in August 1897—concluded.

Vapour tension.					Humidity.					Cloud.				Wind direction.											Wind steadiness.		Wind velocity.		Rainfall.		Station.	Meteorological Provinces.
														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.		
																									%	%						
·429	·490	·497	·472	+·035	88	74	78	80	+ 4	8·8	9·6	9·2	+1·6	6	4	1	...	5	7	34	2	1	S. 37° W.	S. 69° W.	60	51	98	88	...	...	Wellington.	Hill Station, S. India.
·936	1·077	1·049	1·021	+·059	76	80	78	78	0	2·0	1·4	1·7	+0·3	...	1	21	26	6	3	...	...	5	N. 74° E.	N. 73° E.	69	64	99	99	...	...	Muscat.	Extra India.
·732	·836	·724	·764	−·021	75	65	52	64	− 1	2·1	2·2	2·2	+0·4	1	1	...	7	11	19	23	...	...	S. 2° W.	S. 4° E.	68	70	274§	262	...	...	Aden.	
?	·903	·976	?	?	?	58	63	?	?	2·0	2·1	2·1	−0·5	1	...	...	...	2	...	12	1	15	N. 88° W.	N. 49° W.	31	51	449	333	...	...	Pe im.	
·710	·746	·663	·706	+·004	86	80	62	76	− 2	2·8	2·5	2·7	−1·9	...	1	...	1	18	30	12	...	...	S. 6° E.	S. 9° E.	82	76	158*	168	...	...	Zanzibar.	
·713	·782	·776	·757	+·032	78	75	73	75	0	5·4	5·8	5·6	−0·8	2	..	...	3	42	1[illegible]	2	...	...	S. 35° E.	S. 36° E.	87	92	272	323	1·38	0·45	Port Victoria (Seychelles).	
?	?	?	·523	?	?	?	?	73	0	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	311	298	1·72	0·22	Mauritius.	

* Corrected. § Mean of 24 days.

G. I. C. P. O.—No. 82 Meteor—27-12-97.—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 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.

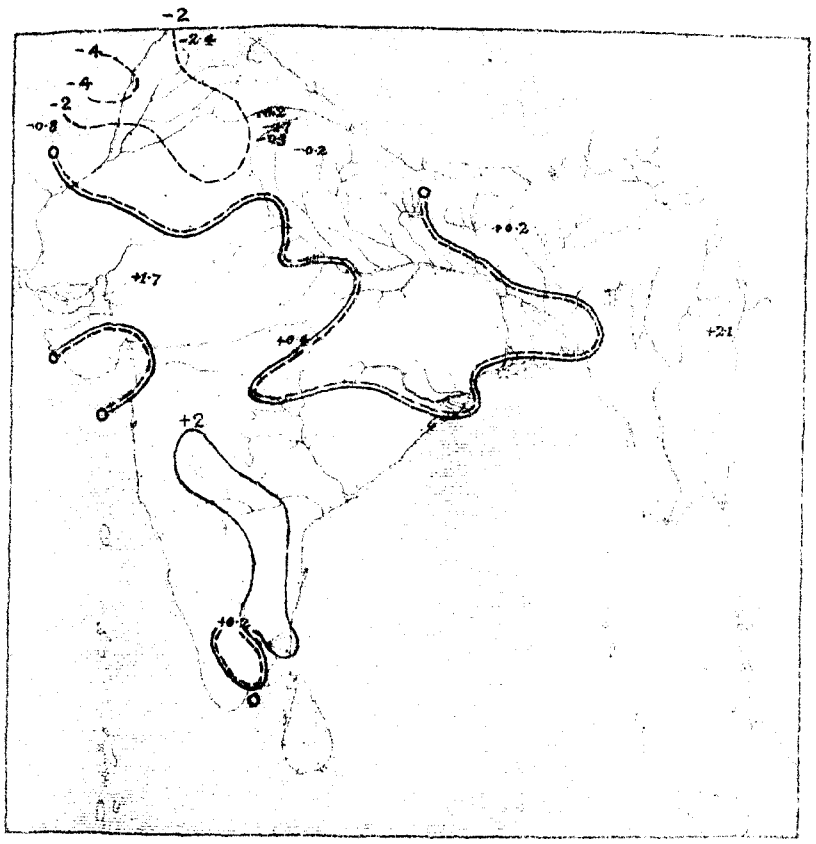
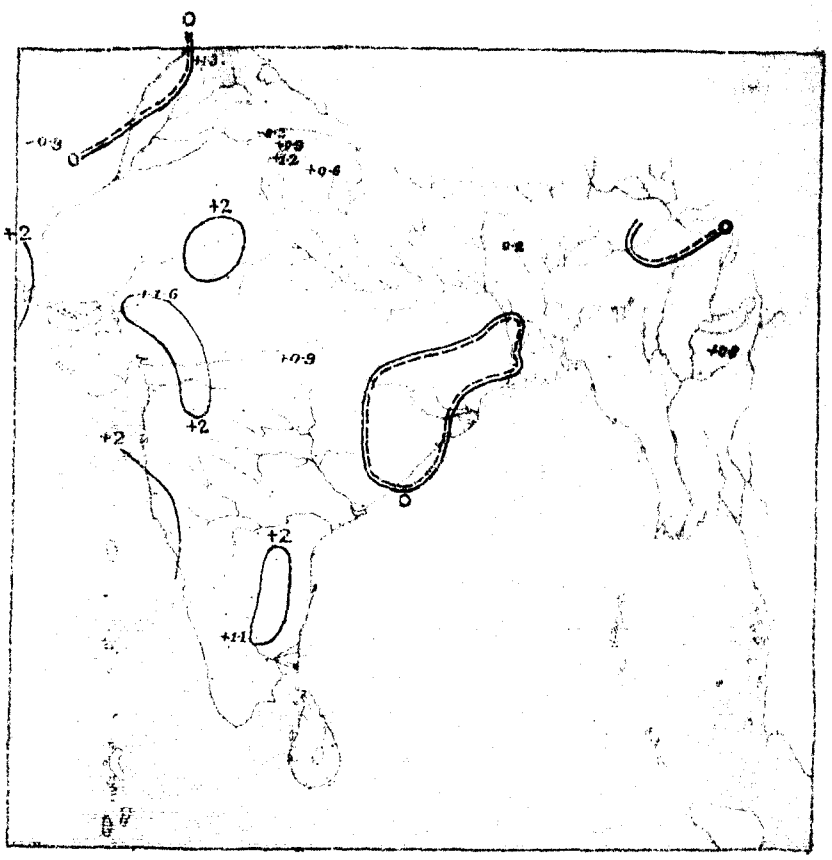


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

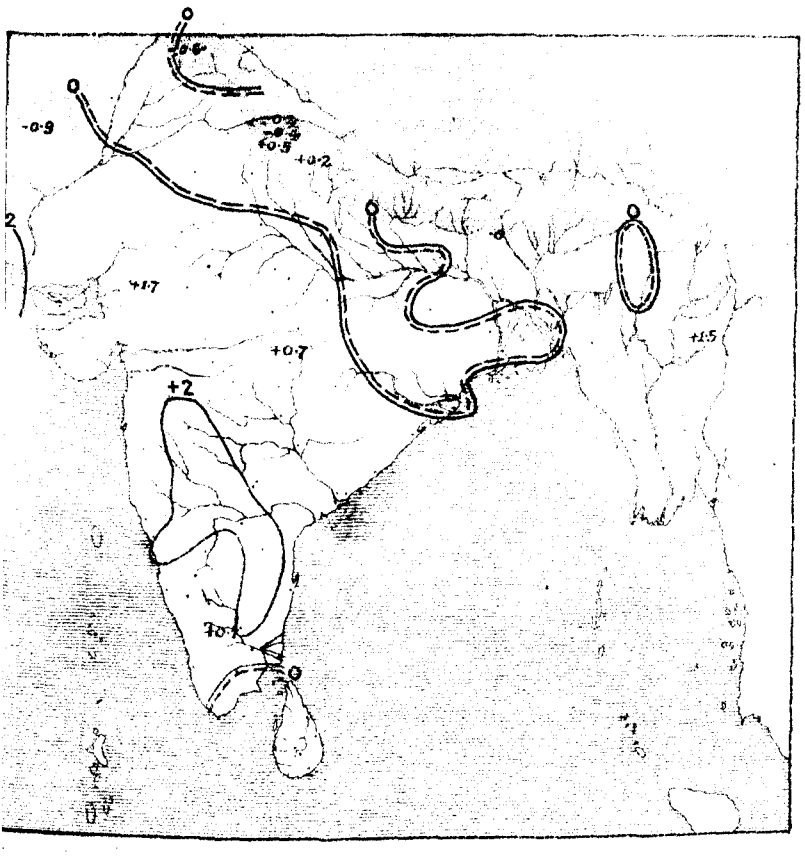
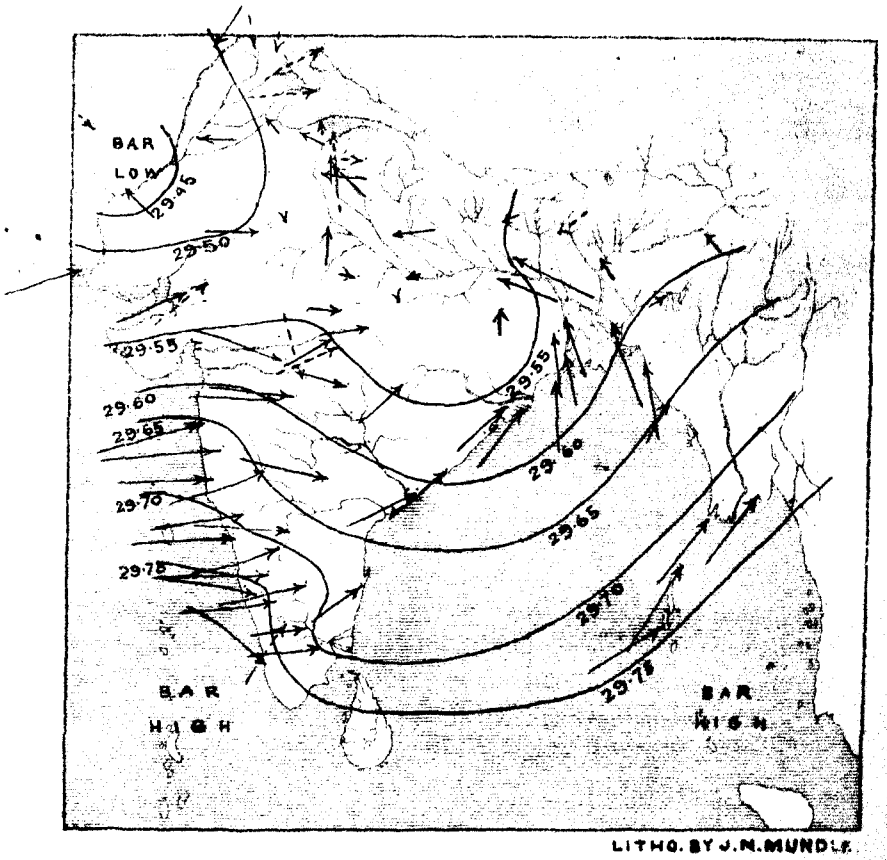


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF AUGUST 1897.

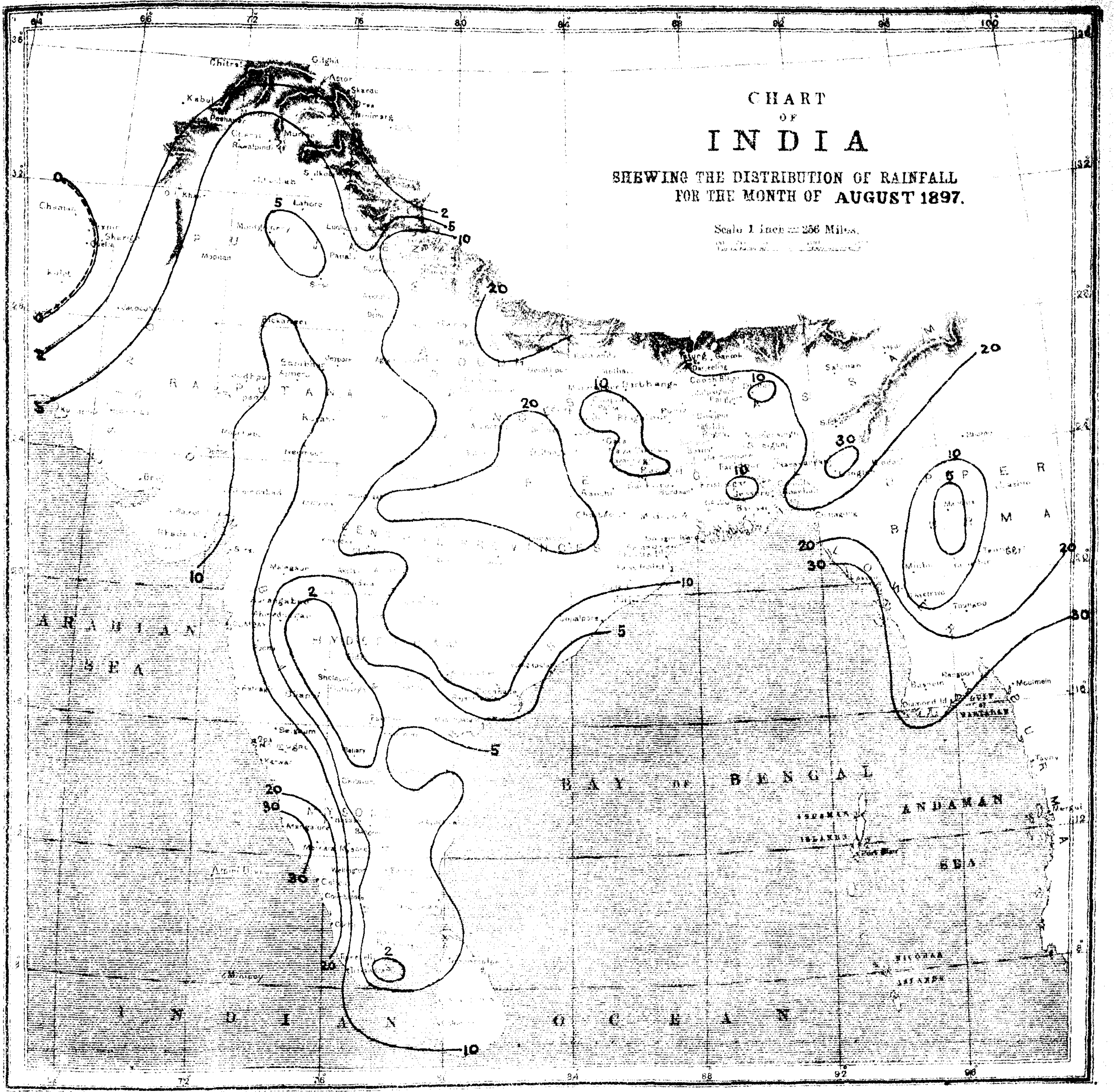


LITHO. BY J. N. MUNDLE.

Explanation.

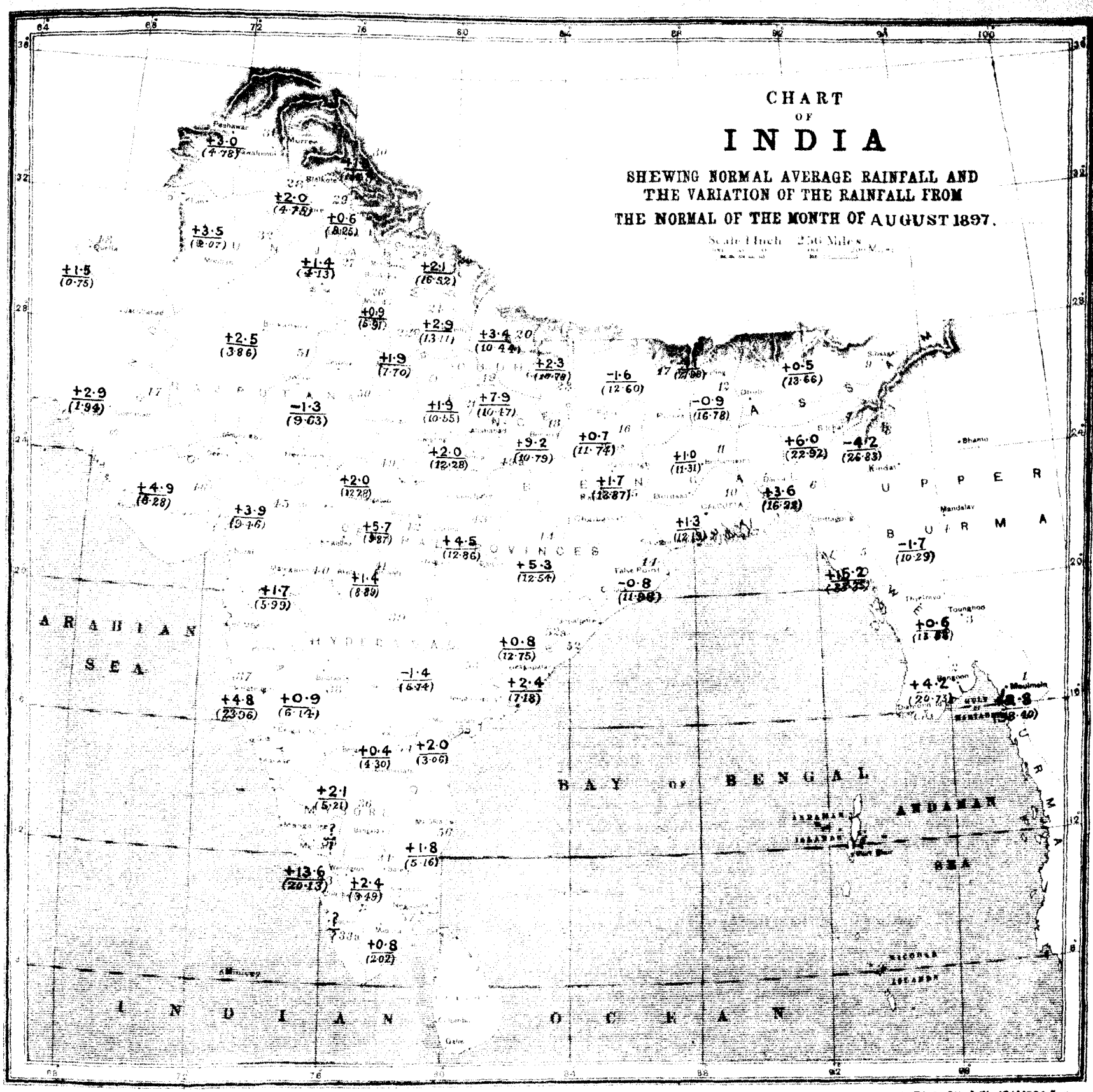
Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken

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



Explanation.

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



Reg. No. 356, Wr., I.—Aug. 97.—3,000

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

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

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WEATHER

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, SEPTEMBER, 1897.

INTRODUCTION.

THIS review of the weather in India during the month of September 1897 is based on observations taken daily at 8 A.M. at 215 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 85 stations. The rainfall summary is based on the rainfall data of the meteorological observatories and on the weekly rainfall telegrams received during the month from district officers throughout India, and the rainfall statements of the month published by the Provincial Governments that had reached the Meteorological Office 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 September, 1897.

The principal meteorological features of the month of September in normal years are the retreat of the south-west moonsoon 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 and 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 :—

At the commencement of the month moderate monsoon winds obtained in the Bay of Bengal and Arabian Sea. Gradients were steeper than usual over India and the trough of low pressure lay further north than usual in the submontane districts of Northern India. No important change of conditions occurred during the next four days.

Very heavy rain fell in North Bengal at the eastern extremity of the trough between the 1st and 5th. The following gives a summary of the local rainfall :—

DISTRICT.	AVERAGE ACTUAL RAINFALL IN 24 HOURS PRECEDING 8 A.M. OF					Total rainfall of period, 1st to 5th September 1897.
	1st September.	2nd September.	3rd September.	4th September.	5th September.	
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Darjeeling . . .	2·39	4·50	2·45	0·84	0·74	10·92
Jalpaiguri . . .	5·22	5·77	3·93	2·39	0·81	18·12
Cooch Behar . .	6·30	4·98	2·71	1·53	0·12	15·64
Dinajpur . . .	1·56	3·14	1·69	0·94	0·81	8·14
Rangpur . . .	2·35	3·76	0·63	1·91	1·29	9·94

Moderate rain also fell from the 1st to the 3rd in the south and centre of the Peninsula where pressure was locally more or less in defect. Temperature was hence in moderate to considerable defect in Southern India and North Bengal and generally in slight excess elsewhere.

Pressure increased briskly to rapidly in Northern India on the 5th and 6th, thus modifying considerably the pressure distribution. Little or no rain fell in North-Western and Central India from the 5th to the 12th, whilst moderate rain continued to be received in Bengal and Burma. The Bombay current was chiefly determined to the centre and south of the Peninsula, which hence obtained moderate and fairly general rain for some days, *i.e.*, from the 5th to the 10th. Temperature was in moderate defect in this area of rainfall and also in Upper India, due apparently to an advances of cool dry air from the hill districts to the north and west. The following gives variation data for these cool areas from the 5th to the 10th :—

POLITICAL PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	5th September.	6th September.	7th September.	8th September.	9th September.	10th September.
	°	°	°	°	°	°
Baluchistan (Quetta) .	—0·7	—1·0	—4·6	—4·2	—3·7	—2·5
Punjab . . .	—0·4	—3·6	—4·8	—2·6	—1·6	—1·0
Madras . .	—0·2	—3·7	—4·1	—3·7	—3·3	—2·1

A shallow depression formed during this period in the north-west of the Bay. It was feebly indicated on the 6th and increased slightly in intensity on the 7th and 8th. It crossed the Ganjam coast on the 9th near Gopalpur and advanced west-north-westwards through the southern districts of the Central Provinces, on the 10th into Berar on the 11th when it was a very feeble depression. It gave moderately heavy rain to Orissa, Chota Nagpur and the Central Provinces from the 7th to the 11th. Moderate rain continued to fall in Southern India and the Deccan, due to the influx of humid westerly winds across the Malabar and South Konkan coasts.

A shallow depression had begun to form between the Kathiawar and Bombay coasts on the 10th. It intensified slightly on the 11th, and the depression which was in Berar on that day was absorbed into it during the next 24 hours.

The Kathiawar depression hence developed to some extent and was on the morning of the 12th of slight intensity, giving very squally weather off the Kathiawar coast. It filled up partially during the day and drifted very slowly north-westwards along the coast during the next three days, and finally filled up on the morning of the 15th near the Sind coast. It gave moderate rain to Gujarat, Kathiawar and Cutch, and its advance north-westwards was followed on the 13th by an extension of humid winds across Rajputana and that area; Central India and the South-East Punjab received a moderate burst of rain from the 14th to the 16th. The Bengal current during this period, from the 13th to the 16th, gave moderate rain to the Gangetic Plain and Bengal. Temperature was hence more or less below the normal in Northern India during this period and had risen above it in the Peninsula where dry weather set in on the 11th.

The following data illustrate the reduction of temperature due to the rainfall in North-Western and Central India :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M., OF			
	13th September.	14th September.	15th September.	16th September.
	°	°	°	°
Punjab	+2·9	+1·2	—3·5	—1·1
Rajputana	+2·7	—3·0	—3·6	—2·2
Central India	+2·4	+1·2	+0·8	+0·5
North-Western Provinces and Oudh.	+2·8	+2·1	—2·4	—1·0

A break in the rains set in over North-Western and Central India on the 16th. Burma, Bengal and the west coast districts received light to moderate rain during the next three days. Temperature was hence in moderate

to considerable excess during this period over the greater part of the interior, as is shown by the following data :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	16th September.	17th September.	18th September.	19th September.
	°	°	°	°
Burma	+0·6	+1·2	+1·0	+1·5
Bengal and Assam	—0·8	—0·8	+0·2	+1·0
North-Western Provinces and Oudh	—1·0	+0·9	+3·0	+3·5
Punjab	—1·1	+1·4	+2·0	+2·4
Sind and Rajputana	—0·9	+1·1	+2·0	+1·5
Central India and Gujarat	—0·2	—0·2	—0·1	+1·0
Central Provinces and Berar	+1·6	+2·3	+2·3	+2·5
Bombay	+1·7	+2·2	+2·1	+2·5
Madras	+1·8	+2·4	+1·2	+1·2

The pressure conditions changed considerably during this period. Pressure became more uniform, due to increase of pressure in North-Western India and to diminishing pressure in Southern India and the south-west of the Bay. The Bombay current was again determined largely to Southern India and the Deccan, and that area received moderate general rain from the 19th to the 22nd. This caused a moderate reduction of temperature, as is shown by the following data :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	19th September.	20th September.	21st September.	22nd September.	23rd September.
	°	°	°	°	°
Madras	+1·2	+0·2	—0·7	—0·6	—0·6

Temperature was throughout this period in slight to moderate excess in North-Western and Central India.

Pressure gave way locally in the southern half of the Peninsula on the 20th and 21st, and an extensive shallow depression lay over that area.

Pressure gave way locally in the north of the Andaman Sea on the 22nd, due probably to the advance of a depression across the Malay Peninsula from the Gulf of Siam. It advanced rapidly across the Bay in a west-north-west direction during the next 48 hours at the rate of about 19 miles per hour. The centre crossed the North Madras coast on the morning of the 24th near Gopalpur. It marched during the next 24 hours at nearly the same rate in a north-westerly direction and was in the northern districts of the Central Provinces at 8 A.M. of the 26th. It continued to recurve to north during the day, marching with a decreasing velocity, and lay over the western districts of the North-Western Provinces on the morning of the 26th. It broke up during the next 24 hours over the Naini Tal and Mussooree Hills. The storm was throughout of small extent, but of considerable intensity. It advanced too rapidly to give heavy rain in North Madras, the Central Provinces or Central India, but it gave increasing rain as it approached the hills, and the Almora and Naini Tal districts received very heavy downpours. The following gives data illustrating the character of the rainfall accompanying the storm :—

METEOROLOGICAL DIVISION OR DISTRICT.		AVERAGE ACTUAL RAINFALL DURING 24 HOURS PRECEDING 8 A.M. OF		
		24th September.	25th September.	26th September.
		Inches.	Inches.	Inches.
CENTRAL PROVINCES.	East rainfall division.	0·01	0·01	0
	Central rainfall division.	0·66	0·34	0·17
	West rainfall division.	0·30	0·43	0·24
NORTH-WESTERN PROVINCES.	Agra district	0	0	3·10
	Muttra	0	0	3·93
	Aligarh	0	0	3·59
	Bulandshahr	0	0	2·76
	Pilibhit	0	0	3·70
	Budaun	0	0·06	3·52
	Bareilly	0	0·29	3·15
	Moradabad	0	0	3·07
	Almora	0	1·38	4·62
	Naini Tal	0·06	0·19	4·73

The heaviest falls in the hills were as follows :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
ALMORA	Tanakpur	25th	6·25
	,,	26th	11·45
	Champawat	,,	7·90
NAINI TAL	Nagla	,,	6·90
ALMORA	Champawat	27th	15·35
NAINI TAL	Naini Tal	,,	11·26
	Kathgodam	,,	7·25
	Haldwani	,,	7·06
	Ramnagar	,,	6·57

The rainfall produced a moderate reduction of temperature in the tract or belt of country through which the storm passed.

A moderately rapid increase of pressure in North-Western India accompanied the breaking up of the storm

on the 27th and fine dry weather, with light winds and clear skies obtained over the whole of North-Western and Central India on the 28th, on which day pressure was very uniform, especially over the Bay. Pressure decreased in the Bay on the 29th and 30th, and on the latter day a closed area of slight depression lay over that area. Weather had become squally and a cyclonic storm formed in the centre of the Bay off the Circars coast. This storm was the chief feature of the weather of the first week of October.

Temperature was generally in excess during this period from the 27th to the 30th. The excess was on the whole greatest in Sind and Rajputana where it averaged $3\frac{1}{2}^{\circ}$ on the 30th and the Punjab where it averaged $2\frac{1}{2}^{\circ}$.

Pressure.—The mean pressure of the Indian land area was ·024″ higher than the normal of the month. Pressure was in local excess over nearly the whole of Northern and Central India, the Central Provinces, North Madras and Burma. The excess was generally small, except in South and East Bengal, Cachar, Baghelkhand, the eastern districts of the North-Western Provinces and Northern and Central Burma, where it ranged between ·02″ and ·03″. Pressure was locally in defect in Western and Southern India, the West Punjab and the western districts of the North-Western Provinces. The excess was large in the South Konkan, Southern India and Ceylon in which it varied between ·035″ and ·055″. Pressure was in local excess at the hill stations in Northern India and the vertical anomalies were generally positive, ranging in North-Western and Central India between ·002″ and ·02″. The abnormal features of the pressure conditions were hence more broadly marked than usual.

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

METEOROLOGICAL PROVINCE.	Variation from normal of mean 8 A.M. pressure of September 1897.	Pressure anomaly, September 1897.
	″	″
Burma Coast and Bay Islands	+·039	+·015
Burma Inland	+·044	+·020
Assam	+·036	+·012
Bengal and Orissa	+·044	+·020
Gangetic Plain and Chota Nagpur	+·042	+·018
Upper Sub-Himalayas	+·024	0
Indus Valley and North-West Rajputana	+·014	—·010
East Rajputana, Central India and Gujarat	+·017	—·007
Deccan	+·029	+·005
West Coast	—·017	—·041
South India	+·001	—·023

Temperature.—The mean temperature conditions of the month differed to no large extent from the normal. The mean day temperature was in slight defect in Assam, East Bengal and North-Western India and in slight to moderate defect in Madras excepting Malabar. The negative variations exceeded 2° at Madura, Masulipatam, Madras, Trichinopoly and Vizagapatam and perhaps at Sibsagar and Sirsa. The mean maximum temperature was in excess over the remainder of India. The variations were generally small and less than 2°, except locally at the following stations :—

POLITICAL PROVINCE OR AREA.	STATION.	MEAN MAXIMUM TEMPERATURE. Actual, September 1897.	Normal, September	Variation of actual from normal, September 1897.
		°	°	°
BURMA	Tavoy	85·8	83·6	+2·2
	Moulmein	86·6	84·5	+2·1
	Toungoo	90·7	88·6	+2·1
CHOTA NAGPUR	Chaibassa	91·3	88·7	+2·6
	Ranchi	85·7	83·2	+2·5
NORTH-WESTERN PROVINCES.	Allahabad	93·2	90·8	+2·4
CENTRAL INDIA	Sutna	89·3	87·2	+2·1
DECCAN	Belgaum	80·9	78·5	+2·4
	Poona	86·0	83·8	+2·2

The mean minimum or night temperature was above the normal over the whole area except the Central coast districts of Madras, the West Punjab and Upper Assam. It was in moderate excess over a considerable portion of the interior defined by the following stations :—

Sutna (+2°·8), Lucknow (+2°·6), Chanda and Nagpur (each +2°·3), Saugor, Kurrachee, Hyderabad, Jhansi, Akola and Sholapur (each +2°·2) and Agra (+2°·0).

The mean temperature of the month was in excess over the whole area, except Assam, East Bengal, the West Punjab and the greater part of Madras. The variations were generally small, but exceeded 2° in the small area represented by the following stations :—Agra (+2°·2), Jhansi (+2°·0), Sutna (+2°·5) and Allahabad (+2°·1).

The following table gives comparative temperature

variation data of the month for the eleven meteorological provinces :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, September 1897.	Mean minimum temperature, September 1897.	Mean daily temperature, September 1897.
	°	°	°
Burma Coast and Bay Islands .	+1·6	+0·6	+1·1
Burma Inland	+0·6	+0·8	+0·7
Assam	—1·5	+0·7	—0·5
Bengal and Orissa . . .	+0·3	+0·7	+0·5
Gangetic Plain and Chota Nagpur.	+1·4	+1·2	+1·4
Upper Sub-Himalayas . .	0	+0·7	+0·3
Indus Valley and North-West Rajputana.	—0·6	+1·0	+0·2
East Rajputana, Central India and Gujarat.	+0·4	+1·8	+1·1
Deccan	+1·1	+1·9	+1·5
West Coast	+0·9	+1·1	+1·0
South India	—1·9	+0·3	—0·8

Winds.—The main air movement of the month in the Arabian sea was slightly less than the normal amount. It was, however, unusually steady and was practically of the same strength at the end of the month as on the 1st. The mean strength of the winds in the Bay of Bengal was also slightly less than the normal. Winds were very steady in the Bay from the 3rd to the 10th and varied very largely in strength during the remainder of the month. Winds were less westerly and weaker than usual at Port Blair and the Burma stations. They were of normal strength in Bengal and less easterly than usual at the inland stations. Winds were, on the mean of the month, somewhat feebler than usual in the Gangetic Plain and the Punjab. Winds were much feebler and more variable than usual in Sind, Rajputana, Central India, Berar and the Central Provinces. They were slightly weaker in the Konkan, but stronger in Malabar. They were also as much below their normal strength in Madras and the Deccan as in the Central Provinces.

Winds were hence generally below their normal strength, the only important exceptions being Bengal and Malabar. The weakness was even more marked in the Peninsula than in North-Western and Central India.

Humidity and Cloud.—The air was damper over the whole of India with the exception of Lower Sind and the greater part of Bengal, Bihar and Chota Nagpur and the eastern districts of the North-Western Provinces, in which the mean humidity of the month was very slightly below the normal. Humidity was in marked excess in two areas only. The first included Upper Sind and the South-West Rajputana. The mean humidity of the month was 12 in excess at Deesa, 11 at Jacobabad and 9 at Mount Abu. The second area included the greater part of Madras and Mysore. The excess in that area was greatest at Madras (+12), Vizagapatam (+9), Chitaldroog (+8) and Wellington (+7).

There was more cloud than usual, on the mean of the month, over the whole of India, exept the Gangetic Plain, Central India, West Bengal and locally at Bombay. The excess was generally small in amount in Burma, Central and North-Western India, but was large and marked over the greater part of the Peninsula, Rajputana and Gujarat. It averaged over 1·0 in only one out of the ten meteorological provinces, *viz.*, the West Coast.

The following table gives variation data of the mean aqueous vapour pressure, mean humidity and mean cloud amount of ten meteorological provinces :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean aqueous vapour pressure, September 1897.	Mean humidity, September 1897.	Mean cloud amount, September 1897.
	"		
Burma Coast and Bay Islands .	+·038	+1	+0·3
Assam	+·011	+3	+0·4
Bengal and Orissa	+·016	0	+0·3
Gangetic Plain and Chota Nagpur .	+·027	—2	—0·1
Upper Sub-Himalayas . . .	+·029	+2	—0·2
Indus Valley and North-West Rajputana.	+·056	+2	+0·3
East Rajputana, Central India and Gujarat.	+·078	+5	+0·7
Deccan	+·057	+2	+0·6
West Coast	+·023	0	+1·2
South India	+·042	+5	+0·9

Rainfall.—The rainfall of the month was unusually favourably distributed. The average for the whole of India differed little from the normal of the month. The variations were nowhere large except in Southern India, and the rainfall was in excess over a considerable part of the Empire in which it was in marked defect in the early part of the monsoon. It was in excess in 30 divisions and in defect in the remaining 26 divisions. It was in moderate defect in Burma and was generally in excess in Bengal and Assam. It was in slight defect over the greater part of the North-Western Provinces, Punjab, Chota-Nagpur and Rajputana and Central India. It was more or less in excess over nearly the whole of the peninsula, the excess increasing in percentage amount relatively to the normal southwards. Over by far the greater part of Southern India, including the whole of Madras and Mysore, the rainfall of the month was practically double the normal.

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

METEOROLOGICAL PROVINCE.	RAINFALL.		
	Mean actual for September 1897.	Mean normal for September.	Variation from normal, September 1897.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	16·46	21·48	—4·91*
Burma Island	6·52	8·02	—1·50
Assam	16·82	13·31	+3·51
Bengal and Orissa	12·05	11·59	+0·46
Gangetic Plain and Chota Nagpur	6·24	7·47	—1·23
Upper Sub-Himalayas	3·77	5·07	—1·17*
Indus Valley and North-West Rajputana.	0·93	0·89	+0·04
East Rajputana, Central India, and Gujarat.	4·65	4·84	—0·24*
Deccan	7·17	7·72	—0·54*
West Coast	15·65	9·35	+6·29*
South India	8·93	4·75	+4·18

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

Atmospheric Pressure.

The mean pressure of the Indian land area for the month of September 1897 was ·024″ higher than usual and hence ·003″ in greater excess than in September 1896 when the mean pressure of the whole area was ·021″ above the normal.

Pressure was, relatively to the general condition, in defect or the pressure anomalies were negative in the Peninsula and Western India to the south and west of a line joining Jacobabad, Neemuch, Buldana, Hyderabad and Masulipatam. The negative anomalies were more than ·02″ in amount in the west coast districts and Southern India and exceeded ·03″ at the stations for which data are given below :—

STATION.	Variation from normal of mean 8 A. M. pressure of September 1897.	Pressure anomaly, September 1897.
	″	″
Cochin	—·024	—·043
Calicut	—·024	—·048
Mangalore	—·022	—·046
Karwar	—·020	—·044
Surat	—·020	—·044
Bombay	—·015	—·039
Salem	—·016	—·040
Trichinopoly	—·016	—·040
Bangalore	—·014	—·038
Coimbatore	—·012	—·036
Madura	—·012	—·036
Negapatam	—·011	—·035
Kurnool	—·011	—·035
Colombo	—·031	—·055

These negative anomalies indicate that the local deficiency of pressure was unusually large in the South Konkan, Malabar, and Ceylon.

Pressure was in local excess generally in the remainder of the Indian area including Rajputana, Central India, the Central Provinces, the North-Western Provinces, the South Punjab, Bengal and Burma. The positive anomalies were moderate in amount in the eastern districts of this area, including Burma and South and East Bengal, and exceeded ·025″ at the stations for which data are given below :—

STATION.	Variation from normal of mean 8 A. M. pressure of September 1897.	Pressure anomaly, September 1897.
	″	″
Benares	+·056	+·032
Raipur	+·056	+·032
False Point	+·054	+·030
Minbu	+·053	+·029
Calcutta	+·051	+·027
Silchar	+·051	+·027
Akyab	+·050	+·026

The increased pressure in North-Eastern India and the deficient pressure in Western and Southern India were directly related to the slightly earlier withdrawal of the monsoon currents than usual from Upper India.

The variations of pressure from the normal at the hill stations differed to a considerable extent from those at the neighbouring plain stations but the vertical pressure

anomalies were generally positive and of little importance. The following gives data for eight pairs of stations:—

HILL STATION.	Variation from normal of pressure. (a)	PLAIN STATION.	Variation from normal of pressure. (b)	Vertical pressure anomaly or (a)—(b)
	"		"	"
Kailang . .	—·021	Lahore . .	+·025	—·046
Quetta . .	+·029	Jacobabad . .	+·024	+·005
Murree . .	+·032	Peshawar . .	+·011	+·021
Simla . . .	+·018	Ludhiana . .	+·013	+·005
Chakrata . .	+·033	Roorkee . .	+·017	+·016
Ranikhet . .	+·039	Bareilly . .	+·037	+·002
Darjeeling . .	+·002	Dhubri . .	+·032	—·030
Mount Abu . .	—·001	Deesa . .	+·003	—·004

Barometric depressions and cyclonic storms of the month.

The pressure conditions varied more largely and rapidly during the month than is usual in September. The monsoon currents in the Arabian Sea and Bay of Bengal, however, were slightly weaker, but much steadier and hence normal monsoon conditions prevailed over the whole of India during the month and in consequence of the frequent pressure changes all parts of India, including Southern India, received frequent rain. The rainfall of the month was largely determined and modified by four depressions or cyclonic storms brief accounts of which are given below.

At the commencement of the month pressure was lowest in the North-West Punjab and it was also in considerable defect. It was practically normal in the Peninsula, but in moderate to considerable excess in East and South Bengal and Burma. Gradients were hence steeper than usual. Rain was falling chiefly in the Peninsula, the Gangetic Plain and Burma. The rainfall was especially heavy in the northern districts of North Bengal and in Sikkim. The following large amounts were registered at 8 A.M. of the 1st:—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 1st September 1897.
		Inches.
DARJEELING . . .	Buxa	9·45
COOCH BEHAR . .	Cooch Behar	8·24
Do. . . .	Fulbari	8·30
JALPAIGURI . . .	Debiganj	8·00

The pressure changes of the next twenty-four hours slightly accentuated the abnormal features of the pressure conditions described above and heavy rain hence again fell in North Bengal. The following gives the largest falls (over 8 inches in amount) recorded on the 2nd:—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 2nd September 1897.
		Inches.
DARJEELING	Buxa	9·10
COOCH BEHAR . . .	Dinhatta	8·73
JALPAIGURI	Bhagatpur	8·50
DARJEELING	Kurseong	8·15

Pressure decreased generally in the Indian area during the next 48 hours. The decrease was large in North-Eastern India, more especially relatively to the neighbouring areas and pressure on the morning of the 4th was in considerable to large defect over the submontane districts of Northern India. The trough of low pressure was during the period from the 1st to the 4th considerably further north than usual, and rain on the 3rd and 4th was almost restricted to Bengal, Assam and Burma.

Pressure increased rapidly during the next 48 hours. The rise was greatest in Northern India, more especially the submontane districts. Pressure was in general excess on the 6th, the excess being largest in the Peninsula and Lower Burma (where it was considerable in amount). Rainfall had decreased in Bengal but continued in Burma. The break in the rains which had set in over Upper and Central India on the 25th of August continued and the Bombay current was now determined chiefly to the

Peninsula, the central and southern districts of which obtained moderate rain on the 5th and 6th. A depression began to form on the 6th in the north of the Bay of which an account is given below :—

Depression and Cyclonic Storm of the 7th to the 12th September.—The pressure conditions obtaining in India immediately before the formation of this storm have been stated above. The more important features contributing to the formation of the storm were :—

1st.—The prevalence of relatively high pressure in the Deccan and Central Provinces accompanying the break in the rains in North-Western India.

2nd.—The determination of the Bombay current to the south and centre of the Peninsula and the prevalence of a moderately strong westerly current across that area into the west of the Bay.

3rd.—The prevalence of moderate to fresh monsoon winds over the greater part of the Bay.

The following data for the 5th and 6th extracted from the logs of ships show the character of the winds and weather in the Bay on these dates:—

5th September.

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer corrected.	Wind. Direction	Wind. Force.	Weather.
		° ′	° ′	″			
8 A.M.	S.S. *Benlarig*	6 15	88 50	29·916	SW	5	4 A.M. rain squalls.
,,	S.S. *Cashmere*	13 55	84 56	·754	SW	5	Fine.
,,	S.S. *Ethiopia*	16 25	93 26	·803	WSW	4	Noon, heavy passing squalls with heavy rain.
,,	S.S. *Federation*	18 7	87 1	·726	SW	5	Rainy and strong head sea.
,,	S.S. *Maharaja*	21 57	91 40	·709	SW	5	Rainy.
,,	F.L.V. *Hesperus.*	Ridge		·688	SW	3	Cloudy with high S. swell.
,,	F.L.V. *Torch*	Mutlah.		·675	WNW	2	Passing rain squalls and slight S. and S.W. swell.

6th September.

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′	″			
8 A.M.	S.S. *Vadala*	14 21	81 30	29·833	WSW	4	
,,	S.S. *Federation*	15 35	85 44	·776	SW	4	Cloudy with moderate sea. Noon heavy rain squalls.
,,	S.S. *Cashmere*	16 53	86 23	·744	SW	5	Noon rain squalls.
,,	S.S. *Madura*	16 55	92 51	·793	WSW	5	Occasional squalls with rain and high sea.
,,	S.S. *Ethiopia*	18 57	90 18	·733	SW	5	Cloudy and considerable sea. 4 P.M. light rain squalls.
,,	S.S. *Jupiter*	19 56	87 1	·693	SW	...	Drizzling.
,,	S.S. *Matin*	20 51	87 54	·654	W	4	Squally and heavy rain.
,,	F.L.V. *Hesperus*	Ridge.		·698	SW	1	Rainy and high S.W. swell.
,,	F.L.V. *Torch*	Mutlah.		·691	WNW	3	Slight S. swell.

The data indicate that moderate to fresh monsoon winds with clouded skies and occasional rain obtained over nearly the whole of the Bay. Winds were light to moderate and irregular and weather squally near the Madras Coast and also in the north-west angle of the Bay. A slight tendency was shown on the 6th to the formation of a depression in the north of the Bay. Pressure fell briskly locally in the Bay during the day and a low pressure area lay at 8 A.M. of the 7th over the north of the Bay in which a cyclonic circulation was established. The following gives 8 A.M. observations taken over this area :—

7th September.

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′	″			
8 A.M.	S.S. *Federation.*	13 15	84 27	29·806	WNW	9	Heavy increasing sea. 4 A.M. heavy rain squalls.
,,	S.S. *Husara*	18 7	86 53*	·665	NW	5	Cloudy 4 A.M., continuous rain.
,,	S.S. *Cashmere*	19 39	87 30	·614	WNW	5	4 A.M. drizzling rain.
,,	S.S. *Madura*	19 54	89 45	·633	NW	2	4 A.M. squally with rain.
,,	F.L.V. *Hesperus*	Ridge.		·615	N	3	Thunder with drizzling rain.
,,	F.L.V. *Torch*	Mutlah.		·612	NNE	3	Slight S. swell.
,,	S.S. *Malda*	21 8?	91 23?	·596?	Var.	2	8 P.M. occasional rain squalls.

*Noon position.

Winds were stronger in the south and centre of the Bay and weather was squally off the Madras and Burma coasts and also in the low pressure area. Moderate rain had fallen during the previous 24 hours in the centre of the Peninsula, South Bengal and Lower Burma. The break in the rains held steadily in Northern and Central India where weather was fine with clear or lightly clouded skies.

8th September.—Pressure had given way in the whole Indian area. The fall was greatest in the storm area in the Bay where it ranged between a tenth and a seventh of an inch. The depression had hence intensified and gradients were increasing to the south and east of the storm area. The following data define its position and character at 8 A.M.:—

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer. corrected.	Wind. Direction.	Force.	Weather.
		° ′	° ′	″			
8 A.M.	S.S. *Husara*	15 40	86 8	29·641	WSW	8	High sea 8 P.M. violent rain squalls.
"	S.S. *City of Oxford.*	18 3	86 57	·573	WSW	6	Heavy rain squalls and moderate sea.
"	S.S. *Malda*	18 29	92 41	·573?	SSW	4	Showery.
"	S.S. *Mecca.*	19 24	89 57	·571	ESE	2	Noon, passing squalls.
"	S.S. *Shahzada*	20 46	87 39	·545	SSE	4	Fine.
"	S.S. *Merkara*	20 52	87 45	·532	ESE	3	Noon, passing showers.
"	F.L.V. *Hesperus.*	Ridge		·547	ESE	3	Moderate S. swell.
"	F.L.V. *Torch*	Mutlah		·550	ESE	4	Passing rain squalls and moderate S. and ESE swell.

The data indicate that the storm was as yet in the initial stage. Winds were strong (ranging in force from 6 to 8) to the south of the depression in the centre of the Bay. They were moderate to light in the north-west of the Bay and to the east of the depression, and weather was fine but cloudy with occasional showers. Rain was increasing in amount in Orissa and South-West Bengal. Conditions were unchanged in North-West and Central India.

The weather at the Sandheads on the 8th is thus discribed by Captain Beahan of the F.L.V. *Torch.*

8th September.—"Throughout the day a moderate east-south-east breeze and moderate south and east-south-east swell with passing rain squalls, 6 P.M., lightning to west and north-west, force of wind 4 throughout."

9th September.—Pressure had increased slightly to briskly in Northern India and Burma and fallen briskly on the North Madras coast and the adjacent part of the Bay. The depression had commenced to move westwards and was now approaching the Ganjam coast. The following gives observations taken at 8 A.M. at the coast stations in 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.	Weather.
	″	″	″				Inches	
False Point	29·566	+·027	—·091	E	9	7	0·10	Showery.
Cuttack	·553	+·036	—·103	E	5	5	0·54	Showery.
Puri	·548	+·010	?	S	10	9	0·17	Rainy.
Sambalpur	·580	—·020	—·097	NE	6	5	1·78	
Vizagapatam	·565	—·061	—·108	Calm	0	10	0·03	

The observations show that the storm was of slight intensity, the depression in the central area not exceeding a ninth of an inch, and that the centre was about 60 miles to the east of Gopalpur in about Lat. 19° N. and Long. 86° E. Moderate to strong monsoon winds continued in the south and centre of the Bay where weather was generally squally with occasional showers. The strongest winds experienced by vessels within the storm area were of force 5 to 6. Moderate rain had fallen in South-West Bengal, Orissa and the eastern districts of the Central Provinces, due directly to the storm. Fairly general rain had fallen in the Peninsula to the south of Lat. 20° N.

10th September.—Pressure had increased briskly in Bengal and the north of the Bay and fallen briskly in the Deccan, due to the westward movement of the depression which now lay over the south-eastern districts of the Central Provinces and North Madras. The centre was probably in about Lat. 19½° N. and Long. 82° E. at 8 A.M.

The following data indicate its position and character at that hour :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Vizagapatam	29·583	+·018	—·091	Calm	0	10	...	Drizzling.
Puri . .	·603	+·055	?	SE	14	4	0·12	Sea smooth.
Sambalpur .	·623	+·043	—·053	NE	5	4	0·40	
Raipur .	·617	—·010	—·048	ENE	8	7	0·15	
Nagpur .	·617	—·034	—·082	NNE	7	10	1·48	Distant lightning.
Khamamet .	·627	—·063	?	Calm	10	8	0·27	

The depression was filling up and the cyclonic circulation was less regular than on the 9th. Weather was still unsettled in the north-west and centre of the Bay with moderate to strong winds and occasional squalls. Moderate rain had fallen in Orissa, Chota Nagpur and the Central Provinces. Rainfall was, on the other hand, diminishing in the south and centre of the Peninsula and was moderate in amount in the west coast districts where winds were light and irregular.

11th September.—The depression had continued to advance westwards during the previous 24 hours and was at 8 A.M. in Berar and the western districts of the Central Provinces where pressure had given way slightly. The following gives data of the storm for that hour :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Chanda .	29·661	+·038	—·043	SE	1	8	1·75	
Nagpur .	·655	+·038	—·043	ESE	6	10	0·24	Thunder storm.
Amraoti .	·641	—·005	—·068	E	2	10	0·88	Showery.
Akola .	·628	—·038	—·091	ENE	7	10	1·53	
Ahmednagar.	·672	—·036	?	NW	16	10	1·37	
Sholapur .	·682	—·063	—·102	WNW	11	10	1·06	Showery.

The depression had continued to fill up and was now of slight importance. The centre was in about Lat. 20½° N. and Long. 77° E. Moderate rain had fallen in Berar and the western districts of the Central Provinces.

Pressure had fallen locally between the Bombay and Kathiawar coasts during the previous 48 hours and was in considerable to large defect in that area on the morning of the 11th. This depression continued to develop during the day. The shallow depression which was in Berar at 8 A.M. of the 11th, judging from the 10 A.M. and 4 P.M. observations at Khandwa and Akola, continued to move westward and was absorbed in the deeper depression forming off the Kathiawar coasts during the night of the 11th and hence ceased to exist as an independent storm and depression.

In the following table is given the position of the centre of the storm and its mean daily rate of motion from the 9th to the 11th :—

Date.	Position of centre at 8 A.M.		Distance travelled during interval.	Average hourly rate of motion during interval.
	Lat. N.	Long. E.		
	° ′	° ′	Miles	Miles.
9th	18 50	85 50	...	...
10th	19 20	82 0	275	11½
11th	20 30	77 0	350	14½

Depression and Cyclonic Storm of the 12th to the 15th September.—This depression almost certainly originated between the Kathiawar and Bombay coasts and was not merely the continuation of the storm which had travelled across the head of the Peninsula during the previous 72 hours and was hence an example of a class of storms of occasional occurrence during the monsoon, more especially when strong monsoon winds are advancing northwards along the West Coast. Moderate monsoon winds obtained at the commencement of the second week of the month in the Arabian Sea and weather was squally with moderate to heavy showers off the Konkan Coast. Pressure gave way briskly during the 24 hours preceding 8 A.M. of the 10th at Bombay and Ghadechi (Bhavnagar). It decreased briskly in Kathiawar and Gujarat and at Bombay during the succeeding 24 hours and was in greater defect at 8 A.M. of the 11th at Surat, Bombay and Veraval than in the depression in Berar. The indraught to that depression or some other action had increased the rainfall and winds on the Bombay Coast. The following were the largest amounts registered at 8 A.M. of that day in the Konkan coast districts :—

District.	Station.	Rainfall in 24 hours preceding 8 A.M. of 11th September 1897.
		Inches.
Kolaba	Uran	4·95
Thana	Umbargaon . . .	4·59
"	Murbad . . .	4·31
"	Mahim . . .	4·07

As already stated, the Berar depression advanced westwards during the day and was probably absorbed into the depression forming off the Kathiawar coast. Pressure gave way briskly at Veraval during the next 24 hours and a depression of slight intensity lay to the south of the Kathiawar coast at 8 A.M. of the 12th. The following gives data of the land stations within the storm area at that hour:—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Bombay .	29·727	+·043	—·067	SSW	15	10	2·65	
Surat .	·678	+·046	—·088	SSE	3	7	1·92	Distant lightning.
Ghadechi .	·659	+·018	?	SE	6	8	1·80	Thunder-storm.
Rajkot .	·676	0	—·065	ENE	7	9	1·97	Distant lightning.
Veraval .	·591	—·086	?	N	14	9	0·65	Sea smooth.

The data indicate that the centre of the depression was probably a little to the south-east of Veraval. Two ships passed through the western quadrant of the depression during the day, *viz.*, the S.S. *Kola* proceeding from Cutch Mandvi to Bombay and the S.S. *Dumra* from Bombay (leaving at 2-50 P.M. of the 11th) to Kurrachee. The following gives full extracts from their logs:—

Date.	Hour.	Name of Vessel.	8 A.M. Position.		Barometer corrected.	Wind.		Weather.
			Lat. N.	Long. E.		Direction.	Force.	
			° ′	° ′	"			
11th .	4 P.M.	S. S. *Dumra*.	2-50 P.M. left Bombay for Kurrachee		...	SW by W	5	Strong S. W. swell.
" .	8 "	*Do.* .	...	...	...	W by S	6 to 7	Squally and high sea.
" .	Mid-night.	*Do.* .	...	...	...	W	6 to 7	Heavy rain squalls.
12th .	4 A.M.	*Do.* .	...	...	...	WNW	6	Frequent heavy rain squalls and heavy sea.
" .	6 "	*Do.* .	...	...	...	WNW	7	Heavy squalls with rain and high sea.
" .	8 "	*Do.* .	...	...	...	NNW	6	Overcast.
" .	Noon	*Do.* .	21·23	69·36	...	NNW	4	Ditto.
" .	8 P.M.	*Do.* .	...	...	...	N	6	Hard squalls of wind and rain.
13th .	4 A.M.	*Do.* .	...	...	...	N	2	Moderate swell.
13th .	8 A.M.	S. S. *Dumra*	Arrived Kurrachee.		"			
12th .	...	S. S. *Kola* .	1-35 P.M. left Cutch Mandvi for Bombay.		...			
" .	4 P.M.	*Do.* .			...	NE	2	
" .	8 "	*Do.* .	...	...	...	Var.	2	Very heavy rain squalls for about 1½ hours between 4 P.M. and 8 P.M.
" .	9-55 P.M.	*Do.* .	Porebander					
13th .	6-20 A.M.	*Do.* .	Left Porebander.					
" .	8 A.M.	*Do.* .	...	...	29·670	S	5	Overcast and moderate sea.
" .	Noon	*Do.* .	Veraval .		...	S	5	

The information contained in the logs of these two vessels shows that the storm was of very slight intensity, and that the strongest winds in the storm or depression area did not exceed 6 to 7 in force. It also indicates, what is confirmed by the data of the 13th, that the depression or storm advanced slowly northwards during the day. Moderate to heavy rain had fallen in the Konkan, Gujarat and Kathiawar during the 24 hours preceding 8 A.M. of the 12th.

The following gives the largest amounts recorded:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 12th September 1897.
		Inches.
Palanpur	Tharad . . .	3·60
Surat	Bansda . . .	3·50
Thana	Bombay . . .	3·13
Ahmedabad	Gogha . . .	3·08

13th September.—Pressure had increased briskly at Veraval and in Gujarat and the North Konkan and was unchanged at Bhuj. The depression had advanced slightly to the west of north and was at 8 A.M. central to the west of Bhuj. The following gives 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.	
Veraval .	29·687	+·096	?	S	15	5	0·11	Sea rough.
Rajkot .	·699	+·023	—·044	S	9	5	0·02	
Bhuj .	·683	+·005	—·040	SE	20	9	0·22	Strong wind.
Kurrachee	·692	+·010	—·015	Calm	3	6		

The data indicate that the depression lay over Cutch and Kathiawar, and that it was filling up and was of very slight importance. Light to moderate rain had fallen in Cutch and Kathiawar and some showers in the North Konkan. Weather was fine and dry in the west coast districts to the south of Ratnagiri.

14th September.—Pressure was unchanged in Cutch and Kathiawar, and a shallow residual depression lay over that area and Lower Sind at 8 A.M. The following gives data for that 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.	
Veraval .	29·691	+·004	?	SSE	18	7	0·25	Sea rough.
Rajkot .	·688	—·011	—·059	S	11	9	...	
Bhuj .	·672	—·011	—·057	ESE	14	10	...	Overcast.
Kurrachee.	·683	—·009	—·030	ESE	6	0	...	Clear.

The depression was now of very slight importance and little or no rain had fallen in the Sind and Kathiawar coast districts. Rajputana, Central India and the South-East Punjab had, on the other hand, obtained moderate rain from the advance of humid winds across the Kathiawar coast.

15th September.—Pressure had given way slightly in the residual depression, but this was apparently part of a general fall which extended over the whole of India and was greatest in North-Eastern India. The residual depression was very faintly marked, 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.			
	"	"	"				Inches	
Veraval .	29·699	+·008	?	SSW	13	8	0·08	Sea slight.
Rajkot .	·680	—·008	—·069	S	12	9	0·13	Showery.
Bhuj .	·618	—·054	—·115	SE	17	10	1·03	Strong wind.
Kurrachee	·662	—·021	—·054	ENE	5	1	0·45	Showery.

Light to moderate rain had fallen in Lower Sind and Kathiawar. Winds reverted to their normal westerly directions at these stations during the day (at Kurrachee between 10 A.M. and 4 P.M.), and the residual depression disappeared completely during the day.

Pressure gave way on the 15th and 16th over the whole of India, the fall being greatest in North-Eastern India on the 15th and in the Punjab on the 16th. Pressure was on the 16th below the normal over nearly the whole of India, the deficiency being greatest in the submontane districts of Northern India and in Ceylon and least in the Deccan. The chief result of these changes was to transfer the trough of low pressure on the 16th to the submontane districts of Northern India. Pressure increased on the 17th and 18th, chiefly in Northern India, and the eastern extremity of the trough of low pressure stretched southwards over the north-west of the Bay on the 18th. The rainfall in Northern India diminished steadily during this period, and was from the 15th to the 18th restricted to light sporadic showers, chiefly in Bengal. Pressure further increased in Northern India on the 19th and 20th and fell in Southern India, thus emphasizing the deficiency of pressure which obtained in that area. A very shallow low pressure area formed off the Coromandel Coast on the 19th. It increased in extent westwards and covered the southern half of the Peninsula on the 21st. General and favourable rain fell over the Peninsula, more especially the South Deccan and Southern India. Throughout this period winds were light to moderate during the existence of this depression over the whole of the Bay, except near the Ceylon coast, where they ranged between 2 and 6.

Pressure increased generally in India on the 22nd, 23rd and 24th, more especially in Southern India, and the depression in that area filled up and disappeared on the 23rd. The centre and south of the Peninsula obtained light to moderate rain on the 22nd and 23rd, when fine dry weather set in for a short period.

A small depression and storm formed rapidly or appeared in the east of the Bay whilst the depression in Southern India was filling up. It was the most vigorous and characteristic storm of the month. The following gives an account of it.

Depression and Cyclonic Storm of the 23rd to the 27th September.—The first indications of this storm were given by a brisk to rapid fall of the barometer on the 22nd in Lower Burma and the Andaman Sea. Winds which had previously been from southerly directions in Lower Burma shifted round to north during the night of the 21st. The air movement during the 48 hours preceding 8 A.M. of the 22nd averaged only 3½ miles per hour at Port Blair and 2½ miles per hour at Rangoon. Three vessels which were near the Burma coast at 8 A.M. of the 22nd all reported fine weather at that hour. One

vessel, *viz.*, the S.S. *Pentakota*, had heavy rain at noon. The available data do not indicate whether the depression originated in the Andaman Sea or had advanced from the Gulf of Siam across the Malay Peninsula. The latter appears to be the most probable supposition.

23rd September.—Pressure had recovered briskly to rapidly in Tenessarim and slightly at Port Blair. Winds had however increased rapidly in strength at Diamond Island and had shifted in direction at that station as well as at Port Blair in such a way as to indicate there was a cyclonic storm in the centre of the Bay which was increasing in intensity. The S.S. *Pundua* and *Malda* were in the outer storm area during the morning. They had winds force 4 to 6 with frequent heavy squalls and much rain. No other data are available for fixing the position of the storm. It advanced rapidly in a west-north-west direction during the day across the centre of the Bay and began to affect the weather on the west coast of the Bay during the afternoon of the 23rd, when cloud began to increase and the sea to rise at Gopalpore, Vizagapatam and Cocanada.

24th September.—Pressure had increased over the whole of India with the exception of a small area in North Madras (*i.e.*, Ganjam and the neighbouring districts), to which the storm had now advanced. The following gives 8 A.M. data of the storm area :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Masulipatam.	29·782	—·009	+·029	WNW	4	10	...	
Vizagapatam.	·719	—·071	—·009	Calm	1	10	0·39	Raining.
Gopalpore	·655	—·136	?	SE	16	10	1·20	Sea very rough.
Puri .	·773	—·024	?	SE	16	8	1·10	Severe gale of wind.
Cuttack .	·800	+·013	+·092	SE	6	10	0·49	Overcast.
Raipur .	·799	—·008	+·080?	NE	3	8	0·01	

The data indicate that the storm centre had crossed the coast to the south-west of Gopalpore shortly before 8 A.M. The S.S. *Gorsedd*, in Lat. 19½° N. and Long. 85¾° E. at 8 A.M. and proceeding slowly south-westwards, had a strong gale with terrific squalls from 8 A.M to noon when the weather began to moderate. The S.S. *Lawada* in the southern quadrant of the storm during the early morning had moderate to fresh winds.

The observer at Puri has sent the following account of the storm at that station:—"Weather was stormy during the night of the 23rd and 24th. The gale which was very severe began at 3·45 A.M. and ceased at 7 A.M. of the 24th. The total rainfall registered during the 24 hours preceding 8 A.M. of the 24th was only 1·1 inches. The greatest velocity of the wind was 59 miles an hour between 4 A.M. and 6 A.M., when wind was blowing from east."

The weather at the Sandheads is thus described by Captain Beahan :—

23rd September.—Gentle south-east breeze during the day and strong east-south-east breeze during the night. 6 P.M. lightning to the north and north-west and a heavy east-south-east sea.

24th September.—Moderate south-east and east-south-east breeze with a moderate east-south-easterly sea.

The data show clearly that the storm was on the morning of the 24th of small extent but of considerable intensity. It had advanced across the Bay at a rate of about 19 miles per hour during the previous 48 hours.

25th September.—The only important barometric changes of the previous 24 hours were due to the advance of the storm which was at 8 A.M. central over the northern districts of the Central Provinces. The following gives 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.			
	"	"	"				Inches	
Nagpur .	29·751	—·044	—·006	SSW	7	10	0·95	Thunder storm.
Seoni .	·691	—·127	—·065	SW	2	10	2·17	Drizzling.
Jubbulpore	·692	—·127	—·063	SE	2	10	1·13	Showery.
Saugor .	·704	—·122	—·066	NE	5	10	0·14	
Pachmarhi	...	—·158	—·089	WNW	7	10	3·03	Continuous rain.

The centre of the depression was nearly midway between Jubbulpore and Hoshangabad in Lat. 23°N. and Long. 79¼°E. Pressure was now less than a tenth of an inch below the normal in the storm area, and the depression had hence filled up considerably. It had advanced about 440 miles in a north-westerly direction during the previous 24 hours. The storm had given moderately heavy rain to North Madras, Orissa and the Central Provinces

during the previous 24 hours, the heaviest falls amounting to 2 inches and upwards being the following :—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 25th September 1897.
		Inches.
Ganjam	Udayagiri	2·04
	Ichapur	2·50
	Sompet	2·26
	Tekkali	2·23
Vizagapatam	Nowrangapur	6·20
	Jeypore	2·82
	Koraput	2·93
	Falkonda	3·48
	Chipurupalle	2·24
	Narasapatnam	2·70
Godavari	Narsapuram	2·00
Nellore	Ongole	3·70
Chingleput	Vadasemmanjiri	3·10
	Kovelong	2·40
	Madurantakam	2·87
Balasore	Balasore	2·37
Chanda	Armori	2·00
Betul	Badnur	2·10

26th September.—Pressure had given way briskly in North-Eastern India. Over the remainder of India the only important changes were due to the movement of the storm which had advanced at 8 A.M. to the western districts of the North-Western Provinces. The following data fix its position at that hour:—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Agra	29·614	—·162	—·134	SW	12	10	5·71	Continuous rain.
Mainpuri	·626	—·161	?	S	6	10	1·63	
Bareilly	·614	—·215	—·118	E	6	10	1·77	Showery.
Roorkee	·688	—·154	—·070	Calm	4	10	0·42	Drizzling.
Meerut	·646	—·173	—·101	NE	2	10	0·64	

The centre of the depression was in about Lat. 28¼° N. and Long. 78¼°E., and had hence advanced in a northerly direction about 400 miles during the previous 24 hours. The depression had slightly intensified during the previous 24 hours and was well-defined at 8 A.M. The storm had given heavy rain to the greater part of the western and submontane divisions of the North-Western Provinces, as is shown by the following data :—

District.	Average actual rainfall during 24 hours preceding 8 A.M. of 26th September 1897.	Heaviest rainfall in district recorded on 26th September 1897.
	Inches.	Inches.
Agra	3·10	5·50
Muttra	3·93	5·10
Aligarh	3·59	4·70
Bulandshahr	2·76	4·30
Pilibhit	3·70	5·30
Budaun	3·52	5·12
Bareilly	3·15	5·00
Moradabad	3·07	3·85
Almora	4·62	11·45
Naini Tal	4·73	6·90

27th September.—The storm had continued to advance northwards during the previous 24 hours and was at 8 A.M. breaking up over the Naini Tal and Mussooree Hills where very heavy downpours of rain were received. The following gives the most noteworthy falls during the 24 hours preceding 8 A.M. of the 27th :—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 27th September 1897.
		Inches.
Almora	Champawat	15·35
Naini Tal	Naini Tal	11·26
	Kathgodam	7·26
	Haldwani	7·06
	Ramnagar	6·57
Almora	Pithoragarh	5·42

The disturbance probably gave moderate to heavy rain or snow on the higher elevations of Gurhwal but no accounts have been received. A heavy fall of snow (2 feet in depth) was received on the Lahoul Valley on the evening of the 25th and 26th. Weather cleared up rapidly during the day and fine weather with clear skies obtained over the whole of North-Western and Central India on the morning of the 28th.

The storm described above was characterized by several noteworthy features. As already stated, it is doubtful whether it originated in the Indian area or passed into it from the Gulf of Siam. It was throughout of small extent, and probably increased little in size in its passage across the Bay. It advanced in a west-north-west direction across the Bay and marched by a curved track through the Central Provinces into the western districts of the North-Western Provinces or along the most frequent track of storms in the latter part of September. Its rate of movement was almost uniform during the last three days of its existence—a somewhat unusual occurrence.

The following gives data of the position and rate of motion of the centre :—

Date.	Position of centre at 8 A.M.		Distance travelled during interval.	Average hourly rate of motion during interval.
	Lat. N.	Long. E.		
	° ′	° ′	Miles.	Miles.
23rd	16 15	90 0	...	...
24th	18 50	83 55	460	19
25th	22 50	79 15	440	18
26th	28 20	78 15	400	17

The storm gave moderate rain to the greater part of the belt of country through which it advanced, but the precipitation increased as it approached the hills of North-Western India, and it gave a very heavy downpour in the Naini Tal and Almora districts whilst it was breaking up.

A very rapid recovery of pressure followed the breaking up of this storm on the 27th, and pressure on that day was very uniform over nearly the whole Indian land area and the Bay.

The pressure changes of the next three days were generally small to moderate in amount. Their chief tendency was to develop a shallow but extensive low pressure area in the Bay.

Moderate to fresh westerly winds prevailed generally in the south of the Bay on the 28th and 29th and light airs and calms in the north. Weather was squally in the south-west and south-east of the Bay. Eight out of the eleven vessels in that part of the Bay reported squalls with more or less heavy rain during the day.

A closed area of low and slightly deficient pressure lay over the Bay on the 30th. Moderate westerly to southerly winds prevailed in the south and east of the Bay and light variable winds in the north and south-west. The only vessel in the centre of the Bay on the 30th was a small native brig, *Verirabudrasamy*, 267 tons. She left Cocanada for Moulmein on the 18th and had very light variable winds until the 29th, when winds began to increase from west and weather to become unsettled.

The following gives the weather she experienced on the 30th :—

0-15 A.M.—Wind shifted to south-west and increasing steadily in force.

2 A.M.—Wind blowing a severe gale from south-west. Sea tremendous, washing decks; unable to steer vessel; allowed it to drift as it was impossible to do anything else. Ship rolling fearfully, and expect her every moment to founder.

Noon Position by D. R. Lat. 14° N. and Long. 86° E.

This depression developed into a large and important storm, of which a full account will be given in the October Review.

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the north and north-west of India.

The snowfall on the higher ranges of the Western Himalayas is usually very small in amount in the month of September. Occasionally the first falls of the winter season occur on the Kashmir and Chitral mountains in the third or fourth week of the month. The fall during the present month in these districts and in the Punjab Himalayas was probably even less than the normal. The following gives accounts of local falls in Chitral and Lahoul on the 5th and 25th of the month.

I.—AFGHAN MOUNTAIN DISTRICTS.

Chitral.—According to the reports received from the Officer Commanding at Chitral weather appears to have been unusually disturbed with frequent snow on the higher hills. The following is a summary of the telegraphic information received during the month.

4th September.—There was a sharp thunderstorm in the Chitral Valley on the 4th and light snowfall on the hills above 15,000 feet near Drosh.

25th September.—There were snowstorms on the hills above 15,000 feet in the neighbourhood of Chitral.

30th September.—Snow fell on the higher mountains (above 12,000 feet) near Drosh.

II.—THE PUNJAB AND KASHMIR HIMALAYAS.

Lahoul.—A brief note has been received from the Superintendent of the observatory at Kailang, stating that 2 feet of snow fell between 4 P.M. of the 25th and 10 P.M. of the 26th September. The ripening crops were buried under the snow for two days. The snow was not so heavy as to close the passes.

Summary of special storm reports.

The number of local storms during the month was not large. Duststorms are of occasional occurrence in September in Sind and the South-West Punjab and thunderstorms in Upper India when the monsoon current is withdrawing from that area.

The following gives a statement of the chief local storms, of which reports were received during the month :—

4th.—Severe thunderstorm at Puri at 10 P.M.

9th—Duststorm at Aden from west from 4-30 P.M. to 6-50 P.M.

13th.—Thunderstorm and duststorm with slight hail at Drosh from north-east at noon. Duststorm at Peshawar from 4-40 P.M. to 5 P.M.

20th.—Thunderstorm at Amraoti from 0-15 to 2 P.M.

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

Arabian Sea.—Ordinary monsoon winds obtained generally over the Arabian Sea during the first ten days of the month, except along the west coast of India, where the air motion was more directly from the west than usual. Weather was more or less squally and showery in the east along the Malabar and Konkan coasts and fine over the remainder of the sea. The intensity of the air movement during the period varied between 2·6 and 3·5 and averaged 3·1 for the whole period. Pressure was locally in considerable to large defect over Kathiawar, the North Konkan and the neighbouring sea area on the 11th, and there was a tendency to the establishment of an irregular cyclonic circulation over that region. A feeble residual depression, the continuation of the first cyclonic storm of the month, was central over Berar at 8 A.M. of this day. It drifted westwards during the day and merged in the area of local deficiency of pressure and irregular cyclonic circulation off the Kathiawar coast, which hence intensified to some extent and was on the morning of the 12th shown as a fairly well-defined depression with its centre a little to the south-east of Verawal. The storm advanced slowly north-westwards along the coast during the next three days, and filled up completely on the 15th. It was throughout of only slight intensity, and its influence on the winds and weather was hence neither marked nor extensive. It occasioned very heavy squalls and much rain along the Kathiawar and North Konkan coasts, but the strongest winds experienced by vessels in the storm area did not exceed 7 in force, and the average wind force for the whole of the Arabian Sea was only 3·0 on the 12th and 2·9 during the succeeding three days. With the dispersion of the storm, the winds, which had been cyclonic in direction in the north-east of the sea from the 11th to the 14th, returned to their normal monsoon directions on the 15th, at 8 A.M. of which day all the vessels but one contributing marine data for the Arabian Sea experienced fine weather with passing clouds and winds force 2 to 5.

Moderate monsoon winds prevailed steadily over nearly the whole of the sea during the next six days. Weather was more or less showery and squally during this period in the neighbourhood of the Konkan and Malabar coasts, where winds also were more westerly than usual in September. The mean strength of the air movement at 8 A.M. of the 21st was 3·5 or normal. Light to moderate unsteady winds set in over the north, centre and west of the Arabian Sea on the 22nd, and continued until the end of the month. On the other hand, ordinary monsoon winds (slightly more westerly than usual) held steadily in the south-east off the Malabar and South Konkan coasts. The air movement was rather unsteady during this period, its mean intensity fluctuating between 2·7 and 3·7.

Bay of Bengal.—Except in the extreme south, where they were normal in direction, exceedingly unsteady winds (chiefly from south and south-east) prevailed over the whole of the Bay during the first four days of the month. Weather was generally cloudy with occasional showers and squalls. The air movement was moderate in intensity and ranged from an average of 3·1 on the 1st to 4·3 on the 4th. No important change occurred during the next twenty-four hours, except in the north of the Bay, where winds fell off considerably in intensity. The wind force for all parts of the Bay averaged 3·5 at 8 A.M. of the 5th. Weather was, however, slightly more disturbed than on the previous day, more especially over the northern half of the Bay, where skies were overcast with heavy rain. The air movement increased slightly in the south and centre of the Bay during the day, and on the morning of the 6th monsoon winds of force 2 to 6 were blowing generally over the Bay to the south of Lat. 19° N. and light to moderate westerly winds to the north of that parallel. Weather was fine with passing clouds in the south, but continued unsettled over the remainder of the Bay. There was on this day a slight tendency to the initiation of a cyclonic circulation over the north of the Bay. It developed on the 7th, and on the morning of the 8th a well-defined depression and cyclonic circulation was exhibited over the north-west of the Bay. Winds had strengthened, particularly over the centre of the Bay, and the strongest winds experienced at 8 A.M. of this day were of force 8. Weather was cloudy with occasional showers in the extreme north of the Bay and more or less

squally over the remainder of the Bay. The storm commenced to march westwards during the day, and crossed the Ganjam coast on the afternoon of the 9th. With its passage inland, the winds and weather moderated very rapidly, so that on the morning of the 11th only three vessels out of the twenty in the various parts of the Bay experienced squally weather. The mean air movement had diminished to 3·2 at 8 A.M. of this day. Very unsteady winds and fine weather obtained generally over the Bay during the next week, except in the extreme south, where monsoon conditions continued to prevail. The air movement was light during this period, its mean intensity ranging from 3·4 on the 15th to 2·2 on the 13th and 2·3 on the 18th. A shallow diffused low pressure area formed over the west of the Bay on the 19th, and under its influence the winds became irregularly cyclonic over the greater part of the Bay. These conditions lasted until the 22nd, when a significant change occurred over the Andaman Sea. A small depression appeared over the North Andaman Sea, and marching rapidly in a west by north direction, passed out into the centre of the Bay on the 23rd. A moderate cyclonic circulation obtained over the centre and east of the Bay, and weather was disturbed with heavy squalls and much rain over that area on the morning of the 23rd. Over the remainder of the Bay the winds were unaffected by the storm and were very feeble and irregular. The mean wind force as derived from the data of 16 vessels was only 2·7 or fully 1·0 below the normal of the month. The storm continued to drift with great rapidity in a west-north-west direction during the day and the centre struck the Ganjam coast shortly before 8 A.M. on the 24th. Winds circulated cyclonically over the whole of the Bay on this day, but were generally light to moderate in force, except in the eastern quadrant of the storm, where the S.S. *Gorsedd*, about 170 miles to the north-east of the centre, experienced strong south-easterly gales with terrific squalls. Outside the storm area the weather continued fine. The mean air movement as recorded on board 16 vessels was 3·6 or 0·1 below the normal. Winds fell off and weather improved rapidly during the day, so that on the morning of the 25th, fine weather with light to moderate unsteady winds was re-established over the whole of the Bay, except in the north-west, where the winds were still controlled by the storm and were hence south-easterly in direction. Pressure was remarkably uniform over the Bay during the next three days and light irregular winds and fine weather obtained generally during the period except in the extreme south, where moderate and increasing westerly winds with squally weather continued. The mean intensity of the air movement at 8 A.M. of the 28th as determined from the data of 14 vessels was only 2·6 as compared with 3·7, the normal of the month.

The barometric changes of the next forty-eight hours tended to develop a shallow but extensive closed area of low and slightly deficient pressure over the Bay. On the 30th moderate westerly to southerly winds obtained over the south and east of the Bay and irregular airs in the north and south-west. Weather was probably very unsettled and squally over the centre of the Bay, and there was a strong tendency to the formation of a storm in that area. The mean air movement was 3·6 or practically normal.

Equatorial Belt.—The information for this region is even more limited than usual. It, however, indicates that the south-east trades were slightly less steady than usual, but were probably also more easterly, except during a brief period extending from the 5th to the 11th, when normal south-east winds, force 4 to 6, were experienced.

From the preceding account of the weather in the Indian seas, it will be seen that the conditions were somewhat abnormal in the Bay of Bengal, where winds were not only exceedingly unsteady, but were also light.

In the Arabian Sea, on the other hand, the monsoon current was unusually steady, although slightly below its normal intensity. Hence an important feature of the meteorology of the month was the unsteadiness of the monsoon current over the Bay and probably also of the south-east trades, more especially over the eastern half of the equatorial belt.

Temperature of the Air.

The mean temperature conditions of the month varied to a slight extent from the normal, due chiefly to the occurrence of general and favourable rain over by far the greater part of India.

The mean maximum or day temperature of the month was generally below the normal over Assam, East Bengal, North-Western India and the Madras Presidency (excepting the Malabar coast districts). The deficiency in Assam and North-Western India was generally small in amount, but exceeded 2° perhaps at Sibsagar (—3°·5) and Sirsa (—2°·3).

The mean maximum temperature of the month was more

than 2° below the normal in the greater part of Madras, as is shown by the comparative data of the stations given below:—

Station.	Mean maximum temperature. Actual, September 1897.	Normal, September.	Variation of actual from normal, September 1897.
	°	°	°
Madura	92·2	95·8	—3·6
Masulipatam	88·0	91·3	—3·3
Madras	90·2	93·2	—3·0
Trichinopoly	92·5	95·3	—2·8
Vizagapatam	88·6	90·9	—2·3

The variation for Negapatam (—1°·3) is probably incorrect. The observatory was removed to a new site some years ago, where the conditions differ considerably from those at the old site.

The mean day temperature was above the normal over the remainder of India. The positive variations were however less than 2°, except in four small areas for which data are given below:—

Area.	Station.	Mean maximum temperature. Actual, September 1897.	Normal, September.	Variation of actual from normal, September 1897.
		°	°	°
1st	Tavoy	85·8	83·6	+2·2
	Moulmein	86·6	84·5	+2·1
	Toungoo	90·7	88·6	+2·1
2nd	Chaibassa	91·3	88·7	+2·6
	Ranchi	85·7	83·2	+2·5
3rd	Allahabad	93·2	90·8	+2·4
	Sutna	89·3	87·2	+2·1
4th	Belgaum	80·9	78·5	+2·4
	Poona	86·0	83·8	+2·2

The second and third areas were characterized by local excess of pressure, and the increased temperature was directly related to the deficient rainfall. The rainfall at the Burma stations in the first area was, on the other hand, about normal in amount.

The minimum or night temperature differed, as usual in the rains, less from the normal than the maximum. It was, on the mean of the month, above the normal, except in the Madras coast districts between Gopalpore and Cuddalore, and locally at Sibsagar, Peshawar and Dera Ismail Khan. The greatest negative variation was only —0°·9 at Madras. The positive variations also were generally small in amount and were less than 2°, except in two areas for which data are given in the following table:—

Province.	Station.	Mean minimum temperature. Actual, September 1897.	Normal, September.	Variation of actual from normal, September 1897.
		°	°	°
Lower Sind	Hyderabad	78·4	76·2	+2·2
	Kurrachee	79·2	77·0	+2·2
Central Provinces and the neighbouring districts of Central India, of the North-Western Provinces and Bombay Deccan.	Sutna	77·1	74·3	+2·8
	Lucknow	79·0	76·4	+2·6
	Nagpur	75·9	73·6	+2·3
	Chanda	76·5	74·2	+2·3
	Jhansi	77·3	75·1	+2·2
	Saugor	73·2	71·0	+2·2
	Akola	74·6	72·4	+2·2
	Sholapur	72·4	70·2	+2·2

The mean temperature of the month was below the normal in Assam, East Bengal, the West Punjab and Madras (except the Malabar districts). The variations were generally small in amount, but exceeded 1° at stations for which data are given below:—

Province.	Station.	Mean daily temperature. Actual, September 1897.	Normal, September.	Variation of actual from normal, September 1897.
		°	°	°
Assam	Sibsagar	80·4	82·5	—2·1?
West Punjab	Dera Ismail Khan	86·3	87·6	—1·3
Madras	Madras	83·2	85·2	—2·0
	Madura	83·7	85·5	—1·8
	Masulipatam	82·7	84·4	—1·7
	Trichinopoly	84·0	85·5	—1·5?
	Vizagapatam	83·2	84·6	—1·4
	Rajahmundry	82·4	83·7	—1·3

Temperature was in excess in the remainder of India by small to moderate amounts. The excess was, on the whole, greatest in the Central Provinces, Berar, Khandesh, the Bombay Deccan, Bundelkhand, Baghelkhand and the adjacent districts of the North-Western Provinces. The mean temperature was more than 2° above the normal at stations for which data are given in the following table :—

Province.	Station.	Mean daily temperature. Actual, September 1897.	Normal, September.	Variation of actual from normal, September 1897.
		°	°	°
Bombay Deccan	Belgaum	74·0	71·9	+2·1
Baghelkhand	Sutna	83·2	80·7	+2·5
North-Western Provinces and Oudh.	Agra	86·5	84·3	+2·2
	Allahabad	85·9	83·8	+2·1
	Lucknow	86·1	84·1	+2·0
	Jhansi	85·0	83·0	+2·0

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

Province.	Division.	Actual Temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of September 1897 of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	86·0	74·4	80·2	11·6	19·1	+2·2	+0·8	+1·4
	Lower Burma (Deltaic)	86·3	76·5	81·4	9·7	16·9	+1·4	+0·4	+1·0
	Central do.	90·9	76·7	83·8	14·3	20·3	+1·8	+1·1	+0·7
	Upper do.	91·4	76·2	83·8	15·2	26·5	+0·4	+0·7	—0·3
	Arakan	86·9	78·1	82·5	8·8	17·1	+0·3	+0·1	+0·2
Bengal and Assam	Eastern Bengal	85·6	76·5	81·0	9·2	17·7	—0·3	+0·6	—0·9
	Assam (Surma)	88·6	76·5	82·6	12·1	21·7	—1·1	+0·2	—1·3
	Do. (Brahmaputra)	84·6	77·0	80·8	7·6	16·6	—1·8	+1·1	—2·9
	Deltaic Bengal	89·3	78·7	84·0	10·6	18·0	+0·9	+0·6	+0·3
	Central do.	89·6	78·0	83·8	11·6	19·3	+0·5	+0·4	+0·1
	North do.	87·5	77·2	82·4	10·3	18·7	0	+1·1	—1·1
	Bengal Hills	66·5	52·9	59·7	13·7	19·4	—0·4	+0·7	—1·1
	Orissa	89·4	79·6	84·5	9·8	16·9	+0·5	+1·1	—0·6
	Chota Nagpur	88·6	75·2	82·0	13·4	22·7	+2·1	+1·3	+0·8
	South Bihar	91·2	79·0	85·1	12·2	18·4	+1·0	+0·9	+0·1
	North Do.	89·8	78·6	84·2	11·2	19·1	+0·6	+1·0	—0·4
North-Western Provinces and Oudh.	North-Western Provinces (East)	92·7	78·5	85·6	14·2	21·7	+1·8	+1·3	+0·5
	Oudh (South)	93·1	79·0	86·1	14·1	24·5	+1·4	+2·6	—1·2
	Do. (North)	90·9	77·3	84·1	13·6	25·4	?	?	?
	North-Western Provinces (Central)	92·6	77·2	84·9	15·4	23·4	+1·8	+2·2	—0·4
	Do. do. (West)	92·8	76·6	84·7	16·2	24·5	—0·7	+0·1	—0·8
	Do. do. (East Submontane)	91·3	78·9	85·1	12·4	19·1	+0·9	+0·9	0
	Do. do. (West do.)	88·4	73·6	81·0	14·8	21·8	—0·2	+0·3	—0·5
	Do. do. (Hills)	69·9	58·4	64·2	11·6	19·1	+0·2	+0·1	+0·1
Punjab	Punjab (South-East)	92·0	77·6	84·8	14·4	22·8	—0·6	+0·9	—1·5
	Do. (South)	94·8	75·8	85·3	19·0	29·4	?	?	?
	Do. (Central)	95·7	77·1	86·4	18·6	29·5	?	?	?
	Do. (Submontane)	94·6	75·3	85·0	19·3	30·3	+0·7	+1·5	—0·8
	Do. (Hill Districts)	77·3	54·1	65·7	23·2	37·9	—1·1	—0·2	—0·9
	Do. (North)	94·2	69·6	81·9	24·7	38·3	—0·4	+0·2	—0·6
	Do. (West)	98·6	76·4	87·5	22·3	34·7	—1·3	+0·2	—1·5
Bombay and Malabar Coast Districts (Madras).	Malabar Coast	84·2	75·0	79·6	9·2	15·6	+0·7	+0·8	—0·1
	Madras (South Central)	88·5	72·2	80·4	16·3	25·5	—2·0	+1·3	—3·3
	Coorg	72·6	63·5	68·1	9·1	16·3	+0·2	+1·8	—1·6
	Mysore	81·5	66·7	74·1	14·9	23·0	—1·1	+1·0	—2·1
	Konkan	84·0	76·1	80·1	7·9	13·7	+1·1	+1·4	—0·3
	Bombay Deccan	85·7	69·9	77·8	15·8	23·7	+1·7	+1·8	—0·1
	Hyderabad (North)	85·8	68·2	77·0	17·6	24·7	?	?	?
	Khandesh	87·5	70·6	79·1	16·9	24·6	+0·8	+1·3	—0·5
Central Provinces and Berar.	Berar	89·0	74·1	81·6	14·9	19·8	+1·0	+2·1	—1·1
	Central Provinces (West)	88·7	75·1	81·9	13·6	20·1	+1·0	+2·1	—1·1
	Do. (Central)	87·6	73·9	80·8	13·7	20·0	+0·9	+2·0	—1·1
	Do. (East)	89·4	77·0	83·2	12·4	20·1	+1·8	+2·0	—0·2

Province.	Division.	Actual temperature.					Variation from normal of September 1897.		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Bombay (North)	Gujarat	90·4	77·1	83·8	13·3	21·7	+1·3	+1·3	0
	Kathiawar and Cutch	89·3	76·1	82·6	13·1	21·6	−0·7	+1·8	−2·5
	Sind	96·8	78·4	87·6	18·4	33·1	0	+2·0	−2.0
	Baluchistan Hills	89·5	53·0	71·3	36·4	49·5	+0·4	+0·3	+0·1
Rajputana and Central India.	Central India (East)	88·4	74·5	81·5	13·9	21·6	+1·4	+2·1	−0·7
	Rajputana (East), Central India (West)	91·6	75·8	83·7	15·8	24·3	−0·3	+1·9	−2·2
	Do. (West)	95·8	77·4	86·6	18·3	28·1	?	?	?
Madras	East Coast (North)	87·7	77·7	82·7	10·0	19·9	−2·2	−0·5	−1·7
	Hyderabad (South)	87·1	72·8	80·0	14·2	23·8	−0·3	+1·5	−1·8
	Madras (Central)	89·6	73·8	81·7	15·8	25·8	−1·0	−0·2	−0·8
	East Coast (Central)	90·7	77·5	84·1	13·2	27·1	−3·3	0	−3·3
	Do. (South)	90·6	75·9	83·3	14·7	26·3	−3·0	−0·9	−2·1
	Madras (South)	93·0	77·5	85·3	15·5	23·3	−3·6	+0·1	−3·7

At the commencement of the month temperature was in slight to moderate excess over nearly the whole of India. It decreased slightly during the next four days, and the variations were small in amount on the 5th. The following gives comparative data for the 1st and 5th:—

Political Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	1st September.	5th September.
	°	°
Burma	+0·7	−1·2
Bengal and Assam	+0·8	−0·8
North-Western Provinces and Oudh	+0·7	+0·3
Punjab	+0·2	−0·4
Sind and Rajputana	+1·2	−1·0
Central India and Gujarat	+1·4	+0·3
Central Provinces and Berar	+2·7	+0·4
Bombay	+2·5	+2·2
Madras	−0·6	−0·2

A storm crossed the north of the Peninsula from the Bay during the next six days. It gave moderate to heavy rain over nearly the whole of the Peninsula, and temperature fell considerably below the normal from the 6th tn the 11th. Temperature was also in slight to large defect during this period in Baluchistan and the Punjab and was in slight excess in the intermediate area. The following gives data showing the variations of the mean daily temperature from the normal during the period from the 6th to the 11th in Madras, the Punjab and Baluchistan:—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	6th September.	7th September.	8th September.	9th September.	10th September.	11th September.
	°	°	°	°	°	°
Baluchistan (Quetta)	−1·0	−4·6	−4·2	−3·7	−2·5	−1·8
Punjab	−3·6	−4·8	−2·6	−1·6	−1·0	+0·5
Madras	−3·7	−4·1	−3·7	−3·3	−2·1	−1·6

The second storm of the month, which formed off Kathiawar on the 11th and 12th and drifted slowly north-westwards along the coast to Sind, exercised very slight influence on the temperature in India. Temperature was in slight general excess from the 11th to the 14th. The disappearance of this storm was followed by an advance of humid winds to Upper India. Rain was general in Northern India from the 14th to the 16th, and temperature was reduced more or less below the normal, while it increased and was in excess in the Peninsula. These conditions lasted from the 15th to the 17th, as is shown by the following data:—

Political Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	15th September.	16th September.	17th September.
Bengal and Assam	−0·5	−0·8	−0·8
North-Western Provinces and Oudh	−2·4	−1·0	+0·9
Punjab	−3·5	−1·1	+1·4
Sind and Rajputana	−1·1	−0·9	+1·1
Gujarat and Central India	+0·3	−0·2	−0·2
Bombay	+1·9	+1·7	+2·2
Madras	+1·2	+1·8	+2·4

On the 18th temperature was in excess over nearly the whole of India, except Assam and East Bengal which continued to receive moderate rain. The central and southern districts of the Peninsula received moderate rain during the next five days, *i.e.*, from the 19th to the 23rd. The rainfall over the remainder of India was light and sporadic and occurred chiefly in North-Eastern India and the Central Provinces. Temperature was hence in slight defect in Madras and in moderate excess over the remainder of India during the greater part of the period. The following table gives variation data for the period :—

Political Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	19th September.	20th September.	21st September.	22nd September.	23rd September.	24th September.
	°	°	°	°	°	°
Burma	+1·5	+0·9	+2·1	+2·6	+2·6	+2·3
Bengal and Assam	+1·0	+1·0	+0·4	+1·1	+1·0	+1·9
North-Western Provinces and Oudh.	+3·5	+3·6	+1·6	+0·9	+1·8	+2·5
Punjab	+2·4	+0·5	+1·0	+2·1	+2·4	+2·3
Sind and Rajputana	+1·5	+1·5	—1·1	+2·1	+2·6	+3·2
Central India and Gujarat.	+1·0	+1·7	+2·0	+1·0	+2·4	+0·8
Central Provinces and Berar.	+2·5	+1·9	+1·4	+1·3	+1·7	+1·8
Bombay	+2·5	+2·7	+1·7	+1·5	+1·9	+0·4
Madras	+1·2	+0·2	—0·7	—0·6	—0·6	—0·2

On the 24th, a storm crossed the Circars coast and marched rapidly by a curved path through the Central Provinces, Central India, and Rajputana to the western districts of the North-Western Provinces and south-eastern districts of the Punjab. It gave a heavy burst of rain to the districts through which it passed, and was also followed for a short period by the extension of humid winds and rain over Northern and Central India. Temperature fell considerably below the normal in Upper India during the storm, as is shown by the following variation data :—

Political Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	25th September.	26th September.	27th September.	28th September.	29th September.
	°	°	°	°	°
Madras	—1·4	—2·0	—1·9	—1·7	—1·5
Central Provinces	+0·1	—0·1	+0·3	+1·8	+1·8
Central India	+2·0	+0·6	+0·2	+0·7	+1·3
Rajputana	+2·7	+0·5	—0·9	+0·4	+0·4
Punjab	+3·7	—3·7	—4·0	—1·0	+1·3

Temperature increased generally on the 28th and 29th, and was in excess over the whole of India with the exception of East Bengal and the Coromandel coast districts. The following variation data for the 30th illustrate the conditions which obtained at the end of the month :—

Political Province.	Variation from normal of		
	Mean maximum temperature, 30th September.	Mean minimum temperature, 30th September.	Mean temperature, 30th September.
	°	°	°
Burma	—0·1	+1·3	+0·6
Bengal and Assam	+0·5	+2·2	+1·4
North-Western Provinces and Oudh	+1·2	+1·4	+1·3
Punjab	+1·6	+2·9	+2·3
Sind and Rajputana	+1·4	+5·8	+3·6
Central India and Gujarat	—0·4	+2·5	+1·1
Central Provinces and Berar	+2·0	+2·1	+2·1
Bombay	—0·6	+1·5	+0·5
Madras	—1·4	—0·5	—1·0

The following table gives variation data of the mean temperature, week by week, during the month and of the whole month. The data are taken from the weekly weather reviews published in the *Gazette of India* :—

Province.	Variation from normal of mean temperature for week ending					
	4th September.	11th September.	18th September.	25th September.	2nd October.	For September 1897.
	°	°	°	°	°	°
Burma	+0·8	—0·3	+0·8	+2·1	+1·0	+0·9
Bengal and Assam	+0·3	0	+0·1	+1·1	+1·9	+0·6
North-Western Provinces and Oudh.	+0·3	+0·8	+1·1	+2·3	+0·9	+0·9
Punjab	+0·6	—1·9	+0·7	+2·1	+0·2	+0·1
Sind and Rajputana	+0·7	—0·4	+1·1	+1·6	+1·3	+1·0
Central India and Gujarat.	+0·8	+1·1	+1·0	+1·5	+0·9	+1·1
Central Provinces and Berar.	+1·4	+0·9	+1·5	+1·5	+1·5	+1·6
Bombay	+1·3	+0·8	+1·5	+1·7	+0·6	+1·3
Madras	—0·7	—2·7	+0·8	—0·3	—1·3	+0·9

Winds.

The mean winds of the month at Port Blair and in Lower Burma were in September much less westerly than usual. They were also considerably weaker and were less steady than usual except perhaps at Diamond Island where the air movement, as recorded by an anemometer recently supplied, was 51 per cent. higher than the mean as given by the observations of the previous anemometer. The most important feature of the air movement in the east of the Bay and Burma was the decreased westing of the winds, which it may be noted, was in strict accordance with the abnormal pressure conditions obtaining in Burma during the greater part of the month. The following gives data :—

Station.	Velocity in miles per diem			Wind direction.	
	Actual, September 1897.	Normal, September.	Percentage variation from normal, September 1897.	Actual, September 1897.	Normal, September.
Port Blair	158	228	—31	S 42° W	S 52° W
Diamond Island	275	182	+51	S 14 W	S 45 W
Rangoon	74	89	—17	S 6 W	S 23 W

Winds were, on the whole, of normal strength and steadiness in Bengal. The most noteworthy feature of the air movement was the decreased easting of the winds at the inland stations and the increased easting at the coast stations of Saugor Island and False Point, as is shown by the following data :—

Station.	Wind direction.		
	Actual, September 1897.	Normal, September.	Increased westing.
	°	°	°
Chittagong	S 9 E	S 22 E	+13
Narainganj	S 3 E	S 12 E	+ 9
Calcutta	S 2 E	S 23 E	+21
Burdwan	S 8 E	S 27 E	+19
Saugor Island	S 12 E	S 2 W	—14
False Point	S 14 E	S 20 W	—34

Winds were more southerly and less easterly than usual at the Bihar stations as in the interior of Bengal. The easterly element was, on the other hand, very strongly marked at Hazaribagh and Cuttack. Winds were on the average of the month slightly weaker and much more variable than usual in that area.

Winds were also generally of normal strength or somewhat feebler than usual in the North-Western Provinces and the Punjab. Winds were also, as usual in Upper India in September, light and unsteady and hence the mean wind directions of the month varied irregularly from the normal in that area. Westerly winds were, on the whole, most frequent and the south-west winds retreated somewhat earlier than usual from the Punjab and the western half of the North-Western Provinces.

The following table gives comparative data of the mean air movement of the month in Burma and Northern India :—

Political Province or area.	Velocity in miles per diem.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
Port Blair	158	228	—70
Burma	140	115	+25
Bengal	123	123	0
Orissa	130	132	— 2
Bihar	61	91	—30
Chota Nagpur	162	178	—16
North-Western Provinces and Oudh	69	65	+ 4
Punjab	45	54	— 9

Winds were lighter and more variable than usual in Sind, Rajputana and Central India. The following gives data :—

Political Province.	Velocity in miles per diem.			Steadiness.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Average actual, percentage September 1897.	Average normal percentage, September.	Variation from normal, September 1897.
Sind	185	214	—29	45	66	—21
Rajputana	120	147	—27	34	49	—15
Central India	84	105	—21	28	36	— 8

The mean winds at the majoty of stations in Rajputana and Central India were from north-westerly directions, but the northerly element was weaker than usual in September.

Winds were much weaker and more unsteady than usual in Berar and the Central Provinces. The following gives the most noteworthy examples:—

Station.	Velocity in miles per diem.			Steadiness.		
	Actual, September 1897.	Normal, September.	Percentage variation from normal, September 1897.	Actual percentage, September 1897.	Normal percentage, September.	Variation from normal, September 1897.
Akola	138	155	—11	42	68	—26
Khandwa	112	154	—27	37	67	—30
Nagpur	102	127	—20	22	37	—15
Jubbulpore	25	74	—66	20	36	—16
Raipur	152	146	+ 4	5	27	—22

As might be expected, the mean wind directions of the month at stations in the Central Provinces and Berar varied irregularly from the normal, but on the whole winds were somewhat more northerly and generally less westerly than usual. Winds were also less strong and steady than usual at Pachmarhi.

Winds were somewhat feebler and less steady at the Konkan stations, and were stronger at the Malabar coast stations.

A noteworthy feature of the air movement of the month was the lightness of the winds in the Deccan and Madras coast districts. Winds were, on the whole, less steady than usual and differed in mean direction slightly, but somewhat irregularly from the normal.

The following table gives comparative data of the strength of the air movement in Western and Southern India:—

Political province or area.	Velocity in miles per diem.		
	Average actual, September 1897.	Average normal, September.	Percentage variation from normal, September 1897.
Central Provinces	86	113	—24
Berar	129	178	—28
Konkan	156	168	— 7
Malabar	131	118	+11
Deccan	223	278	—20
Madras (East Coast)	98	122	—20

Winds were slightly stronger and much steadier than usual at the hill stations east of Chakrata, but were weaker at Simla and Murree. The mean directions varied very irregularly from the normal, as is shown by the following examples:—

Station.	Wind direction.	
	Actual, September 1897.	Normal, September.
Murree	N 6° W	S 5° W
Simla	N 13° W	S 81° W
Chakrata	S 9° E	S 73° W
Darjeeling	N 67° W	S 58° E

Winds were even steadier than usual both at Zanzibar and the Seychelles, and were on the mean of the month normal in direction, as is shown by the following data:—

Station.	Wind direction.		Velocity in miles per diem.		Steadiness.	
	Actual, September 1897.	Normal, September.	Actual, September 1897.	Normal, September.	Actual percentage, September 1897.	Normal percentage, September.
Zanzibar	S 10° E	S 8° E	119	138	70	63
Seychelles (Port Victoria).	S 36° E	S 41° E	304	292	92	90

Humidity and Cloud.

The mean humidity conditions of the month differed very slightly from the normal at Port Blair and in Burma and Assam. The mean aqueous vapour pressure was very slightly higher than usual, whilst the mean humidity percentage was practically normal, as also was the temperature on the mean of the month.

The mean humidity conditions of the month varied little from the normal over the whole of Northern India, East Rajputana and Central India. The amount of aqueous vapour present in the air, as measured by its pressure, was in slight excess, by amounts not exceeding 7 per cent. of the normal mean aqueous vapour pressure of the month. As the mean temperature of the month was slightly above the normal, the variations of the mean relative humidity of the month were small over the whole area. The variations were generally positive in the Punjab, East Rajputana, Central India, and the western districts of the North-Western Provinces, and were greatest at Ajmere (+8) and Peshawar, Lahore, Roorkee and Nowgong (each +4). The mean relative humidity of the month was,

on the other hand, normal or in very slight defect in Bengal, Chota Nagpur, Bihar and the eastern districts of the North-Western Provinces.

The air was much damper than usual in Upper Sind and South-West Rajputana. The following data illustrate this feature :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1897.	Normal, September.	Variation from normal, September 1897.	Actual, September 1897.	Normal, September.	Variation from normal, September 1897.
	"	"	"	%	%	
Jacobabad . . .	·882	·690	+·192	63	52	+11
Deesa	·860	·723	+·137	78	66	+12
Mount Abu . .	·622	·547	+·075	86	77	+ 9

The humidity conditions in the west coast districts and the northern half of the Peninsula were similar to those which obtained in Northern India. The variations were small, but generally indicated a slight excess in the amount of aqueous vapour in the lower strata of the atmosphere.

The following gives comparative data for the larger divisions of Northern and Central India in September :—

POLITICAL PROVINCE OR AREA.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
	"	"	"	%	%	
Bengal . . .	·953	·941	+·012	85	85	0
Chota Nagpur . .	·764	·754	+·010	79	84	− 5
Bihar	·954	·923	+·031	81	81	0
N.-W. Provinces and Oudh.	·831	·790	+·041	74	73	+ 1
Punjab . . .	·720	·712	+·008	60	59	+ 1
Rajputana . . .	·792	·698	+·094	72	65	+ 7
Central India . .	·850	·784	+·066	76	73	+ 3
Central Provinces .	·830	·770	+·060	79	77	+ 2

The air was, on the other hand, considerably damper than usual over nearly the whole of the Madras Presidency (except Malabar). This was chiefly due to the increased influx of humid winds and occurrence of general rain over that area, more especially during the last fortnight of the month. The following gives comparative data for stations in that area at which the mean humidity of the month was more than 5 in excess.

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1897.	Normal, September.	Variation from normal, September 1897.	Actual, September 1897.	Normal, September.	Variation from normal, September 1897.
	"	"	"	%	%	
Madras . . .	·924	·823	+·101	85	73	+12
Vizagapatam . .	·919	·864	+·055	83	74	+ 9
Chitaldroog . .	·664	·592	+·072	77	69	+ 8
Wellington . . .	·481	·428	+·053	83	76	+ 7
Hassan . . .	·628	·578	+·050	82	76	+ 6
Bangalore . . .	·654	·603	+·051	82	76	+ 6
Salem	·793	·746	+·047	78	72	+ 6

The following table gives comparative data for the five divisions of the Peninsula.

DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
	"	"	"	%	%	
West Coast. . .	·861	·838	+·023	85	85	0
Bombay Deccan . .	·696	·656	+·040	79	77	+ 2
Madras Deccan . .	·620	·654	—·034	63	64	— 1
Madras Coast . .	·905	·847	+·058	82	74	+ 8
Madras South . .	·771	·732	+·039	73	67	+ 6

The air was, on the whole, more humid than usual at the Himalayan hill stations. The following gives data for six stations:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, September 1897.	Normal, September.	Variation from normal, September 1897.	Actual, September 1897.	Normal, September.	Variation from normal, September 1897.
	"	"	"	%	%	
Leh	·167	·172	—·005	42	41	+ 1
Srinagar	·559	·493	+·066	85	78	+ 7
Murree	·417	·418	—·001	65	65	0
Simla	·442	·441	+·001	83	78	+ 5
Ranikhet	·522	·508	+·014	82	81	+ 1
Darjeeling	·493	·478	+·015	95	94	+ 1

The chief features of the humidity conditions of the month were:—

(1) Conditions were practically normal over the whole of India except in two areas. The absolute humidity was generally in slight excess and the relative humidity varied somewhat irregularly from the normal, depending chiefly upon the temperature variations.

(2) The air was much damper than usual in Upper Sind and South-West Rajputana and also at Mount Abu.

(3) The air was much damper in Mysore and Madras (excepting Malabar) and also at Wellington.

(4) The air was somewhat damper at the hill stations in Northern India.

Cloud.—There was more cloud than usual over the whole of India, excepting the Gangetic Plain, Central India and West Bengal, and locally at Bombay, Kurrachee, Chittagong, Cocanada and Rangoon.

The following gives comparative data for the area of deficient cloud amount in Northern India:—

Area.	Mean cloud amount.		
	Average actual, September 1897.	Average normal, September	Variation from normal, September 1897.
West Bengal	7·4	7·6	—0·2
Bihar	5·5	6·2	—0·6
North-Western Provinces and Oudh	4·1	4·5	—0·4
Central India	4·7	5·4	—0·7

The deficiency was small in actual amount except, perhaps, locally at Lucknow (—1·5) and Sutna (—1·2).

The mean amount of cloud during the month was in slight excess in the Punjab, Sind, the Central Provinces, East Bengal, Assam, Mysore and Southern India, as is shown by the following comparative data:—

Political Province or area.	Mean cloud amount.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
Punjab	1·9	1·7	+0·2
Sind	2·4	2·2	+0·2
Central Provinces	6·7	6·0	+0·7
East Bengal	7·4	6·9	+0·5
Assam	7·6	7·2	+0·4
Burma	7·7	7·7	0
Southern India	7·2	6·1	+1·1
Mysore	8·2	7·3	+0·9

There was considerably more cloud than usual in Rajputana and the Peninsula except the Central Provinces and Southern India.

The following gives comparative data for that area:—

Division.	Mean cloud amount.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
Rajputana	5·3	4·1	+1·2
Berar	7·8	6·6	+1·2
Deccan	8·6	7·6	+1·0
West Coast	7·3	6·1	+1·2
Madras or East Coast	6·8	6·1	+0·7

There was somewhat less cloud than usual at the hill stations in Upper India and somewhat more cloud in Central India. The defect was most marked at Murree (—1·0) and Kailang (—0·8), and the excess at Mount Abu (+1·2). Cloud was in largish excess at Wellington in Southern India (+1·6).

It is noteworthy that the cloud amount was largely in defect at Zanzibar and in slight defect at Aden and Perim. The following gives data :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, September 1897.	Normal, September.	Variation from normal, September 1897.
Zanzibar	3·1	4·8	—1·7
Aden	2·1	2·3	—0·2
Perim	2·2	2·8	—0·6

The chief features of the distribution of cloud during the month were as follows :—

(1) There was somewhat less cloud than usual in the Gangetic Plain, Central India and West Bengal.

(2) The mean cloud amount was in slight to moderate excess in Sind, the Punjab, the Central Provinces, East Bengal and Assam.

(3) Cloud was in considerable excess over the greater part of the Peninsula and in Rajputana.

Rainfall.

The rainfall of the month was unusually favourably distributed in North Bengal, parts of East Bengal, Madras, Bombay, Sind, Kathiawar and the Hill districts of Baluchistan, the North-Western Provinces and Assam, and was largely determined and modified by the depressions or cyclonic storms of the month.

The chief periods of most general rainfall were as follows :—

(1) From the 1st to the 6th, during which nearly the whole of India obtained moderate to heavy rain.

(2) From the 11th to the 19th during which the whole of India again obtained moderate to heavy rain partly due to an advance of winds from the North Bombay Coast and partly to the passage of the first storm of the month.

(3) From the 19th to the 22nd during which the eastern states of Rajputana, the Deccan, Malabar, Gujrat, Kathiawar, Cutch, Central India, Bengal and Orissa obtained light to moderate rain. The rainfall during this period was chiefly due to abnormal pressure conditions in Southern India.

(4) From the 25th to the end of the month during which nearly the whole of India (especially North-Eastern India) obtained moderate to heavy rain due to the passage of the last cyclonic storm of the month.

The following summarizes the chief features of the rainfall distribution of the month:—

(1) Rainfall was in slight to large defect in 26 rainfall divisions and more or less in excess in the remaining 31 rainfall divisions.

(2) It averaged between 2 and 20 per cent. in defect in 12 divisions, including Oudh North, Berar, the Central Provinces West, the North-Western Provinces West and submontane, the Punjab North and West, Bihar South, Chota Nagpur, Gujarat, Deltaic Bengal and Lower Burma (Deltaic).

(3) It was between 21 and 40 per cent. in defect in 11 divisions, including Orissa, Central Burma, Rajputana East, Central India East and West, Baluchistan Hills, the North-Western Provinces Central, Oudh South, the Punjab South and Submontane, Tenasserim and Upper Burma.

(4) It was more than 40 per cent. in defect in the following divisions :—

The North-Western Provinces East (42 in defect), the Punjab South-East (45 per cent. in defect) and the Punjab Central, (56 per cent. in defect).

(5) The excess averaged between 5 and 30 per cent. in 13 divisions, including Arakan, Assam (Surma), Bihar North, Central Bengal and Bengal Hills, the North-Western Provinces Submontane, the Punjab Hills, Konkan, Rajputana West, the Central Provinces East and Central and Hyderabad North and South.

(6) It averaged between 35 and 62 per cent. in excess in 8 divisions, including Eastern Bengal, North Bengal Malabar, the Bombay Deccan, Khandesh, Kathiawar, Assam (Brahmaputra) and East Coast North (*a*).

(7) It was more than 70 per cent. in excess in the following divisions :—Assam Hills, the North-Western Provinces Hills, East Coast North and South, Madras Central, Mysore (104 per cent. in excess), East Coast Central (119 per cent. in excess), Madras South (117 per cent. in excess), Coorg (125 per cent. in excess) and Sind (157 per cent. in excess).

(8) The rainfall of the month was hence in moderate to large defect in Upper Burma, Tenasserim, the Central and South-East Punjab and the North-Western Provinces East, and largely in excess in Madras, Bombay, Mysore, Coorg, Sind, Assam and the North-Western Provinces Hills, North Bengal and parts of East Bengal.

The following table gives comparative rainfall data of the month for the 57 meteorological divisions of India :—

Province.	Division.	Number of rainy days. Average actual, September 1897.	Number of rainy days. Average normal, September.	Rainfall. Average actual, September 1897.	Rainfall. Average normal, September.	Rainfall. Variation from normal, Sept. 1897.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	17·52	25·39	−7·87
	Lower Burma Deltaic*	?	?	11·19	13·94	−2·75
	Central ditto*	?	?	6·97	8·95	−1·98
	Upper ditto*	?	?	5·45	8·75	−3·30
	Arakan*	?	?	22·37	21·14	+1·23
Bengal and Assam	Eastern Bengal	14·4	12·7	14·57	10·64	+3·93
	Assam (Surma)	18·0	16·0	18·68	16·46	+2·22
	Do. (Hill Tracts)	17·1	17·8	39·56	20·67	+18·89
	Do. (Brahmaputra)	16·2	12·9	16·70	11·13	+5·57
	Deltaic Bengal	11·7	11·8	7·40	8·50	−1·10
	Central do.	11·6	11·5	9·79	9·23	+0·56
	North do.	14·4	12·4	22·61	15·38	+7·23
	Bengal Hills	18·0	16·9	21·50	19·53	+1·97
	Orissa	12·7	12·7	8·36	10·70	−2·34
	Chota Nagpur	10·1	11·1	7·01	8·20	−1·19
	Bihar (South)	8·1	9·0	6·07	6·96	−0·89
	Do. (North)	10·3	9·3	10·33	9·45	+0·88
North-Western Provinces and Oudh.	North-Western Provinces (East)	6·2	8·1	3·99	6·89	−2·90
	Oudh (South)	5·9	7·4	4·71	6·52	−1·81
	Do. (North)	6·8	7·2	7·04	7·22	−0·18
	North-Western Provinces (Central)	5·2	6·5	4·07	5·50	−1·43
	Do. do. (West)	3·3	4·8	4·09	4·62	−0·53
	Do. do. (Submontane East)	7·1	7·9	7·30	7·91	−0·61
	Do. do. (do. West)	6·6	6·4	8·07	7·30	+0·77
	Do. do. (Hills)	9·3	9·5	15·56	7·95	+7·61
Punjab	Punjab (South-East)	3·0	4·1	2·33	4·20	−1·87
	Do. (South)	2·3	2·9	1·69	2·38	−0·69
	Do. (Central)	1·7	2·5	0·96	2·33	−1·37
	Do. (Submontane)	3·6	3·7	2·55	3·76	−1·21
	Do. (Hill Districts)	6·1	7·4	7·40	6·40	+1·0[illegible]
	Do. (North)	2·7	2·7	1·57	1·94	−0·[illegible]7
	Do. (West)	1·1	1·3	0·86	0·94	−0·[illegible]8
Bombay and Malabar Coast Districts (Madras).	Malabar	16·7	14·4	14·10	9·76	+4·34
	Travancore	12·6	?	10·36	?	?
	Madras (South Central)	11·3	6·3	9·71	4·32	+5·39
	Coorg	15·4	?	9·21	?	?
	Mysore*	?	?	9·97	4·88	+5·09
	Konkan	19·0	16·8	16·20	14·97	+1·23
	Bombay Deccan	11·5	8·4	8·19	5·53	+2·66
	Hyderabad North	13·1	?	9·66	7·55	+2·11
	Khandesh	11·9	9·2	10·80	7·07	+3·73
Central Provinces and Berar.	Berar	9·9	?	6·98	7·34	+0·36
	Central Provinces (West)	10·7	9·1	7·78	8·41	−0·63
	Do. (Central)	10·7	8·5	7·80	7·18	+0·62
	Do. (East)	10·8	6·1	7·36	7·03	+0·33
Bombay (North)	Gujarat	10·8	8·3	6·72	8·03	−1·31
	Kathiawar	9·3	4·4	6·35	4·70	+1·65
	Sind	2·2	?	1·26	0·49	+0·77
	Baluchistan Hills	0·3	?	0·11	0·15	−0·04
Rajputana and Central India.	Central India (East)	7·2	?	5·04	7·07	−2·03
	Rajputana (East) and Central India (West)	4·4	?	2·90	3·84	−0·94
	Rajputana (West)	3·0	?	1·79	1·53	+0·26
Madras	East Coast (North)	15·4	9·1	11·85	6·90	+4·95
	Do. (do.) (a)	17·0	12·4	14·00	8·63	+5·37
	Hyderabad (South)	11·9	?	7·36	6·01	+1·35
	Madras (Central)	14·6	7·2	10·60	5·36	+5·24
	East Coast (Central)	11·3	5·5	7·90	3·61	+4·29
	Do. (South)	11·5	6·3	9·57	4·87	+4·70
	Madras (South)	6·7	3·8	4·85	2·23	+2·62

* NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

The discussion on the wind section has shown that the Bay monsoon current was diverted less largely than usual to Tenasserim and Lower Burma.

This is confirmed by the rainfall of the month. The coast districts of Arakan, Lower Burma and Tenasserim received daily rain throughout the month (except from the 21st to the 27th when the rainfall was very scanty) and Central and Upper Burma during three periods, *viz.*, the 1st to the 6th, the 12th to the 20th and the 28th to the 30th.

The following table gives comparative data for the five divisions of Burma:—

Meteorological Division.	Rainfall.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
	Inches.	Inches.	Inches.
Tenasserim	17·52	25·39	—7·87
Lower Burma (Deltaic)	11·19	13·94	—2·75
Central ,,	6·97	8·95	—1·98
Upper ,,	5·45	8·75	—3·30
Arakan	22·37	21·14	+1·23

The rainfall of the month was in slight excess (6 per cent.) in Arakan and in largish defect over the whole of Burma. The deficiency was absolutely greatest in Tenasserim (—7·87 inches) and relatively to the normal in Upper Burma which received 62 per cent. of its normal fall.

The rainfall of the month was most scanty in the central districts, including Minbu and Yamethin for which data are given below:—

District.	Rainfall.		
	Average actual, September 1897.	Average. normal, September.	Variation from normal, September 1897.
	Inches.	Inches.	Inches.
Minbu	2·74	5·36	—2·62
Yamethin	4·83	6·89	—2·06

Assam obtained rain chiefly during the same periods as Bengal, *viz.*, from the 1st to the 6th, the 14th to the 19th and the 24th to the 29th. The Assam hills obtained heavy rain during the first period. Thus Cherrapunji received 22·85 inches on the 1st, 16·42 inches on the 2nd, 13·40 inches on the 3rd, 24·20 inches on the 4th, and 17·53 inches on the 5th, and during these five days a total of 94·40 inches. The only other heavy fall during the month at that station was 14·88 inches on the 16th. The rainfall of the month was in slight excess in the two plain divisions and was in large excess in the hill districts.

The following gives data for the three divisions of the province:—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average actual, September 1897.	Average normal, September.	Variation from normal September 1897.	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
				Inches.	Inches.	Inches.
Assam (Surma)	18·0	16·0	+2·0	18·68	16·46	+ 2·22
,, (Brahmaputra)	16·2	12·9	+3·3	16·70	11·13	+ 5·57
,, (Hill Tracts)	17·1	17·8	—0·7	39·56	20·67	+18·89

The rainfall of the month was very irregularly distributed in Assam, as is shown by the comparative data for the eight districts in the table given below:—

District.	Rainfall.			
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Percentage variation from normal, September 1897.
	Inches.	Inches.	Inches.	
Cachar	19·08	12·41	+ 6·67	+ 54
Sylhet	18·27	19·93	— 1·66	— 8
Goalpara	27·47	12·01	+15·46	+129
Kamrup	14·65	8·30	+ 6·35	+ 77
Darrang	18·84	8·21	+10·63	+129
Nowgong	12·69	11·54	+ 1·15	+ 10
Sibsagar	15·60	10·07	+ 5·53	+ 55
Lakhimpur	14·92	14·04	+ 0·88	+ 6

Bengal received on the whole normal rainfall, but it was more irregularly distributed than usual.

The first period of general rain extended from the 1st to the 5th. The northern districts of North Bengal received very heavy rain from the 1st to the 5th, after which

dry weather set in lasting until the 13th. The following gives data of this burst :—

District.	Average actual rainfall during 24 hours preceding 8 a. m. of					Total rainfall of period 1st to 5th September 1897.
	1st September.	2nd September.	3rd September.	4th September.	5th September.	
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Darjeeling . .	2·39	4·50	2·45	0·84	0·74	10·92
Jalpaiguri . .	5·22	5·77	3·93	2·39	0·81	18·12
Cooch Behar . .	6·30	4·98	2·71	1·53	0·12	15·64
Dinajpore	1·56	3·14	1·69	0·94	0·81	8·14
Rangpur .	2·35	3·76	0·63	1·91	1·29	9·94

East Bengal and Bihar received general and moderately heavy rain during the same period. Chota Nagpur, Orissa and South-West Bengal obtained scattered showers during the same period and moderately heavy general rain from the 5th to 11th.

The second period of general rainfall was from the 14th to the 18th. The rainfall was heaviest in East Bengal and was very irregularly distributed in Bihar and Orissa, heavy falls occurring at some stations whilst neighbouring stations had no rain. The rainfall was very light during this period in Chota Nagpur.

Frequent showers occurred during the remainder of the month. Orissa and South-West Bengal obtained moderate and fairly general rain on the 24th and 25th. The rainfall was very light and partial from the 26th to the end of the month.

The following gives a summary of the rainfall data of the month published in the *Calcutta Gazette* for the nine divisions of the province :—

Meteorological Division.	Number of rainy days			Rainfall.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Average actual, September 1897.	Average normal, September	Variation from normal, September 1897.
				Inches.	Inches.	Inches.
Eastern Bengal . .	14·4	12·7	+1·7	14·57	10·64	+3·93
Deltaic ,, . .	11·7	11·8	−0·1	7·40	8·50	−1·10
Central ,, . .	11·6	11·5	+0·1	9·79	9·23	+0·56
North ,, . .	14·4	12·4	+2·0	22·61	15·38	+7·23
Bengal Hills . .	18·0	16·9	+1·1	21·50	19·53	+1·97
Orissa . .	12·7	12·7	0	8·36	10·70	−2·34
Chota Nagpur . .	10·1	11·1	−1·0	7·01	8·20	−1·19
South Bihar . .	8·1	9·0	−0·9	6·07	6·96	−0·89
North ,, . .	10·3	9·3	+1·0	10·33	9·45	+0·88

The rainfall of the month was more than 33 per cent. in excess in the districts for which data are given below :—

District.	Rainfall.		
	Average actual, September 1897.	Average normal, September.	Percentage variation from normal, September 1897.
	Inches.	Inches.	
Cooch Behar	30·82	19·69	+56
Mymensingh	19·13	12·37	+55
Rangpur	19·97	13·45	+49
Champaran	14·00	9·81	+43
Dacca	12·00	8·84	+36
Bankura	11·40	8·51	+34
Tippera	13·41	10·00	+34

It was more than 33 per cent. in defect in the following districts :—

District.	Rainfall.		
	Average actual, September 1897.	Average normal, September.	Percentage variation from normal, September 1897.
	Inches.	Inches.	
Balasore	5·98	11·37	−47
Singhbhum	4·47	7·81	−43
Patna	4·10	7·01	−42
Calcutta	5·94	9·33	−36
24-Parganas	5·90	8·94	−34

The North-Western Provinces received, on the whole, favourable rain during the month. The whole province with the exception of three districts in the western division obtained general rain from the 1st to the 4th. The rainfall was heavy in the Basti, Gorakhpur and Bahraich dis-

tricts and also in the Naini Tal and Almora hill districts. The following gives the largest falls in 24 hours :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Naini Tal	Nagla	2nd September.	6·40
Almora	Pithoragarh	,, ,,	5·27
Basti	Basti	3rd ,,	11·00
	Bansi	,, ,,	6·85
	Domariaganj	,, ,,	5·83
Gorakhpur	Maharajganj	,, ,,	8·74
Bahraich	Nanpara	,, ,,	7·65
	Bahraich	,, ,,	5·50
Pilibhit	Pilibhit	,, ,,	5 30
Bareilly	Baheri	,, ,,	5·61

No rain was received during this period in the Muzuffernagar, Muttra and Bulandshahr districts.

The second period of general rain extended from the 13th or 14th to the 16th. This was due to an advance of winds from the North Bombay coast. This rainfall was light and was irregular in the eastern districts and also in North Oudh. It was moderately heavy in the central and western divisions and heavy in the western submontane and hill districts. The largest falls were registered in the Naini Tal district.

The third period of rain extended from the 25th to the 27th. This rainfall was due to the passage of the small but severe storm of the fourth week of the month. The narrow belt of country through which the storm passed including the Agra, Muttra, Aligarh, Badaun, Bulandshahr, Bareilly, Moradabad, Almora and Naini Tal districts received very heavy rain from the storm. The following gives a summary :—

District.	Average actual rainfall during 24 hours preceding 8 A.M. of			Total rainfall of period 25th to 27th September 1897.
	25th September.	26th September.	27th September.	
	Inch.	Inches.	Inches.	Inches.
Agra	0	3·10	0·11	3·21
Muttra	0	3·93	0	3·93
Aligarh	0	3·59	0·07	3·66
Bulandshahr	0	2·76	0·14	2 90
Pilibhit	0	3·70	1·47	5·17
Badaun	0·06	3·52	0·44	4·02
Bareilly	0·29	3·15	2·51	5·95
Moradabad	0	3·07	0·91	3·98
Almora	1·38	4·62	2·80	8·80
Naini Tal	0·19	4·73	5·23	10·15

Champawat in Almora received the excessive amount of 15·35 inches on the 27th, and Tanakpur in the same district 11·45 inches on the 26th. 11·26 inches were registered at Naini Tal on the 27th. These heavy downpours in the Naini Tal and Almora districts gave rise to floods and landslips.

The following table gives comparative data of the rainfall of the month for the eight divisions of the province :—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average actual, September 1897.	verage normal, September.	Variation from normal, September 1897.	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
				Inches.	Inches.	Inches.
North-Western Provinces East.	6·2	8·1	—1·9	3·99	6·89	—2·90
South Oudh	5·9	7·4	—1·5	4·71	6·52	—1·81
North Oudh	6·8	7·2	—0·4	7·04	7·22	—0·18
North-Western Provinces Central.	5·2	6·5	—1·3	4·07	5·50	—1·43
North-Western Provinces West.	3·3	4·8	—1·5	4·09	4·62	—0·53
North-Western Provinces East Submontane.	7·1	7·9	—0·8	7·30	7·91	—0·61
North-Western Provinces West Submontane.	6·6	6·4	+0·2	8·07	7·30	+0·77
North-Western Provinces Hills.	9·3	9·5	—0·2	15·56	7·95	+7·61

The distribution of the rainfall of the month is shown fully by the following data for the 48 districts of the province :—

District.	Rainfall.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
	Inches.	Inches.	Inches.
Fyzabad	5·48	7·62	—2·14
Gonda	9·68	8·27	+1·41
Bara Banki	4·01	6·68	—2·67
Bahraich	12·45	6·90	+5·55
Sitapur	4·65	6·56	—1·91
Kheri	8·81	7·53	+1·28
Sultanpur	4·00	7·74	—2·84

District.	Rainfall. Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
	Inches.	Inches.	Inches.
Partabgarh	3·53	6·72	—3·19
Rae Bareli	3·49	7·13	—3·64
Unao	5·09	5·45	—0·36
Lucknow	3·32	6·40	—3·08
Hardoi	7·27	5·71	+1·56
Ghazipur	5·71	6·70	—0·99
Benares	2·16	6·59	—4·43
Jaunpur	5·50	7·78	—2·28
Mirzapur	4·39	6·97	—2·58
Allahabad	2·74	6·50	—3·76
Banda	3·29	6·50	—3·21
Fatehpur	2·16	5·42	—3·26
Hamirpur	4·05	5·48	—1·43
Cawnpore	4·21	5·15	—0·94
Jalaun	2·59	4·95	—2·36
Etawah	5·07	5·63	—0·56
Farukhabad	6·11	5·38	+0·73
Mainpuri	5·14	5·33	—0·19
Etah	4·38	5·71	—1·33
Jhansi	3·34	5·31	—1·97
Agra	4·56	4·76	—0·20
Muttra	4·85	4·18	+0·67
Aligarh	4·85	4·58	+0·27
Bulandshahr	3·37	5·03	—1·66
Meerut	3·03	4·58	—1·55
Pilibhit	16·05	8·21	+7·84
Shahjahanpur	8·18	6·06	+2·12
Badaun	5·94	6·14	—0·20
Bareilly	12·78	7·40	+5·38
Moradabad	6·70	6·38	+0·32
Bijnor	8·81	7·75	+1·06
Muzaffernagar	2·07	5·47	—3·40
Saharanpur	3·91	6·88	—29·7
Dehra Dun	9·22	10·82	—1·60
Almora	15·87	8·47	+7·40
Garhwal	6·79	5·61	+1·18
Naini Tal	21·39	8·82	+12·57
Gorakhpur	9·37	8·22	+1·15
Basti	8·39	8·54	—0·15
Azamgarh	6·16	7·80	—1·64
Ballia	4·26	6·78	—2·52

The Punjab received rain chiefly during three periods. The first period was from the 1st to the 7th. The rainfall in this period occurred chiefly in the submontane and hill districts, more especially Umballa, Hoshiarpur, Gurdaspur, Gujarat, Jhelum, Rawalpindi, Peshawar, Shahpur Simla and Kangra.

The second period extended from the 13th or 14th to the 16th. The southern and south-eastern districts, more especially Hissar, Gurgaon, Rohtak, Delhi and Karnal received a moderately heavy burst of rain. The following falls in 24 hours exceeding 3 inches were registered during this period :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
SIMLA	Kasauli	13th September.	3·50
GURDASPUR	Dalhousie	,, ,,	3·12
DELHI	Delhi	14th ,,	3·12
KARNAL	Karnal	15th ,,	3·35
HISSAR	Bhiwani	,, ,,	3·20
,,	Hissar	,, ,,	3·07

The rainfall was, on the other hand, light in the northern and central districts and practically no rain fell in the western districts.

The third period of rain was the 25th and the 26th. The whole province with the exception of the western districts, received rain during this period.

The falls were, however, generally light in the plains, but were heavy in the hills and also in the Umballa and Hoshiarpur districts. The following gives the largest falls registered in 24 hours :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
JULLUNDUR	Nawashahr	25th September.	4·35
UMBALLA	Rupar	,, ,,	3·02
HOSHIARPUR	Una	26th ,,	5·06
,,	Garhshankar	,, ,,	5·04
KANGRA	Hamirpur	,, ,,	5·47
,,	Nagar	,, ,,	3·90
,,	Plach	,, ,,	3·75
,,	Kulu	,, ,,	3·49
UMBALLA	Umoalla	,, ,,	3·20

This was the last burst of general rain in this province due to the south-west monsoon of 1897. The following tables give comparative data of the seven divisions of the province and also of the 31 districts:—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
				Inches.	Inches.	Inches.
South-East Punjab	3·0	4·1	—1·1	2·33	4·20	—1·87
South Punjab	2·3	2·9	—0·6	1·69	2·38	—0·69
Central ,,	1·7	2·5	—0·8	0·96	2·33	—1·37
Punjab Submontane	3·6	3·7	—0·1	2·55	3·76	—1·21
,, Hills	6·1	7·4	—1·3	7·40	6·40	+1·00
North Punjab	2·7	2·7	0	1·57	1·94	—0·37
West ,,	1·1	1·3	—0·2	0·86	0·94	—0·08

District.	Rainfall.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
	Inches.	Inches.	Inches.
Hissar	2·90	2·22	+0·68
Ferozepore	0·51	2·58	—2·07
Montgomery	0·80	1·12	—0·32
Gurgaon	1·65	4·38	—2·73
Rohtak	2·56	3·36	—0·80
Delhi	2·57	5·21	—2·64
Karnal	3·73	4·05	—0·32
Lahore	0·60	2·43	—1·83
Umballa	4·71	4·82	—0·11
Ludhiana	2·18	3·74	—1·56
Jullundur	3·04	3·85	—0·81
Hoshiarpur	4·40	4·25	+0·15
Gurdaspur	2·59	4·43	—1·84
Amritsar	0·84	2·56	—1·72
Simla	6·41	5·82	+0·59
Kangra	8·07	6·79	+1·28
Gujranwala	0·84	2·13	—1·29
Sialkot	0·87	2·64	—1·77
Gujrat	1·67	2·66	—0·99
Jhelum	1·65	2·08	—0·43
Rawalpindi	2·23	3·20	—0·97

District.	Rainfall.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
	Inches.	Inches.	Inch.
Peshawar	0·97	1·15	—0·18
Hazara	1·98	2·84	—0·86
Kohat	1·98	1·49	+0·49
Bannu	1·09	0·75	+0·34
Shahpur	1·20	1·27	—0·07
Jhang	0·44	0·77	—0·33
Dera Ismail Khan	0·93	0·52	+0·41
Dera Ghazi Khan	0·33	0·41	—0·08
Muzaffargarh	1·07	0·54	+0·53
Mooltan	0·56	0·70	—0·14

Baluchistan was practically rainless during the month. Some local showers of little importance fell on the 5th and 6th.

Rajputana received general and moderately heavy rain between the 13th and 16th. Occasional local showers fell between the 19th and the 22nd, heaviest and most general in Kotah and Ajmere-Merwara, and fairly general rain on the 25th and 26th in the eastern and central states and showers in the western states on the 26th and 27th.

The rainfall of the month differed to no large extent from the normal over by far the greater part of the province, as is shown by the following comparative statement for the larger states:—

State.	Rainfall.			
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Percentage variation from normal, September 1897.
	Inches.	Inches.	Inches.	
Ulwar	1·86	5·05	—3·19	—63
Bhurtpore	3·05	4·37	—1·32	—30
Dholpur	3·40	?	?	?
Kerowlee	4·27	4·99	—0·72	—14
Tonk	2·82	3·12	—0·30	—10
Deoli	3·20	4·45	—1·25	—28
Kotah	3·21	4·56	—1·35	—30
Ajmere Merwara	2·09	2·88	—0·79	—27
Oodeypore	5·71	5·39	+0·32	+ 6
Sirohee	5·02	3·37	+1·65	+49
Jeypore	1·82	2·95	—1·13	—38
Jodhpore	1·82	1·72	+0·10	+ 6

Central India obtained fairly general rain during four periods, *viz.*, the 1st to the 6th, the 12th to the 15th, the 18th to the 22nd and the 25th to the 27th.

The rainfall of the month varied very irregularly from the normal but was generally moderate to considerable in defect. The following gives comparative data for the larger states or divisions :—

STATE.	RAINFALL.			
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Percentage variation from normal, September 1897.
	Inches.	Inches.	Inches.	
Bundelkhand . .	3·81	6·55	—2·74	—42
Rewah	4·41	7·17	—2·76	—38
Gwalior . . .	4·90	6·15	—1·25	—20
Bhopal . . .	6·54	8·87	—2·33	—26
Indore	10·87	7·63	+3·24	+42
Rutlam . .	7·51	7·94	—0·43	— 5

The rainfall of the month in the Central Provinces occurred during two periods.

Light to moderate showers from the 1st to the 5th gave a very irregularly distributed rainfall. The fall during this period was lightest in the western districts and was moderate in amount in the eastern and central districts.

The second period of rainfall extended from the 9th to the 14th, and was due to the passage of the first storm of the month through the province. The eastern and central districts received moderate and fairly general rain, and the western and northern districts light showers. A partial break in the rains obtained from the 15th to the 19th. Light to moderate rain was received (chiefly in the northern districts) during the next four days. The passage of the third storm of the month gave brief but heavy rainfall in the central and northern districts, more especially the Betul, Nagpur, Chanda and Bhandra districts on the 25th and 26th. Local showers of no importance fell during the remainder of the month.

The rainfall of the month was in moderate excess over the eastern and central districts, the excess being on the whole greatest in the most easterly districts.

Berar received rain during the same periods as the Central Provinces, and the rainfall of the month was in slight defect as in the western division of the Central Provinces.

The following table gives a summary of the rainfall data of the month :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
				Inches.	Inches.	Inch.
Central Provinces (East)	10·8	6·1	+4·7	7·36	7·03	+0·33
,, (Central)	10·7	8·5	+2·2	7·80	7·18	+0·62
,, (West)	10·7	9·1	+1·6	7·78	8·41	—0·63
Berar . . .	9·9	?	?	6·98	7·34	—0·36

Light showers fell in the Konkan from the 1st to the 18th. The monsoon winds, which were somewhat feebler than usual during that period increased to their normal strength after the 20th when squally weather prevailed and moderate to heavy showers were received until the end of the month. The total rainfall of the month averaged 14·97 inches and was 1·23 inches or only 8 per cent. above the normal of the month.

The periods of general rain in the Deccan were from the 5th to the 12th and from 19th to the 30th. The rain was most excessive in the districts of Dharwar, Bijapur, Kolhapur, Satara, Sholapur, Ahmednagar, Nasik and Khandesh as is shown by the following table :—

DISTRICT.	RAINFALL.			
	Average actual, September 1897.	Average normal, September.	Variation from normal.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Khandesh . . .	9·34	4·49	+4·85	+108
Kolhapur . . .	6·71	3·37	+3·34	+ 99
Dharwar . . .	7·34	3·88	+3·46	+ 89
Bijapur	10·55	5·58	+4·97	+ 89
Sholapur . . .	14·53	7·86	+6·67	+ 85
Ahmednagar . . .	11·15	6·19	+4·96	+ 80
Nasik	12·73	8·04	+4·69	+ 80
Satara	8·23	4·83	+3·40	+ 70
Belgaum . .	4·96	4·52	+0·44	+ 10
Poona	7·50	7·50	0	0

The rainfall was hence in large excess in all the districts in this division, except Belgaum and Poona, where it was practically normal.

Light rain fell in Gujarat during the first week of the month and almost daily showers from the 11th to the end of the month. The rainfall was in considerable

defect in the districts of Surat and Broach (each 27 per-cent. in defect) and Panch Mahals (49 per cent. in defect).

Light daily rain was received in the Kathiawar and Cutch states from the 1st to the 8th and moderate to heavy falls from the 12th to the 17th and from the 21st to the end of the month. The rainfall was most excessive in the districts of Cutch (122 per cent. in excess) and Palanpur (63 per cent. in excess). The heaviest local fall in 24 hours was 6 inches at Tharad in the Palanpur district on the 26th.

Except one or two heavy local showers, no rain fell in Sind during the first eleven or twelve days of the month, after which some heaver falls were received. The excess averaged 81 per cent. in the districts of Kurrachee, Shikarpur and Upper Sind.

The following table gives comparative data of the rainfall of the month in the six divisions of the Bombay Presidency:—

Meteorological Division.	Number of rainy days.			Rainfall.			
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Percentage variation from normal.
				Inches.	Inches.	Inches	
Konkan	19·0	16·8	+2·2	16·20	14·97	+1·23	+ 8
Bombay Deccan	11·5	8·4	+3·1	8·19	5·53	+2·66	+ 48
Khandesh	11·9	9·2	+2·7	10·80	7·07	+3·73	+ 53
Gujarat	10·8	8·3	+2·5	6·72	8·03	−1·31	− 16
Kathiawar	9·3	4·4	+4·9	6·35	4·70	+1·65	+ 35
Sind	2·2	?	?	1·26	0·49	+0·77	+157

The northern districts of Madras, including Ganjam and the Circars, had more frequent and heavier rain than usual. They had moderate to heavy rain from the 5th to the 12th and again from the 22nd to the 27th. The rainfall of the month averaged 11·85 inches in these districts, or 72 per cent. above the normal of the month, and the excess was large in every district. The central and south-east coast divisions and the south division obtained frequent showers, more especially during the first ten days of the month, and a moderate general burst of rain from the 19th to the 21st and again from the 25th to the 30th.

The following gives average district rainfalls exceeding one inch in this area during these periods:—

District.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
		Inches
North Arcot	1st September	1·05
Madras	2nd ,,	2·79
Chingleput	2nd September	1·74
Madras	4th ,,	1·41
North Arcot	,, ,,	1·08
Ditto	6th ,,	1·44
Madras	20th ,,	3·02
Chingleput	,, ,,	1·56
Trichinopoly	,, ,,	1·04
Ditto	27th ,,	1·59
Madura	,, ,,	1·03
Ditto	28th ,,	1·12
Trichinopoly	,, ,,	1·02
Ditto	30th ,,	2·24
Tanjore	,, ,,	1·55

The rainfall of the month was in large excess over the whole of this area due to the frequent rainfall of the month. The rainfall was practically double the normal amount in all districts.

The Central or Deccan districts shared in the frequent rain of the month. The chief periods were the 1st to 3rd, the 5th to 10th and the 19th to the end of the month. The rainfall of the month averaged 10·60 inches, or 98 per cent. above the normal fall of the month.

The Malabar coast districts and Coorg obtained more frequent and heavy rain than usual. A short break obtained from the 12th to the 16th. The mean total rainfall of the month for Malabar was 14·10 inches, or 44 per cent. above the normal of the month. The following table gives comparative data for the eight divisions of the Presidency:—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.	Average actual, September 1897.	Average normal, September.	Variation from normal, September 1897.
				Inches.	Inches.	Inches.
Madras (South-Central)	11·3	6·3	+5·0	9·71	4·32	+5·39
Malabar	16·7	14·4	+2·3	14·10	9·76	+4·34
Madras East Coast (North).	15·4	9·1	+6·3	11·85	6·90	+4·95
Madras East Coast (North)(a).	17·0	12·4	+4·6	14·00	8·63	+5·37
Madras (Central)	14·6	7·2	+7·4	10·60	5·36	+5·24
Madras East Coast (Central).	11·3	5·5	+5·8	7·90	3·61	+4·29
Madras East Coast (South).	11·5	6·3	+5·2	9·57	4·87	+4·70
Madras (South)	6·7	3·8	+2·9	4·85	2·23	+2·62

The distribution of the rainfall of the month is shown more fully by the following comparative data of the 22 collectorates of the Presidency :—

DISTRICT.	No. of rainy days.		Rainfall.		
	Actual, September 1897.	Normal, September.	Actual, September 1897.	Normal, September.	Variation from normal, September 1897
			Inches.	Inches.	Inches.
Ganjam . . .	16·4	10·0	13·95	6·84	+7·11
Vizagapatam . .	16·6	9·9	13·65	7·40	+6·25
Godavari . . .	15·7	8·2	10·61	6·94	+3·67
Kistna . . .	12·5	8·0	8·94	5·73	+3·21
Nellore . . .	11·3	5·5	7·90	3·61	+4·29
Chingleput . .	10·9	6·4	9·90	4·93	+4·97
Madras . . .	1·30	7·1	11·01	4·75	+6·26
North Arcot . .	13·8	6·8	10·42	5·45	+4·97
South ,, . .	10·7	6·7	8·21	5·23	+2·98
Tanjore . . .	9·7	5·8	8·00	4·27	+3·73
Trichinopoly . .	12·9	5·9	13·02	4·20	+8·82
Madura . . .	8·3	4·8	6·85	2·92	+3·93
Tinnevelly . .	4·7	2·4	2·33	1·29	+1·04
Malabar . . .	13·7	13·6	10·22	9·15	+1·07
South Canara . .	19·9	15·6	21·00	11·72	+9·28
Salem . . .	13·8	7·6	12·34	5·50	+6·84
Coimbatore . .	7·8	4·8	6·09	2·92	+3·17
Nilgiris . . .	15·3	13·7	10·38	8·51	+1·87
Cuddapah . .	14·2	6·7	7·58	5·14	+2·44
Anantapur . .	15·9	7·2	12·30	5·46	+6·84
Bellary . . .	14·7	7·7	14·46	5·13	+9·33
Kurnool . . .	13·6	7·3	9·03	5·77	+3·26

Table

Abstract of Observations taken at 8 A.M. at 215

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
11	Central Bengal	Bankura	298	29·471	?	29·720	29·610	24th	29·341	8th	·269	81·8	90·6	?	77·6	?	84·1	?	13·0	95·6	29th	72·6	29th	23·0
		Raniganj	334	29·463	?	29·747	29·607	24th	29·334	4th	·273	80·9	90·3	?	77·4	?	83·8	?	12·9	94·2	28th	73·9	1st	20·3
		Burdwan	99	29·708?	+·049	29·755?	29·843	24th	29·580	8th	263	82·1	90·3	+0·8	79·3	+0·6	84·8	+0·7	11·0	94·4	2 days	76·8	4 days	17·6
		Naya Dumka	489	29·301	?	29·748	29·461	24th	29·160	4th	·301	81·7	89·6	?	76·4	?	83·0	?	13·2	93·5	28th	73·3	1st	20·2
		Berhampore	67	29·732	+·041	29·747	29·882	24th	29·587	4th	·295	82·2	89·3	+0·5	78·5	+0·1	83·9	+0·3	10·8	93·2	28th	75·8	19th	17·4
		Rampur Boalia.	70	29·730	?	29·749	29·879	24th	29·593	4th	286	82·5	88·8	?	78·8	?	83·8	?	10·0	93·1	28th	74·6	19th	18·5
		Malda	72	29·716	?	29·740	29·884	24th	29·570	4th	·314	81·8	89·4	?	77·8	?	83·6	?	11·6	93·6	28th	74·0	22nd	19·6
		Bogra	61	29·737	?	29·750	29·890	24th	29·577	4th	·313	81·3	88·1	+0·1	77·7	+0·5	82·9	+0·3	10·4	92·7	13th	74·2	3 days	18·5
12	North Bengal	Dinajpur	123	29·677	+·041	29·755	29·800	24th	29·511	4th	·319	80·8	88·8	+0·3	77·4	?	83·1	?	11·4	93·3	13th	74·2	2 days	19·1
		Rangpur	123	29·684	?	29·762	29·836	24th	29·515	4th	·321	80·7	87·3	?	77·7	?	82·5	?	9·6	92·7	13th & 14th.	74·2	2nd	18·5
		Jalpaiguri	284	29·524	+·026	29·767	29·699	24th	29·349	4th	·350	79·5	87·3	0	76·4	+1·1	81·9	+0·6	10·9	92·4	3 days	73·1	3rd	19·3
		Cooch Behar	150?	29·662	?	29·765	29·817	24th	29·469	4th	·348	80·8	86·7	?	77·3	?	82·1	?	9·4	92·6	13th	74·9	3rd	17·7
17	North Bihar	Purnea	125	29·672	+·044	29·751	29·820	24th	29·509	4th	·311	81·5	89·2	+0·3	78·4	+1·1	83·8	+0·7	10·8	93·7	14th	74·2	2 days	19·5
14	Orissa	Balasore	56	29·744	?	29·736	29·876	25th	29·568	8th	·308	82·5	89·4	?	78·7	+1·2	84·1	?	10·7	92·4	3 days	76·7	3 days	15·7
		False Point.	21	29·777	+·054	29·740	29·903	25th	29·576	8th	·327	83·4	88·3	+0·5	79·2	+1·2	83·8	+0·9	9·1	90·5	2 days	74·1	7th	16·4
		Cuttack	80	29·704	+·044	29·727	29·828	25th	29·495	8th	·333	81·4	90·3	+0·5	78·8	+0·9	84·6	+0·7	11·5	94·4	2 days	75·2	2 days	19·2
		Shortt's Island.	?	29·769	?	?	29·907	25th	29·567	8th	·340	84·7	89·5	?	81·2	?	85·3	?	8·3	92·8	30th	77·6	7th	15·2
		Puri	20	29·773	?	29·736	29·894	25th	29·575	8th	·319	83·1	89·5	?	80·1	?	84·8	?	9·4	93·2	30th	75·1	7th & 8th.	19·1
	V.—Gangetic Plain and Chota Nagpur.		...	...	+·042	...	...	...	...	...	...	...	90·8	+1·4	77·9	+1·2	84·3	+1·4	12·9	...	...	...	...	20·7
15	Chota Nagpur	Hazaribagh.	2,007	27·788 (b)	+·043	29·743 (b)	27·909	24th	27·677	8th	·232	77·0	86·0	+1·6	73·4 (b)	+1·3	79·7 (b)	+1·5	12·6	89·2	1st	71·3	11th	17·9
		Ranchi	2,128	27·681?	?	29·751?	27·794	25th	27·565	8th	·229	76·8	85·7	+2·5	74·0	?	80·0	?	11·7	93·7	13th	70·4	25th	23·3
		Daltonganj	730?	29·062	?	29·748	29·178	24th	28·945	3rd	·233	82·0	91·5	?	76·6	?	84·1	?	14·9	99·1	15th	74·0	3rd	25·1
		Chaibassa	760	29·028	?	29·738	29·149	25th	28·876	8th	·273	80·8	91·3	+2·6	75·9	+1·2	84·1	+1·9	14·4	95·4	30th	71·0	8th	24·4
16	South Bihar	Gaya	375	29·404	+·046	29·733	29·545	24th	29·270	4th	·275	83·1	92·6	+1·8	78·6	+0·7	85·7	+1·3	14·0	95·4	13th	75·8	23rd	19·6
		Dehri	351	29·420	?	29·725	29·575	24th	29·294	4th	·281	83·9	91·3	?	78·8	?	85·1	?	12·5	94·3	4 days	76·0	21st	18·3
		Patna	183	29·597	+·037	29·733	29·750	24th	29·451	4th	·299	83·8	90·3	+0·1	80·1	+1·0	85·2	+0·6	10·2	92·5	4 days	77·2	2 days	15·3
		Arrah	190	29·598	?	29·740	29·746	24th	29·457	4th	·289	83·5	91·3	?	79·2	?	85·3	?	12·1	94·4	14th	74·5	3rd	19·9
		Buxar	239	29·534	?	29·727	29·678	24th	29·392	4th	286	83·4	90·6	?	78·2	?	84·3	?	12·4	93·5	14th & 15th.	74·8	21st	18·7
17	North Bihar	Bhagalpur	160	29·625	?	29·737	29·772	24th	29·468	4th	·304	83·1	89·6†	?	78·0†	?	83·9†	?	11·6	93·2	14th	74·1	20th	19·1
		Darbhanga	166	29·621	+·036	29·741	29·775	24th	29·472	4th	·303	82·3	89·0	+0·8	79·6	+0·8	84·3	+0·8	9·4	93·0	14th	75·5	16th	17·5
		Muzaffarpur	178	29·599	?	29·731	29·753	24th	29·440	4th	·313	82·4	90·0	?	78·8*	?	84·4*	?	11·2	93·7	14th	75·2	16th	18·5
		Motihari	224	29·555	?	29·738	29·721	24th	29·398	4th	·323	81·7	89·5	?	77·3	?	83·5	?	12·2	94·0	14th	72·8	16th	21·2
		Chapra	181	29·600	?	29·735	29·755	24th	29·450	4th	·305	83·6	91·5	?	79·3	?	85·4	?	12·2	94·8	14th & 27th.	76·1	3rd	18·7
18	N. W. Provinces (East).	Benares	267	29·514	+·056	29·737	29·650	24th	29·390	4th	·260	82·7	92·1	+1·2	78·4	+0·9	85·3	+1·1	13·7	95·3	14th & 15th.	75·2	29th	20·1
		Allahabad	309	29·464	+·046	29·727	29·594	24th	29·345	4th	·249	84·2	93·2	+2·4	78·5	+1·7	85·9	+2·1	14·7	97·6	20th	74·3	29th	23·3
23	N.-W. Provinces (East, Sub-montane).	Gorakhpur	256	29·508	+·035	29·723	29·665	24th	29·352	4th	·313	82·7	91·3	+0·9	78·9	+0·9	85·1	+0·9	12·4	95·4	14th	76·3	3rd & 4th.	19·1
19	South Oudh	Lucknow	368	29·394	+·035	29·720	29·543	24th	29·257	4th	·286	83·4	93·3	+1·6	79·0	+2·6	86·2	+2·1	14·3	97·3	20th & 21st.	74·8	29th	22·5
20	North Oudh	Bahraich	403	29·354	?	29·718	29·516	24th	29·215	4th	·301	82·3	90·9	?	77·3	?	84·1	?	13·6	98·4	18th	73·0	27th	25·4
21	N.-W. Provinces (Central).	Cawnpore	416	29·341	?	29·711	29·479	24th	28·216	4th	·263	83·4	93·1	?	77·9	?	85·5	?	15·2	96·8	14th	73·5	30th	23·3
		Mainpuri	516	29·233	?	29·709	29·367	24th	29·107	4th	·260	81·4	92·1	?	76·5	?	84·3	?	15·6	97·3	14th	73·0	15th	24·3

* Mean of 29 days. (b) Mean of 28 days.
† " " 21 "

I—*continued.*

stations in India, Burma, etc., in September, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	Normal.	Percentage variation.	Hygrometry 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy day.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st June to 30th September 1897.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period, 1st June to 30th September.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
12	1	...	4	4	4	1	4	...	4·6	?	?	87	·938	6·5	14	12·69	+1·31	10·61	8·03	+2·58	48·07	43·56	+4·51	4·45	Bankura .	Central Bengal.	11
13	2	1	4	3	3	2	1	1	2·2	?	?	89	·948	5·8	11	11·76	−0·76	5·37	7·33	−1·96	36·92	43·05	−6·13	0·94	Raniganj.		
13	2	...	3	1	5	4	2	...	2·1	3·1	−32	88	·978	8·0	14	12·19	+1·81	8·34	8·04	+0·30	45·86	40·04	+5·82	1·69	Burdwan.		
4	3	1	3	5	10	3	...	1	1·4	?	?	82	·894	8·6	14	13·32	+0·68	11·19	9·53	+1·66	48·54	46·09	+2·45	2·29	Naya Dumka.		
7	1	...	5	1	11	2	1	2	3·2	3·7	−13	90	·996	7·3	9	12·61	−3·61	8·05	10·13	−2·08	34·54	41·99	−7·45	2·00	Berhampore.		
6	1	1	5	3	7	4	2	1	4·2*	?	?	91	1·013	6·3	14	12·12	+1·88	7·04	10·38	−3·34	44·26	42·89	+1·37	1·21	Rampore Boalia.		
...	4	2	...	3	9	8	2	2	1·7	?	?	89	·966	3·8	12	11·35	+0·65	11·67	10·85	+0·82	37·80	43·49	−5·69	3·06	Malda.		
			Not	re	cord	ed			?	?	?	89	·962	6·6	12	12·04	−0·04	14·17	10·88	+3·29	36·66	49·90	−13·24	3·80	Bogra.		
...	3	4	5	6	7	4	...	1	4·0	?	?	89	·939	7·5	15	12·31	+2·69	13·97	11·39	+2·58	43·11	53·82	−10·71	6·05	Dinajpur .	North Bengal.	12
			Not	re	cord	ed			?	?	?	91	·957	7·1	16	13·04	+2·96	21·99	13·72	+8·27	74·23	61·05	+13·18	7·30	Rangpur.		
...	3	5	9	2	3	2	3	3	2·2	?	?	91	·918	4·1	12	15·04	−3·04	26·27	22·37	+3·90	100·34	103·77	−3·43	6·70	Jalpaiguri.		
11	1	7	6	4	1	...	...	...	1·7	?	?	91	·962	7·0	16	?	?	35·90	22·61	+13·29	88·58	102·73	−14·15	8·24	Cooch Behar		
9	2	3	5	5	4	2	...	...	3·1	2·0	+55	89	·963	7·7	12	11·16	+0·84	13·50	13·28	+0·22	43·98	53·01	−9·03	3·08	Purnea .	North Bihar.	17
10	1	1	2	3	2	9	2	...	2·6	?	?	89	1·001	4·9	9	14·00	−5·00	5·93	12·95	−7·02	35·28	47·05	−11·77	2·14	Balasore .	Orissa.	14
3	2	...	2	5	5	3	7	3	8·3	7·9	+ 5	85	·979	7·7	12	13·23	−1·23	6·84	11·56	−4·72	47·84	47·90	−0·06	1·67	False Point.		
5	2	6	3	2	1	7	4	...	2·5	2·4	+ 4	86	·923	6·2	13	13·15	−0·15	7·08	11·07	−3·99	39·19	47·88	−8·69	1·72	Cuttack.		
...	3	3	2	6	3	6	5	2	12·4	?	?	79	·946	5·9	8	?	?	3·55	11·40	−7·85	35·84	40·24	−4·40	1·90	Shortt's Island.		
13	2	...	...	4	4	3	2	2	10·1	?	?	85	·971	5·1	13	13·11	−0·11	6·59	10·36	−3·77	41·19	38·60	+2·59	1·10	Puri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	6·24	7·47	−1·23	...	...	...	...	V.—Gangetic Plain and Chota Nagpur.		
2	2	1	2	4	6	7	3	3	6·7	7·0	− 4	86	·801	8·5	13	12·35	+0·65	8·10	8·76	−0·66	41·61	43·66	−2·05	2·62	Hazaribagh	Chota Nagpur.	15
2	1	2	2	6	3	7	3	4	8·7	?	?	87‡	·804‡	6·2	16	14·50	+1·50	6·16	9·62	−3·46	34·70	46·24	−11·54	1·92	Ranchi.		
...	1	...	10	...	9	7	2	1	3·3	?	?	78	·860	3·0	12	10·73	+1·27	9·00	7·79	+1·21	34·81	39·10	−4·29	2·00	Daltonganj.		
6	...	1	1	7	4	4	6	1	1·3	?	?	87	·919	5·8	7	12·31	−5·31	4·62	8·05	−3·43	32·94	43·10	−10·16	1·07	Chaibassa.		
5	...	1	4	4	2	8	6	...	6·0	2·3	+161	81	·916	5·1	9	9·31	−0·31	7·28	6·89	+0·39	48·93	39·05	+9·88	1·75	Gaya . .	South Bihar.	16
6	...	...	3	4	4	9	3	...	5·9	?	?	82	·948	2·9	5	10·07	−5·07	5·97	6·81	−0·84	46·31	37·07	+9·24	2·32	Dehri.*		
2	...	2	8	7	2	4	3	2	2·5	2·9	−14	85	·985	5·2	8	9·65	−1·65	3·25	7·40	−4·15	50·43	37·79	+12·64	0·98	Patna.		
4	...	3	4	7	1	6	4	1	1·3	?	?	85	·982	2·3	7	9·81	−2·81	5·66	7·19	−1·53	52·22	36·95	+15·27	1·65	Arrah.		
2	...	...	11	4	...	2	10	1	3·8	?	?	83	·951	4·5	10	9·19	+0·81	4·24	7·17	−2·93	35·39	35·38	+0·01	0·92	Buxar.		
14	...	1	3	6	3	2	1	...	1·8	?	?	84†	·955†	5·9	7	9·42	−2·42	13·10	7·37	+5·73	40·68	38·44	+2·24	4·20	Bhagalpur.	North Bihar.	17
2	1	1	10	9	2	1	3	1	2·5	3·6	−31	87	·960	5·4	11	9·16	+1·94	9·76	8·94	+0·82	35·62	41·36	−5·74	2·01	Darbhanga.		
5	...	2	9	7	1	1	2	3	1·8	?	?	89	·987	4·5	10	8·96	+1·04	6·59	8·92	−2·33	36·74	39·31	−2·57	1·48	Muzaffarpur.		
...	...	5	15	2	3	3	1	1	7·0**	?	?	91	·984	2·3	9	9·04	−0·04	9·94	9·45	+0·49	32·24	44·21	−11·97	3·06	Motihari.		
9	...	...	6	7	...	4	2	2	1·9	?	?	85	·978	5·6	7	8·38	−1·38	2·51	6·94	−4·43	40·50	35·65	+4·85	0·71	Chapra.		
6	...	...	5	3	2	7	5	2	3·8	3·9	− 3	84	·947	5·7	6	8·91	−2·91	2·32	6·59	−4·27	41·64	34·29	+7·35	1·03	Benares .	N.-W. Provinces (East).	18
...	1	1	6	3	3	3	8	5	5·8	5·3	+ 9	82	·953	4·5	8	7·73	+0·27	2·74	6·05	−3·31	40·60	35·17	+5·43	0·61	Allahabad.		
2	3	7	7	1	5	2	2	1	1·4	2·1	−33	87	·962	4·9	8	8·55	−0·55	6·20	8·56	−2·36	32·49	43·84	−11·35	3·94	Gorakhpur .	N.-W. Provinces (East, Submontane).	23
5	...	2	5	2	5	3	7	1	2·1	2·8	−25	79	·834	2·8	6	7·55	−1·55	2·55	6·27	−3·72	27·86	34·73	−6·87	0·77	Lucknow .	South Oudh.	19
6	1	1	6	6	1	3	2	4	2·4	?	?	80	·945	2·6	10	?	?	11·83	7·45	+4·38	50·41	35·08	+15·33	5·50	Bahraich .	North Oudh.	20
4	...	2	4	4	1	8	6	1	3·4	?	?	83	·949	2·6	5	6·80	−1·80	3·99	4·57	−0·58	26·66	27·86	−1·20	2·21	Cawnpore .	N.-W. Provinces (Central) .	21
3	2	1	5	...	2	1	9	1	2·8	?	?	83	·887	4·8	8	?	?	5·21	6·09	−0·88	31·68	30·00	+1·68	1·63	Mainpuri.††		

** Mean of 23 days.
†† Winds of 24 days.
‡ Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 215

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	VI.—Upper Sub-Himalayas		...	...	+·024	...	...	...	...	...	...	...	92·6	0	74·8	+0·7	83·7	+0·3	17·8	...	...	...	...	27·6
24	N.-W. Provinces (West, Submontane).	Bareilly	568	28·184	+·037	29·718	29·331	24th	29·039	4th	·292	80·7	89·9	−0·4	76·8	+1·0	83·4	+0·3	13·1	94·4	11th	73·6	15th & 26th	20·8
		Dehra Dun	2,233	27·549	+·016	29·733	27·695	24th	27·387	2nd & 4th	·308	74·2	84·9	+0·6	70·2	−0·2	77·6	+0·2	14·7	88·5	12th	67·0	28th	21·5
		Roorkee	887	28·856	+·017	29·713	29·005	24th	28·691	4th	·314	79·2	90·3	−0·9	73·8	+0·1	82·1	−0·4	16·5	93·2	4 days	70·1	30th	23·1
22	N.-W. P. (West)	Meerut	738	29·009	+·029	29·714	29·153	24th	28·847	4th	·306	80·6	90·9	−0·7	74·8	+0·1	82·9	−0·3	16·1	95·2	13th	70·4	29th	24·8
26	South-East Punjab.	Delhi	718	29·025	+·020	29·707	29·154	24th	28·875	4th	·279	81·8	92·0	−0·6	77·6	+0·9	84·8	+0·2	14·4	96·2	14th	73·4	14th & 27th	22·8
28	Central Punjab.	Lahore	702	29·031	+·026	29·703	29·143	24th	28·817	4th	·326	81·9	95·7	−1·0	77·1	?	86·4	?	18·6	100·6	3 days	71·1	28th	29·5
27	South Punjab	Sirsa	662	29·080	+·029	29·709	29·193	24th	28·891	4th	·302	81·7	96·0	?	76·6	+1·6	86·3	?	19·4	100·8	11th	70·3	26th	30·5
		Patiala	818	28·923	?	29·707	29·053	24th	28·740	2nd	·313	81·8	93·6	?	75·0	?	84·3	?	18·6	98·2	24th	69·9	26th	28.3
29	Punjab (Submontane).	Ludhiana	812	28·925	+·013	29·706	29·052	24th	28·734	4th	·318	81·2	94·8	0	76·5	+1·6	85·7	+0·8	18·3	99·5	14th & 19th	70·6	26th	28·9
		Sialkot	830	28·909	+·033	29·711	29·041	24th	28·694	4th	·347	80·8	96·7	+1·3	74·7	+1·3	85·7	+1·3	22·0	101·7	13th & 14th	68·1	26th	33·6
		Umballa	892	28·853	?	29·710	28·991	24th	28·679	4th	·312	79·5	92·3	?	74·7	?	83·5	?	17·6	97·5	24th	69·0	29th	28·5
31	North Punjab	Rawalpindi	1,643	28·052	+·021	29·700	28·200	24th	27·906	2nd	·294	78·0	93·8	+0·4	69·4	+0·7	81·6	+0·6	24·4	99·1	13th & 14th	60·6	26th	38·5
	VII.—Indus Valley and North-West Rajputana.		...	...	+·014	...	...	...	...	...	...	...	97·0	−0·6	76·6	+1·0	86·8	+0·2	20·4	...	...	...	...	
31	North Punjab	Peshawar	1,110	28·641	+·011	29·687	28·771	24th	28·417	4th	·354	79·4	94·6	−1·1	69·7	−0·3	82·2	−0·7	24·9	100·0	4th	62·0	26th	38·0
32	West Punjab	Khushab	612	29·120	?	29·703	29·245	24th	28·905	4th	·340	82·7	97·8	?	76·1	?	87·1	?	21·7	102·8	14th	67·0	5th	35·8
		Montgomery	558	29·168	?	29·690	29·281	27th	28·964	4th	·317	85·7	99·7	?	76·4	?	88·1	?	23·3	105·0	25th	69·0	26th	36·0
		D. I. Khan	594	29·148	+·022	29·688	29·262	20th	28·915	4th	·347	82·0	97·8	−2·0	74·8	−0·5	86·3	−1·3	23·0	105·7	29th	69·0	29th	36·7
		Mooltan	420	29·291	?	29·678	29·395	27th	29·082	4th	·313	84·2	99·2	−0·5	78·2	+0·9	88·7	−0·2	21·0	104·4	25th	74·0	4 days	30·4
47	Sind	Jácobabad	186	29·531	+·024	29·678	29·648	25th	29·319	5th	·329	84·6	102·4	−0·6	77·5	+1·6	90·0	+0·5	24·9	107·4	13th	69·1	26th	38·3
		Hyderabad	96	29·657	?	29·705	29·766	28th	29·501	2nd	·265	83·6	96·3	−0·9	78·4	+2·2	87·4	+0·7	17·9	105·1	12th	74·0	10th	31·1
		Kurrachee	30	29·743	−·001	29·724	29·842	28th	29·636	16th	·206	83·7	91·7	+1·6	79·2	+2·2	85·5	+1·9	12·5	102·4	13th	72·5	25th	29·9
51	West Rajputana	Bickaneer	771	28·989	?	29·724	29·077	29th	28·838	4th	·239	83·5	96·5	−1·4	78·8	?	87·7	?	17·7	100·6	12th & 24th	74·0	15th	26·6
		Pachpadra	380	29·372	?	29·709	29·453	6th	29·269	4th	·184	82·3	96·1	?	76·4	?	86·3	?	19·7	102·5	12th & 13th	73·0	6th & 11th.	29·5
		Jodhpur	782	28·981	?	29·726	29·086	30th	28·858	2nd	·228	81·5	94·7	?	77·1	?	85·9	?	17·6	102·2	11th	74·1	6th & 9th.	28·1
	VIII.—East Rajputana, Central India and Gujarat.		...	...	+·017	...	...	...	...	...	...	..	90·5	+0·4	75·9	+1·8	83·2	+1·1	14·6	...	...	...	...	2·27
50	East Rajputana	Jeypore	1,431	28·366?	+·026	29·755?	28·453	24th & 30th	28·256	4th	·197	81·0	93·0	+0·2	74·4	+1·9	83·7	+1·1	18·6	97·0	30th	71·0	3 days	26·0
		Kotah	?	28·941	?	?	29·040	30th	28·846	4th	·194	82·6	92·1	?	78·5	?	85·3	?	13·6	96·5	11th & 30th.	76·1	21st	20·4
		Sambhar	1,254	28·523	+·028	29·743	28·621	30th	28·414	4th	·207	81·0	92·7	+1·1	75·4	+	84·1	+1·3	17·3	98·5	11th.	69·9	29th	28·6
		Ajmere	1,611	28·187?	+·027	29·765?	28·282	30th	28·073	4th	·209	78·2	89·0	−1·4	74·9	+2·0	82·0	+0·3	14·1	92·9	12th & 30th.	70·6	3 days	22·3
		Deesa	466	29·327	+·003	29·750	29·440	30th	29·236	16th	·204	80·6	91·2	−1·1	75·7	+2·0	83·5	+0·5	15·5	97·8	12th	73·5	10th	21·3
46	Kathiawar and Cutch.	Bhuj	395	29·396	+·004	29·745	29·515	30th	29·269	15th	·246	81·1	90·6	−1·1?	75·6	+0·9?	83·1	−0·1?	15·0	99·5	12th	72·9	10th	26·6
		Rajkot	429	29·372	−·006	29·755	29·478	30th	29·292	12th	·186	79·8	90·2	−0·7	74·4	+1·8	82·3	+0·6	15·8	94·9	12th	71·3	9th	23·6
		Veraval	?	29·783	?	29·743	29·872	29th	29·631	12th	·241	80·6	84·5	?	77·9	?	81·2	?	6·6	89·6	23rd	75·3	4 days	14·3
		Ghadechi	35	29·762?	?	29·742?	29·848	28th & 29th	29·661	11th	·187	82·1	91·7	?	76·6	?	83·8	?	15·1	96·6	11th & 23rd.	74·8	17th & 20th.	21·8
49	Central India	Nowgong	757	29·020	+·035	29·736	29·139	24th	28·936	4th	·203	80·5	90·1	?	76·7	+1·9	83·4	?	13·4	93·5	19th & 20th.	72·0	30th	21·5
		Indore	1,823	28·000	+·033	29·779	28·097	30th	27·900	11th	·197	76·0	86·0	+1·2	71·9	+1·8	79·0	+1·5	14·1	89·2	30th	69·6	25th	19·6
		Neemuch	1,630	28·194	?	29·782	28·279	30th	28·101	4th	·178	79·0	88·3	+0·9	72·3	+1·7	80·3	+1·3	16·0	94·8	9th	70·6	4 days	24·2
45	Gujarat	Surat	39	29·776	−·020	29·758	29·881	30th	29·650	11th	·231	80·9	89·5	+1·3	76·7	+1·3	83·1	+1·3	12·8	95·2	23rd	74·0	24th	21·2
		Ahmedabad	164	29·644	?	29·756	29·764	30th	29·542	11th	·222	81·2	91·3	?	77·5	?	84·4	?	13·8	97·7	11th	75·6	30th	22·1
22	N.-W. P. (West)	Agra	555	29·198	+·022	29·712	29·315	24th	29·073	4th	·242	83·2	94·6	?	78·4	+2·0	86·5	?	16·2	99·0	24th	74·9	26th	24·1
21	N.-W.P. (Central)	Jhansi	858	28·925	+·036	29·738	29·035	24th	28·826	2nd	·209	82·9	92·7	+1·8	77·3	+2·2	85·0	+2·0	15·4	97·1	3 days	74·4	29th	22·7

I—*continued.*

stations in India, Burma, etc., in September, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 June to 30th September 1897.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period, 1st June to 30th September.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·77	5·07	−1·17	...	...	...	...	VI.—Upper Sub-Himalayas.		
7	..	4	3	3	1	4	1	7	1·5	3·0	− 50	87	·901	3·7	8	6·73	+ 1·27	9·10	8·00	+1·10	54·44	44·36	+10·08	2·07	Bareilly .	N.-W. Provinces (West, Submontane.)	24
29	...	...	...	1	...	...	...	...	0·6	1·1	− 45	84	·718	3·8	9	10·30	− 1·30	9·32	10·38	−1·06	66·39	78·88	−12·49	2·59	Dehra Dun.		
23	...	...	...	4	...	...	1	2	0·9	2·0	− 55	84	·831	2·8	7	5·55	+1·45	4·82	7·17	−2·35	33·33	37·92	−4·59	1·29	Roorkee.		
20	...	2	...	.	...	3	4	1	1·4	2·1	− 33	77	·798	2·5	3	4·55	−1·55	2·96	5·74	−2·78	26·27	28·31	−2·04	2·05	Meerut. .	N.-W. P. (West).	22
3	...	1	3	3	...	1	16	3	4·5	3·8	+ 18	72	·779	3·0	5	4·09	+ 0·91	3·96	4·23	−0·27	20·16	26·15	−5·99	3·12	Delhi . .	South-East Punjab.	26
11	4	2	3	2	3	1	3	1	1·7	2·0	− 15	72	·788	1·1	1	2·55	− 1·55	0·33	2·49	−2·16	15·86	16·83	−0·97	0·33	Lahore .	Central Punjab.	28
...	3	3	1	3	1	1	13	4	6·2	3·6	+ 72	72	·783	2·1	4	2·73	+ 1·27	2·32	1·79	+0·53	13·38	12·39	+0·99	1·44	Sirsa .	South Punjab.	27
5	1	7	...	1	10	6	..	...	3·5	?	?	82	·894	1·7	2	?	?	2·39	?	?	19·00	?	?	1·35	Patiala		
15	1	1	...	5	1	1	1	5	1·4	1·1	+ 27	75	·796	2·9	1	3·36	− 2·36	1·67	4·38	−2·71	19·01	24·06	−5·05	1·43	Ludhiana	Punjab (Submontane).	29
5	3	4	9	2	3	2	1	1	2·4	1·6	+ 50	69	·726	1·8	3	2·82	+ 0·18	1·34	3·11	−1·77	12·89	25·58	−12·69	0·86	Sialkot.		
19	...	...	1	4	1	...	...	5	0·8	?	?	86	·861	1·8	3	?	?	5·30	5·31	−0·01	22·88	27·75	−4·87	3·65	Umballa.		
21	1	1	2	2	1	...	...	1	2·0	1·3	+ 54	72	·698	1·2	4	4·27	− 0·27	1·78	3·13	−1·35	20·00	22·75	−2·75	0·72	Rawalpindi.	North Punjab.	31
...	...	..	...	...	..	...	..	...	...	...	...	...	...	...	...	...	...	0·93	0·89	+0·04	...	...	...	...	VII.—Indus Valley and North-West Rajputana.		
16	4	2	1	...	...	1	1	5	2·2	3·1	− 29	66	·669	1·0	1	1·82	− 0·82	0·41	10·64	−0·23	6·18	5·48	+0·70	0·35	Peshawar .	North Punjab.	31
8	4	9	5	1	2	...	1	...	4·1	?	?	62	·690	0·7	1	1·60	− 0·60	0·74	1·41	−0·67	15·40	6·98	+8·42	0·70	Khushab .	West Punjab.	32
4	1	1	2	3	11	5	2	1	6·6	?	?	61	·753	1·6	2	1·40	+ 0·60	1·03	1·03	0	6·47	7·72	−1·25	0·73	Montgomery.		
12	6	6	...	4	1	...	...	...	2·0	1·7	+ 18	77	·845	0·8	2	0·73	+ 1·27	0·97	0·23	+0·74	6·88	5·07	+1·81	0·60	D. I. Khan		
6	...	2	1	10	2	7	1	1	2·0	2·8	− 29	69	·801	0·9	0	0·55	− 0·55	0	0·42	−0·42	10·79	5·53	+5·26	0	Mooltan.		
13	2	...	5	2	8	...	...	...	3·5	3·1	+ 13	79	·952	1·4	1	0·18	+ 0·82	0·39	0·06	+0·33	4·04	2·73	+1·31	0 35	Jacobabad .	Sind . .	47
3	2	1	1	2	3	14	2	2	14·3	12·5	+ 14	69	·779	2·8	1	0·80	+ 0·20	0·24	0·52	−0·28	10·52	6·03	+4·49	0·17	Hyderabad.		
3	2	3	2	2	1	5	8	4	9·5	14·9	− 36	77	·881	5·2	3	0·82	+ 2·18	1·59	0·54	+1·05	11·80	6·08	+5·72	0·80	Kurrachee.		
5	2	...	1	1	3	12	5	1	3·3	5·6	− 41	72	·834	3·9	2	?	?	0·48	1·19	−0·71	16·39	9·64	+6·75	0·35	Bickaneer .	West Rajputana.	51
...	4	...	2	1	11	11	1	...	11·1	6·1	+ 82	78	·865	2·3	6	?	?	2·20	1·72	+0·48	13·03	8·83	+4·20	0·95	Pachpadra.		
6	2	2	3	1	2	12	2	...	2·9	?	?	77	·822	5·5	4	?	?	2·21	2·05	+0·16	13·67	12 65	+1·02	1·03	Jodhpore.		
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	.	...	4·65	4·84	−0·24	...	...	...	...	VIII.—East Rajputana, Central India and Gujarat		
5	3	3	1	...	...	5	7	6	2·5	5·2	− 52	74	·780	4·7	4	5·00	−1·00	1·86	4·40	−2·54	15·28	26·33	−11·05	0·46	Jeypore .	East Rajputana	50
1	2	...	7	3	1	6	6	4	4·0	?	?	75	·826	3·7	7	?	?	3·96	5·16	−1·20	25·36	27·50	−2·14	1·30	Kotah .		
11	...	1	3	...	...	...	13	2	4·4	7·2	− 39	74	·791	4·6	3	3·50	− 0·50	1·29	3·33	−2·14	13·67	20·44	−6·77	0·64	Sambhar.		
6	...	3	...	2	1	1	16	1	4·4	5·0	− 12	84	·810	4·8	3	3·18	− 0·18	1·07	2·53	−1·46	21·71	19·73	+1·98	0·40	Ajmere.		
...	3	1	1	6	4	6	8	1	8·2	8·5	− 4	87	·902	7·9	8	3·73	+ 4·27	4·42	4·83	−0·41	21·23	25·58	−4·35	1·09	Deesa.		
1	2	1	2	4	...	6	11	3	11·0	11·3	− 3	82	·870	6·8	7	?	?	3·27	1·96	+1·31	12·92	13·54	−0·62	1·03	Bhuj . .	Kathiawar and Cutch.	46
2	2	1	1	1	5	5	9	4	7·2	8·5	− 15	87	·892	6·7	11	5·73	+ 5·27	8·72	4·25	+4·47	29·31	27·42	+1·89	1·97	Rajkot.		
1	6	1	...	6	4	4	5	3	7·0	?	?	89	·926	5·8	9	?	?	3·54	1·85	+1·69	18·49	17·66	+0·83	1·13	Veraval.		
...	...	2	...	5	3	11	6	3	7·5	?	?	81	·883	6·0	5	?	?	5·45	?	?	19·68	?	?	1·80	Ghadechi.		
3	1	...	5	...	1	3	14	3	3·1	2·4	+ 29	86	·888	2·1	3	6·91	− 3·91	3·81	6·32	−2·48	46·25	40·79	+5·46	1·95	Nowgong .	Central India.	49
5	2	9	2	1	...	6	3	2	2·3	4·8	− 52	89	·807	7·5	11	8·91	+ 2·09	10·87	8·48	+2·39	30·35	31·61	−1·26	2·02	Indore.		
...	...	6	2	1	...	6	11	4	4·1	10·2	− 60	79	·775	5·5	8	6·91	+ 1·09	3·92	5·35	−1·43	27·83	30·06	−2·23	0·92	Neemuch.		
6	2	...	3	3	7	2	3	4	4·4	9·2	− 52	85	·944	5·9	9	7·55	+ 1·45	7·51	8 07	−0·53	37·69	44·36	−6·67	1·92	Surat . .	Gujarat	15
2	4	2	2	..	4	7	4	4	3·8	?	?	85	·903	7·2	8	?	?	6·56	4·34	+2·22	31·77	28·81	+2·96	2·02	Ahmedabad.		
2	...	3	...	4	...	14	...	7	5·0	4·1	+ 22	76	·862	3·0	4	5·45	−1·45	6·26	4·91	+1·35	38·48	26·62	+11·86	5·71	Agra . .	N.-W. P. (West).	22
.	...	1	3	...	...	9	6	4	2·0	3·2	− 38	75	·845	3·0	4	7·00	−3·00	1·91	6·80	−4·89	24·48	36·79	- 12·31	0 95	Jhansi . .	N.-W.P. (Central)	21

Table

Abstract of Observations taken at 8 A.M. at 215 stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	IX.—Deccan	...	...	...	+·029	...	...	...	...	...	...	...	87·4	+1·1	72·7	+1·9	80·1	+1·5	14·7	...	...	...	...	22·0
38	Bombay Deccan	Belgaum	2,524	27·345	−·002	29·813	27·424	7th	27·271	11th	·153	71·1	86·9	+2·4	67·0	+1·8	74·0	+2·1	13·8	85·2	19th & 30th.	64·8	13th & 14th.	20·4
		Sholapur	1,590	28·261	+·007	29·809	28·320	7th	27·138	11th	·182	75·8	88·6	+0·6	72·4	+2·2	80·5	+1·4	16·2	94·2	18th	68·5	13th	25·7
		Poona	1,840	28·012	−·003	29·806	28·099	29th	27·894	11th	·205	75·0	86·0	+2·2	70·1	+1·4	78·1	+1·8	15·9	89·5	3 days.	66·4	14th	23·1
		Bijapur	1,946?	27·909	?	29·8047	27·974	7th	27·815	11th	·159	74·5	87·3	?	70·1	?	78·7	?	17·2	91·7	19th	66·0	13th	25·7
40	Khandesh	Malegaon	1,430	28·399	+·011	29·787	28·490	29th	28·279	11th	·211	77·1	87·9	+0·8	71·3	+1·3	79·6	+1·1	16·6	91·9	17th & 22nd.	68·7	2nd & 15th.	23·2
		Ahmednagar	2,152	27·699	?	29·794	27·777	7th	27·570	11th	·207	75·1	87·0	?	69·9	?	78·5	?	17·1	92·3	3rd & 5th.	66·4	14th	25·9
41	Berar	Akola	930	28·893	+·035	29·776	28·989	30th	28·749	11th	·240	79·0	89·4	+1·1	74·6	+2·2	82·0	+1·7	14·8	91·4	4 days.	72·7	20th & 26th.	18·7
		Amraoti	1,215	28·599	+·040	29·775	28·683	30th	28·465	10th	·219	77·7	88·5	+0·8	73·6	+1·9	81·1	+1·4	14·9	91·7	4th	70·8	13th & 23rd.	20·9
42	Central Provinces (West).	Khandwa	1,044	28·767	+·031	29·775	28·867	30th	28·673	10th	·194	77·9	88·5	+1·1	74·7	+1·8	81·7	+1·5	13·8	92·2	22nd	72·6	27th	19·6
		Hoshangabad	1,006	28·794	+·041	29·764	28·890	30th	28·690	10th	·200	78·8	87·8	?	74·7	+1·5	81·3	?	13·1	91·3	24th	72·7	26th	18·6
		Nagpur	1,025	28·765	?	29·747	28·862	27th	28·630	10th	·232	79·8	89·7	+0·9	76·0	+2·4	82·9	+1·7	13·7	92·6	17th & 29th.	74·1	26th & 29th.	18·5
43	Central Provinces (Central).	Chanda	634	29·185	+·044	29·766	29·273	27th	29·039	10th	·234	79·9	90·1	+1·3	76·5	+2·3	83·3	+1·8	13·6	95·2	30th	74·2	10th & 13th.	21·0
		Seoni	2,033	27·777	+·042	29·750	27·866	27th	27·661	10th	·205	77·1	85·7	+0·4	71·5	?	78·7	?	14·2	90·0	1st	69·9	8 days	20·1
		Jubbulpur	1,327	28·465	+·041	29·747	28·568	27th	28·353	10th	·215	80·0	88·3	+1·3	74·3	+1·5	81·3	+1·4	14·0	91·4	20th	71·6	30th	19·8
		Saugor	1,807	27·987	+·033	29·744	28·081	30th	27·909	10th	·172	78·1	86·2	+0·2	73·2	+2·2	79·7	+1·2	13·0	89·3	11th	70·1	29th	19·2
49	Central India	Sutna	1,040	28·738	+·046	29·739	28·843	24th	28·641	4th	·202	81·6	89·3	+2·1	77·1	+2·8	83·2	+2·5	12·2	94·0	21st	73·1	22nd	20·9
44	Central Provinces (East).	Raipur	970	28·829	+·056	29·751	28·924	27th	28·698	10th	·226	80·2	89·3	+1·8	76·5	+2·0	82·9	+1·9	12·8	93·9	30th	72·1	9th	21·8
		Sambalpur	486	29·310	+·033	29·745	29·414	27th	29·148	9th	·266	82·0	89·4	?	77·5	+0·3	83·5	?	11·9	93·1	29th & 30th.	74·7	8th	18·4
39	Hyderabad (North).	Aurangabad.	1,865?	27·978	?	29·792	28·054	30th	27·848	11th	·206	76·4	88·0	?	69·8	?	78·9	?	18·2	92·1	19th	67·2	14th & 16th.	24·9
		Indur	?			Not recorded.						77·9	86·2	?	73·9	?	80·1	?	12·3	90·0	29th	69·8	10th	20·2
		Bidar	2,165?	27·681	?	29·791	27·757	28th	27·526	10th	·231	74·1	83·2	?	60·9	?	72·1	?	22·3	87·1	17th	58·1	6th	29·0
53	Hyderabad (South).	Gulbarga	1,502	28·353	?	29·813	28·447	30th	28·239	11th	·208	75·4	87·7	?	71·8	?	79·7	?	15·9	93·9	15th	67·9	13th	26·0
		Raichur	1,309	28·617?	?	29·881?	29·5767	26th	28·418?	23rd	·958?	78·0?	88·7?	?	71·5?	?	80·2?	?	17·2?	112·9?	26th	55·7?	29th	57·2?
		Hyderabad (Deccan),	1,690	28·148	+·032	29·792	28·212	27th	28·029	10th	·183	75·8	85·7	−0·6	72·3	+1·9	79·0	+0·7	13·4	90·9	29th	67·7	10th	23·2
		Secunderabad	1,787	28·056	+·014	29·796	28·124	27th & 28th.	27·924	10th	·200	75·0	86·3	0	71·4	+1·0	78·9	+0·5	14·9	90·6	15th & 16th.	67·4	10th & 30th.	23·2
		Khamamet	373	29·447	?	29·765	29·526	27th	29·306	10th	·220	80·4	88·5	?	75·8	?	82·2	?	12·7	94·0	19th	71·3	10th	22·7
	X.—West Coast	...	...	...	−·017	...	...	...	...	...	...	...	84·1	−0·9	75·6	+1·1	79·9	+1·0	8·5	...	...	...	...	14·5
37	Konkan	Bombay	37	29·815	−·015	29·792	29·898	29th	29·707	11th	·191	80·1	85·6	+1·3	77·1	+0·8	81·6	+1·1	8·5	90·0	23rd	75·0	3 days	15·0
		Ratnagiri	110	29·751	−·005	29·799	29·854	7th	29·667	22nd	·187	79·4	85·4	+1·5	75·8	+1·6	80·6	+1·6	9·6	88·9	23rd	71·9	29th	17·0
		Mormugao	60	29·834	?	29·829	29·941	7th	29·738	22nd	·203	78·7	83·9	?	76·0	?	80·0	?	7·9	87·0	23rd	73·4	7th	13·6
		Goa	199	29·678	−·012	29·814	29·779	7th	29·590	22nd	·189	78·9	82·3	?	76·3	?	79·3	?	6·0	84·0	4 days	74·0	7th	10·0
		Karwar	44	29·838	−·020	29·814	29·940	7th	29·746	22nd	·194	77·6	83·0	+0·4	75·3	+1·8	79·2	+1·1	7·7	85·2	5 days	72·5	11th	12·7
33	Malabar	Cochin	11	29·912	−·024	29·850	30·047	7th	29·823	20th	·224	78·0	85·4	+1·1	74·8	+0·6	80·1	+0·9	10·6	88·7	14th	72·2	28th	16·5
		Calicut	27	29·888	−·024	29·845	30·024	7th	29·780	20th	·244	78·1	84·8	+0·6	75·0	+1·1	79·9	+0·9	9·8	88·3	15th & 16th.	72·5	7th & 11th.	15·8
		Mangalore	65	29·846	−·022	29·844	29·958	7th	29·755	20th	·203	77·4	83·5	+0·3	74·6	+0·8	79·1	+0·6	8·9	86·8	15th	71·9	11th	14·9
		Trivandrum	198	29·702	?	29·831	29·836	7th	29·613	21st	·223	78·0	82·9	?	75·5	?	79·2	?	7·4	88·0	13th	73·0	21st	15·0
	XI.—South India	...	...	...	+·001	...	...	...	...	...	...	...	87·7	−1·9	74·0	+0·3	80·9	−0·8	13·8	...	...	...	...	23·5
57	Madras (South).	Pamban	37	29·835	?	29·799	29·929	7th	29·748	21st	·181	83·2	88·9	?	78·3	?	83·6	?	10·6	92·8	15th	72·7	27th	20·1
		Tinnevelly	168	29·708	?	29·804	29·829	7th	29·616	21st	·223	85·0	97·9	?	79·[illegible]	?	83·5	?	18·8	101·4	5 days	75·9	27th	25·5
		Madura	447	29·417	−·012	29·801	29·537	7th	29·324	21st	·213	81·2	92·2	−3·6	75·[illegible]	+0·1	83·7	−1·8	17·0	96·4	13th & 14th.	72·0	6th & 11th.	24·4

I—*continued.*

in India, Burma, etc., in September, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 June to 30th September 1897.	Normal rainfall for period, from 1st June to 30th September.	Variation from normal of period, 1st June to 30th September.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·17	7·72	−0·54	...	...	...	...	IX.—Deccan.		
9	1	1	1	1	1	5	6	5	13·6	16·7	−19	90	·686	9·0	8	10·18	−2·18	3·65	4·64	−0·99	38·22	35·34	+2·88	1·40	Belgaum	Bombay Deccan.	38
1	2	1	1	4	1	6	4	10	10·6	9·5	+7	79	·700	9·0	15	9·72	+5·28	10·28	8·16	+2·12	16·77	24·85	−8·08	1·83	Sholapur.		
1	...	2	4	1	...	8	10	4	10·5	11·4	− 8	84	·724	8·3	7	8·18	−1·18	4·57	5·21	−0·64	17·77	20·03	−2·26	1·33	Poona.		
...	1	1	1	1	2	4	16	4	3·9	?	?	89	·758	8·0	16	8·60	+7·40	8·05	6·41	+1·64	18·45	15·86	+2·59	1·45	Bijapur.		
6	1	1	1	...	1	10	8	2	10·8	7·6	+42	79	·732	6·7	11	8·64	+2·36	5·80	6·92	−1·12	18·85	20·46	−1·61	1·21	Malegaon	Khandesh.	40
...	4	3	2	1	1	6	9	4	24·6	?	?	83	·724	6·5	13	?	?	11·19	6·79	+4·40	15·38	18·51	−3·13	3·15	Ahmednagar.		
2	1	3	1	1	...	2	8	11	6·1	5·8	+ 5	86	·852	6·9	12	10·18	+1·82	6·44	7·22	−0·78	22·83	30·94	−8·11	2·15	Akola	Berar.	41
...	1	2	4	1	2	5	11	4	3·1	4·4	−30	91	·867	6·6	9	8·27	+0·73	7·64	6·94	+0·70	24·62	31·20	−6·58	2·40	Amraoti.		
6	...	1	2	1	...	1	16	3	4·8	6·2	−23	87	·825	6·3	11	7·55	+3·45	4·55	7·56	−3·01	25·08	29·57	−4·49	1·32	Khandwa	Central Provinces (West).	42
9	...	4	2	...	3	7	4	1	1·7	2·5	−32	89	·872	7·0	4	10·18	−6·18	2·75	11·61	−8·86	48·40	51·92	−3·52	1·32	Hoshangabad		
18	...	1	1	1	1	3	1	4	4·0	6·1	−34	85	·866	6·1	10	10·64	−0·64	5·32	10·13	−4·81	35·87	43·85	−7·98	1·48	Nagpur.		
5	1	2	5	5	1	3	6	2	1·9	4·1	−54	87	·890	7·6	9	?	?	11·24	10·75	+0·49	43·43	51·35	−7·92	2·79	Chanda	Central Provinces (Central).	43
...	3	7	2	4	...	5	3	6	2·5	3·9	−36	89	·830	3·2	16	11·73	+4·27	9·65	10·45	−0·80	39·20	52·07	−12·87	2·17	Seoni.		
13	...	...	1	3	1	6	5	1	0·9	3·4	−74	81	·864	5·4	10	9·36	+0·64	8·18	8·77	−0·59	45·53	54·79	−9·26	2·70	Jubbulpore.		
2	2	4	3	1	3	4	9	2	8·1	3·3	+145	84	·877	4·2	8	8·64	−0·64	5·51	8·19	−2·69	38·83	44·22	−5·39	1·93	Saugor.		
4	1	...	4	4	1	1	12	3	5·0	6·5	−23	81	·874	3·1	5	8·36	−3·36	4·21	6·96	−2·75	36·89	40·74	−3·85	2·23	Sutna	Central India.	49
8	1	2	4	2	...	7	5	1	6·3	5·9	+ 7	87	·886	6·2	9	10·45	−1·45	5·66	8·46	−2·80	31·93	46·51	−14·58	1·63	Raipur	Central Provinces, East.	44
...	...	4	4	12	2	7	1	...	5·0	2·2	+127	82	·897	5·3	12	?	?	9·56	10·07	−0·51	60·97	60·45	+0·52	2·13	Sambalpur.		
18	...	1	.	...	1	4	4	2	3·2	?	?	82	·742	6·2	15	?	?	8·70	7·44	+1·26	22·67	26·71	−4·04	2·71	Aurangabad.	Hyderabad (North).	39
3	1	...	2	3	3	4	6	8	6·0	?	?	88	·839	8·6	9	?	?	8·34	6·91	+1·43	32·58	32·34	+0·24	2·49	Indur.		
...	3	1	3	2	...	5	7	9	6·3	?	?	91	·761	5·9	15	?	?	7·07	8·94	−1·87	22·07	34·38	−12·31	1·40	Bidar.		
10	1	2	1	...	...	6	3	7	8·7	?	?	86	·760	7·3	14	?	?	8·63	6·44	+2·19	21·29	22·58	−1·29	2·16	Gulbarga	Hyderabad (South).	53
...	3	1	1	2	...	3	17	3	10·2	?	?	83	·800?	5·3	15	?	?	10·85	5·74	+5·11	22·98	20·25	+2·73	1·60	Raichur.		
10	...	1	...	4	...	...	12	3	4·6	?	?	88	·783	6·8	10	?	?	5·86	5·99	−0·13	17·42	25·91	−8·49	1·60	Hyderabad (Deccan).		
2	...	1	4	2	1	1	12	7	5·8	7·0	−17	82	·721	7·0	12	?	?	5·	5·99	−0·80	19·01	25·91	−6·90	0·81	Secunderabad		
26	...	...	...	1	...	...	2	1	4·0	?	?	87	·908	3·2	13	?	?	7·69	7·92	−0·23	25·22	31·47	−2·25	1·66	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15·65	9·35	+6·29	...	...	...	..	X.—West Coast.		
...	1	4	3	7	7	3	4	1	9·8	11·7	−16	89	·922	8·1	18	14·18	+3·82	20·49	11·81	+8·68	78·90	69·78	+9·12	4·57	Bombay	Konkan.	37
14	...	...	2	7	2	1	2	2	4·9	8·2	−40	89	·894	7·5	20	16·09	+3·91	19·54	13·18	+6·36	122·33	104·60	+17·73	3·08	Ratnagiri.		
3	5	1	...	2	2	2	2	13	8·0	?	?	92	·906	7·3	16	?	?	16·72	7·06	+9·66	101·81	82·72	+19·11	3·03	Mormugao.		
4	5	3	6	3	5	1	...	3	?	?	?	88	·861	9·0	18	?	?	14·04	8·57	+5·47	110·40	92·68	+17·72	3·62	Goa.		
8	10	3	...	1	...	4	4	...	3·4	?	?	89	·840	7·3	19	16·09	+2·91	16·79	13·75	+3·04	123·67	114·41	+9·26	3·06	Karwar.		
15	5	3	1	...	...	...	2	4	5·5	?	?	89	·863	7·3	23	13·73	+9·27	21·06	9·38	+11·68	110·80	72·61	+38·19	3·58	Cochin	Malabar.	33
10	1	1	5	1	1	1	...	10	10·4	?	?	88	·838	7·7	13	10·13	+2·87	13·18	6·16	+ 7·02	136·28	84·55	+51·73	4·64	Calicut.		
10	1	1	8	4	4	...	1	1	2·4	2·4	0	90	·846	8·7	19	16·60	+2·40	15·66	10·14	+ 5·52	147·16	102·39	+44·77	3·02	Mangalore.		
5	14	6	...	...	...	...	...	5	6·0	?	?	84	·810	7·6	8	?	?	3·34	4·13	−0·79	34·46	29·07	+5·39	0·74	Trivandrum.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·93	4·75	+4·18	...	...	...	...	XI.—South India.		
1	5	3	...	2	...	12	1	6	7·0	?	?	78	·887	3·4	7	1·80	+5·20	4·76	1·44	+3·32	7·76	2·42	+5·34	1·85	Pamban	Madras (South).	57
...	2	1	...	..	...	5	11	11	6·1	?	?	61	·734	3·9	3	1·90	+1·10	1·29	1·00	+0·29	3·93	2·40	+1·53	0·96	Tinnevelly.		
4	12	1	...	...	...	1	1	11	2·7	3·4	−21	72	·769	4·6	11	6·09	+4·91	7·95	4·23	+3·72	13·32	12·01	+1·31	1·88	Madura.		

Table

Abstract of Observations taken at 8 A.M. at 215 stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
34	Madras, South Central.	Salem	940	28·957	−·016	29·841	29·076	6th	28·868	21st	·208	78·6	89·5	−1·9	72·8	+1·5	81·2	−0·2	16·7	95·4	19th	70·0	5 days	25·4
		Coimbatore	1,348	28·532	−·012	29·833	28·645	7th	28·451	21st	·194	75·7	87·5	−2·0	71·6	+1·1	79·6	−0·5	15·9	94·9	16th	69·3	28th	25·6
35	Coorg	Mercara	3,781	26·205	−·007	?	26·308	6th	26·116	21st	·192	65·6	72·6	+0·2	63·5	+1·8	68·1	+1·0	9·1	77·0	19th	60·7	3 days	16·3
36	Mysore	Chitaldroog	7,405	27·486	?	29·823	27·571	6th	27·396	21st	·175	72·3	83·1	?	68·4	?	75·8	?	14·7	87·1	18th & 19th.	65·4	12th & 13th	21·7
		Bangalore	3,021	26·904	−·014	29·835	26·994	6th	26·830	21st	·164	69·9	80·8	−1·1	66·0	+1·0	73·4	−0·1	14·8	84·8	15th & 19th.	62·4	12th	22·4
		Hassan	3,091	26·846	?	29·851	26·942	6th	26·754	21st	·188	70·8	79·0	?	65·0	?	72·0	?	14·0	83·2	20th	60·8	13th	22·4
		Mysore	2,518	27·402	?	29·848	27·512	7th	27·315	21st	·197	72·2	83·1	?	67·2	?	75·2	?	15·9	88·9	15th	63·5	10th & 13th.	25·4
56	Madras, East Coast, South.	Negapatam	31	29·836	−·011	29·796	29·939	6th	29·762	21st	·177	82·5	90·9	?	76·8	+0·5	83·8	?	14·1	97·2	14th	69·0	9th	28·2
		Cuddalore	12	29·843	?	29·784	29·966	6th	29·765	19th	·201	80·1	88·8	?	75·1	?	82·0	?	13·7	94·8	17th	70·2	5th	24·6
		Trichinopoly	255	29·609	−·016	29·798	29·718	7th	29·524	19th	·194	80·4	92·5	−2·8	75·4	?	84·0	?	17·1	99·6	16th	72·9	8th & 27th.	26·7
		Madras	22	29·833	+·001	29·786	29·973	6th	29·763	10th	·210	84·3	90·2	−3·0	76·2	−0·9	83·2	−2·0	14·0	97·0	20th	71·5	7th	25·5
55	Madras, East Coast, Central.	Nellore	71	29·758	?	29·763	29·871	6th	29·661	10th	·210	82·8	93·3	?	77·5	?	85·4	?	15·8	101·3	17th	73·6	6th	27·7
		Masulipatam	15	29·809	+·028	29·759	29·875	27th	29·689	10th	·186	81·3	88·0	−3·3	77·4	0	82·7	−1·7	10·6	96·6	17th	70·1	9th	26·5
54	Madras, Central	Cuddapah	433	29·419	−·005	29·794	29·514	6th	29·335	10th	·179	80·2	91·3	−1·2	75·3	−0·6	83·3	−0·9	16·0	97·1	17th	71·1	9th & 10th.	26·0
		Kurnool	924	28·916	−·011	29·787	28·977	7th	28·818	10th	·159	77·7	88·6	−0·7	73·5	+0·3	81·1	−0·2	15·1	93·2	1st	68·9	6th	24·3
		Bellary	1,475	28·385	0	29·812	28·457	6th	28·300	10th	·157	76·9	88·8	−1·8	72·6	?	80·7	?	16·2	94·7	17th	67·7	13th	27·0
52	Madras, East Coast, North.	Rajahmundry	112			Not	record	ed.				79·9	88·2	−2·0	76·5	−0·5	82·4	−1·3	11·7	96·0	17th	72·1	9th	23·9
		Cocanada	26	29·784	+·041	29·745	29·864	27th	29·643	10th	·221	80·7	87·1	?	77·9	−0·3	82·5	?	9·2	95·6	17th	73·0	9th	22·6
		Vizagapatam	31	29·771	+·041	29·740	29·874	26th	29·596	9th	·278	81·9	88·6	−2·3	77·8	−0·4	83·2	−1·4	10·8	93·7	5th	73·9	26th	19·8
		Waltair	?			Not	record	ed.				80·8	86·9	?	77·3	?	82·1	?	9·6	91·4	30th	73·0	26th	18·4
		Gopalpur	21	29·764	?	29·725	29·881	27th	29·554	9th	·327	82·1	87·9	?	79·1	?	83·5	?	8·8	89·3	3 days	74·6	5th	14·7
	XII.—Hill Stations.																							
48	Baluchistan	Sharigh	?	(a) 25·797	?	?	25·920	24th	25·600	4th	·320	(b) 78·6	(b) 92·1	?	(b) 61·0	?	76·6	?	31·1	98·0	4th	53·0	27th & 28th.	45·0
		Pishin	?				Not rec	orded.				?	91·9	?	47·6	?	69·8	?	44·3	100·0	4th	40·9	29th	59·1
		Quetta	5,502	24·623	+·029	?	24·714	30th	24·472	4th	·242	68·7	85·6	+0·4	50·7	+0·3	68·2	+0·4	34·9	90·1	12th	42·9	29th	47·2
		Kalat	?				Not rec	orded.				(b) 63·5	86·1	?	(b) 42·3	?	64·2	?	43·8	92·9	4th	36·0	29th	56·9
		Chaman	4,311	25·653	?	?	25·796	21st	25·487	4th	·309	77·5	91·6	?	63·5	?	77·6	?	28·1	96·2	4th & 12th.	57·1	28th	39·1
30	Punjab	Leh	11,503				Not re	corded.				48·5	70·4	?	41·6	?	56·0	?	28·8	81·2	2nd	37·0	8th	44·2
		Srinagar	5,204	24·870	?	?	25·014	24th	24·670	4th	·344	61·1	78·1	?	53·6	?	65·9	?	24·5	86·3	2nd & 3rd	47·5	21st & 22nd.	38·8
		Gulmarg	?	21·903	?	?	22·024	24th	21·762	4th	·262	54·7	61·9	?	41·0	?	51·4	?	20·9	66·9	1st & 14th.	35·7	21st	31·2
		Skardu	?	22·871	?	?	22·992	24th	22·679	2nd	·313	59·7	77·4	?	52·8	?	65·1	?	24·6	86·6	1st	47·3	21st & 27th.	39·3
		Dras	?	20·819	?	?	20·923	12th	20·648	4th	·275	50·4	69·7	?	37·5	?	53·6	?	32·2	83·5	1st & 29th	31·1	21st	52·4
		Gilgit	?	(c) 24·507	?	?	24·650	24th	24·290	4th	·360	69·1	83·0	?	64·5	?	73·8	?	18·5	94·8	2nd	57·3	7th	37·5
		Chitral	?				Not rec	orded.				70·4	88·6	?	55·3	?	72·0	?	33·3	96·2	2nd	43·0	6th	53·2
		Killa Drosh	?				Not rec	orded.				77·0	90·7	?	64·0	?	77·3	?	26·7	95·8	1st	56·9	26th	38·9
		Para Chinar	6,000	24·428	?	?	24·538	24th	24·260	4th	·278	67·2	82·3	?	57·8	?	70·0	?	24·5	87·5	2nd	50·4	26th	37·1
		Cherat	?	25·665	?	?	25·786	24th	25·488	4th	·298	72·9	85·6	?	65·6	?	75·6	?	20·0	90·9	13th	57·0	26th	33·9
		Murree	6,334	23·851	+·032	?	23·977	24th	23·699	4th	·278	63·5	73·0	−0·9	59·3	+0·5	66·2	−0·2	13·7	78·7	13th & 14th.	45·9	20th	32·8
		Poo	?				Not rec	orded.				?	73·9	?	53·3	?	63·6	?	20·6	79·2	3rd	48·9	26th	30·3
		Simla	7,224	23·115	+·018	?	23·233	24th	22·980	4th	·253	59·8	66·4	−1·3	56·2	−0·9	61·3	−1·1	10·2	69·5	25th	53·6	26th	15·9
25	N.-W. Provinces.	Chakrata	7,022	23·281	+·033	?	23·406	24th	23·142	4th	·264	61·3	67·9	−1·1	57·3	+0·1	62·6	−0·5	10·6	70·7	9th & 11th	54·3	3 days	16·4
		Mussooree	6,705	23·520	?	?	23·638	24th	23·376	4th	·262	62·2	69·0	+1·0	57·8	+0·3	63·4	+0·7	11·2	72·3	11th	54·9	8th & 15th	17·4
		Ranikhet	6,069	24·096	+·039	?	24·225	24th	23·946	4th	·279	64·3	72·9	+0·6	60·0	0	66·5	+0·3	12·9	78·0	10th	54·5	27th	23·5
		Muktesar	?	22·854	?	?	22·975	24th	22·704	4th	·271	60·6	68·2	?	56·0	?	62·1	?	12·2	74·0	10th	50·6	27th	23·4

(a) Aneroid uncorrected. (b) Uncorrected. (c) Aneroid corrected.

I—*continued.*

in India, Burma, etc., in September, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 June to 30th September 1897.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period, 1st June to 30th September.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
4	1	...	1	...	2	11	9	2	3·0	3·7	−19	81	·898	6·5	13	6·91	+6·09	12·29	5·63	+6·66	20·70	20·93	−0·23	2·31	Salem	Madras, South Central.	34
...	...	...	...	...	2	22	6	...	3·1	6·6	−53	84	·750	6·2	4	2·18	+1·82	1·56	1·13	+0·43	9·67	4·98	+4·69	0·55	Coimbatore.		
7	1	...	...	...	1	...	11	10	5·3	7·9	−20	94	·603	9·2	19	17·10	+1·90	9·99	10·98	−0·99	120·05	105·44	+14·61	1·47	Mercara	Coorg.	35
1	...	...	...	1	...	9	15	4	8·9	?	?	85	·679	8·2	12	?	?	11·96	3·48	+8·48	25·83	12·08	+13·75	3·36	Chitaldroog	Mysore	38
...	1	...	...	1	...	10	13	5	6·8	6·7	+2	90	·661	8·2	17	8·36	+8·64	19·32	4·72	+14·60	22·96	18·56	+10·40	4·07	Bangalore.		
2	1	...	...	...	1	2	16	8	3·2	?	?	85	·638	9·0	15	?	?	10·58	2·72	+7·86	31·41	14·71	+16·70	2·30	Hassan.		
2	...	...	...	...	2	11	13	2	9·2	?	?	84	·650	8·3	14	?	?	6·31	4·01	+2·30	20·13	11·59	+8·54	0·91	Mysore.		
4	...	1	...	...	2	7	12	4	4·6	5·2	−12	78	·866	5·7	8	6·36	+1·64	4·27	3·04	+1·23	8·02	10·89	−2·87	1·68	Negapatam	Madras, East Coast, South.	56
...	3	...	...	...	3	8	12	4	0·8	?	?	86	·886	4·3	12	6·40	+5·60	7·98	4·86	+3·12	19·61	14·26	+5·35	1·67	Cuddalore.		
12	...	...	...	...	...	2	14	2	4·0	7·1	−44	76	·781	6·4	12	4·91	+7·09	14·38	3·21	+11·17	21·93	11·00	+10·93	3·32	Trichinopoly.		
4	1	...	...	...	3	5	13	4	4·5	6·5	−31	83	·893	6·2	13	6·45	+6·55	11·01	4·69	+6·32	24·42	15·23	+9·19	3·02	Madras.		
15	...	...	...	...	1	...	7	7	5·4	?	?	81	·907	9·9	8	5·30	+2·70	5·02	3·36	+1·66	11·09	10·53	+0·56	1·55	Nellore	Madras, East-Coast, Central.	55
5	3	4	—	1	...	...	6	11	6·1	6·4	−5	89	·918	8·2	13	8·80	+4·20	5·89	5·70	+0·19	15·89	23·95	−8·06	1·03	Masulipatam		
...	...	5	...	...	...	5	10	10	?	?	?	80	·828	7·4	16	6·70	+9·30	10·23	5·48	+4·75	22·95	19·87	+3·08	2·15	Cuddapah	Madras, Central.	54
12	...	...	...	...	...	1	15	1	?	?	?	83	·787	7·4	14	7·83	+6·17	9·61	6·54	+3·07	24·05	21·25	+2·80	1·99	Kurnool.		
11	—	...	1	...	...	...	9	9	3·9	9·3	−58	70	·654	8·5	15	6·27	+8·73	13·23	4·09	+9·14	17·41	10·50	+6·91	2·35	Bellary.		
13	10	...	...	...	1	2	4	...	?	?	?	84	·858	7·3	17	8·60	+8·40	9·09	7·61	+1·48	28·04	27·94	+0·70	2·35	Rajahmundry	Madras, East. Coast, North.	52
...	5	5	2	...	1	5	8	4	7·2	?	?	84	·881	6·6	18	9·10	+8·90	9·44	5·73	+3·71	23·97	23·48	+0·49	1·22	Cocanada.		
23	...	...	...	...	...	1	1	...	0·4	2·2	−82	85	·923	8·0	11	10·91	+0·09	6·53	8·27	−1·74	11·87	22·74	−10·87	1·50	Vizagapatam.		
...	4	5	2	1	1	3	11	3	8·9	?	?	86	·901	8·0				No	Rainga	uge.					Waltair.		
4	11	...	...	2	...	2	2	9	7·8	7·2	+8	88	·951	3·6	18	9·33	+8·67	12·79	7·43	+5·36	33·47	29·63	+3·84	2·31	Gopalpur.		
																									XII.—Hill Stations.		
4	2	2	3	2	...	3	7	7	3·4	?	?	43	·421	0·4	1	?	?	1·52	0·54	+0·98	10·98	6·44	+4·54	1·52	Sharigh	Baluchistan.	48
			Not	recorded.					?	?	?	?	?	?	0	?	?	0	0·01	−0·01	0 (*d*)	?	?	0	Pishin.		
26	...	...	...	2	2	...	...	...	2·1	3·5	−40	54	·380	0·3	0	0·55	−0·55	0	0·16	−0·16	0·32	2·19	−1·87	0	Quetta.		
...	2	1	6	1	15	3	2	...	?	?	?	45	·262	0	0	?	?	0	0·05	−0·05	0·33	1·30	−0·97	0	Kalat.		
...	1	...	9	8	3	8	1	...	10·2	?	?	42	·399	0·7	0	?	?	0	0	0	0	0·51	−0·51	0	Chaman.		
...	...	...	...	...	1	5	24	...	2·3	1·7	+35	53	·179	4·2	1	?	?	0·33	0·23	+0·10	0·84	1·42	−0·58	0·30	Leh	Punjab.	30
10	4	1	5	7	2	...	...	1	4·3	?	?	91	·498	3·0	3	?	?	1·45	?	?	10·26 (*i*)	?	?	0·64	Srinagar.		
15	2	8	4	...	1	...	...	...	2·5*	?	?	80	·350	3·3	6	?	?	1·45	?	?	1·45 (*i*)	?	?	0·40	Gulmarg.		
15	4	2	...	...	1	2	6	...	4·5	?	?	67	·343	3·2	0	?	?	0·13	0·03	+0·10	0·73	2·15	−1·42	0·07	Skardu.		
28	1	...	1	...	...	...	...	2	1·5	?	?	86	·325	3·4	4	?	?	1·00	0·63	+0·37	2·66	?	?	0·45	Dras.		
			Not	recorded.					?	?	?	75	·543	3·9	2	?	?	0·34	0·19	+0·15	2·43	1·65	+0·78	0·22	Gilgit.		
5	8	8	...	4	5	...	...	...	?	?	?	54	·400	0·2	0	?	?	0·07	?	?	1·81	?	?	0·07	Chitral		
...	...	...	1	...	1	11	15	1	?	?	?	36	·325	4·3	3	?	?	0·49	?	?	2·35	?	?	0·17	Kilta Drosh.		
...	6	5	2	4	5	2	2	4	5·8	?	?	51	·334	0·3	4	?	?	0·93	?	?	6·85	?	?	0·45	Para Chinar.		
5	4	1	...	1	9	...	5	5	8·1	?	?	57	·464	0·9	2	?	?	0·55	2·60	−2·05	12·96	11·07	+1·89	0·27	Cherat.		
17	4	...	...	5	1	...	1	2	4·4	5·4	−19	67	·394	2·1	7	6·55	+0·45	3·25	6·16	−2·91	28·94	34·56	−5·62	0·97	Murree.		
...	1	1	5	2	1	3	12	4	?	?	?	?	?	2·9†	3	?	?	0·81	0·45	+0·36	4·34	2·31	+2·03	0·39	Poo. *ii*		
11	12	4	1	1	1	—	...	...	2·5	1·7	+47	81	·420	3·9	8	8·36	−0·36	5·16	6·56	−1·40	38·49	48·88	−10·39	2·27	Simla.		
16	9	1	1	...	3	...	...	...	8·7	4·7	+85	89	·482	3·8	5	?	?	4·16	6·92	−2·76	61·96	51·84	+10·12	1·58	Chakrata.	North-Western Provinces.	25
...	2	2	10	2	1	...	3	10	?	8·1	?	86	·484	4·5	12	10·09	+1·91	8·30	10·26	−1·96	87·76	83·22	+4·54	3·45	Mussooree.		
12	1	3	3	1	1	4	2	3	3·1	1·9	+63	88	·526	4·4	6	7·73	−1·73	8·73	8·02	+0·71	49·61	41·15	+8·46	3·66	Ranikhet.		
...	2	...	13	7	1	...	...	7	1·3	?	?	86	·452	7·9	7	?	?	13·87	?	?	57·78	?	?	7·12	Muktesar.		

* Mean of 29 days. † Mean of 27 days. (*i*) For September only. (*d*) For June, July and September. (*ii*) Wind observation of 24 days.

Table

Abstract of Observations taken at 8 A.M. at 215 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.
13	Bengal	Yatung	10,480?				Not recorded.					?	60·2	?	51·6	?	55·9	?	8·6	65·0	6 days	47·9	29th & 30th.	17·1
		Darjeeling	7,421	23·002	+·002	?	23·141	24th	22·855	4th	·286	59·2	64·4	−0·4	55·8	+0·7	60·1	+0·2	8·6	68·1	30th	54·3	25th	13·8
		Gantok	5,660?	24·522	?	?	24·651	24th	24·393	1st	·258	62·9	75·0	?	51·2	?	63·1	?	23·8	77·2	3 days	50·0	14th & 23rd.	27·2
	Central India.	Mount Abu.	3,945	25·981	−·001	?	26·078	30th	25·882	4th	·196	69·2	74·9	−0·5	65·1	+0·3	70·0	−0·1	9·8	80·7	12th	61·9	5th & 17th.	18·8
		Pachmarhi	3,528	26·396	+·043	?	26·481	30th	26·294	10th	·187	71·9	78·1	+1·1	67·6	+1·4	72·9	+1·3	10·5	81·2	21st	64·7	30th	16·5
	South India	Wellington	6,200	24·211	−·018	?	24·293	6th	24·158	21st	·135	63·4	70·9	−0·1	56·4	+0·7	63·7	+0·3	14·5	73·7	4th & 15th.	48·2	12th	25·5
	XIII.—Extra India.																							
	Ceylon	Trincomalee.	12	29·855	?	29·793	29·957	7th	29·762	21st	·195	80·3	88·4	?	76·6	?	82·5	?	11·8	91·5	11th	73·0	1st	18·5
		Colombo	40	29·885	−·031	29·851	29·973	7th	29·798	21st	·175	81·0	86·5	?	77·9	?	82·2	?	8·6	89·0	24th	72·5	2nd	16·5
	Persia	Meshed	3,104				Not recorded.					67·1	?	?	56·2	?	?	?	?	?	...	48·9	30th	?
		Resht	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Teheran**	?	26·014* 25·438*	? ?	? ?	26·235 25·620	11th 11th	25·755 25·220	16th 16th	·480 ·400	74·9	88·7	?	63·5	?	76·1	?	25·2	95·0	11th	54·9	28th	40·1
		Ispahan**		24·441 24·781	? ?	? ?	24·640 24·970	11th 11th	24·260 24·630	16th 16th	·380 ·340	70·2	88·1	?	54·0	?	71·1	?	34·1	93·7	20th	49·3	10th	44·4
		Bushire	14	29·756	+·031	29·729	29·879	30th	29·617	5th	·262	87·2	94·6	+0·4	79·2	+0·4	86·9	+0·4	15·4	107·5	4th	72·0	20th	35·5
		Jask	?	29·765	?	29·717	29·881	30th	29·614	5th	·267	88·3	95·5	?	82·4	?	89·0	?	13·1	103·7	15th & 17th.	77·7	22nd	26·0
	Arabia	Muscat	20	29·760	?	29·727	29·870	30th	29·619	5th	·251	87·5	89·9	?	85·3	?	87·6	?	4·6	97·3	20th	81·2	2nd	16·1
		Baghdad	220	29·659	−·014	29·853	29·806	18th	29·507	6th	·299	80·1	104·3	+3·4	73·0	+1·8	88·6	+2·6	31·3	114·3	4th	62·8	28th	51·5
		Aden	94	29·728	−·020	29·752	29·811	30th	29·612	5th	·199	87·0	94·4	+0·8	83·2	+1·1	88·8	+1·0	11·2	98·3	4th & 7th.	80·8	27th & 29th.	17·5
		Perim	?	29·616	?	?	29·717	30th	29·524	5th	·193	88·1	95·2	?	?	?	?	?	?	101·9	6th	?	...	?
	Afghanistan	Kabul	?				Not recorded.					60·2	87·2	?	50·8	?	69·1	?	36·4	92·1	2nd & 11th.	43·6	21st	48·5
	Central Asia	Kashgar	?	25·661†	?	?	25·953	12th	25·482	4th	·471	64·2	83·3	?	56·3	?	69·8	?	27·0	90·4	1st	46·8	26th	43·6
	Arabian Sea Islands.	Minicoy	10	29·883	?	?	29·983	6th & 7th.	29·802	21st	·181	82·1	86·1	?	?	?	?	?	?	87·7	3 days	?	...	?
	Africa	Zanzibar	73	30·073	?	30·073	30·144	9th	30·010	2nd	·134	76·5	82·6	?	73·9	?	78·2	?	8·7	85·9	24th	71·9	8th & 12th.	14·0

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

† Aneroid corrected.
** Do. uncorrected.
(a) From July to September.

I—*concluded.*

in India, Burma, etc., in September, 1897—concluded.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind velocity: Mean velocity in miles per hour.	Normal.	Percentage variations.	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 June to 30th September 1897.	Normal rainfall for period, 1st June to 30th September.	Variation from normal of period, 1st June to 30th September.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
			Not	rec	orde	d.			?	?	?	?	?	?	17	?	?	5·00	6·42	−1·42	31·59	?	?	0·52	Yatung .	BENGAL.	13
5	1	4	2	2	...	6	10	...	5·1	3·0	+70	96	·487	8·5	15	18·04	−3·04	8·59	17·31	−8·72	76·46	99·06	−22·60	1·64	Darjeeling.		
26	...	...	...	...	1	1	...	2	2·1	?	?	94	·545	?	29	?	?	30·07	20·93	+9·14	94·98	90·01	+4·97	2·95	Gantok.		
6	...	6	4	2	2	6	3	1	8·4	7·3	+16	88	·620	9·7	15	7·40	+7·60	13·30	10·71	+2·59	54·84	63·65	−8·81	4·77	Mount Abu.	CENTRAL INDIA.	
16	1	1	...	1	...	3	5	3	7·1	5·6	+27	88	·689	7·7	15	12·55	+2·45	13·18	15·97	−2·79	74·29	72·20	+2·09	3·03	Pachmarhi.		
20	1	2	...	2	...	2	1	2	2·3	3·5	−34	80	·474	6·7	12	9·22	+2·78	8·11	4·49	+3·62	20·08	16·16	+3·92	1·52	Wellington .	SOUTH INDIA.	
																									XIII.—Extra India.		
...	...	...	...	...	..	30	...	...	8·8	?	?	85	·882	3·6	11	?	?	10·35	4·39	+5·96	18·51	12·19	+6·32	2·35	Trincomalee	CEYLON.	
...	...	...	...	1	3	8	17	1	10·7	8·7	+23	85	·900	7·6	14	?	?	4·17	5·29	−1·12	29·52	22·27	+7·25	0·87	Colombo .		
				Not	rec	orded.			?	?	?	56	·373	?	1	?	?	0·15	0·10	+0·05	0·46	0·37	+0·09	0·15	Meshed .	PERSIA.	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Resht .		
26	1	1	1	...	...	...	...	...	1·5*	?	?	46*	·400*	0·5*	0	?	?	0	0·02	−0·02	0·21	?	?	0	Teheran.‡		
9	1	2	3	5	1	1	3	5	2·5	?	?	33	·244	0	0	?	?	0	0	0	0	0·10	−0·10	0	Ispahan.		
1	5	8	7	5	...	...	1	3	6·0	7·7	−22	58	·747	0·1	0	?	?	0	?	?	0	?	?	0	Bushire.		
...	5	3	19	...	...	...	...	3	10·8	?	?	71	·930	0·8	0	?	?	0	0	0	0	0·03	−0·03	0	Jask.		
...	1	4	10	1	2	2	5	4	3·9*	?	?	69	·894	1·1	0	?	?	0	?	?	0	?	?	0	Muscat .	ARABIA.	
5	12	2	1	2	...	...	1	7	4·6	?	?	41	·428	0	0	?	?	0	?	?	0	?	?	0	Baghdad.		
1	...	4	11	3	2	7	2	...	9·7*	8·5	+14	73	·935	3·5	0	?	?	0	0·21	−0·21	0·62	0·43	+0·19	0	Aden.		
8	...	6	1	4	...	6	...	5	15·2	?	?	77	1·016	3·3	0	?	?	0	0	0	0	0·40	−0·40	0	Perim.		
15	1	...	...	...	2	2	10	...	?	?	?	50	·262	0	1	?	?	0·15	0	+0·15	0·81	0·93	−0·12	0·15	Kabul .	AFGHANISTAN.	
13	1	2	2	...	1	1	5	1	?	?	?	51	·301	1·9†	0	?	?	0	0·13	−0·13	1·53	1·59	−0·06	0	Kashgar ii .	CENTRAL ASIA.	
...	1	...	...	...	..	2	8	19	7·6	?	?	77	·847	?	11	?	?	9·74	?	?	(a) 27·24	?	?	4·06	Minicoy .	ARABIAN SEA ISLANDS.	
...	...	...	1	11	13	4	1	...	5·0	?	?	83	·752	6·3	6	?	?	3·32	1·56	+1·76	13·84	6·75	+7·09	1·29	Zanzibar .	AFRICA.	

that station are not utilized in calculating the provincial variations.

* Mean of 29 days. † Mean of 26 days. ‡ Wind observations of 29 days. ii Wind observations of 26 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. 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.
Burma Coast and Bay Islands.	Port Blair	...	29·843	29·750	·093	29·799	+·019	29·790	85·5	77·2	8·3	89·2	73·7	15·5	82·7	82·5	80·2	+0·7	75·3	79·5	78·9	77·9
	Rangoon	...	·862	·744	·118	·804	+·023	·782	87·0	76·1	10·9	90·7	71·9	18·8	82·4	82·8	79·8	+1·1	74·9	79·3	79·2	77·8
	Diamond Island	...	·860	·756	·104	·810	+·027	·786	85·1	77·4	7·7	87·6	73·3	14·3	82·4	81·6	80·0	+1·2	75·4	78·4	77·8	73·2
	Cocos Island (a)	111	·810	·714	·096	·764	?	·807?	85·7	76·7	9·0	89·4	73·9	15·5	82·4	81·8	79·9	+0·6	74·4	78·7	77·9	77·0
	Akyab	...	·857	·739	·118	·802	+·041	·765	87·0	78·1	8·9	92·3	75·4	16·9	83·9	84·7	81·8	+0·4	75·8	81·4	82·0	79·7
Assam.	Silchar	...	·756	·624	·132	·695	+·042	·750	88·7	76·5	12·2	94·7	73·3	21·4	83·0	83·7	81·5	−0·1	75·5	79·0	79·3	77·9
	Sibsagar	...	·516	·374	·142	·446	+·023	·734	85·1	75·8	9·3	92·3	72·3	20·0	80·6	81·0	79·1	−1·6	75·4	75·4	79·8	77·9
	Dhubri	...	·717	·588	·129	·659	+·031	·729	84·1	78·0	6·1	88·2	74·8	13·4	80·7	82·2	79·4	+0·1	76·0	78·4	78·8	77·7
Bengal and Orissa.	Chittagong	...	·764	·646	·118	·709	+·032	·744	87·1	76·6	10·5	92·5	72·1	20·4	84·2	84·3	81·0	+0·4	76·1	80·1	80·5	78·9
	Narayanganj	...	·804	·685	·119	·750	+·045	·724	87·3	79·3	8·0	91·1	74·6	16·5	83·6	84·6	82·9	−0·1	76·4	80·1	80·2	78·9
	Calcutta (Alipore)	...	·791	·678	·113	·737	+·052	·704	88·1	78·2	9·9	90·7	72·9	17·8	84·2	85·7	83·1	+0·6	77·1	80·0	80·2	79·1
	Saugor Island	...	·767	·663	·104	·717	+·037	·686	89·1	80·4	8·7	91·2	77·8	13·4	85·7	86·0	83·6	+1·0	77·9	81·1	80·9	80·0
	Burdwan	...	·715	·597	·118	·659	+·047	·705	90·4	79·3	11·1	94·4	76·8	17·6	85·5	87·1	83·7	+0·3	77·5	80·3	80·8	79·5
	Berhampore	...	·740	·625	·115	·686	+·042	·701	89·3	78·5	10·8	93·2	75·6	17·6	85·6	86·5	82·9	0	76·7	81·1	80·4	79·4
	False Point	..	·788	·676	·112	·734	+·038	·696	88·4	79·2	9·2	90·5	74·1	16·4	86·0	86·3	82·9	+1·1	77·5	80·7	80·5	79·6
	Cuttack	...	·714	·593	·116	·660	+·031	·682	90·3	78·8	11·5	94·4	75·0	19·4	84·8	86·6	83·4	+0·8	77·4	79·3	79·8	78·9
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·798	27·695	·103	27·751	+·041	·687	85·9	73·3	12·6	88·9	71·4	17·5	80·6	81·2	78·2	+1·2	70·6	74·9	74·7	73·4
	Patna	...	29·611	29·487	·124	29·554	+·040	·687	90·3	80·1	10·2	92·5	77·2	15·3	86·6	88·0	84·1	+0·6	78·1	80·6	80·6	79·8
	Darbhanga	...	·632	·508	·124	·575	+·034	·693	89·1	79·6	9·5	93·0	75·3	17·7	85·8	87·8	83·5	+0·7	77·9	80·4	81·0	79·8
	Allahabad	...	·475	·345	·130	·413	+·037	·672	93·2	78·5	14·7	97·5	74·3	23·2	88·2	90·9	84·8	+1·6	76·6	80·7	80·5	79·3
	Lucknow	...	·404	·286	·118	·348	+·025	·669	93·1	79·3	13·8	97·2	76·9	20·3	87·7	89·2	85·3	+1·5	76·1	79·0	79·6	78·2
Upper Sub-Himalayas.	Dehra Dun	...	27·570	27·480	·090	27·517	+·015	·686	85·0	70·1	14·9	88·3	67·1	21·7	78·7	81·0	76·3	−0·6	67·7	73·4	74·5	71·9
	Roorkee	...	28·872	28·763	·109	28·811	+·017	·652	90·5	73·7	16·8	93·5	70·1	23·4	84·7	88·7	81·4	−0·4	72·51	77·7	78·0	76·1
	Meerut	...	29·027	·922	·105	·966	+·026	·661	91·1	74·8	16·3	95·2	70·3	24·9	84·8	89·8	82·5	−0·3	74·0	76·6	77·3	76·0
	Lahore	...	·049	·947	·102	·992	+·025	·649	95·9	77·1	18·8	100·6	71·3	29·3	88·0	94·9	86·1	+2·2	72·3	77·0	77·7	75·6
	Ludhiana	...	28·910	·837	·103	·883	+·013	·619	95·1	76·5	18·6	99·4	70·5	28·9	87·2	92·6	85·0	+1·5	72·5	76·7	76·6	75·3
Indus Valley and N.-W. Rajputana.	Peshawar	...	·658	·550	·108	·598	+·016	·672	94·6	69·6	25·0	100·0	62·0	38·0	86·3	91·5	81·2	−0·8	65·6	73·5	73·8	71·0
	Mooltan	...	29·314	29·230	·084	29·266	+·033	·644a	99·3	78·4a	20·9	104·4	74·0	30·4	90·4	97·2a	88·1†	+0·7	72·2	78·0	79·7a	76·6
	Jacobabad	...	·550	·432	·118	·485	+·021	·626	102·6	77·5	25·1	107·4	69·3	38·1	92·4	100·9	89·4	+0·7	73·2	81·0	84·6	79·6
	Kurrachee	...	·750	·662	·088	·708	−·011	·638	91·8	79·0	12·8	102·4	72·6	29·8	88·0	87·9	84·2	+2·6	75·0	79·3	79·2	77·8
E. Rajputana, Central India, and Gujarat.	Jeypore	...	28·378	28·275	·103	28·322	+·029	·692	93·4	74·4	19·0	97·8	70·9	26·9	86·6	89·8	82·4	+0·5	71·0	75·6	74·7	73·7
	Ajmere	...	·200	·093	·107	·141	+·017	·696	89·1	74·9	14·2	92·9	70·6	22·3	82·7	87·4	81·2	−0·3	71·9	76·6	77·5	75·3
	Deesa	...	29·335	29·222	·113	29·277	−·004	·693	91·2	75·7	15·5	97·7	73·4	24·3	85·2	88·2	82·2	+0·3	74·5	78·6	78·6	77·2
	Nowgong	...	·032	28·921	·111	28·979	+·036	·683	90·1	76·6	13·5	94·0	72·0	22·0	85·6	87·6	82·3	+0·4	74·9	79·0	78·5	77·5
	Agra	...	·211	29·098	·113	29·140	+·002	·655	94·6	78·4	16·2	99·0	74·9	24·1	89·1	91·7	86·1	+2·6	74·5	79·6	79·5	77·9
Deccan.	Belgaum	...	27·353	27·249	·104	27·303	−·012	·744	81·0	67·0	14·0	85·2	64·8	20·4	74·7	75·0	72·1	+1·8	66·6	70·3	70·6	69·1
	Sholapur	...	28·260	28·122	·138	28·202	−·003	·725	88·5	72·4	16·1	94·0	68·7	25·3	79·9	84·8	78·8	+1·2	70·2	72·6	73·7	72·2
	Poona	...	·011	27·903	·108	27·962	−·012	·732	85·9	70·1	15·8	89·6	66·3	23·3	79·6	81·4	76·1	+1·7	68·9	72·6	73·0	71·5
	Akola	...	·897	28·762	·135	28·830	+·019	·710	89·5	74·4	15·1	91·5	71·3	20·2	83·6	86·7	81·2	+1·4	73·2	77·6	77·7	76·2
	Buldana	2,132	27·711	27·592	·119	27·652	+·009	·710	83·3	70·4	12·9	86·4	68·5	17·9	78·2	81·0	76·3	+0·8	69·0	73·0	73·6	71·9
	Khandwa	...	28·776	28·654	·122	28·716	+·018	·709	88·7	74·7	14·0	92·2	72·6	19·6	82·6	86·0	80·3	+1·3	72·8	76·9	77·7	75·8

(a) Mean of 29 days. ** Mean of 27 days.
† „ 28 „

II.

85 stations in India, Burma, etc., for September, 1897.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from											Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
																									%	%						
·851	·970	·942	·922	+·029	91	87	85	88	+1	8·1	8·3	8·2	+0·9	3	...	1	...	10	11	13	21	1	S. 42° W.	S. 52° W.	59	74	158	228	...	...	Port Blair	Burma Coast and Bay Islands.
·850	·962	·954	·922	+·029	94	87	85	89	0	7·7	7·5	7·6	−0·6	...	2	3	7	10	14	14	7	3	S. 6° W.	S. 23° W.	42	49	74	89	...	...	Rangoon	
·857	·921	·903	·894	+·023	91	83	84	86	−1	7·1	8·0	7·6	+0·1	...	1	1	12	10	7	12	14	3	S. 14° W.	S. 45° W.	32	55	275*	182	...	...	Diamond Island.	
·822	·936	·904	·887	−·004	89	84	84	86	0	7·2	7·2	7·2	−0·2	...	1	3	1	16	11	18	5	3	S. 10° W.	S. 44° W.	51	74	?	447	11·99	2·39	Cocos Island	
·863	1·013	1·057	·989	+·069	90	89	89	89	+3	7·7	7·9	7·8	+0·6	...	2	9	5	17	4	13	6	4	S. 21° E.	S. 8° E.	25	42	70	74	...	...	Akyab	
·871	·940	·914	·908	+·002	95	84	75	85	+1	8·0	7·9	8·0	+0·7	34	4	1	1	...	...	2	11	7	N. 62° W.	N. 87° W.	30	5	81*	53	...	...	Silchar	Assam.
·875	·946	·967	·929	+·008	98	91	83	91	+5	8·8	6·5	7·7	0	13	...	17	4	15	3	8	...	...	S. 71° E.	N. 81° E.	37	17	80*	59	...	...	Sibsagar	
·873	·944	·939	·919	+·022	91	90	85	89	+2	7·0	7·2	7·1	+0·5	4	2	6	7	3	10	13	14	1	S. 36° W.	S. 78° E.	30	22	105*	99	...	...	Dhubri	
·895	·977	·992	·955	+·039	93	84	84	89	+3	7·1	6·3	6·7	−0·2	1	2	4	4	18	9	11	3	8	S. 9° E.	S. 22° E.	32	37	110‡	102	...	...	Chittagong	Bengal and Orissa.
·873	·982	·974	·943	−·013	87	85	82	85	0	8·3	7·8	8·1	+1·1	...	1	3	2	20	13	11	7	3	S. 3° E.	S. 12° E.	50	58	133	118	...	...	Narayanganj	
·920	·967	·960	·949	+·006	95	82	78	85	−1	7·8	8·1	8·0	+0·7	1	2	2	13	7	11	18	5	1	S. 2° E.	S. 23° E.	41	42	94	98	...	...	Calcutta (Alipore).	
·924	1·001	·987	·971	−·005	89	81	79	83	−3	8·5	8·1	8·3	+1·2	...	3	7	5	12	16	13	3	1	S. 12° E.	S. 2° W.	43	49	279	257	...	...	Saugor Island	
·922	·963	·968	·951	+·026	92	79	75	82	+1	6·6	7·3	7·0	−0·4	20	2	2	6	9	7	9	5	...	S. 8° E.	S. 27° E.	28	36	51	74	...	...	Burdwan	
·897	1·001	·956	·951	+·016	91	81	76	83	−2	6·8	7·4	7·1	−0·8	17	5	...	8	6	14	6	3	1	S. 14° E.	S. 38° E.	28	35	72*	88	...	...	Berhampore	
·923	·980	·966	·956	+·027	92	79	77	83	−1	7·7	7·6	7·7	+0·7	...	3	...	9	15	18	7	6	2	S. 14° E.	S. 20° W.	50	37	199*	205	...	...	False Point	
·923	·929	·926	·926	+·031	94	78	73	82	+2	6·2	6·4	6·3	−0·3	4	2	10	7	9	10	8	6	4	S. 29° E.	S. 23° W.	20	19	61	59	...	...	Cuttack	
·715	·797	·780	·764	+·010	87	76	74	79	−5	9·6	9·6	9·6	+1·6	6	12	4	6	7	10	5	5	5	S. 87° E.	S. 52° E.	3	10	162	178	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·938	·966	·915	·959	+·038	91	76	72	80	0	6·1	6·0	6·1	−0·8	4	1	4	14	11	4	5	8	9	S. 50° E	S. 89° E.	13	37	60*	86	...	...	Patna	
·934	·970	·969	·958	+·023	92	79	74	82	0	5·3	4·7	5·0	−0·3	4	...	3	18	16	3	5	8	3	S. 53° E.	S. 81° E.	37	49	61	96	...	...	Darbhanga	
·890	·949	·903	·914	+·029	91	71	63	75	−4	5·4	6·2	5·8	+0·5	2	4	9	10	4	1	4	14	12	N. 27° W.	N. 8° W.	23	13	140*	128	...	...	Allahabad	
·850	·875	·881	·873	+·055	86	67	65	73	0	3·7	4·1	3·9	−1·5	2	4	5	8	2	10	4	18	7	S. 2° W.	N.	22	18	55*	71	...	...	Lucknow	
·652	·756	·775	·728	+·030	88	77	74	80	+2	4·6	5·8	5·2	+0·4	16	2	...	3	8	8	8	9	6	S. 37° W.	N. 75° W.	28	20	12	25	...	...	Dehra Dun	
·790**	·850	·817	·822	+·054	96**	72	61	76	+4	2·9	2·8	2·9	−0·9	29	...	7	...	9	1	3	...	11	N. 21° E.	S. 14° W.	7	7	25a	48	...	...	Roorkee	Upper Sub-Himalayas.
·831	·803	·770	·803	+·041	96	68	56	73	+3	3·3	3·3	3·3	−0·4	26	...	3	3	...	...	6	19	3	W.	N. 49° W.	34	19	38*	46	...	...	Meerut	
·734	·784	·720	·746	+·032	78	59	45	61	+4	1·1	1·3	1·2	−0·3	12	7	3	4	4	7	...	18	5	N. 70° W.	N. 55° E.	13	7	42	50	...	...	Lahore	
·750	·773	·702	·743	−·012	82	61	47	63	−3	2·4	3·7	3·1	+0·1	29	6	4	...	6	1	3	1	10	N. 20° W.	N. 44° W.	15	14	35	31	...	...	Ludhiana	
·585	·672	·627	·628	+·036	80	54	41	58	+4	1·2	3·0	2·1	+0·4	18	11	13	9	1	1	...	...	7	N. 31° E.	N. 39° E.	45	51	53*	73	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·705a	·795	·732a	·761	−·025	72a	56	45a	58	−2	1·2	1·2a	1·3	+0·4	8	...	8	...	20	1	19	...	3	S. 11° E.	S. 29° W.	36	38	50*	60	...	...	Mooltan	
·767	·906	·974	·882	+·192	81	59	50	63	+11	1·1	1·0	1·1	+0·5	29	...	...	8	9	11	1	2	...	S. 33° E.	S. 32° E.	36	45	86*	72	...	...	Jacobabad	
·819	·885	·883	·892	+·021	83	67	67	72	−5	4·0	3·1	3·6	−0·2	1	4	4	1	2	6	21	18	3	S. 65° W.	S. 67° W.	54	87	284*	356	...	...	Kurrachee	
·720	·749	·670	·713	+·030	84	59	49	64	0	5·1	5·7	5·4	+1·4	2	4	12	3	...	2	11	18	8	N. 67° W.	N. 39° W.	37	43	61	108	...	...	Jeypore	E. Rajputana, Central India, and Gujarat.
·718	·841	·820	·803	+·095	86	75	64	75	+8	4·6	4·6	4·6	+1·3	3	4	7	6	5	2	4	22	7	N. 70° W.	N. 84° W.	27	51	107	133	...	...	Ajmere	
·837	·891	·853	·830	+·137	94	74	65	78	+12	6·5	5·1	5·8	+1·0	...	3	4	3	6	12	9	19	4	S. 52° W.	S. 69° W.	38	53	193	200	...	...	Deesa	
·817	·904	·853	·868	+·073	92	74	66	77	+4	4·8	6·2	5·5	−0·1	2	3	2	15	2	...	5	28	3	N. 84° W.	N. 68° W.	27	34	64*	57	...	...	Nowgong	
·806	·883	·849	·845	+·056	83	65	57	68	0	3·3	3·7	3·5	−0·3	...	...	9	...	6	...	15	...	30	N. 59° W.	N. 44° W.	42	25	143*	104	..	...	Agra	
·648	·689	·694	·677	+·036	98	80	80	86	+1	8·6	8·6	8·6	+1·1	...	12	5	2	2	2	16	13	8	N. 74° W.	S. 78° W.	40	75	313	385	...	...	Belgaum	Deccan.
·714	·710	·693	·706	+·044	90	70	59	73	+3	8·6	8·8	8·7	+0·7	2	5	3	4	9	2	8	12	15	N. 77° W.	N. 69° W.	27	67	205*	245	...	...	Sholapur	
·695	·713	·708	·705	+·039	94	71	66	77	+1	8·1	8·0	8·1	+0·4	...	...	5	4	1	...	14	28	8	S. 87° W.	W.	59	77	281*	259	...	...	Poona	
·803	·868	·832	·834	+·095	95	76	67	79	+5	7·4	7·7	7·6	+1·0	2	3	6	1	6	...	3	11	28	N. 35° W.	N. 59° W.	42	68	138a	155	...	...	Akola	
·694	·750	·738	·727	+·047	93	78	70	80	+2	8·1	7·8	8·0	+1·4	3	9	2	1	2	2	6	12	23	N. 57° W.	N. 47° W.	57	68	119	200	8·32	2·23	Buldana	
·786	·855	·850	·830	+·089	91	77	69	79	+4	6·6	7·0	6·8	+1·3	7	5	5	3	5	1	3	18	13	N. 60° W.	N. 66° W.	37	67	112	154	...	...	Khandwa	

* Corrected. ‡ Mean of 26 days.

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.
Deccan—*concld.*	Hoshangabad	...	28·803	28·683	·120	28·744	+·034	29·702	87·7	74·7	13·0	90·9	72·7	18·2	83·2	84·8	79·8	+0·4	73·7	77·7	77·6	76·3
	Nagpur	...	·775	·640	·135	·709	+·031	·679	89·8	76·0	13·8	93·3	74·0	19·3	83·7	85·9	81·9	+1·6	74·5	77·5	77·5	76·5
	Do. (Sanitary Commr.'s Office).	...	·786	·662	·124	·725	?	·685	90·4	75·7	14·7	93·2	72·5	20·7	85·1	87·0	82·2	?	74·3	79·1	79·7	77·7
	Jubbulpore	...	·471	·353	·118	·413	+·036	·682	88·3	74·3	14·0	91·5	71·6	19·9	83·4	85·1	79·8	+1·3	73·2	77·4	77·1	75·9
	Saugor	...	27·996	27·886	·110	27·942	+·027	·678	86·3	73·1	13·2	89·3	70·1	19·2	81·8	84·8	78·6	+1·3	71·2	75·4	75·0	73·9
	Sutna	...	28·739	28·626	·113	28·685	+·035	·674	89·3	77·0	12·3	94·0	73·3	20·7	85·8	86·9	82·0	+1·7	74·8	77·8	77·0	76·5
	Raipur	...	·837	·712	·125	·776	+·046	·676	89·2	76·4	12·8	93·7	72·2	21·5	84·1	85·6	81·9	+1·4	74·6	77·9	77·5	76·7
	Hyderabad (Deccan.)	...	·149	·024	·125	·092	+·011	·714	85·7	72·3	13·4	91·2	67·6	23·6	80·3	82·5	78·2	+0·6	71·0	75·1	76·2	74·1
West Coast.	Bombay	...	29·822	29·722	·100	29·769	−·017	·746	85·6	77·1	8·5	90·1	75·0	15·1	82·1	83·3	80·8	+1·1	74·8	78·6	78·4	77·3
	Ratnagiri	...	·761	·662	·099	·708	−·018	·755	85·4	75·6	9·8	88·7	71·8	16·9	82·2	82·6	79·8	+1·2	74·0	78·0	78·0	76·7
	Karwar	...	·855	·751	·104	·800	−·020	·776	83·2	75·2	8·0	85·2	72·7	12·5	80·0	81·1	78·7	+1·0	73·8	76·0	76·0	75·3
	Cochin	...	·921	·833	·088	·874	−·018	·811	85·4	74·8	10·6	88·7	72·3	16·4	80·4	82·3	79·3	+0·3	73·4	76·5	77·2	75·7
South India.	Salem	...	28·961	28·818	·143	28·903	−·014	·773	89·7	72·7	17·0	95·8	70·0	25·8	82·4	86·5	79·0	−0·4	71·6	75·9	77·1	74·9
	Mercara	...	26·217	26·119	·098	26·181	−·011	?	72·6	63·3	9·3	76·9	60·6	16·3	68·7	67·7	66·7	+0·8	62·3	65·6	65·9	64·6
	Chitaldroog	...	27·490	27·366	·124	27·437	−·003	·752	82·9	68·3	14·6	87·2	65·3	21·9	76·8	79·9	74·9	+0·4	66·7	70·8	71·6	69·7
	Bangalore	...	26·913	26·793	·120	26·864	−·011	·767	80·8	65·9	14·9	85·0	62·1	22·9	74·6	77·1	72·5	+0·2	65·2	69·7	70·6	68·5
	Hassan	...	·854	·747	·107	·812	−·012	·737	78·9	65·0	13·9	83·2	60·8	22·4	74·5	75·0	71·0	+0·3	64·3	68·9	69·0	67·4
	Mysore	...	27·408	27·289	·119	27·349	−·006	·771	83·1	67·2	15·9	88·1	63·4	24·7	77·2	79·1	74·2	−0·4	66·1	70·4	71·0	69·2
	Trichinopoly	...	29·616	29·475	·141	29·559	−·006	·743	92·6	75·4	17·2	99·4	72·9	26·5	85·2	90·0	81·9	−1·3	71·7	75·5	77·1	74·8
	Madras	...	·835	·715	·120	·783	+·009	·734	90·0	76·0	14·0	96·9	71·2	25·7	85·1	84·7	81·7	−2·1	?	78·8	78·9	78·2
	Bellary	...	28·393	28·251	·142	28·331	−·009	·737	88·6	72·6	16·0	94·9	67·5	27·4	80·9	86·1	79·3	−0·8	68·2	70·8	71·6	70·2
	Cocanada	...	29·792	29·672	·120	29·734	+·033	·697	87·2	77·9	9·3	95·8	73·0	22·8	83·7	85·4	82·1	−1·0	75·8	78·0	77·9	77·2
	Vizagapatam	...	·784	·667	·117	·728	+·035	·696	88·6	77·7	10·9	93·9	74·0	19·9	84·6	85·8	82·7	−1·4	76·6	79·2	79·5	78·4
Hill Station, Baluchistan.	Quetta	...	24·628	24·544	·084	24·578	+·022	?	85·5	50·7	34·8	90·0	42·7	47·3	77·6	82·7	67·4	+0·8	44·2	59·6	60·8	54·9
Hill Stations, Punjab.	Leh	...	Not recorded.						70·2	41·7	28·5	81·2	37·0	44·2	57·7	67·5	55·8	+2·0	36·8	43·6	47·6	42·7
	Srinagar	...	24·877	24·782	·095	24·822	+·035	?	77·9	53·6	24·3	86·3	47·5	38·8	66·9	76·0	65·3	−0·4	52·0	63·8	71·8	62·5
	Murree	...	23·870	23·829	·041	23·841	+·029	?	72·9	59·3	13·6	78·9	45·9	33·0	67·6	71·1	65·4	0	52·5	59·9	62·6	58·3
	Kailang	10,087	20·757	20·686	·071	20·730	−·021?	?	69·3	40·7	28·6	80·8	32·5	48·3	59·6	62·5	52·4	−1·3	38·6	48·9	48·8	45·4
	Simla (Ridge)	...	23·133	23·078	·055	23·093	+·018	?	66·3	56·2	10·1	69·5	53·6	15·9	62·4	63·2	60·3	−1·2	53·8	58·5	59·9	57·4
Hill Stations, N.-W.P.	Chakrata	...	·303	·238	·065	·262	+·016	?	68·0	57·3	10·7	70·9	54·3	16·6	65·0	63·9	61·4	−0·3	56·1	61·5	61·2	59·6
	Ranikhet	...	24·111	24·032	·079	24·058	+·028	?	72·7	60·0	12·7	78·0	54·4	23·6	68·1	69·5	65·3	−0·2	58·7	63·2	64·2	62·0
Hill Station, Nepal.	Muktesar	...	22·871	22·806	·065	22·839	?	?	68·0	56·1	11·9	74·0	50·6	23·4	63·2	64·4	61·1	?	54·3	59·5	60·8	58·2
	Katmandu	4,388	25·524	25·469	·055	25·500	−·023	?	82·2	66·3	15·9	86·6	64·3	22·3	75·8	77·6	73·1	−0·5	65·2	69·3	70·4	68·3
Hill Station, Bengal.	Darjeeling	...	23·019	22·939‡‡	·080	22·984‡‡	+·026	?	61·4	55·7	8·7	68·1	54·3	12·8	61·0	62·1‡‡	59·5‡‡	+0·8	56·1	60·1	60·7‡‡	59·0
Hill Stations, Central India.	Mount Abu	...	26·003	25·923	·080	25·962	+·004	?	74·9	65·1	9·8	80·6	61·9	18·7	71·7	72·2	69·3	+0·2	63·3	67·9	68·6	66·6
	Pachmarhi	...	·410	26·315	·095	26·364	+·032	?	78·1	67·6	10·5	81·3	64·7	16·6	74·4	75·0	71·6	+1·1	66·9	70·7	70·8	69·5
	Chikalda	3,612	·296	·194	·102	·246	+·030	?	76·5	66·9	9·6	80·8	64·9	15·9	71·6	74·6	70·7	+1·8	66·1	69·5	71·2	68·9

‡‡ Mean of 25 days.

II—*continued.*

at 85 stations in India, Burma, etc., for September, 1897—continued.

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.		
																									%	%						
·818	·883	·857	·853	+·062	95	78	72	82	+ 3	6·5	6·7	6·6	+0·6	36	2	7	...	...	2	4	6	3	N. 54° W.	S. 87° W.	12	46	40	63	...	...	Hoshangabad	Deccan—*concld.*
·838	·867	·837	·847	+·080	93	75	68	79	+ 4	7·2	7·9	7·6	+0·3	19	5	4	3	2	4	5	9	9	N. 66° W.	N. 52° W.	22	37	102	147	...	...	Nagpur .	
·834	·923	·926	·891	?	94	77	72	81	?	5·5	5·9	5·7	?	3	7	6	6	6	7	7	12	6	S. 84° W.	?	12	?	34*	?	...	...	Do. (Sanitary Commr.'s Office).	
·806	·867	·832	·835	+·061	95	76	69	80	+ 2	6·2	6·9	6·6	+0·5	17	2	4	1	8	3	5	13	7	S. 78° W.	N. 71° W.	20	36	25	74	...	...	Jubbulpore .	
·741	·802	·746	·763	+·025	91	74	63	76	− 1	4·9	6·0	5·5	+0·9	18	4	9	7	2	...	6	9	4	N. 9° W.	N. 79° W.	13	44	196	90	...	...	Saugor . .	
·837	·855	·805	·832	+·058	90	70	64	75	+ 1	3·4	4·2	3·8	−1·2	2	7	...	9	3	6	6	18	9	N. 86° W.	N. 49° W	28	33	103*	152	...	...	Sutna . .	
·836	·875	·835	·849	+·045	92	75	69	79	+ 1	6·7	7·4	7·1	+0·3	23	1	7	8	4	1	6	6	4	N. 74° E.	S. 84° W.	5	27	152*	146	...	...	Raipur . .	
·747	·807	·828	·794	+·059	91	78	75	82	+ 4	7·1	7·5	7·3	+1·0	12	3	1	3	7	2	2	23	7	N. 89° W.	N. 71° W.	35	61	111*	150	...	...	Hyderabad (Deccan). .	
·832	·934	·909	·892	+·027	89	85	80	85	0	6·8	7·5	7·2	−0·2	...	1	3	1	5	13	11	14	12	S. 62° W.	N. 84° W.	45	52	239	267	...	...	Bombay .	West Coast.
819	·905	·898	·874	+·038	92	82	81	85	+ 1	7·7	7·7	7·7	+1·7	...	5	...	1	...	5	22	12	15	S. 80° W.	N. 81° W.	51	59	148	178	...	...	Ratnagiri .	
·817	·848	·832	·832	+·015	93	83	79	85	− 1	6·7	7·4	7·1	+1·4	2	8	...	...	...	...	9	25	16	N. 73° W.	N. 80° W.	73	78	82	58	...	...	Karwar . .	
·806	·861	·870	·846	+·011	94	83	79	85	0	7·0	7·2	7·1	+1·8	10	4	3	...	...	...	1	16	26	N. 54° W.	N. 76° W.	68	66	131	118	...	...	Cochin .	
·761	·808	·809	·793	+·047	95	73	65	78	+ 6	6·7	7·6	7·2	+1·6	9	5	2	1	...	2	13	21	7	N. 89° W.	S. 63° W.	55	69	73	82	...	...	Salem . .	South India.
·552	·599	·618	·590	+·019	94	86	91	90	0	8·4	9·1	8·8	+0·3	14	2	...	...	...	1	2	25	16	N. 74° W.	S. 86° W.	65	80	126	182	...	...	Mercara .	
·636	·682	·673	·664	+·072	91	74	67	77	+ 8	8·1	8·2	8·2	+0·5	2	...	1	1	1	...	16	28	11	S. 86° W.	N. 87° W.	75	78	184*	228	...	...	Chitaldroog .	
·616	·670	·675	·654	+·051	96	78	73	82	+ 6	7·7	7·2	7·5	+1·2	...	1	...	...	...	5	18	24	12	S. 80° W.	S. 85° W.	77	84	162*	167	...	...	Bangalore .	
·597	·643	·644	·628	+·050	96	75	75	82	+ 6	8·7	9·0	8·9	+1·0	...	1	1	...	...	...	6	39	13	N. 83° W.	N. 79° W.	87	79	77*	91	...	...	Hassan . .	
·629	·660	·660	·650	+·055	94	71	67	77	+ 6	8·3	8·3	8·3	+0·7	2	1	1	...	...	1	15	31	9	S. 86° W.	N. 87° W.	78	68	220*	266	...	...	Mysore . .	
·731	·754	·759	·718	+·030	83	62	55	67	+ 5	6·2	8·1	7·2	+0·5	30	...	...	1	1	...	2	23	3	W.	N. 80° W.	41	73	100	161	...	...	Trichinopoly .	
?	·903	·909	·924	+·101	?	75	77	85	+12	6·4	7·2	6·8	+0·7	...	1	...	2	6	8	16	23	4	S. 57° W.	S. 36° W.	62	52	107	149	...	...	Madras . .	
·637	·627	·595	·620	−·034	80	60	48	63	− 1	9·0	9·1	9·1	+1·6	13	...	1	2	1	...	...	22	21	N. 66° W.	N. 78° W.	62	75	91	223	...	...	Bellary .	
·868	·888	·859	·872	+·017	90	77	71	79	+ 3	6·0	5·6	5·8	−0·4	...	...	11	11	4	1	11	19	3	S. 78° W.	S. 48° W.	13	63	174*	169	...	..	Cocanada .	
·904	·926	·926	·919	+·055	94	78	75	83	+ 9	8·2	7·3	7·8	+1·7	14	2	5	7	3	4	11	12	2	S. 50° W.	S. 61° W.	18	52	12	49	...	...	Vizagapatam.	
·227	·327	·306	·287	+·035	61	35	28	41	+ 2	0·8	1·3	1·1	+0·6	39	5	...	...	2	3	...	3	8	N. 48° W.	N. 60° W.	17	42	37*	62	...	...	Quetta . .	Hill Station, Baluchistan.
·179	·162	·160	·167	−·005	68	35	24	42	+ 1	4·4	3·9	4·2	+0·1	...	...	...	...	...	2	16	41	1	S. 77° W.	S. 58° W.	92	39	59	42	...	...	Leh.	Hill Stations, Punjab.
·374	·562	·712	·559	+·066	89	84	82	85	+ 7	2·7	3·3	3·0	−0·6	16	7	5	1	9	6	2	1	13	N. 8° W.	N. 24° W.	10	12	70*	76	...	...	Srinagar.	
·328	·441	·482	·417	−·001	65	65	64	65	0	1·5	3·2	2·4	+1·0	45	7	1	...	2	1	1	...	3	N. 6° W.	S. 5° W.	12	9	106*	138	...	...	Murree.	
·219	·758	·228	·235	−·010	85	51	42	59	0	3·1	4·9	4·0	+0·8	...	2	1	2	2	12	9	22	10	S. 72° W	S. 57° W.	55	61	48	38	3·14	2·65	Kailang.	
·391	·452	·484	·442	+·001	86	80	83	83	+ 5	5·4	7·6	6·5	+0·7	34	14	2	...	...	3	3	...	3	N. 13° W.	S. 81° W.	22	17	59	99	...	...	Simla (Ridge).	
·440	·514	·513	·489	+·017	93	83	86	87	+ 3	5·8	7·2	6·5	+0·2	7	4	...	5	2	42	...	...	...	S. 9° E.	S. 73° W.	67	37	210	128	...	...	Chakrata.	Hill Stations, N.-W.P.
·434	·532	·550	·522	+·014	93	77	76	82	+ 1	6·0	6·1	6·1	+0·1	14	1	5	2	1	1	9	22	5	W.	S. 55° W.	43	37	86*	52	...	...	Ranikhet.	
·408	·474	·498	·460	?	90	82	81	84	?	8·1	6·6	7·4	?	...	2	1	14	14	4	5	5	15	S 53° E.	?	12	?	31	?	...	...	Muktesar.	Hill Station, Nepal.
·612	·643	·653	·639	+·008	94	72	70	79	0	6·3	6·4	6·4	+0·1	...	1	1	31	2	...	...	23	2	N. 79° E.	S. 80° W.	15	14	18	17	7·12	1·67	Katmandu.	
(a) ·449	·513	·518‡‡	·493	+·015	(a) 99	95	92‡‡	95	+ 1	9·3‡	7·9	8·6	+0·3	1	4	8	5	5	2	2	23	5	N. 67° W.	S. 58° E.	27	6	130	85	...	...	Darjeeling. (b)	Hill Station, Bengal.
·564	·642	·660	·622	+·075	91	83	84	86	+ 9	5·7	7·4	6·6	+1·2	2	3	12	2	11	3	23	4	...	S. 8° W.	S. 73° W.	25	34	199*	183	...	...	Mount Abu.	Hill Stations, Central India.
·653	·712	·707	·691	+·067	96	84	83	87	+ 5	7·6	7·7	7·7	+0·5	31	3	3	...	1	1	5	8	8	N. 69° W.	N. 59° W.	25	45	128*	145	...	...	Pachmarhi.	
·633	·699	·728	·687	+·058	96	91	85	90	+ 1	8·6	7·8	8·2	+0·8	18	17	5	1	2	2	3	...	12	N. 4° W.	N. 23° W.	40	66	244*	244	10·82	2·37	Chikalda.	

† Mean of 29 days. ‖ Mean of 21 days. ‡ „ 27 „ * Corrected. (a) Mean of 16 days. (b) 5 observations less.

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.
Hill Station, S. India.	Wellington . .	...	24·221	24·142	·079	24·182	−·014	?	70·8	56·4	14·4	73·5	48·3	25·2	67·3	66·0	62·4	+0·2	55·2	62·2	61·7	59·7
Extra India.	Muscat . .	...	29·764	29·691	·073	29·728	+·012	29·695	89·9	85·3	4·6	97·3	81·2	16·1	89·1	89·1	87·4	+2·8	75·4	79·6	81·3	78·8
	Aden . . .	...	·737	·619	·118	·671	−·007	·694	94·5	83·2	11·3	98·3	80·8	17·5	90·1	91·5	88·3	+1·2	75·3	80·8	79·5	78·5
	Perim . . .	...	·625	·503	·122	·557	+·003	?	95·2	?	?	101·9	?	?	90·7	92·2	?	?	?	82·7	81·9	?
	Zanzibar . .	...	30·080	·961	·119	30·021	+·002	30·021	82·7	73·9	8·8	85·9	71·9	14·0	78·3	82·1	78·2	+0·7	70·7	73·4	73·0	72·4
	Port Victoria (Seychelles).	15	·008	·926	·082	29·957	−·013	29·906	81·6	77·2	4·4	84·7	73·7	11·0	80·6	81·2	79·3	+0·3	72·1	75·1	75·1	74·1
	Mauritius . .	181	?	?	?	30·012	−·006	30·142	?	?	?	84·9	57·7	27·2	?	?	70·8	+1·1	?	?	?	?

II—*concluded.*

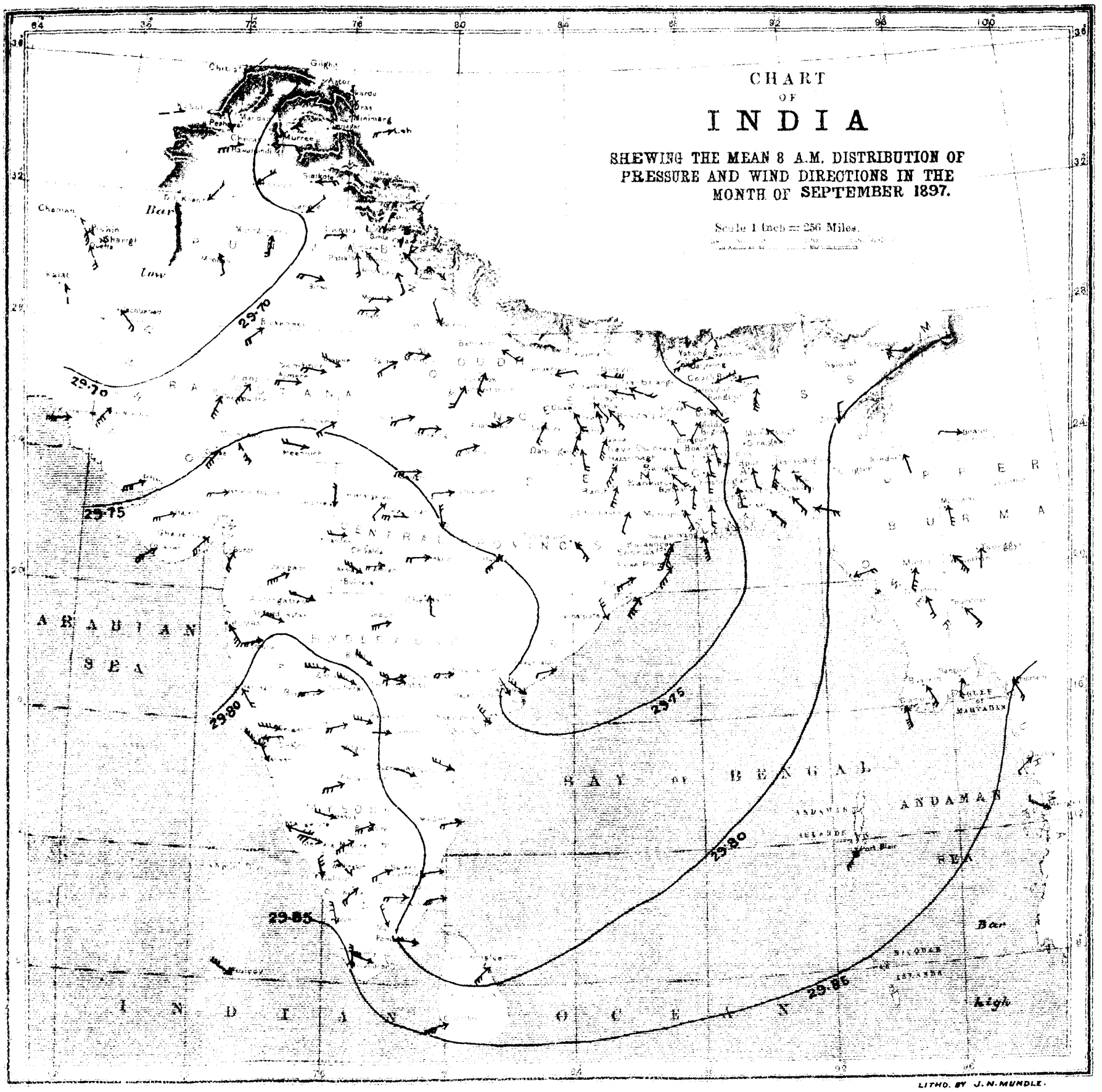
85 stations in India, Burma, etc., for September, 1897—concluded.

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.		
																									%	%						
·427	·508	·508	·481	+·053	93	76	80	83	+7	8·3	9·1	8·7	+1·6	5	2	1	...	19	18	10	3	2	S. 4° E.	S. 56° W.	59	33	55	70	...	...	Wellington.	Hill Station, S. India.
·754	·892	·965	·870	−·058	62	65	71	66	−12	0·6	0·8	0·7	+0·2	...	2	12	22	2	...	...	1	19	N. 33° E.	N. 61° E.	49	59	90	87	...	...	Muscat.	Extra India.
·773	·921	·849	·843	−·001	68	66	58	64	−2	2·0	2·1	2·1	−0·2	...	...	4	15	4	16	20	1	...	S. 10° E.	S. 23° E.	52	50	246†	220	...	...	Aden.	
?	1·010	·955	?	?	?	70	64	?	?	1·6	2·7	2·2	−0·6	8	...	9	5	14	...	4	2	11	N. 81° E.	N. 42° E.	15	28	277	276	...	...	Perim.	
·711	·763	·691	·722	−·005	85	79	63	76	−2	3·7	2·4	3·1	−1·7	...	3	1	...	20	25	10	...	1	S. 10° E.	S. 8° E.	70	63	119*	138	...	...	Zanzibar.	
·719	·801	·793	·771	+·018	77	76	75	76	+1	6·5	6·7	6·6	+1·0	...	...	...	3	43	13	1	...	...	S. 36° E.	S. 41° E.	92	90	304	292	2·20	1·05	Port Victoria (Seychelles).	
?	?	?	·502	?	?	?	?	69	−3	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	353	288	1·77	0·35	Mauritius.	

G. I. C. P. O.—No. 89 Meteor.—7-1-98.—385.

* Corrected.

† Mean of 29 days.

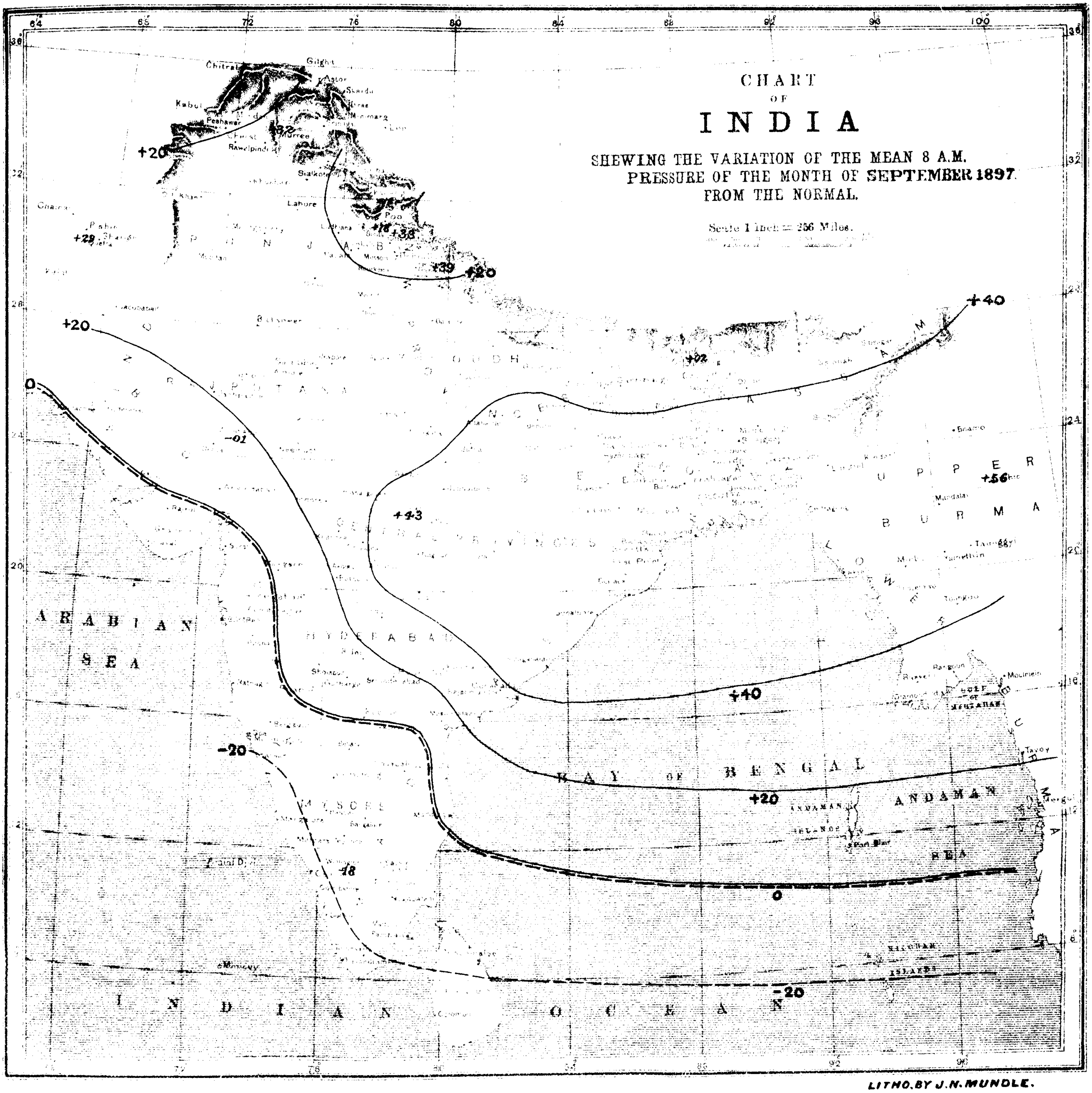


Explanation.

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 (= 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.

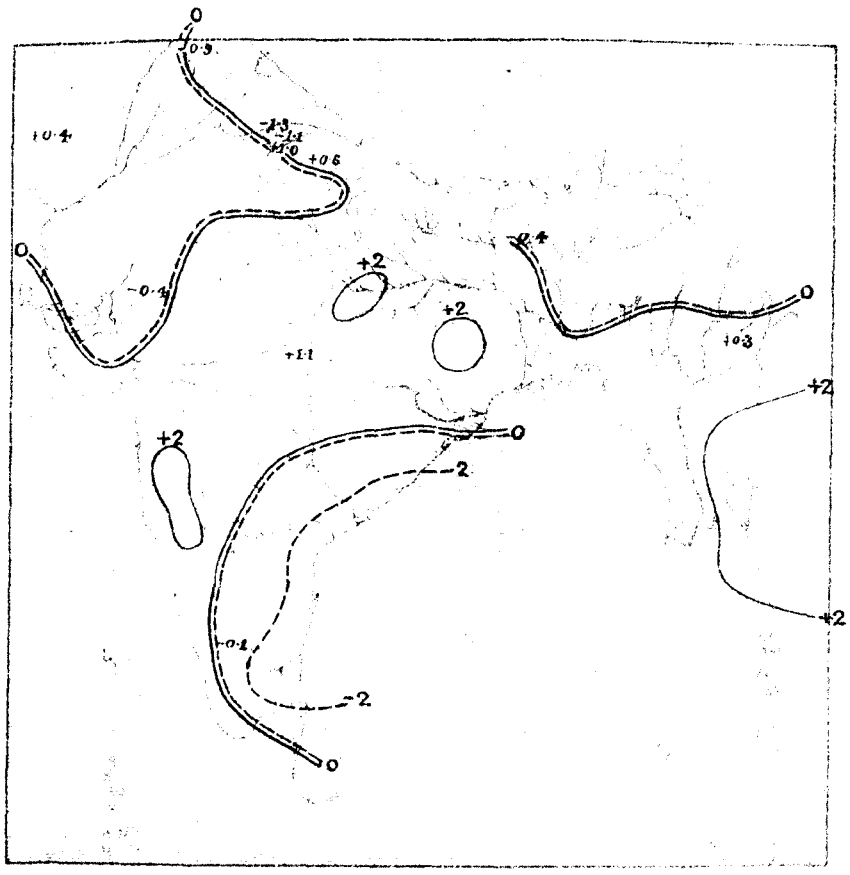
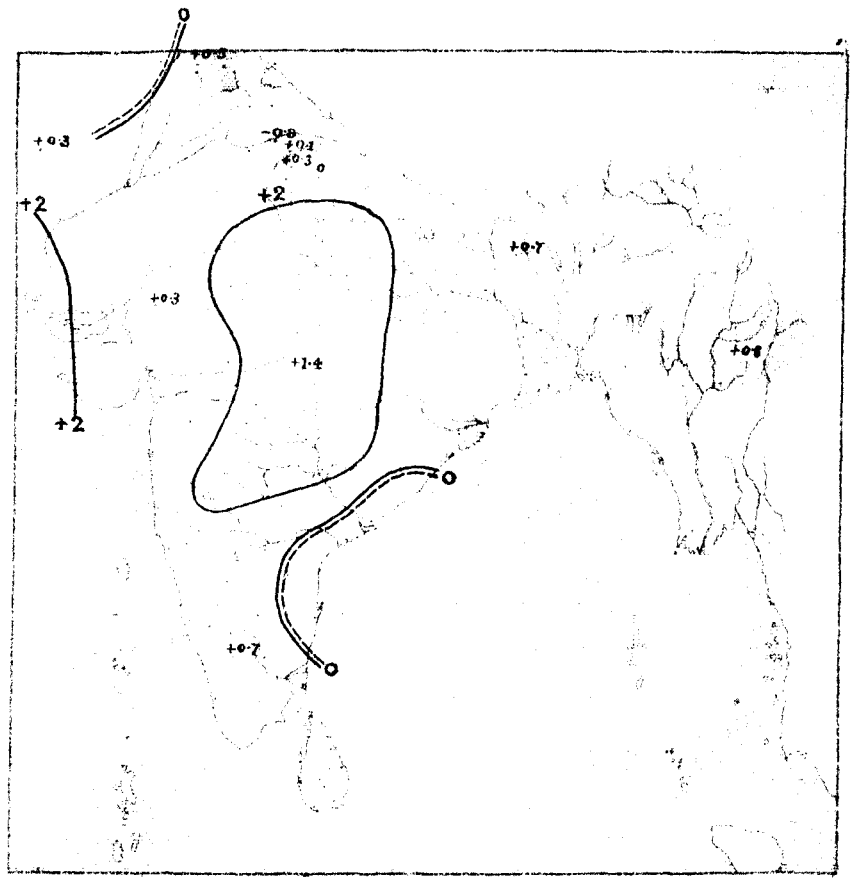


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

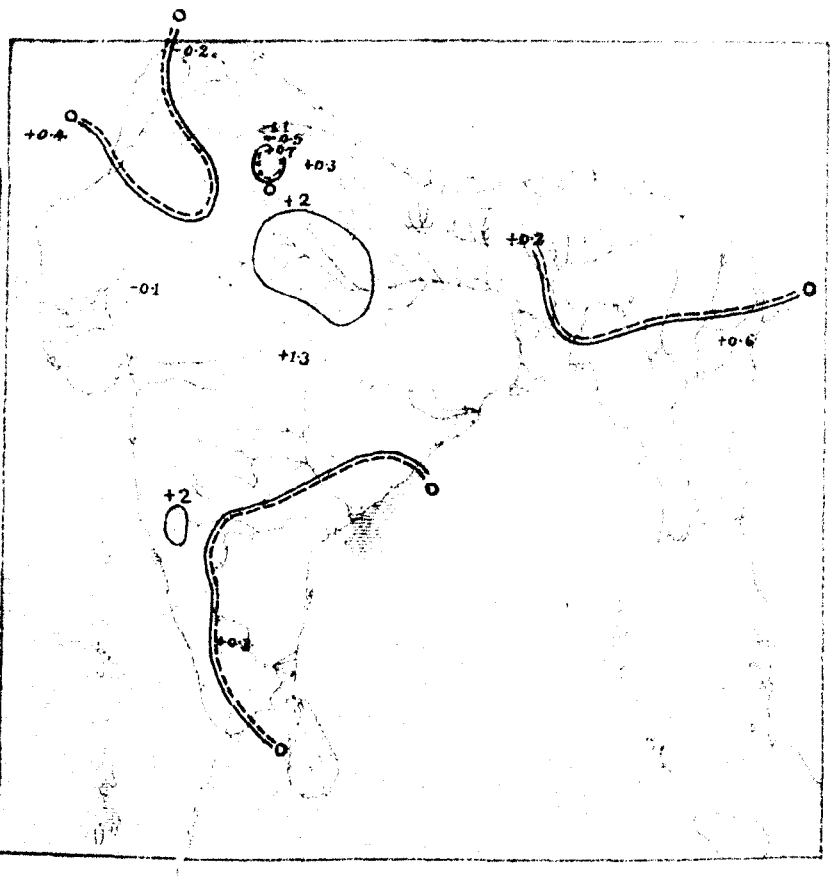
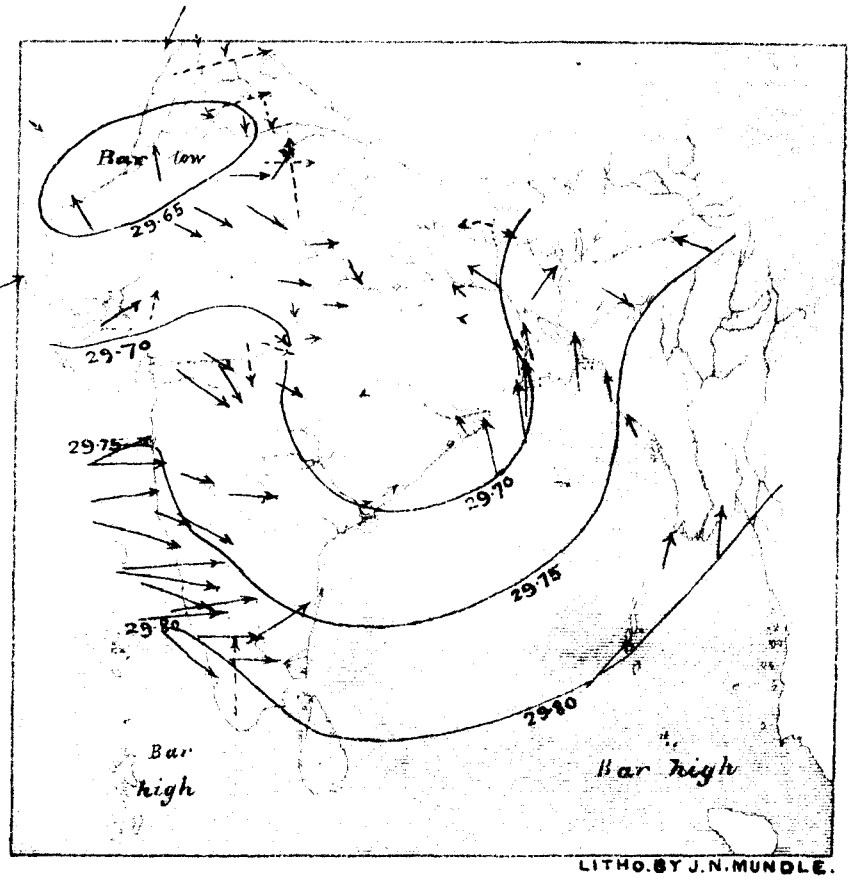


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF SEPTEMBER 1897.



LITHO. BY J. N. MUNDLE.

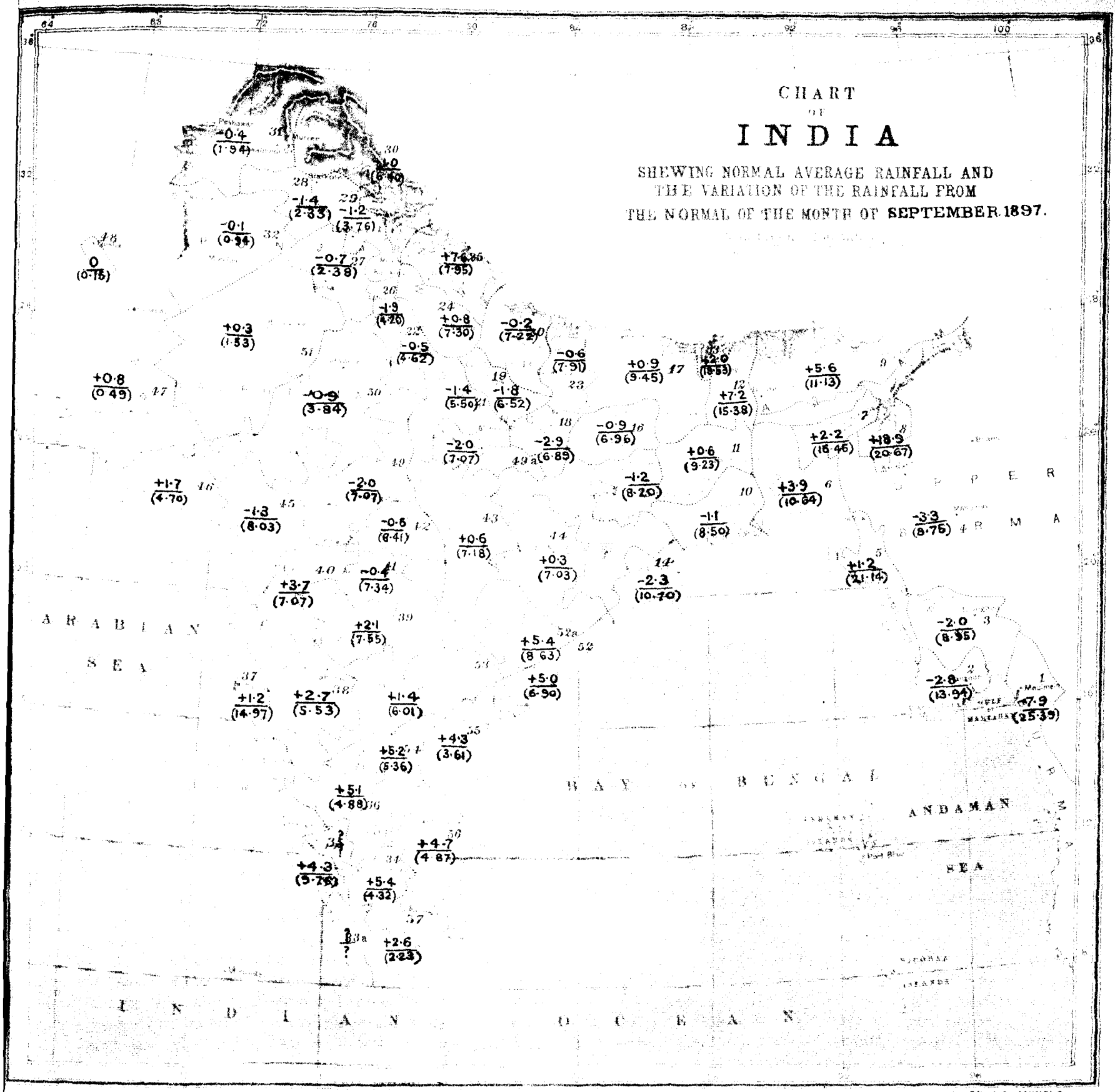
Explanation.

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

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of ⅕th of an inch being equal to 100 per cent.

Explanation.

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



LITHO. BY J. N. MUKOLS.

Explanation.

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

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

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WEATHER BUREAU

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, OCTOBER, 1897.

INTRODUCTION.

THIS Review of the weather in India during the month of October 1897 is based on observations taken daily at 8 A.M. at 213 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 85 stations. The rainfall summary is based on the rainfall data of the meteorological observatories and on the weekly rainfall telegrams received during the month from the District Officers throughout India, 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, 1897.

October is pre-eminently a month of transition. The south-west monsoon winds usually begin to retreat from North-Western India before the end of September and withdraw from Northern India, the north of the Bay and the north and centre of the Arabian Sea before the end of the month of October. South-west humid winds continue to blow with more or less steadiness in the south of the Arabian Sea and the south and centre of the Bay. These south-west winds in the Bay are deflected through south, south-east and east and blow as north-east winds on the Coromandel Coast. As long as south-west winds continue to prevail in the south of the Bay (which is usually until the middle or end of December), the north-east winds blowing across the Coromandel coast give more or less frequent rain to Southern India which is heaviest in the coast districts. In Northern India light variable winds or calms generally prevail. The mean air movement is, however, from the west down the Gangetic Plain. In the Peninsula winds range between east and north-east. The mean air motion over the whole of the Indian area, except the southern portions of the Bay of Bengal and Arabian Sea, although generally feeble, is opposite in direction to that which obtains in September. These changes in the mean wind directions accompany corresponding changes of pressure. Pressure rises rapidly in North-Western India, Assam and Upper Burma and moderately in Central India and the north of the Peninsula. Before the end of the month pressure is usually highest in Upper India, and is lowest in the centre or south of the Bay. The range of pressure is, however, small and baric gradients very slight. The most important feature of the pressure distribution during the month is hence its approximate uniformity. Pressure is slightly higher in the interior than in the coast districts, and is lowest in the Bay and the south of the Peninsula. Temperature begins to fall rather rapidly in Sind, West Rajputana and the South-West Punjab, which are dry hot areas during the rains. The mean temperature conditions of the month, like the mean pressure conditions, are more uniform in October than in any other month of the year. The mean temperature of the month ranges between 73° (in the North Punjab) and 85° (in Central Rajputana), and the daily range of temperature varies from 35° in

Upper Sind and West Rajputana to 10° in the coast districts of Bengal and Madras. The amount of aqueous vapour in the air diminishes rather rapidly in North-Western and Central India during the month. The decrease in humidity is usually greater in the North-Western Provinces, East Rajputana and Central India than in the Punjab, in consequence of the greater fall of temperature in the latter area. Rain is chiefly received in Bengal, Burma, Madras and the Deccan. In Bengal and Burma it occurs usually during the first-half of the month and in the Peninsula during the second-half of the month. One of the most important meteorological features of the month is the tendency to the formation of extensive and intense cyclones in the Bay. These appear to require a considerable period for their development, and the conditions of uniform temperature and pressure of the month are especially favourable to their growth, provided the humid south-west current in the south of the Bay be strong enough to ensure abundant supplies of aqueous vapour, the condensation of which undoubtedly supplies the motive power of these storms.

At the commencement of the month temperature was higher than usual except in Southern India and Burma where weather was showery. The excess on the 1st averaged 3° in the Punjab and North-Western Provinces. A small cyclonic storm was in process of formation in the Bay near the Circars coast and fairly frequent rain was falling in the greater part of the Peninsula and Burma. The storm intensified during the next 48 hours and began to march northwards. The centre crossed the North Madras coast near Gopalpur on the morning of the 3rd and marched northwards through the eastern districts of the Central Provinces and Chota Nagpur on the 4th and passed into Central Bihar on the 5th. It broke up against the Nepal Hills during the next 24 hours. As the storm advanced northwards on the 2nd and 3rd rain ceased in Southern India. The storm gave heavy and general rain to North Madras, Orissa, the eastern districts of the Central Provinces, Chota Nagpur, Bihar and Bengal. The rainfall was heaviest on the 5th, whilst the storm was breaking up, in the submontane districts of Bihar and Bengal, and in the Gorakhpur district of the North-Western Provinces. The rainfall caused a large temporary reduction of temperature in North-Eastern India from the 4th to the 7th. The reduction was greatest on the 6th in Bihar where the mean temperature of the previous 24 hours was nearly 6½° below the normal.

A rapid recovery of pressure followed the disappearance of the storm in North-Eastern India but weather was feebly unsettled from the 8th to the 10th in North-Western and Central India in which local thunderstorms gave light showers. The disturbance was feeble throughout and was apparently due to a very shallow depression which crossed Upper India and perhaps Baluchistan on the 8th and 9th.

This feeble disturbance was followed by the slow advance of a cool wave across Baluchistan into North-Western India. This cool wave accompanied the extension of a mass of cool and very dry air from the regions to the north-west of Upper India. Marked anticyclonic conditions prevailed at this time in the Persian area and South-East Russia and the march of the cool wave was probably a result of an outflow from that anticyclonic area towards India. The following gives variation data showing the advance of this cool wave from the 8th to the 20th :—

Province or area.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	8th Oct.	10th Oct.	12th Oct.	14th Oct.	16th Oct.	18th Oct.	20th Oct.
	°	°	°	°	°	°	°
Quetta	−5·7	−5·2	−5·0	−2·7	−5·4	−5·8	−2·8
Punjab	+2·2	−0·9	−1·1	−0·5	−1·0	−2·0	−1·5
North Bombay	−4·0	−4·1	−2·3	+2·5	−3·0	−2·4	−5·7
Sind	−2·0	−0·8	−3·3	−3·6	−2·7	−3·4	−3·1
Rajputana	+2·0	−2·8	−1·6	−0·7	−2·0	−4·1	−5·5
North-Western Provinces and Oudh.	+1·3	+2·6	+0·3	−0·7	+1·0	−0·5	−0·1
Central India	+2·6	+2·4	+0·2	−0·4	−0·2	+0·1	−1·0
Bihar	−0·6	+1·8	+1·5	+0·8	+2·4	+0·2	+1·0
Bengal	+0·7	+1·9	+2·8	+2·9	+0·3	+3·1	+2·1

The variation data in the preceding table indicate that the cool wave chiefly affected Baluchistan and North-Western India during this period.

Temperature was throughout this period in excess in North-Eastern India and the Peninsula, for which corresponding data are given below :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M of						
	8th Oct.	10th Oct.	12th Oct.	14th Oct.	16th Oct.	18th Oct.	20th Oct.
	°	°	°	°	°	°	°
Burma	+1·9	+0·6	+1·3	−0·6	+0·9	+0·2	+1·9
Bengal	+0·7	+1·9	+2·8	+2·9	+0·3	+3·1	+2·1
Madras Coast	+2·3	+2·1	+2·5	+2·0	+1·2	+3·4	+1·8
Deccan	+1·0	+1·9	+2·6	−0·1	−0·8	−0·2	+1·2
Central Provinces and Berar.	+2·0	+2·8	+2·5	+0·2	−1·0	+1·8	+1·3

Fine dry weather prevailed generally in India for some days after the breaking up of the storm in Bihar. During this period pressure decreased in the Bay, relatively to the Indian land area, and a very shallow low pressure area

formed in the north-east of the Bay on the 12th. This depression intensified slightly and shifted slowly westwards across the Bay during the next few days and lay over and near the Central Madras coast districts from the 16th to the 19th. Weather was feebly disturbed and squally in the Bay during this period, but the depression failed to concentrate and develop into a cyclonic storm. The humid current up the east of the Bay gave general rain to Burma from the 12th to the 18th and to Bengal, Orissa, Bihar and the eastern districts of the North-Western Provinces from the 16th to the 20th. The cool wave which had affected North-Western India during the previous two days extended eastwards across Bihar and Chota Nagpur into Bengal on the 23rd, 24th and 25th, as is shown by the following data: —

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	20th Oct.	21st Oct.	22nd Oct.	23rd Oct.	24th Oct.	25th Oct.
	°	°	°	°	°	°
Punjab . . .	—1·5	—0·2	—0·1	—0·2	—0·5	—1·0
North-Western Provinces and Oudh.	—0·1	+1·1	+0·9	—0·7	—0·8	—1·0
Rajputana . . .	—5·5	—5·3	—4·8	—4·9	—4·1	—4·5
Bihar	+1·0	+1·2	+2·9	+1·5	—1·1	—1·1
Central India . .	—1·0	+1·4	—0·1	—2·0	—2·7	—2·6
Chota Nagpur . .	+3·3	+4·1	+5·1	+2·3	—1·7	—2·1
Bengal . . .	+2·1	+3·4	+4·0	+3·8	+1·9	—1·1

Temperature was during this period more or less considerably above the normal in the Peninsula, as is shown below :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	20th Oct.	21st Oct.	22nd Oct.	23rd Oct.	24th Oct.	25th Oct.
	°	°	°	°	°	°
Central Provinces and Berar.	+1·3	+3·6	+3·9	+2·4	+0·1	—1·0
Deccan . . .	+1·2	+3·1	+3·6	+3·7	+4·7	+3·9
Madras Coast . .	+1·8	+2·1	+1·8	+2·3	+5·1	+3·6

The humid winds blowing across the Malabar and South Konkan coasts gave moderate rain to Southern India from the 12th to the 14th and to the Deccan on the 14th. Dry weather set in over these areas again on the 16th and 17th and little or no rain was received in the Peninsula (except the west coast districts) during the remainder of the month. The conditions in North-Eastern India also changed on the 20th when fine dry weather was established for a brief period. This change accompanied the advance of a depression across the head of the Malay Peninsula into the North Andaman Sea. Fine weather with very light winds obtained over the whole of the Bay on the 20th. Weather was squally with much rain on the 21st in the depression which lay over the North Andaman Sea. This depression advanced westwards during the day and passed through the Preparis North Channel into the Bay during the evening of the 21st. It then recurved through north-west to north on the 22nd and 23rd and was a cyclone of small extent but of great intensity on the 23rd and 24th when winds of force 10 were experienced by vessels at some distance from the centre. The storm recurved to north-north-east on the 24th and crossed the coast of the Chittagong district on the evening of that day. The centre passed over or very near to Chittagong shortly before 8 P.M. The storm gave a heavy local downpour of rain, varying from 5 to 10 inches in amount, in a part of the Chittagong district and the Chittagong hills and the hurricane winds and heavy rain caused great destruction to crops and property. The storm crossed the coast about the time of high water and the storm wave hence flooded the low coast districts of the Chittagong district and the neighbouring islands of Kutubdia, Matarbari and Maiskhal, drowning a large number of people, probably exceeding 7,000.

The Chittagong cyclone broke up on the 25th in the hill districts of Upper Burma and fine dry weather was re-established on that day over North-Eastern India. Showery weather continued in Burma until the 27th. Light showers were received in some parts of Southern India on the 30th and 31st, but weather was generally fine and dry from the 28th to the end of the month.

The most important feature of this period from the 26th to the 31st was the extension of the cool wave southwards over the Peninsula and a large rise of temperature in Baluchistan (which extended to the Punjab on the 30th). The data given in the following table illustrate these two features:—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	26th Oct.	27th Oct.	28th Oct.	29th Oct.	30th Oct.	31st Oct.
	°	°	°	°	°	°
Baluchistan (Quetta) .	—0·8	+6·2	+6·0	+7·0	+8·2	+6·4
Punjab	—0·9	—0·7	—0·6	—0·2	+1·1	+2·9
Central Provinces and Berar.	—1·6	—1·2	—1·5	—1·9	—2·4	—3·3
Deccan	+3·6	+3·4	+1·0	—2·3	—2·8	—2·7
Madras Coast . .	+2·0	+0·8	—0·7	—1·8	—0·7	+1·3
Mysore . . .	+3·7	+2·9	+1·8	—0·7	—1·3	—0·2

Pressure.—The mean pressure of the Indian land area for the month was ·016″ below the normal.

Relatively to the general condition, pressure was in defect or the pressure anomalies were negative in Northern India,

the northern half of the Bay and Upper Burma. The deficiency was moderate to considerable in amount in a belt stretching from North Bihar to the north-west angle of the Bay and was absolutely greatest at Cuttack (—·044″) and Saugor Island (—·041″) and hence probably in the north-west angle of the Bay. Pressure was relatively in excess over the remainder of India and the southern half of the Bay. The excess was greatest in the west coast districts from Cutch southward and ranged between ·039″ at Ratnagiri and ·029″ at Calicut. The vertical pressure anomalies in Northern India were positive and moderate in amount. Pressure was in marked excess at Aden, Bushire, and probably Baghdad, and hence probably over the whole of Asia to the west and north-west of North-Western India. This feature of excessive pressure (due to the prevalence of strongly marked anticyclonic conditions) extended into South-East and Central Russia.

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 October 1897.	Pressure anomaly October, 1897.
	″	″
Burma Coast and Bay Islands	—·006	+·010
Burma Inland	—·021	—·005
Assam	—·032	—·016
Bengal and Orissa	—·039	—·023
Gangetic Plain and Chota Nagpur	—·037	—·021
Upper Sub-Himalayas	—·027	—·011
Indus Valley and North-West Rajputana	—·020	—·004
East Rajputana, Central India and Gujarat	—·005	+·011
Deccan	—·008	+·008
West Coast	+·017	+·033
South India	—·003	+·013

Temperature.—The variations of the mean day temperature from the normal were generally small in amount. The mean maximum temperature was in considerable excess in the part of the Madras Presidency represented by the stations of Negapatam (+3°·6), Cuddapah (+3°·4) and Madras (+3°·0) and in moderate excess in Berar and the North Punjab by amounts ranging between 2° and 3° at stations in these areas. It was in moderate to considerable defect in Kathiawar and South-West Rajputana. The deficiency was greatest at Rajkot (—4°·0) and Deesa (—2°·9).

The night temperature varied little from the normal over the greater part of the country. There were only four areas in which the variations were moderate to considerable in amount. The mean minimum temperature ranged between 2° and 4° below the normal in Upper Sind, Cutch, South-West and Central Rajputana and Baluchistan. The deficiency in that area was greatest at Jacobabad (—3° 9), Bickaneer (—3°·4) and Quetta (—3°·1). The mean night temperature was in moderate to considerable excess in two areas. The first included Upper Burma, Assam and North and East Bengal in which it averaged nearly 3° above the normal. The second was defined by the stations of Sholapur, Chanda, Amraoti and Akola at which the mean minimum temperature of the month averaged 2° above the normal.

The mean temperature of the month was below the normal in Baluchistan, Sind, South-West Rajputana, Cutch and Kathiawar. The deficiency was most marked in the area defined by the stations for which data are given below :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.
	°	°	°
Rajkot	79·0	81·9	—2·9
Deesa	78·8	81·5	—2·7
Bhuj	81·3	83·6	—2·3
Ajmere	75·0	77·3	—2·3
Mount Abu	68·3	71·6	—3·3
Bickaneer	82·0	84·1	—2·1

The mean temperature of the month was generally above the normal in the remainder of India. The excess was small in amount at the great majority of stations, but was more than 2° in the areas represented by the following stations :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.
	°	°	°
Kindat	81·6	79·3	+2·3
Silchar	82·9	80·6	+2·3
Chittagong	82·2	80·0	+2·2
Akola	80·4	78·1	+2·3
Cuddapah	84·5	82·0	+2·5

The following table gives temperature variation data of the month for the eleven meteorological provinces of India :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, October 1897.	Mean minimum temperature, October 1897.	Mean daily temperature, October 1897.
	°	°	°
Burma Coast and Bay Islands	—0·1	+1·4	+0·7
Burma Inland	+0·1	+2·4	+1·3
Assam	+0·7	+2·7	+1·7
Bengal and Orissa	—0·1	+1·6	+0·8
Gangetic Plain and Chota Nagpur	—1·3	+0·7	—0·3
Upper Sub-Himalayas	+0·9	+0·3	+0·6
Indus Valley and North-West Rajputana	+0·6	—2·3	—0·9
East Rajputana, Central India and Gujarat	—0·5	—1·0	—0·7
Deccan	+0·8	+1·0	+0·9
West Coast	+0·5	+0·9	+0·7
South India	+1·5	+1·3	+1·4

Winds.—The mean air movement of the month was slightly feebler than usual in the Arabian Sea, but very slightly stronger in the Bay. The variations of the air movement from its normal character were chiefly dependent upon, or related to, the abnormal features of the pressure conditions. Winds were, on the mean of the month, more westerly than usual at Port Blair and the Burma Coast stations and more easterly in Bengal. Winds were extremely light, even lighter than usual, in the Punjab, Rajputana and Central India. They were generally more westerly than usual in Rajputana, Central India and the Central Provinces. They were in the Deccan and Madras coast districts generally from north-westerly instead of north-easterly directions, and the westerly deflection of the winds was very strongly marked in the Deccan.

Humidity and Cloud.—The air was damper and contained more aqueous vapour than usual in the lower air strata in Burma, North Eastern India and also in Lower Sind, South-West Rajputana, Gujarat, the West Deccan and Mysore. The increased humidity was most marked in Arakan, Chota Nagpur, Central Bihar, Lower Sind and South-West Rajputana, but the variation was large only at Deesa (+14). The air was drier than usual in Baluchistan and the remainder of India. The only considerable area of moderate deficiency in the relative humidity included Baluchistan and the greater part of the Punjab. The deficiency was actually greatest at Ludhiana (—10) and Murree (—9).

There was less cloud than usual over Baluchistan, North-Western India, the western half of the Peninsula and Southern India, but the variations from the normal amount were nowhere large in that area of deficient cloud during the month. Cloud was in excess over the remainder of India. The excess was large in Burma, Bengal, Chota Nagpur, Orissa, North Madras and the north and east of the Bay, over the whole of which area it exceeded 1·0. It was more than 2·0 in the coast districts from Diamond Island to Narayanganj and the excess was absolutely greatest at Akyab, where the mean cloud amount of the month was 7·3 or 2·5 above the normal.

The following table gives the variations of the mean absolute and relative humidities and cloud amount of the month from the normal in ten meteorological provinces :—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean aqueous vapour pressure, October 1897.	Mean humidity, October 1897.	Mean cloud amount, October 1897.
Burma Coast and Bay Islands	+·044	+2	+2·0
Assam	+·081	+3	+0·9
Bengal and Orissa	+·046	+2	+1·5
Gangetic Plain and Chota Nagpur	+·042	+4	+1·1
Upper Sub-Himalayas	—·024	—4	—0·4
Indus Valley and North-West Rajputana.	—·009	—1	—0·3
East Rajputana, Central India and Gujarat.	+·014	+1	—0·3
Deccan	+·004	—1	+0·2
West Coast	+·015	—1	—0·2
South India	+·009	—1	0

Rainfall.—The precipitation of the month occurred chiefly during two periods. In the first of these, lasting from the 1st to the 6th, its distribution was chiefly determined by the advance of a storm across the Circars coast northwards into Bihar. Burma, North-Eastern India, the Central Provinces, and North Madras obtained heavy rain during this period and Southern India and the Deccan on the 1st and 2nd whilst the storm was forming.

The second period extended from the 12th to the 20th. The rainfall of this period occurred chiefly to the north of a largish and very shallow depression which moved across the Bay from the Arakan Coast to the coast of the Circars. Moderate general rain was received during this period in Burma, North-Eastern India, the Central Provinces and

North Madras. The Deccan and Southern India also obtained sporadic showers during this period.

The Chittagong cyclone gave heavy rain locally in the Chittagong district and hills on the 24th. Local showers fell in some parts of Southern India during the last week of the month.

The chief features of the rainfall of the month were its excess over the greater part of Burma, North-Eastern India, North Madras and the eastern districts of the Central Provinces and its deficiency in the Peninsula generally, but more especially in the coast districts south of Godavari. The deficiency was absolutely greatest in the East Coast Central division, which received an average of 2·42 inches only, less than one quarter of its normal fall, *viz.*, 9·75 inches. The rainfall of the month was also very small in amount and below the normal of the period in North-Western and Central India and practically *nil* in the greater part of the Punjab and North-Western Provinces.

The following gives rainfall data of the month for the eleven meteorological provinces:—

METEOROLOGICAL PROVINCE.	RAINFALL.		
	Mean actual for October 1897.	Mean normal for October.	Variation from normal.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	11·57	9·48	+2·20*
Burma Inland	5·72	4·50	+1·21*
Assam	7·04	5·00	+2·04
Bengal and Orissa	7·88	5·32	+2·56
Gangetic Plain and Chota Nagpur	5·08	2·55	+2·53
Upper Sub-Himalayas	0·03	0·46	−0·42*
Indus Valley and North-West Rajputana.	0·23	0·05	+0·17*
East Rajputana, Central India and Gujarat.	0·40	0·68	−0·27*
Deccan	2·66	3·12	−0·46
West Coast	7·53	7·85	−0·32
South India	5·30	7·72	−2·42

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

Atmospheric Pressure.

The mean pressure of the Indian land area was ·016″ below the normal, and was hence in moderate defect. The general condition was hence very different from that of October 1896 when pressure averaged ·04″ above the normal in the India land area.

Pressure was, relatively to the general condition, in local defect or the anomalies were negative in Northern India, the north of the Bay and Upper Burma. The local deficiency was generally small in amount, but exceeded ·02″ in a broadish belt stretching from North Bihar to the north-west of the Bay. The following gives data for stations in this area at which the anomalies were more than ·03″ in amount:—

AREA.	STATION.	Variation of mean 8 A.M. pressure of October 1897 from normal.	Pressure anomaly, October 1897.
		″	″
DELTAIC BENGAL	Saugor Island	−·057	−·041
CENTRAL BENGAL	Berhampore	−·048	−·032
ORISSA	Cuttack	−·060	−·044
	False Point	−·051	−·035
SOUTH BIHAR	Patna	−·048	−·032

The deficiency was hence considerable in the north-west angle of the Bay and formed an important feature of the pressure distribution of the month.

Pressure was in excess, relatively to the general condition, over the remainder of India. The excess was largish in amount in the west of the Peninsula, more especially in the coast districts defined by the stations for which data are given below:—

STATION.	Variation of mean 8 A.M. pressure of October 1897 from normal.	Pressure anomaly, October 1897.
	″	″
Ratnagiri	+·023	+·039
Bhuj	+·022	+·038
Mercara	+·021	+·037
Karwar	+·018	+·034
Belgaum	+·015	+·031
Cochin	+·015	+·031
Calicut	+·013	+·029

The mean pressure of the month was very uniform over the land area and was very slightly lower in the Bay of Bengal and the Gangetic Plain than elsewhere, and was lowest in the north-west of the Bay and adjacent coast districts. The total range of the mean 8 A.M. pressure of the month was only ·14″ and of the mean pressure (deducted from the 10 and 16 hours readings) about ·10″.

Pressure was in defect at the hill stations but by smaller amounts than at the neighbouring plains stations, and hence the vertical anomalies were positive and generally

moderate in amount. The following gives data for eight pairs of stations :—

HILL STATION.	Variation of pressure from normal. (a)	Neighbouring plain station.	Variation of pressure from normal. (b)	Vertical pressure anomally or (a)−(b).
	"		"	"
Quetta . . .	+·017	Jacobabad . .	—·002	+·019
Murree . . .	—·001	Rawalpindi . .	—·029	+·028
Simla . . .	—·014	Ludhiana . .	—·033	+·019
Chakrata . . .	+·008	Roorkee . .	—·038	+·046
Darjeeling . . .	—·015	Dhubri . . .	—·036	+·021
Mount Abu . .	—·018	Deesa . .	+·001	—·019
Pachmarhi . .	—·024	Hoshangabad. .	—·008	—·016
Wellington. . .	—·005	Coimbatore . .	+·006	—·011

The chief abnormal features of the pressure conditions were opposite in character to those of the preceding month. The mean pressure of the whole area was in moderate defect in October and in largish excess in September. Relatively to the general condition, pressure was locally in defect in Northern India, Burma, and the north-west of the Bay, and in excess in Western India and the Peninsula in October, whereas in September it was in considerable local excess in Northern India and in largish local defect in the Peninsula. The pressure conditions in October were, it may be noted, unfavourable to the occurrence of rain in the northern and central districts of the Peninsula.

The chief features of the pressure distribution of October 1897 were:—

(1) Moderate general deficiency of pressure in the Indian area, averaging ·016″ in amount.

(2) The mean pressure of the month was very uniform in amount over the greater part of the area. It was slightly lower in the north-west of the Bay and Bengal than elsewhere.

(3) Relatively to the general condition, pressure was locally in slight to moderate defect in Northern India, the north of the Bay and Burma. The deficiency was greatest in the north-west of the Bay and adjacent coast districts. Pressure was locally in slight to largish excess in the Peninsula.

(4) The vertical pressure anomalies in Northern India were moderate in amount and positive.

Barometric depressions and cyclonic storms of the month.

At the commencement of the month pressure was giving way very generally. There was on the 1st a moderate to considerable excess of pressure in Lower Burma and Tenasserim. A shallow low pressure area in which pressure was about a tenth of an inch below the normal lay off the Circars coast. Moderate to strong winds and showery squally weather prevailed in the centre and north of the Bay. The following data extracted from the logs of vessels indicate the character of the weather in the Bay at this time :—

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction.	Force.	Weather.
		° ′	° ′	"			
8 A.M.	S.S. *Marie Valerie*	6 31	89 9	29·907	SSW	6	4 A.M. passing showers
"	S.S. *Vadala* .	4 56	85 42	·720	WSW	5	Squally with constant rain.
"	S.S. *Arab* . .	17 14	91 28	·803	S by W	4	4 A.M. squally and rainy.
"	S.S. *F.L.V. Torch*	Mutlah Sand-heads.		·752	ESE	4	Fresh breeze, moderate sea and passing rain squalls.

The observations at the coast stations of the Circars show that winds were light in the low pressure area and that there was as yet no regular cyclonic circulation. The depression developed rapidly during the next 24 hours, and was a storm of moderate intensity at 8 A.M. of the 2nd. The following gives a history of the storm :—

Cyclonic storm of the 2nd to the 6th October.—The origin of this storm has been briefly described above. The low pressure area apparently occupied the same position at 8 A.M. of the 2nd as on the 1st, but was much deeper. The following gives 8 A.M. observations in the storm area:—

Station or Vessel.	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.
	"	"	"					
Masulipatam	29·677	—·072	—·119	W.N.W.	9	10	0·62	Drizzling.
Vizagapatam	·538	—·156	—·245	N.W.	1	10	0·42	Drizzling.
Gopalpur .	·550	—·146	?	N.	28	10	2·10	Rainy.
Puri . .	·590	—·118	?	N.E.	11	10	0·77	Overcast.
False Point	·611	—·112	—·178	S.E.	11	8	0·60	Showery.
F. L. V. *Torch*.	·697	—·105	?	E.S.E.	5*	10	?	Cyclonic.

*Force.

Pressure was now more than two-tenths of an inch below the normal at and near the centre which was probably in about Lat. 18° N. and Long. 84½° E. Moderately heavy rain had fallen in Lower Burma, North Madras and Orissa, and light showers in Bengal. Moderate monsoon winds were blowing across the Malabar and South Konkan coasts, and light unsteady winds, generally from northerly directions, in Sind, Cutch and Kathiawar. The following data indicate the character of the weather in the Bay:—

Hour.	Name of vessel.	8 A.M. position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction.	Force.	Weather.
		° ′	° ′	″			
8 A.M.	S. S. *Kerbela* .	10 46	90 36	29·876	S by W	9	High confused sea.
,,	S. S. *India* .	13 37	85 20	·758	SW	5	4 P.M. heavy rain.
,,	S. S. *Orissa* .	16 6	83 38	·639	WSW	8	High confused sea, 4 A.M. heavy rain.
,,	S. S. *Lawada* .	17 40	91 51	·823	SSE	4	Heavy swell. Noon. Hard rain squalls.
,,	S. S. *Vadala* .	18 22	87 12	·657	S	6	Moderate sea; occasional heavy rain squalls.
,,	S. S. *Kistna* .	19 16	93 15	·855	SE	6	Heavy swell; continuous rain.
,,	S. S. *Mecca* .	20 9	89 23	·719	SE by E	6	Strong sea. Rainy.
,,	S. S. *Maharaja* .	21 23	90 17	·759	ESE	5	Overcast and squally with heavy rain.

The data indicate that cyclonic winds now prevailed in the depression, and that winds had increased considerably in strength. Weather was very squally with heavy rain over the greater part of the north and centre of the Bay.

The S. S. *Orissa* passed through the eastern quadrant during the day. The following extract from her log indicates the character of the weather at this time in the storm area:—

Hour.	Position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction.	Force.	Weather.
	° ′	° ′	″			
4 A.M.	...	...	29·619	W	8	Gusty, heavy rain and sea increasing.
8 ,,	16 6	83 38	·639	WSW	8	High and confused sea.
Noon	16 17	83 49	·614	SW	7	Wind and sea increasing.
4 P.M.	...	...	·627	WSW	7	Confused sea.
8 ,,	...	...	·691	WSW	5	Weather clearing.
Midnight	...	...	·739	SW	5	Clear.

October 3rd—The observations indicate that the depression had increased considerably in intensity during the previous 24 hours, and had commenced to move northwards. 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.	Weather.
	″	″	″					
Cocanada .	29·607	—·011	—·182	WSW	15	10	5·14	Sea rough.
Vizagapatam	·522	—·016	—·263	W	2	10	4·78	Raining.
Gopalpur .	·389	—·161	?	ENE	29	10	2·53	
Puri . .	·488	—·102	?	SSE	17	10	1·06	Severe gale.
False Point .	·545	—·066	—·245	SSE	17	10	0·32	
Calcutta .	·679	—·036	—·116	E	6	10	0·75	Showery.
Sambalpur .	·577	—·089	—·229	NNE	6	7	*Nil*	
Chanda .	·684	—·047	—·123	WNW	3	9	*Nil*	Fine.

The storm centre at 8 A.M. was a little to the south-west of Gopalpur in about Lat. 19°N. and Long 84½°E. It had hence moved nearly due northwards about 70 miles during the previous 24 hours. Pressure at the centre had fallen to about three-tenths of an inch below the normal.

Heavy rain had fallen in the Circars and Orissa, and rain was becoming heavier and more general in Bengal, Chota Nagpur and Bihar. Moderate rain had fallen in the west-coast districts, and some showers in the Deccan. Fine dry weather with clear skies held steadily in North-Western India.

The following data indicate that strong winds with very squally weather, much rain and a high sea continued in the north and north-west of the Bay:—

Hour.	Name of vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction.	Force.	Weatmer.
		° ′	° ′	″			
8 A.M.	S. S. *Umkusi* .	13 52	86 3	29·722	SSW	6	High sea. Squally with heavy showers.
,,	S. S. *City of Khios.*	14 6	85 12	·695	SW	5	Occasional heavy rain squalls.
,,	S. S. *Orissa* .	17 0	86 25	·574	SW by S.	6	High sea, moderate heavy squalls of rain.
,,	S. S. *Shahsada*	18 15	90 40	·742	SW	5	Squally and dirty. 4 A.M. squally with heavy rain.
,,	S. S. *Karagola* .	18 52	93 42	·840	S	5	Overcast and rainy.
,,	S. S. *Shahjehan*	21 25	88 15	·651	Var.	6	Rough sea, heavy squalls.
,,	S. S. *Catherine Apcar.*	Off Saugor Island.		·626	?	?	Noon. Cloudy and hard squalls.

The weather at the head of the Bay is thus described by Captain Beahan of the F. L. V. *Torch* :—

"3rd. Commenced with a fresh south-south-east gale and a high southerly sea with passing, though very heavy rain squalls. At 8 A.M. it was blowing a hard gale from south-south-east, the rain squalls being more heavy, and the sea more quick and confused from the south-west and south. This weather lasted until midnight. The wind was strongest, and the sea heaviest between 11 A.M. and 1 P.M. There was much lightning all through the night to the north-west and north-east."

A careful series of observations recorded at two hourly intervals by the Puri observer indicate that the centre of the storm passed northwards to the west of that station about 8 P.M.

October 4th.—The observations taken at 8 A.M. indicate that the storm had advanced almost due north during the previous 24 hours, and was at that hour in the eastern districts of the Central Provinces, and the adjacent districts of Chota Nagpur and Orissa. The following gives data of the storm area at 8 A.M. :—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"					
Rainur .	29·586	—·025	—·226	NW	9	10	0·40	Severe gale of wind.
Sambalpur .	·425	—·152	—·387	N	8	10	1·70	Overcast.
Cuttack .	·470	—·040	—·323	SSW	5	6	0·59	Showery.
Balasore .	·527	—·059	—·262	SSE	9	10	1·57	,,
Chaibassa .	·486	—·117	?	SE	6	10	0·89	Continuous rain.
Ranchi .	·555	—·120	—·229	E	16	10	0·85	...
Hazaribagh	·579	—·088	—·220	E	30	10	0·78	Gale of wind.

The observations indicate that the storm centre was about 40 miles to the south-south-east of Sambalpur in Lat. 21¼°N. and Long. 84¼°E. at 8 A.M. Pressure was nearly four-tenths of an inch below the normal at the centre, and the storm was well-defined with steep gradients in all directions, but more especially in the eastern quadrant.

General rain had fallen over the greater part of North-Eastern India and North Madras. It was heaviest during the previous 24 hours in the Sambalpur district, Chota Nagpur and South-West Bengal. Strong cyclonic winds prevailed in the storm area.

Winds were less strong in the west of the Bay, but had strengthened considerably in the north-west. Weather was still squally with occasional heavy rain showers.

October 5th.—The storm had advanced at an average hourly rate of nearly 13 miles during the previous 24 hours and was at 8 A.M. central in Central Bihar. The following observations indicate its position and character at 8 A.M. :—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"					
Benares .	29·563	—·106	—·233	NW	14	10	2·98	Showery.
Hazaribagh	·564	—·015	—·233	S	22	10	0·81	Gale.
Gaya . .	·508	—·107	—·291	SSW	22	10	0·78	Showery.
Patna	·478	—·201	—·324	SSE	17	10	0·98	Heavy rain.
Darbhanga	·548	—·183	—·266	ESE	19	9	1·59	Gale.
Motihari .	·550	—·206	?	E	20	9	2·25	...
Gorakhpur .	·562	—·164	—·235	NE	6	10	6·88	Continuous rain for upwards of 12 hours.

The observations establish that the centre of the storm was near Patna in about Lat. 25½°N. and Long. 85°E. Pressure had given way rapidly over Northern India during the previous 48 hours, and although it was about as largely in defect at the storm centre on this day as on the 4th, the depression was smaller in extent and less marked. General rain had fallen in North-Eastern India during the previous 24 hours, and the precipitation was large in the submontane districts of Bihar and the eastern districts of the North-Western Provinces to which the storm was advancing. Falls exceeding 6 inches had been received at the following stations during the previous 24 hours.

DISTRICT.	Station.	Rainfall during 24 hours preceding 8 A.M. of date.
		Inches.
CHAMPARAN	Bagaha	8·54
RANGPUR	Sunderganj . . .	8·26
PURNEA	Kaliaganj	7·50
DARJEELING . . .	Mungpoo	6·92
MUZAFFARPUR . . .	Ramnagar	6·50
GORAKHPUR . . .	Maharajganj . . .	7·76
	Gorakhpur	6·88
	Bansgaon	6·40
JAUNPUR	Kutahan	7·33

Weather had improved considerably in the north of the Bay and was now generally fine, but cloudy with moderate to strong winds.

Pressure increased very rapidly in Bihar and Chota-Nagpur during the next 24 hours during which the storm completely broke up so that there was no trace of its existence at 8 A.M. of the 6th. Heavy rain fell in the submontane districts of Bihar and of Bengal during its disintegration. The following gives the most noteworthy falls recorded at 8 A.M. of the 6th:—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of date
		Inches.
Rangpur	Sunderganj	10·77
	Gobindganj	6·50
	Alipur	6·35
Champaran	Bagaha	6·76
Muzaffarpur	Ramnagar	7·75

The following statement gives the position and average hourly rate of movement of the storm centre during the period from the 2nd to the 5th:—

DATE.	POSITION OF CENTRE AT 8 A.M.				Distance passed over during interval.	Average hourly rate of motion.
	Lat. N.		Long. E.			
	°	′	°	′	Miles.	Miles.
2nd	18	0	84	30	...	...
3rd	19	0	84	30	70	3
4th	21	15	84	15	150	6
5th	25	30	85	0	305	12¾

Pressure on the 7th was in slight to moderate defect over the whole of India, the deficiency being slightly greater in the Punjab than elsewhere. It gave way very slightly in Baluchistan and the West Punjab during the next 24 hours, and a very shallow low pressure area was shewn in the West Punjab on the 8th and 9th. It apparently advanced eastwards during the next 24 hours and disappeared at the foot of the Kashmir and Simla Hills. Weather was feebly unsettled in North-Western India from the 8th to the 10th, and local showers, chiefly accompanying thunderstorms, were received in Kashmir, the Punjab, Rajputana and Central India. This disturbance was followed by the slow advance of a cool wave over Northern India which formed an important feature of the weather of the month and which is fully described in the temperature section. Pressure increased over the whole of India on the 10th and 11th, most rapidly in Upper India and was in general excess on the 11th. The excess was least in amount in Burma and increased westwards and was greatest in the Punjab. The chief result of these changes was to establish relatively low pressure conditions over the Bay. Pressure was from the 12th to the 19th slightly lower in the Bay than elsewhere. It was lowest on the 12th and 13th in the north-east of the Bay on which days Burma received light to moderate rain, whilst fine dry weather prevailed over Bengal and the centre and north of the Peninsula.

Pressure gave way during the next three days, somewhat more rapidly in the west than the east of the Bay. The area of deficient and low pressure was hence transferred slowly westwards and was in the west of the Bay, off the Circars coast, on the 16th. The marine data received indicate that the disturbance was throughout of a diffused character, and that there was no tendency to concentrate into a cyclonic storm. Weather was squally with light to moderate showers throughout the period over the greater part of the Bay. This is further confirmed by the extension of rainfall over North-Eastern India due to the Bay current and over Southern India due to humid winds from the south-east of the Arabian Sea. Burma, Bengal, Bihar, Chota Nagpur and the eastern districts of the North-Western Provinces obtained more or less general and moderately heavy rain from the 15th to the 20th. Southern India had fairly general light rain on the 15th, and general moderate rain on the 16th, and North Madras moderate general rain from the 18th to the 20th.

Pressure increased in the Bay, relatively to the remainder of India, on the 18th and 19th, and on the morning of the 20th was very uniform over the whole Bay area.

The pressure conditions during this period were such as usually initiate the so-called north-east monsoon rains in the Madras Presidency. The normal course is that pressure rises in North-Eastern India after a final burst of monsoon rains in that area, usually in the first or second week of October. The Bay is then converted into a closed area of slightly lower pressure than elsewhere. After a short period squally weather sets in over a part of this area, the depression intensifies and sometimes increases to a cyclonic storm. It is transferred westwards to the Madras coast and gives heavy rain for some time. The chief factor tending to prevent the development of the depression which formed in the Bay at this time was the excessive pressure prevailing in the northern half of the Peninsula in part at least due to the advance of a cool dry wave across Northern and Central India. The chief feature of the disturbance was the heavy general rain it gave to North-Eastern India.

As already noted, pressure was very uniform over whole of the Bay on the morning of the 20th. The following

data extracted from the logs of ships show the character of the weather on that day:—

Hour.	Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction.	Force.	State of Sea.	Weather
		° ′	° ′	″				
8 A.M.	S.S. *Maharaja*	21 30	88 37	29·874	S	3	...	Fine and clear.
,,	S.S. *Shahjehan*	11 39	88 01	29·891	SW	2	...	Fine and clear.
,,	S.S. *Nerbudda*	16 02	95 58	29·886	E	4	Smooth.	Fine.
,,	S.S *Chelydra*	11 30	95 23	29·868	N by W	3	...	Cloudy.
,,	S S. *Okara* .	7 19	81 42	29·864	SSW	2	Smooth.	Fine.
,,	S.S. *Dean* .	5 48	92 04	?	W	2	...	...

The data show that weather was fine with light winds and a smooth sea over the whole area.

Pressure gave way rapidly in the North Andaman Sea during the next 24 hours, and a shallow depression lay over that area at 8 A.M. of the 21st. It developed into a cyclone of great intensity. The following gives an account of this storm.

Cyclonic storm of the 21st to the 24th October (the Chittagong cyclone of October 1897).—As stated above, weather was fine with light winds over the south and east of the Bay on the 20th. According to newspaper accounts, weather had been stormy in the China Sea during the previous week or ten days. If this information be correct, it is probable that the rapid fall of pressure, and appearance of a low pressure area suddenly and with little or no warning in the North Andaman Sea during the next 24 hours was due to the movement of a storm depression from the Gulf of Siam across the north of the Malay Peninsula. If this be the case, the storm was at this stage either of small extent or of very feeble intensity and the winds and weather at Tavoy, Mergui and Port Blair were very slightly affected by it.

The following gives 8 A.M. meteorological data for Port Blair and the Burma coast stations:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Wind. Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall	Weather.
	″	″	″				Inch.	
Mergui .	29·802	—·068	?	SE	1	5	1·97	
Tavoy .	·800	—·089	—·084	Calm	1	10	0·74	Distant lightning.
Moulmein	·805	—·080	—·084	N	1	10	0·24	Drizzling.
Rangoon .	·762	—·114	—·120	NNE	2	10	*Nil*	
Diamond Island.	·791	—·098	—·077	NNW	12	10	*Nil*	Sea very rough.
Cocos Island.	·857	—·061	?	NW	3 to 5	*Nil*	10	
Port Blair	·837	—·040	?	WNW	3	10	0·75	

The observations indicate that there was a depression in the North Andaman Sea, the centre of which was in about Lat. 14½° N. and Long. 96° E. Skies were clear or lightly clouded at 8 A.M. in Upper and Central Burma and overcast in Lower Burma, but no rain had fallen except in Tenasserim. Weather had changed rapidly in the Andaman Sea and was squally with heavy rain at 8 A.M., as is shewn by the following data:—

Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction.	Force.	Weather.
	° ′	° ′	″			
S.S. *Eden Hall*	5 48	94 50	?	SW	5	4 A.M. squally with rain.
S.S. *Chyebassa* .	8 40	81 53	29·870	Var.	2	Fine.
S.S. *Madura* .	16 6	93 50	·809	NNE	2	4 P.M. heavy rain.
S.S. *Kistna* .	16 32	96 17	·760	NE	2	4 P.M. continuous rain.
S.S. *Shahzada* .	16 33	93 27	·828	NW	4	8 P.M. heavy rain.
S.S. *Java* .	Near Rangoon		·763	?	?	4 P.M. heavy squalls and rain.

The observations indicate that at 8 A.M. the storm was probably of moderate intensity and that its centre was in about Lat. 14½° N and Long. 96° E. There are no data available giving direct information of the extent and intensity of the storm, but judging from the irregularity of the wind directions at the coast stations and the comparatively feeble winds actually recorded by vessels in the Bay and at the coast stations, it is very probable that at this stage the storm was of small extent as well as of moderate intensity. This is in agreement with the supposition that it had crossed the Tenasserim mountain range which in Lat. 13° to Lat 15°N. reaches an average elevation of about 4,000 feet.

A valuable series of observations was taken during the day by the observer at Diamond Island. These observations show most clearly the development of the storm during the day. The following give extracts from his weather remarks:—

5-45 A.M.—"Breeze freshening, but no clouds, sea smooth, no ndications of unusual weather."

6-30 A.M.—"Breeze blowing in puffs with increasing force occasionally. Clouds moving rapidly."

7 A.M.—"Weather assuming a stormy aspect."

8 A.M.—"Sea very rough, strong wind blowing in violent puffs for about 2 to 3 minutes at a time with increasing force. Low fragments of clouds passing with great rapidity from west-north-west to east-south-east where weather seems to be growing squally. Vivid lightning and thunder at distance towards north. Sky overcast with pallium clouds."

2 P.M.—"Heavy swell appears to be coming since noon from north-east. Sky overcast, fragments of low (Pallio-Cumulus) clouds passing swiftly from north-north-west. Wind blowing a gale. Terrific thunder and lightning. Barometer 29·681 (corrected)."

2-15 P.M.—"Wind increasing in violence, tremendous squall rapidly approaching from north-north-west. Sea very rough".

2-30 P.M.—"Squall burst over station giving deluge of rain and strong wind. Anemometer registered 2·7 in three minutes or 54 miles an hour. Great difficulty experienced in visiting anemometer."

3 P.M.—"Squall passing over, still raining. Sea very rough, sky overcast, wind very strong."

3-30 P.M.—"Squall passed over towards east-south-east. Dead calm here, no movement whatever of leaves or anemometer cups. Sea sluggish, sky overcast."

4-30 P.M.—"Still dead calm."

4-42 P.M.—"Breeze began again, very light; sky overcast; sea still sluggish."

5-20 P.M. "Wind increasing in force, becoming more easterly; sky overcast, with fragments of Pallio-Cumulus clouds moving rapidly from north-north-east, sea rising again."

5-30 P.M.—"Weather conditions unchanged, sea very rough, occasional smart showers."

6-30 P.M.—"Wind blowing a gale, sea very rough. Vivid lightning and terrific peals of thunder."

7-30 P.M.—"Wind increasing gradually in intensity and force and also blowing in violent puffs for about 2 to 3 minutes at a time. Wind vane oscillating violently between north and north-north-east. Anemometer registered 1·3 miles in three minutes or 26 miles an hour. Sea very rough. Drizzling very frequently."

8 P.M.—"Wind blowing a hurricane. Anemometer registered 1·8 in three minutes or 36 miles an hour. Lower clouds moving rapidly from north-north-east. Weather looks very stormy to the east-south-east and south-south-east, distant lightning to north. Sea very rough. Barometer 29·697″ (corrected)."

9 P.M.—"Wind increasing, sky overcast, frequent smart showers, sea rising."

11 P.M.—"Anemometer registered 2·5 miles in 3 minutes or 50 miles an hour. Sea tremendous. Too dark to observe clouds. Rain falling in torrents frequently."

22nd—0-15 A.M.—"Weather cyclonic, wind blowing furiously. Anemometer registered 2·8 miles in 3 minutes or 56 miles an hour. Sea tremendous. Rain blinding and falling in torrents at frequent intervals. Too dark to observe clouds."

0-30 A.M.—"Wind of cyclonic intensity. Anemometer registered 3·0 miles in 3 minutes or 60 miles an hour. This observation was taken with great difficulty as blinding rain and furious wind rendered it impossible at times to ascend the ladder that gives access to the wind instruments. Sea tremendous, with very heavy swell. Trees falling and thatch of out-houses being blown off."

0-35 A.M.—"Wind appears to be decreasing."

0-45 A.M.—"Wind decreasing. Anemometer now registered 2·9 miles in three minutes or 58 miles an hour. Sea tremendous. Drizzling rain."

0-55 A.M to 1-15 A.M.—"Dead calm now suddenly sets in and continues until 1-15 A.M."

1-30 A.M.—"Wind started suddenly again, blowing violently at intervals of 2 to 3 minutes. Sea very rough."

2 A.M.—"Tremendous sea. Sky overcast. Drizzling rain followed by heavier rain and squalls. Wind seems to be shifting rapidly between north-north-east and east-south-east as wind vane is oscillating very rapidly between these two points. Anemometer registered 2·7 miles in three minutes or 54 miles an hour. Barometer 29·692″ (corrected)."

2-30 A.M.—"Wind shifted to SSE. Tremendous swell coming from that direction. Wind varying between SSE and ESE. Occasional heavy showers, otherwise drizzle."

3 A.M.—"Wind still blowing hard and seems to be steadying at SSE. Sea tremendous. Occasional showers."

4 A.M.—"Wind decreasing gradually."

5 A.M.—"Wind decreasing. Anemometer now registered 1·9 miles or 38 miles an hour. Sea tremendous. Heavy rollers coming from southeast. Occasional showers."

9 A.M.—"Sea going down and storm seems to have passed over. Sky still overcast with occasional squalls and smart showers."

The Diamond Island observations indicate that the storm centre passed to the south-west of that station between 8 P.M. of the 21st and 2 A.M. of the 22nd, and was probably nearest to that station very shortly before 2 A.M. when it was probably not more than 40 or 50 miles to the south-west. The observations give very interesting information of the variations in the intensity of the winds during the storm at that station, more especially in the north-western quadrant. The highest recorded winds had a velocity of 60 miles per hour, and the lowest recorded pressure was 29·542″ at 2 A.M. The observations suggest that the storm was developing rapidly and increasing in intensity at this time.

22nd October.—Pressure had risen briskly in Tenasserim, and fallen briskly to (probably) very rapidly in the north of the Bay. The depression was now to the west of Diamond Island, and its character was very feebly indicated by the observations taken at the coast stations at 8 A.M., as is is shown by the following statement:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	″	″	″				Inches	
Port Blair .	29·827	—·010	?	WSW	8	9	0·10	
Cocos Island .	·846	—·011	?	SW	3 to 5	10	0·37	
Diamond Island.	·750	—·041	—·120	SSE	29	10	2·08	Sea tremendous, severe gale of wind.
Akyab .	·825	—·046	—·057	E	3	10	0·09	Distant lightning.
Chittagong .	·829	—·041	—·059	ENE	2	10	*Nil*	Foggy.
Saugor Island	·814	—·041	—·071	SW	8	9	*Nil*	Sea smooth.
False Point .	·826	—·037	—·057	W	5	9	*Nil*	
Vizagapatam	·829	—·047	—·044	Calm	0	0	*Nil*	

Weather was fine with light winds at all these stations except those to the east and south-east of the depression.

The following gives data taken from the logs of vessels in the storm area on this day:—

Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	″			
S.S. *Lindula* .	13 59	96 12	29·825	S	4	Moderate sea. Fine. 4 A.M. occasional rain squalls.
S.S. *Camorta* .	14 55	95 33	·793	S	4	Moderate sea, passing squalls.
S.S. *Madura* .	16 32	96 16	·819	SE	6	Rough sea and cloudy.
S.S. *Pentakota* .	16 33	93 9	·661?	S	4	Passing showers.
S.S. *Kistna* .	17 45	94 32	·795	E by S	7	4 A.M. rain.
S.S. *Maharani* .	19 27	89 56	·794	Var.	2	4 P.M. frequent heavy rain squalls.

The observations when charted indicate that the storm centre was distant probably about 120 miles to the west-north-west of Diamond Island in Lat. 16½° N. and Long. 92½° E. The S.S. *Pentakota* was not far from the centre at 8 A.M. when she was in Lat. 16°33′N. and Long. 93°9′ E. and proceeding on a north-west course to Calcutta. The following extracts from her log show the weather she experienced during the day:—

Hour.	Position. Lat. N.	Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	″			
4 A.M.	...	...	29·564	S	4	Squally, dull and rainy.
8 ,,	16 33	93 9	·661	S	4	Dull cloudy and passing showers.
Noon	16 44	92 58	·629	SW	4	Cloudy and frequent rain squalls.
4 P.M.	...	...	·521	SSE	6	Overcast and frequent heavy squalls.
8 ,,	...	...	·561	ESE	6	Squally and frequent rain squalls.
Midnight	...	...	·564	E	6	Hard rain squalls and moderate sea.

The observations, more especially those taken on board the S.S. *Pentakota*, indicate clearly that the storm was of small extent, but are too scanty to give information of its intensity in the inner storm area.

October 23rd.—Pressure had risen briskly in the Andaman Sea, and had fallen more or less rapidly in the north of the Bay, due to the northward advance of the storm. Elsewhere the pressure changes were unimportant and fine weather prevailed over nearly the whole of India. The following 8 A.M. data indicate that the weather at the coast stations in the Bay was as yet very slightly affected by the storm:—

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.	
Diamond Island.	29 829	+·079	—·040	SSE	22	4	0·18	Gale.
Akyab	·775	—·050	—·107	SE	4	10	*Nil*	Distant lightning.
Chittagong	·784	—·045	—·105	Calm	2	10	*Nil*	Ditto.
Saugor Island.	·753	—·061	—·132	E	5	10	0·10	Overcast with rain.
F. L. V. *Torch.*	·764	—·112	?	NE	3*	10	?	Unsettled.
False Point	·754	—·072	—·129	NNW	4	9	0·07	Thunderstorm.
Puri	·761	—·066	?	N	3	4	*Nil*	Sea smooth.
Gopalpur	·750	—·052	?	NNW	?	3	0·01	

* Force.

Weather was cloudy with very light winds at Chittagong, Akyab, Saugor Islands and False Point. Every station in the north-east of the Bay reported much lightning, but no rain had fallen at Akyab or Chittagong.

The following gives data taken from vessels in the storm area at 8 A.M.:—

Name of Vessel.	Position. Lat. N.	Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	″			
S.S. *Shahjehan*	13 33	94 16	29·841	SSW	2	Fine and clear.
S.S. *Kohinur*	15 49	94 27	·806	SW	4	Heavy west swell. Squally with rain.
S.S. *Agapanthus*	17 24	86 58	·717	NW by W	5	Squally and overcast.
S.S. *Maharani*	18 36	91 13	·489	SE	10	Rough sea. Heavy squalls and blinding rain.
S.S. *Pentakota*	19 1	89 50	·664	NE	8	Moderate sea. Squally.
S.S. *Karagola*	20 0	93 5	·775	SE	6	Squally with rain.

The data indicate that the centre was probably a little to the west of the position of the S.S. *Maharani* at 8 A.M. or in about Lat. 18½° N. and Long. 91°E. She had violent winds of force 10 and blinding rain. The following gives extracts from her log:—

Hour.	Position. Lat. N.	Position. Long. E.	Barometer. corrected.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	″			
4 P.M.	...	...	29 459	E by S	10	Thick and cloudy weather with heavy squalls and rain.
8 ,,	18 36	91 13	·489	SE	10	Heavy squalls and blinding rain. Rough sea.
Noon	18 30	91 26	·551	SSE	10	Thick and cloudy weather.
4 P.M.	...	...	·469	S	10	Weather becoming worse. 6 P.M. sea becoming very cross
8 ,,	...	...	·489	S by W	10	Weather dark and gloomy with terrific squalls, blinding rain and confused sea.
Midinght	...	...	·581	S by W	9	Moderate weather but blowing heavily.

The data shew that, as on the 22nd, the storm proper was of small extent, but was of considerable to great intensity as indicated by the strength of the winds ex-

perienced by the S.S. *Maharani*. Weather was now disturbed over the greater part of the north of the Bay. The following gives Captain Beahan's notes on the weather on the 23rd and 24th as experienced at the Mutlah light-station.

23rd October.—"Commenced with unsettled weather, thunder and lightning to the SSE., swell slight from south. Noon, passing rain squall, swell increasing from the SE. Heavy bank in that quarter. Between noon and 4 P.M. wind hauling between ENE. and NNE., a decided cyclonic appearance in the weather, swell from SE. heavier. From 6 P.M. wind steady from NE, force a fresh gale, a very heavy rain squall. At 8 P.M. frequent squalls followed, but not so heavy. Sea, much confused from SE. and NE. This weather lasted till midnight. Although during the day up to 9 P.M. the sky was overcast, between 9 P.M. and midnight it was clear overhead. Direction of upper and middle clouds from SW. towards NE."

24th October.—"Fresh NE. gale with heavy confused SE. and N.E. sea; sky overcast. 8 A.M. wind slightly less hauling to north, sea heavy and confused from SSE. and NNE. Noon, wind NNW, force 6. Very much less SE. and NE. sea, a more settled appearance in the weather. 4 P.M. a strong NW. breeze and moderate sea. Sunset, the lofty C and C. S. clouds to the westward were of a blood-red colour. All through the night fine."

October 24th.—The barometric changes were again small except in the areas affected by the march of the storm. The coast observations taken at 8 A.M. given below indicate that it was in the north-east angle of the Bay.

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	
Akyab	29·659	—·116	—·223	S	10	10	2·02	Wind variable.
Chittagong	·658	—·126	—·231	ESE	2	10	0·23	Showery.
Noakhali	·645	—·140	?	NE	3	10	1·32	Dark gloomy.
Barisal	·639	—·078	—·235	ENE	2	10	0·01	Drizzling.
Saugor Island.	·665	—·088	—·219	NNW	16	9	1·19	Sea rough.
False Point	·731	—·023	—·152	NW	10	9	*Nil*	

Weather was fine and clear in India generally, except in Bengal where skies were more or less clouded, and light local showers had fallen. Winds were very light at Chittagong, Barisal and Noakhali in front of the advancing storm, and the observations gave no direct intimation of the intensity of the approaching cyclone. The following gives 8 A.M. data extracted from the logs of vessels in the storm area on this day.

Name of vessel.	8 A.M. position.				Barometer corrected.	Wind.		Weather.
	Lat. N.		Long. E			Direction.	Force.	
	°	′	°	′	″			
S.S. *Kohinur*	17	27	92	8	29·752	S	6	Overcast, noon squally.
S.S. *Maharani*	17	44	92	36	·729	SSW	10	Overcast, 6-20 A.M. terrific squalls from west-south-west.
S.S. *Agapanthus*	18	19	87	58	·709	W by N	6	Overcast.
S.S. *Pandua*	18	44	90	54	?	SSW	8	High sea, violent squalls.
S.S. *Karagola*	18	58	93	23	29·715	S	6	High sea, heavy squalls. Noon violent rain squalls.
S.S. *Turbo*	19	46	86	50	?	NW	6	Heavy cross sea, overcast.
S.S. *Clan Matheson.*	21	20	87	57	?	N	6	Sea rough and clear.

The observations indicate that the storm centre at 8 A.M. was in about Lat. 20½° N. and Long. 90¾° E. or Long. 91°E. All the vessels named above were at considerable distances to the south and west of the centre. Their observations indicate clearly the extension of the stormy weather in the north of the Bay. The S S. *Maharani* which was about 240 miles to the south-south-east of the storm centre had winds of force 10.

The storm was hence now one of great intensity, but the observations at the land stations continued to show that the inner storm area was of small extent. The storm centre passed over or near to Chittagong during the evening, as is shewn by the following observations taken at that station:—

Hour.	Barometer reduced to sea-level and constant gravity at Lat. 45°.	Wind.	Weather.
		Direction.	
	"		
4-53 P.M.	29·231	ENE	Cyclonic storm blowing, squalls heavy, occasionally with heavy rain.
5-47 ,,	·097	ENE	Cyclone blowing furiously. Exceedingly heavy squalls, occasionally with heavy rain.
6-13 ,,	·018	ENE	Severe cyclone blowing, large branches of trees falling and telegraph lines interrupted.
6-35 ,,	·018	ENE	Severe cyclone, and squalls with heavy rain and lightning.
6-56 ,,	28·817	N	Do. wind more north.
7-20 ,,	·747	N	Do. wind tending to E. Heavy rain, lightning and hail.
7-44 ,,	·680	NE	Do. terrific squalls occasionally with heavy rain and lightning.
8-40 ,,	·799	NNW	o. wind tending NW.
9-28 ,,	29·120	NW	Cyclone considerably moderated, wind light, and occasional squalls and very heavy rain.

The storm centre as shown by these observations passed over or near to the Chittagong observatory between 7-45 P.M. and 8 P.M. Hurricane winds prevailed in the inner storm area and caused great destruction of property and crops in the belt over which it passed. Pressure at the storm centre was at least 1·2 inches below the normal. As the storm approached the coast about the time of high water, the storm wave which accompanied it was of destructive violence, and overflowed the low grounds in the Islands of Kutubdia, Matarbari and Moiskhal and the low coast districts between Chittagong and Ramree. Full details will be found in Appendix I where extracts from a report published in the *Calcutta Gazette* on the cyclone as experienced at Chittagong are given.

25th October.—Pressure had decreased briskly to rapidly in Upper Burma during the previous 24 hours, and a shallow residual depression lay over that area at 8 A.M. A very rapid rise of pressure occurred during the next 24 hours in Burma and North-Eastern India, and there was no trace of the storm on the morning of the 26th.

Heavy rain fell during the 24 hours preceding 8 A.M. of the 25th in a part of the Chittagong district and the South Lushai hills. The following gives the largest falls:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of the 25th October 1897.
		Inches.
SOUTH LUSHAI HILLS.	Bandarban	10·02
	Rangamati	8·20
	Demagiri	6·00
CHITTAGONG	Satkanya	9·30
	Chittagong	7·51
	Cox's Bazar	7·23

The rainfall was restricted to a very narrow belt in which it was very heavy, contributing with the violent winds to the partial destruction of the crops.

The preceding storm was in several respects similar to the storm which passed over and wrecked Port Blair in November 1891. Like that storm it crossed the Malay Peninsula from the Gulf of Siam, and was of small extent but of great intensity, the winds in the inner storm area being of hurricane force. It passed by an east-north-east path across the north of the Andaman Sea through the Preparis North Channel into the Bay of Bengal and thence recurved through north-west to north and finally to north-north-east passing across the Chittagong Coast as a small storm of great violence. The stormy winds and rain caused great destruction of crops and property and the storm wave flooded the low coast districts causing the death of at least 7,000 people.

The following table gives data showing the position and average rate of movement of the storm centre from the 21st to the 24th:—

DATE.	POSITION OF CENTRE AT 8 A.M.				Distance travelled during interval.	Average hourly rate of motion during interval.
	Lat. N.		Long. E.			
	°		°	′	Miles.	Miles.
21st	14	30	96	0		
22nd	16	30	92	30	275	11½
23rd	18	30	91	0	170	7
24th	20	30	90	45	142	6

Pressure increased over the whole Indian area on the 27th, and decreased generally on the 28th and 29th. Fine weather with little or no rain prevailed over the whole area on the 29th. Pressure increased during the next two days everywhere, and was in slight excess on the 31st in Northern India and Burma, and in considerable excess over the Deccan and Madras coast districts. Some light showers were received in Lower Burma and Southern India on the 30th and 31st, but fine clear weather prevailed elsewhere in the Indian land area, and the pressure anomalies were as unfavourable at the end of the month to the occurrence of general rain in Madras due to the retreating south-west monsoon current as they had been during the previous fortnight.

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.

Chitral.—Colonel Davidson, telegraphing from Drosh on the 7th, says "that a good deal of snow has fallen during the last three days on the hills near Drosh down to 10,500 feet" and again on the 15th "that much snow has fallen during the last two days on the hills close to Chitral down to 9,000 feet."

Summary of special Storm Reports.

Cyclonic storms are of occasional occurrence in October and are sometimes of exceptional intensity. Two storms appeared in the Bay during the month. Several reports of these storms were received, and the information

they contained is incorporated in the pressure section. Thunderstorms are of occasional occurrence in October. The following gives a statement of the two storms of which special reports were received :—

11th.—Duststorms with light rain at Amraoti at 4 P.M.

15th.—Severe thunderstorm at Salem, from 3-40 P.M. to 5-15 P.M. The total rainfall during the storm was 5·14 inches.

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

Arabian Sea.—Except in the south-east where more or less steady westerly winds prevailed, winds were exceedingly unsteady and irregular over the Arabian Sea during the first week of the month. Weather was feebly disturbed with occasional squalls and showers during the period in the region of westerly winds, but was fine with passing clouds over the remainder of the sea. The mean air movement ranged between 2·3 and 3·1. Fine settled weather with very unsteady and variable winds (force 1 to 5) obtained generally over the Arabian Sea during the next six days. The mean intensity of the air movement as determined from the data of 24 vessels amounted to only 2·0 on the 14th or about 25 per cent. below the normal strength of the month. Humid westerly winds, light to fresh in force, set in over the south-east of the Arabian Sea on the 14th under the influence of the pressure conditions over the neighbouring land area and held more or less steadily until the 19th. There was a feeble tendency to the establishment of north-easterly winds over the centre and west of the Arabian Sea during this period which became marked on the 20th. These winds intensified and, spreading slowly southwards, were established generally over the Arabian Sea at the end of the month.

Bay of Bengal.—At the beginning of the month a shallow low pressure area existed off the Circars coast and winds were irregularly cyclonic over the Bay. Weather was fine but cloudy in the south and more or less showery and squally over the remainder of the Bay. The mean strength of the air movement over the Bay, as derived from the wind data of 19 vessels, was 4·1 or 1·0 above the normal of the month. The depression intensified rapidly during the day and was a storm of moderate intensity at 8 A.M. of the 2nd when cyclonic winds of force 4 to 9 obtained over the greater part of the Bay with heavy squalls and much rain over the northern half. The air movement averaged 5·2 or 2·1 above the normal of the month on this day. The storm began to move slowly northwards during the day, developing at the same time and passed inland near Gopalpur on the morning of the 3rd. Very unsettled weather with strong winds (force 4 to 8) heavy to hard squalls and a high rough sea prevailed in the north-west of the Bay at 8 A.M. of this day, but over the remainder of the sea weather was unaffected by the disturbance. The storm continued to move northwards during the next twenty-four hours and winds hence strengthened considerably in the north of the Bay. The air motion at 8 A.M. of the 4th averaged 5·4 or 2·3 above the normal of the month, the strongest winds being of force 10. Weather was very disturbed in the north of the Bay, but remained fine over the remainder of that area. Thus the S.S. *Palamcotta* in Lat. 19½°N. and Long. 90°E. experienced frequent fierce squalls and a high sea. With the continued march northwards of the storm, the conditions improved very rapidly during the day in the north of the Bay, so that on the morning of the 5th, fine weather was re-established over that area. The air movement over the Bay had fallen to an average of 4·3 at 8 A.M. of the 5th. Large and important pressure changes occurred during the next four days. Pressure became uniform over the Bay and unsteady variable winds hence set in over that area, except in the extreme south where light to moderate westerly winds continued to prevail. The mean strength of the winds at 8 A.M. of the 9th, as determined from the data of 21 vessels, was 1·9 or 1·2 below their normal intensity in October. The pressure changes of the next three days tended to give slightly lower pressure over the Bay than elsewhere. Pressure was lowest on the 12th and 13th over the north-east of the Bay. This low pressure area was transferred slowly westwards across the Bay during the next three days and lay off the Central Madras coast on the 16th. There was a slight tendency to the establishment of an irregular cyclonic circulation over this area during the next three or four days, but the conditions over the land were unfavourable to its development, and it hence passed away on the 19th. The mean air movement during the period from the 12th to the 19th fluctuated between 2·6 and 3·9 and was hence of normal intensity. Weather, on the other hand, was throughout the period feebly unsettled with occasional showers and squalls.

On the 20th uniform pressure with light airs, fine weather and a smooth sea obtained generally over the Bay. The mean intensity of the air movement at 8 A.M. of this day was only 2·3 as compared with 3·1, the normal for the month.

Significant changes occurred over the Andaman Sea during the next twenty-four hours due to the appearance of a storm depression. Under its influence the winds became cyclonic in direction, and the weather unsettled over that region, more especially over the North Andaman Sea. The storm advanced by a curved path towards the Chitta-

gong coast during the next three days, developing rapidly at the same time. The centre crossed the coast near Chittagong on the evening of the 24th. The storm was a vigorous disturbance, and occasioned very rough stormy weather over the north-east of the Bay on the 23rd and 24th. The strongest winds experienced by vessels in the storm area were of force 10, but it is almost certain that winds were of hurricane violence near the centre. The storm was, however, of small extent, and did not affect the weather appreciably beyond the region passed over by it. The mean air movement ranged between 3·2 and 4·5 during the period from the 22nd to the 24th.

Winds and weather moderated very rapidly with the passage inland of the storm, so much so that only one vessel out of the 22 in the Bay reported showers at 8 A.M. of the 25th. Northerly winds set in over the north of the Bay during the next two days and were established over the whole of the Bay to the north of Lat. 15° N. at the end of the month. Over the southern half of the Bay winds were, on the other hand, very unsteady during this period, though chiefly from westerly directions.

Equatorial Belt.—There are no data available for the eastern half of this region, and the character of the weather changes in that area can only be surmised. In the western half of the belt, the conditions were, so far as can be judged from the scanty data available, very abnormal. Light to strong south-east trade winds obtained with more or less steadiness during the first three weeks of the month, but they contained an abnormal easterly component, and were hence determined largely to Africa. Winds were extremely unsteady and variable during the last week of the month, and there were some instances of northerly winds which extended right across the equator as far south as Lat. 5°S. This is borne out by the data of the Seychelles where northerly winds were experienced from the 28th to the 30th.

Temperature of the Air.

The mean maximum or day temperature of the month was above the normal over the greater part of India. It was in defect in two areas. The first included Rajputana and North Bombay, over a considerable part of which the deficiency was moderate to considerable in amount. The following gives temperature data for stations in that area:—

Station.	Mean maximum temperature.		
	Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.
	°	°	°
Mount Abu	74·8	78·9	—4·1
Rajkot	91·2	95·2	—4·0
Kurrachee	91·5	94·8	—3·3
Deesa	93·1	96·0	—2·9
Ajmere	89·1	91·4	—2·3

The mean maximum or day temperature of the month was also below the normal in parts of Burma and in an area including Bihar, West Bengal, Chota Nagpur, Orissa and the adjacent districts of Madras, the Central Provinces and North-Western Provinces. The deficiency was generally small in amount in these areas, but exceeded 2° at Benares (—3°·1).

The day temperature was on the average of the month above the normal over the remainder of the country but variations were small and less than 2° in amount except locally in the areas for which data are given below:—

Area.	Station.	Mean maximum temperature		
		Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.
		°	°	°
North Punjab	Rawalpindi	90·7	87·9	+2·8
	Peshawar	90·4	88·4	+2·0
	Sialkot	94·0	92·0	+2·0
Berar and the Western Districts of the Central Provinces.	Akola	92·5	90·1	+2·4
	Khandwa	92·1	89·9	+2·2
South and Central Madras.	Negapatam	91·5	87·9	+3·6
	Cuddapah	93·3	89·9	+3·4
	Madras	92·0	89·0	+3·0
	Trichinopoly	92·9	90·8	+2·1

The mean minimum temperature of the month was below the normal in Baluchistan, the West Punjab, Rajputana, Sind, Cutch and Gujarat. The deficiency was

more than 2° in amount at stations for which data are given below :—

Station.	Mean minimum temperature.		
	Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.
	°	°	°
Quetta	36·1	39·2	—3·1
Jacobabad	59·2	63·1	—3·9
Bickaneer	69·1	72·5	—3·4
Bhuj	68·4	71·2	—2·8
Ajmere	60·8	63·0	—2·2
Dera Ismail Khan	59·2	61·6	—2·4
Deesa	64·5	66·9	—2·4
Mount Abu	61·8	64·2	—2·4
Neemuch	62·5	64·6	—2·1

The mean night temperature of the month was above the average over the remainder of India. The excess was marked in Upper Burma, Assam, East and North Bengal, and in a small area in the North Deccan. The following gives data of the night temperature in these five areas :—

Area.	Station.	Mean minimum temperature.		
		Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.
		°	°	°
Upper Burma	Kindat	75·1	71·4	+3·7
	Bhamo	72·3	69·2	+3·1
	Mandalay	77·3	74·7	+2·6
Assam	Dhubri	75·8	73·0	+2·8
	Sibsagar	73·6	70·9	+2·7
	Silchar	75·0	72·4	+2·6
Bengal (East)	Chittagong	76·3	73·7	+2·6
	Narayanganj	77·9	75·1	+2·8
	Mymensingh	76·1	73·1	+3·0
Bengal (North)	Jalpaiguri	72·7	69·2	+3·5
North Deccan	Sholapur	70·2	67·9	+2·3
	Akola	68·2	66·0	+2·2
	Chanda	70·7	68·5	+2·2
	Amraoti	69·5	67·5	+2·0

The chief feature of the mean temperature of India for the month was a moderate deficiency over the greater part of Sind, Cutch, Kathiawar and Rajputana. The following gives data for this area :—

Station.	Mean temperature.		
	Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.
	°	°	°
Rajkot	79·0	81·9	—2·9
Deesa	78·8	81·5	—2·7
Bhuj	81·3	83·6	—2·3
Kurrachee	81·0	83·3	—2·3
Ajmere	75·0	77·3	—2·3
Bickaneer	82·0	84·1	—2·1

The mean temperature of the month was higher than usual over nearly the whole of the remainder of India. The variations were however less than 2° except locally at Negapatam (+2°·7), Cuddapah (+2°·5), Akola (+2°·3), and Amroati (+2°·0); and in the area defined by the stations for which data are given below :—

Station.	Mean daily temperature.		
	Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.
	°	°	°
Silchar	82·9	80·6	+2·3
Kindat	81·6	79·3	+2·3
Chittagong	82·2	80·0	+2·2

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

(1) Moderate deficiency of temperature both by day and night in Sind, South-West Rajputana, Cutch and Kathiawar, and by night in Baluchistan. The mean temperature ranged between 2° and 3° in defect over a part on that area, defined by the stations of Kurrachee, Bickaneer, Ajmere, Deesa and Rajkot.

(2) Increased temperature over the remainder of India. The excess was moderate in amount in Berar, and the area represented by the stations of Kindat, Silchar and Chittagong and was chiefly due to higher night temperature than usual.

The following table gives temperature data for the 56 meteorological divisions of the Empire :—

Province.	Division.	Actual temperature.					Variation from normal of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	87·7	75·1	81·4	12·6	18·2	0	+1·6	−1·6
	Lower Burma (Deltaic)	86·7	77·0	81·9	9·7	15·2	+0·1	+1·2	−1·1
	Central do.	89·9	76·0	83·0	13·9	21·8	0	+1·8	−1·8
	Upper do.	90·4	75·1	82·7	15·3	25·8	+0·1	+2·5	−2·4
	Arakan	87·1	78·0	82·4	9·1	19·1	−0·8	+1·2	−2·0
Bengal and Assam	Eastern Bengal	85·8	74·6	80·2	11·2	21·6	+0·7	+2·8	−2·1
	Assam (Surma)	90·7	75·0	82·9	15·7	26·3	+1·9	+2·6	−0·7
	Do. (Brahmaputra)	85·2	74·7	80·0	10·5	21·9	+0·2	+2·8	−2·6
	Deltaic Bengal	87·6	75·4	81·6	12·2	27·5	−0·3	+1·0	−1·3
	Central do.	87·5	74·1	80·9	13·5	28·8	0	+1·5	−1·5
	North do.	87·3	73·9	80·6	13·4	24·8	+0·5	+3·5	−3·0
	Bengal Hills	63·0	47·5	55·3	15·4	30·5	+0·8	+2·4	−1·6
	Orissa	87·8	75·9	81·9	11·9	27·3	−0·7	+0·3	−1·0
	Chota Nagpur	84·5	68·5	76·4	16·0	32·9	−1·0	+1·1	−2·1
	Bihar (South)	87·3	71·7	79·5	15·7	32·8	−1·2	+0·4	−1·6
	Do. (North)	86·2	72·3	79·2	13·9	30·9	−0·8	+1·2	−2·0
North-Western Provinces and Oudh.	North-Western Provinces (East)	88·1	69·0	78·6	19·1	38·4	−1·9	+0·9	−2·8
	Oudh (South)	93·1	67·5	80·3	25·6	42·1	?	?	?
	Do. (North)	90·4	68·6	79·5	21·8	36·9	?	?	?
	North-Western Provinces (Central)	92·6	67·2	79·9	25·3	40·7	+1·2	+2·0	−0·8
	Do. do. (West)	91·9	64·6	78·3	27·3	39·6	+0·4	−0·7	+1·1
	Do. do. (Submontane East)	86·8	70·8	78·8	16·0	33·6	−1·9	+0·5	−2·4
	Do. do. (do. West)	87·7	63·1	75·4	24·6	38·5	+1·1	+0·6	+0·5
	Do. do. (Hills)	67·5	53·3	60·4	14·2	22·8	+1·5	+1·7	−0·2
Punjab	Punjab (South-East)	91·4	68·3	79·9	23·1	38·8	?	?	?
	Do. (South)	93·4	62·5	78·0	31·0	48·1	−1·4	+0·4	−1·8
	Do. (Central)	92·7	62·2	77·5	30·5	46·9	?	?	?
	Do. (Submontane)	92·6	62·5	77·6	30·1	45·4	+1·1	+0·5	+0·6
	Do. (Hills)	70·2	45·8	58·0	24·4	41·1	+0·7	+1·8	−1·1
	Do. (North)	90·6	56·8	73·7	33·8	49·8	+2·4	+0·2	+2·2
	Do. (West)	95·7	61·4	78·6	34·3	52·8	+1·2	−2·4	+3·6
Bombay and Malabar Coast Districts (Madras).	Malabar	85·7	75·4	80·6	10·4	17·4	+1·0	+1·1	−0·1
	Madras (South Central)	90·0	72·3	81·2	17·7	27·3	+1·3	+1·8	−0·5
	Coorg	74·8	63·0	68·9	11·8	20·3	−0·6	+0·9	−1·5
	Mysore	82·7	66·0	74·4	16·7	27·1	+1·3	+1·0	+0·3
	Konkan	86·1	75·3	80·7	10·8	21·8	0	+0·8	−0·8
	Bombay Deccan	86·9	67·5	77·2	19·4	34·1	+0·6	+0·6	0
	Hyderabad (North)	87·3	66·5	76·9	20·8	33·3	?	?	?
	Khandesh	87·9	66·6	77·3	21·3	37·4	+0·5	+1·7	−1·2
Central Provinces and Berar.	Berar	91·9	68·9	80·4	23·1	38·4	+2·2	+2·1	+0·1
	Central Provinces (West)	90·9	67·7	79·3	23·2	38·7	+1·4	+0·5	+0·9
	Do. (Central)	87·5	66·7	77·1	20·8	36·8	+0·4	+1·1	−0·7
	Do. (East)	87·3	71·1	79·2	16·2	33·5	−1·0	+0·1	−1·1
Bombay (North)	Gujarat	93·8	71·7	82·8	22·1	32·9	+1·4	+1·2	+0·2
	Kathiawar & Cutch	92·0	69·2	80·6	22·8	34·9	−2·9	−2·3	+0·6
	Sind	96·1	66·5	81·3	29·6	46·3	+0·2	−2·6	+2·8
	Baluchistan Hills	78·0	38·8	58·4	39·1	57·9	+0·4	−3·1	+3·5
Rajputana and Central India.	Central India (East)	89·4	64·6	77·0	24·7	29·6	+0·7	−0·1	+0·8
	Rajputana (East), Central India (West)	92·1	64·0	78·1	28·1	43·4	−1·2	−1·9	+0·7
	Do. (West)	95·5	65·6	80·6	29·9	47·3	−0·7	−3·4	+2·7
Madras	East Coast (North)	88·9	75·6	82·2	13·2	27·9	+0·6	+1·0	−0·4
	Hyderabad (South)	89·2	70·7	80·0	18·5	32·8	+1·4	+1·3	+0·1
	Madras (Central)	91·2	72·9	82·1	18·3	32·0	+1·9	+1·4	+0·5
	East Coast (Central)	92·2	77·1	84·6	15·1	25·6	+0·8	+1·2	−0·4
	Do. (South)	91·8	75·9	83·9	15·9	26·2	+2·9	+1·3	+1·6
	Madras (South)	92·2	77·3	84·7	14·9	23·8	?	?	?

Temperature at the commencement of the month was higher than usual over the whole of India with the exception of Burma and Southern India, in which areas light to moderate rain was falling. The excess was most marked in the Punjab and the North-Western Provinces. The following gives variation data of nine large political areas for the 24 hours preceding 8 A.M. of the 1st :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF 1ST OCTOBER 1897.		
	Maximum.	Minimum.	Mean.
	°	°	°
Burma	−1·2	+0·2	−0·5
Bengal and Assam	+2·5	+2·0	+2·3
North-Western Provinces and Oudh	+1·8	+3·5	+2·7
Punjab	+2·0	+4·0	+3·0
Sind and Rajputana	+0·1	+4·3	+2·2
Central India and Gujarat	−0·8	+2·5	+0·9
Central Provinces and Berar	+2·1	+1·9	+2·0
Bombay	+0·2	+0·3	+0·3
Madras	−2·5	+0·6	−1·0

A cyclonic storm advanced from the Bay across the coast of Ganjam on the 3rd. It advanced almost due northwards during the next two days into Bihar on the 5th, where it filled up on the 6th. The storm gave heavy rainfall over the greater part of North-Eastern India and hence temporarily reduced temperature very considerably. In the following table are given the variations of the mean temperature from the 2nd to the 7th in that area :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	2nd Oct.	3rd Oct.	4th Oct.	5th Oct.	6th Oct.	7th Oct.
	°	°	°	°	°	°
Orissa	−0·3	−3·0	−1·4	−0·1	+1·9	−0·1
Bengal	+0·9	−.·0	−2·0	−1·9	−0·8	−0·1
Chota Nagpur	+1·9	+0·1	−2·8	−2·2	−1·9	−0·3
Bihar	+1·9	+1·4	−1·8	−5·6	−6·4	−2·7

Temperature decreased to a slight extent in North-Western India during this period and increased considerably in Burma, where it was in moderate excess from the 5th to the 8th. The following table giving variation data for the 7th, illustrates the temperature conditions obtaining at the end of the period.—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF 7TH		
	Maximum.	Minimum.	Mean.
	°	°	°
Burma	+2·3	+2·6	+2·5
Bengal and Assam	−1·8	+1·0	−0·4
North-Western Provinces and Oudh	−0·6	+0·9	+0·2
Punjab	+2·3	+2·6	+2·5
Sind and Rajputana	+0·1	+1·8	+1·0
Central India and Gujarat	−0·7	+1·2	+0·3
Central Provinces and Berar	+2·3	+1·2	+1·8
Bombay	+0·1	+0·5	+0·3
Madras	+1·7	+2·5	+2·1

The chief feature of the temperature conditions of the remainder of the month was a cool wave which appeared in Baluchistan, Sind, Cutch and Kathiawar on the 8th, and very slowly extended eastwards across Northern India. It was practically stationary during the next two days (*i.e.*, the 9th and 10th). The following gives data in illustration :—

POLITICAL PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	6th Oct.	7th Oct.	8th Oct.	9th Oct.	10th Oct.
	°	°	°	°	°
Baluchistan (Quetta)	−1·0	+0·3	−5·7	−4·9	−5·2
Sind	−0·1	−0·2	−2·0	−1·3	−0·8
Rajputana	+2·2	+1·5	+2·0	−2·2	−2·8
Cutch	−2·0	−2·8	−4·6	−5·1	−4·0
Kathiawar	−0·4	−0·8	−3·3	−3·1	−4·2

The cool wave began to extend very slowly eastwards on the 11th, but the reduction of temperature below the normal was greatest in Baluchistan and the Indus Valley districts from the 11th to the 17th. The following gives variation data for four stations in the area of greatest reduction of temperature from the 12th to the 17th :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	12th Oct.	13th Oct.	14th Oct.	15th Oct.	16th Oct.	17th Oct.
	°	°	°	°	°	°
Quetta	−5·0	−4·4	−2·7	−3·6	−5·4	−6·0
Jacobabad	−3·1	−2·6	−3·7	−2·0	−2·5	−4·2
Kurrachee	−3·7	−3·7	−4·1	−4·2	−3·6	−2·2
Bhuj	−1·1	−3·5	−2·4	−1·4	−2·3	−1·1

Temperature was throughout this period in steady slight to moderate excess in Burma, North-Eastern India and the Peninsula, as is shown by the following comparative data :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	6th Oct.	8th Oct.	10th Oct.	12th Oct.	14th Oct.	16th Oct.
	°	°	°	°	°	°
Burma	+1·9	+1·9	+0·6	+1·3	—0·6	+0·9
Bengal and Assam .	—1·5	+0·7	+2·0	+2·4	+1·9	+0·5
North-Western Provinces and Oudh.	—1·5	+1·3	+2·6	+0·3	—0·7	+1·0
Central India and Gujarat	+0·5	+0·2	—0·4	—0·6	—1·4	—1·3
Central Provinces and Berar.	+0·5	+2·0	+2·8	+2·5	+0·2	—1·0
Bombay . . .	+0·2	+0·2	+1·6	+1·1	+0·5	+0·2
Madras . . .	+1·1	+1·7	+2·3	+2·5	+0·6	+0·2

The area of greatest reduction of temperature was transferred to Central and West Rajputana and Kathiawar on the 18th and 19th, to Central India on the 23rd and 24th, and to West Bengal, Chota Nagpur and the eastern districts of the Central Provinces on the 26th and 27th.

The following statement gives the stations at which the reduction of temperature below the normal was greatest for each day from the 18th to the 26th:—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
18th October . .	Ajmere	—6·7
19th " . .	Ajmere	—7·1
	Deesa	—6·0
20th " . .	Rajkot	—7·6
	Bickaneer	—7·0
	Ajmere	—6·9
21st " . .	Rajkot	—8·6
	Deesa	—7·7
	Ajmere	—6·7
22nd " . .	Deesa	—7·2
	Rajkot	—6·9
	Ajmere	—6·5
23rd " . .	Deesa	—6·2
	Ajmere	—5·9
24th " . .	Kurrachee	—5·5
	Deesa	—5·1
	Ajmere	—5·0
25th October . .	Ajmere	—6·3
	Sambalpur	—5·0
	Sutna	—4·5
26th " . .	Sambalpur	—5·8
	Calcutta	—4·3
	Chaibassa	—4·2

The very slow extension of the cool wave, eastwards is shown more fully by the variation data given in the following table:—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	17th Oct.	19th Oct.	21st Oct.	23rd Oct.	25th Oct.	27th Oct.
	°	°	°	°	°	°
Baluchistan (Quetta) .	—6·0	—3·6	—2·1	—4·8	—1·4	+6·2
Punjab . . .	—1·4	—1·4	—0·2	—0·2	—1·0	—0·7
Sind and Rajputana .	—2·4	—4·4	—4·2	—3·9	—4·2	—1·5
Cutch and Kathiawar .	—2·0	—3·0	—6·3	—4·5	—3·1	—1·7
North-Western Provinces and Oudh.	+1·3	—0·2	+1·1	—0·7	—1·0	—1·5
Central India . .	+1·1	—2·5	+1·4	—2·0	—2·6	—0·8
Bihar	—1·0	—3·8	+1·2	+1·5	—1·1	—2·2
Chota Nagpur . .	—0·3	+1·8	+4·1	+2·3	—2·1	—3·6
Bengal	—0·3	+2·8	+3·4	+3·8	—1·1	—2·6
Central Provinces and Berar.	+0·3	+1·4	+3·6	+2·4	—1·0	—1·2

The lowest night temperatures of the month were recorded during the advance of this cool wave in the last week of the month.

The following gives the more noteworthy together with the lowest night temperatures previously recorded in October :—

STATION.	Lowest minimum temperature recorded in October 1897.	Date on which recorded.	Lowest minimum temperature recorded in October previous to 1897.	Year in which recorded.
	°		°	
Jacobabad . . .	49·0	23rd	47·2	1890
Rawalpindi . . .	47·0	28th	42·0	"
Peshawar . . .	47·5	25th	44·9	1889
Kushab . . .	49·0	25th	50·5	1895
Dera Ismail Khan . .	49·0	27th and 28th.	45·8	1890
Ajmere	48·8	25th	45·8	1889
Umballa . . .	49·5	29th	48·0	1895
Roorkee . . .	49·3	28th	41·7	1869

Temperature was during this period from the 17th to the 27th steadily in excess in Burma and the greater part of the Peninsula (more especially Madras). The following gives variation data for the period :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	17th.	19th.	21st.	23rd.	25th.	27th.
	°	°	°	°	°	°
Burma	+0·5	+1·3	+2·7	+2·6	+1·1	+0·6
Bengal and Assam	−0·3	+2·1	+3·1	+3·3	−0·8	−2·3
North-Western Provinces and Oudh.	+1·3	−0·2	+1·1	−0·7	−1·0	−1·5
Punjab	−1·4	−1·4	−0·2	−0·2	−1·0	−0·7
Sind and Rajputana	−2·4	−4·4	−4·2	−3·9	−4·2	−1·5
Central India and Gujarat.	−0·5	−3·1	−2·1	−3·6	−3·0	−1·2
Central Provinces and Berar.	+0·3	+1·4	+3·6	+2·4	−1·0	−1·2
Bombay	−0·9	−1·2	+1·1	+2·7	+2·0	+2·6
Madras	+1·1	+2·4	+2·7	+4·0	+4·0	+2·3

The following gives variation data of the nine large political areas for the 24 hours preceding 8 A.M. of the 27th and illustrates the temperature conditions prevailing at that time :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF 27TH OCTOBER 1897.		
	Maximum.	Minimum.	Mean.
	°	°	°
Burma	−1·0	+2·1	+0·6
Bengal and Assam	−0·7	−3·9	−2·3
North-Western Provinces and Oudh	+1·0	−3·9	−1·5
Punjab	+1·0	−2·4	−0·7
Sind and Rajputana	−1·0	−2·0	−1·5
Central India and Gujarat	−0·7	−1·7	−1·2
Central Provinces and Berar	+1·6	−4·0	−1·2
Bombay	+1·7	+3·4	+2·6
Madras	+3·8	+0·8	+2·3

The origin of the cool wave the advance of which across India has been traced above appears to have been due to the intrusion and slow advance of a mass of very dry air from the regions to the north-west of Upper India. Pressure was very high in South Russia and the Persian area from the 7th to the 19th, when marked anticyclonic conditions obtained in these areas. This is confirmed by the temperature data of all the stations in Persia, Afghanistan and Baluchistan (and also of Kashgar in Central Asia) which indicate that temperature was very considerably below the normal of the period and the mean of the month from the 16th to the 23rd or 24th. It is not possible to give variation data for stations in these areas, but the chief features of the weather were the same in character as in the cool area in India, *viz.*, unusually clear skies, abnormal dryness of the atmosphere and the prevalence of winds chiefly from directions between north and west.

Temperature increased rapidly in Persia and Baluchistan on the 25th and 26th, and was more or less considerably in excess during the remainder of the month. The following data illustrate this change.

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	24th.	25th.	26th.	27th.	29th.	31st.
	°	°	°	°	°	°
Bushire	−0·7	−0·6	+6·0	+0·5	+2·6	+0·7
Teheran	−1·1	−5·5	−3·7	+0·2	+2·0	−8·8
Ispahan	−3·0	−3·6	−3·5	−1·1	+0·4	+3·4
Quetta	−4·8	−1·4	−0·8	+6·2	+7·0	+6·4

The warm wave extended over Upper India during this period. Temperature, on the other hand, fell considerably in Burma and the Peninsula where it was normal or in defect. The following gives variation data for the 31st illustrating the conditions prevailing at the end of the month :—

POLITICAL AREA OR PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	−0·3	+1·2	+0·5
Bengal and Assam	+0·3	−0·9	−0·3
North-Western Provinces and Oudh	+0·2	+0·2	+0·2
Punjab	+1·7	+4·1	+2·9
Sind and Rajputana	+0·2	+1·7	+1·0
Central India and Gujarat	−0·1	−2·5	−1·3
Central Provinces and Berar	−1·0	−5·6	−3·3
Bombay	+0·9	−2·0	−0·6
Madras	+0·6	−0·8	−0·1

The following table gives the variations of the mean

temperature week by week during the month and also for the whole month :—

POLITICAL AREA OR PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF WEEK ENDING				
	9th October.	16th October.	23rd October.	30th October.	For whole month.
	°	°	°	°	°
Burma . . .	+0·3	+0·9	+2·6	+0·7	+1·0
Bengal and Assam .	+1·8	+0·5	+3·3	—0·7	+0·7
North-Western Provinces and Oudh.	+2·3	+1·0	—0·7	—0·2	+0·3
Punjab . .	+2·7	—1·0	—0·2	+1·1	+0·5

POLITICAL AREA OR PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF WEEK ENDING				
	9th October.	16th October.	23rd October.	30th October.	For whole month.
	°	°	°	°	°
Sind and Rajputana .	—1·6	—2·2	—3·9	+0·1	—1·7
Central India and Gujarat.	—0·3	—1·3	—3·6	—1·4	—1·0
Central Provinces and Berar.	+2·1	—1·0	+2·4	—2·4	+0·9
Bombay . . .	+1·3	+0·2	+2·7	—0·3	+0·6
Madras . . .	+1·3	+0·2	+4·0	—1·0	+1·6

Winds.

As October is a month of slow transition from the south-west monsoon proper, to the north-east or cold weather monsoon and is characterized by marked uniformity of pressure and temperature conditions, the air movement of the period is feeble and more irregular than in any other month of the year. It was even feebler than usual over the greater part of India in October 1897, and the variations of the direction of the air movement were directly related to the abnormal pressure conditions of the month, the chief of which were deficient pressure in the north of the Bay and South Bengal, and excess pressure on the west coast.

Winds were normal in strength at Port Blair and Rangoon, and were very abnormal in direction in Burma and the Andamans. The chief feature was the abnormal and strongly marked westerly component. The following givse data for three stations :—

STATION.	WIND DIRECTION.		
	Actual, October 1897.	Normal, October.	Westerly deflection.
Port Blair . . .	S 68° W	S 1° W	+67°
Diamond Island . .	S 7° E	S 56° E	+49°
Cocos Island . . .	S 22° W	S 67° E	+89°

The large amount of westing in the winds at Port Blair and Cocos Island was evidently related to and determined by the pressure conditions at the Head of the Bay. Winds were on the whole stronger than usual, though very unsteady, in Bengal. The chief feature was the strong easterly component. The following data for four stations illustrate these features :—

STATION.	STEADINESS.			WIND DIRECTION.		
	Actual percentage, October 1897.	Normal percentage, October.	Variation from normal, October 1897.	Actual, October 1897.	Normal, October.	Easterly deflection.
Chittagong . . .	13	13	0	N 11° E	N 11° W	+ 22°
Calcutta . . .	6	11	—5	N 20° E	N 44° W	+ 64°
Berhampore. . .	8	17	—9	N 78° E	N 35° W	+113°
Burdwan . . .	18	26	—8	N 40° E	N 10° E	+ 30°

Winds were somewhat steadier but weaker than usual over the Punjab, Rajputana and Central India and were slightly stronger in the Gangetic Plain. North-westerly winds obtained generally during the month over the greater part of the area, and the westerly element of the wind directions was stronger than usual, more especially in Rajputana and Central India. The following gives comparative data for five stations :—

STATION.	STEADINESS.			WIND DIRECTION.		
	Actual percentage, October 1897.	Normal percentage, October.	Variation from normal, October 1897.	Actual October 1897.	Normal, October.	Westerly deflection.
Hazaribagh . .	39	24	+15	N 5° E	N 35° W	—40°
Allahabad . . .	37	18	+19	N 26° W	N 49° W	—23°
Lahore . . .	23	11	+12	N 54° W	N 7° W	+47°
Jeypore . . .	81	37	+44	N 63° W	N 22° W	+41°
Nowgong . . .	58	39	+19	N 58° W	N 55° W	+3°

The following gives comparative data of steadiness and

of the mean velocity of the air movement in different districts of Northern India during the month:—

Province or Division.	Velocity in miles per diem.				Steadiness.		
	Average actual, October 1897.	Average normal, October.	Variation from normal, October 1897.	Percentage variation from normal.	Actual percentage, October 1897.	Normal percentage, October.	Variation from normal, October 1897.
Bengal	92	78	+14	+18	14	14	0
Chota Nagpur	179	124	+55	+44	39	24	+15
Bihar	72	51	+21	+41	6	3	+ 3
N.-W. Provinces and Oudh.	52	47	+ 5	+11	38	28	+10
Punjab	30	41	−11	−27	27	21	+ 6
Rajputana	93	101	− 8	− 8	49	26	+23
Central India	60	68	− 8	−12	70	43	+27

Winds were very unsteady at Simla, but were, on the other hand, very steady at Leh, Kailang and Chakrata. They were very variable at Darjeeling where the percentage of steadiness was 12. Northerly winds were prevalent to an unusual extent at that station and the mean wind direction as determined from the 10 and 16 hours observations was N 3° E, the normal being S 78° W.

The chief feature of the air movement at the hill stations was the abnormal preponderance of northerly winds. The following gives mean direction data for stations at which this feature was most strongly exhibited:—

Station.	Wind direction.	
	Actual, October 1897.	Normal, October.
Murree	N 4° E	S 22° E
Simla	N 4° E	N 77° W
Ranikhet	N 85° W	S 55° W

Winds were stronger than usual at the Himalayan stations. The following gives data for typical stations:—

Station.	Steadiness.			Velocity in miles per diem.			
	Actual percentage, October 1897.	Normal percentage, October	Variation from normal, October 1897.	Actual, October 1897.	Normal, October.	Variation from normal, October 1897.	Percentage variation from normal.
Leh	89	42	+47	73	44	+29	+66
Murree	18	16	+ 2	106	158	−52	−33
Chakrata	72	32	+40	207	129	+78	+60
Darjeeling	12	21	− 9	85	85	0	0

The increased air movement at the hill stations stands in marked contrast to the conditions in Upper India. It is noteworthy that similar variations from the normal air movement of the month obtained in October 1895 and October 1896.

Northerly winds with an abnormal and strongly pronounced westerly element prevailed in the Central Provinces and Deccan. Winds were steadier than usual n these areas as is shown by the following data:—

Division.	Steadiness.			Velocity in miles per diem.			
	Actual percentage, October 1897.	Normal percentage, October.	Variation from normal, October 1897.	Actual, October 1897.	Normal, October.	Variation from normal, October 1897.	Percentage, variation from normal.
Berar	56	41	+15	102	104	− 2	− 2
Central Provinces.	44	31	+13	74	70	+ 4	+ 6
Bombay Deccan	25	18	+ 7	188	191	− 3	− 2
Madras Deccan	43	14	+29	66	104	−38	−37

The following gives data for five stations showing the increased westing of the winds:—

Station.	Wind direction.	
	Actual, October 1897.	Normal, October.
Belgaum	N 43° W	N 54° E
Sholapur	N 9° W	N 55° E
Akola	N 5° W	N 16° E
Jubbulpore	N 15° W	N 9° E
Hyderabad (Deccan)	N 33° W	S 80° E

Winds were normal in strength and steadiness but more westerly than usual at Bombay. They were slightly above their normal strength at the South Malabar coast stations.

Winds at most stations in the interior of Madras and in Coorg varied irregularly in steadiness from the normal. The following data illustrate the variability of the winds in this area:—

Station.	Steadiness.		
	Actual percentage, October 1897.	Normal percentage, October.	Variation from normal, October 1897.
Mercara	10	25	−15
Salem	31	29	+ 2
Trichinopoly	40	28	+12
Madras	16	17	− 1

Winds were much weaker than usual at the Madras coast stations. Thus at Madras the mean wind velocity was 12 per cent. below the normal.

The pressure conditions in the north of the Bay accompanied and produced an unusually large westerly deflection of the winds at the Madras stations. The following data for five stations illustrate this feature of the air movement of the month :—

STATION.	WIND DIRECTION.	
	Actual, October 1897	Normal, October.
Vizagapatam	N 81° W	S 73° E
Madras	N 34° W	N 55° E
Bangalore	N 80° W	N 8° W
Bellary	N 71° W	N 42° E
Trichinopoly	N 83° W	N 44° W

The following table gives comparative data of the air movement in the Peninsula :—

DIVISION OR AREA.	STEADINESS.			VELOCITY IN MILES PER DIEM.		
	Actual percentage, October 1897.	Normal percentage, October.	Variation from normal, October 1897.	Average actual, October 1897.	Average normal, October.	Variation from normal, October 1897.
Berar	56	41	+15	102	104	— 2
Central Provinces	44	31	+13	74	70	+ 4
West coast	61	41	+20	133	136	— 3
Deccan and Mysore	32	18	+14	136	141	— 5
Madras coast	16	20	— 4	88	113	—25

The abnormal pressure conditions of the month were hence associated with abnormal features of the air movement which were evidently directly related to them. It may be noted that the mean strength of air movement in the Arabian Sea was 2·4 and in the Bay of Bengal 3·2.

The following gives a comparison of the direction and velocity of the air movement of the month at Zanzibar and the Seychelles with October 1896 :—

STATION.	WIND DIRECTION.		STEADINESS.		VELOCITY IN MILES PER DIEM.	
	Actual, October 1897.	Actual October 1896.	Actual, October 1897.	Actual, October 1896.	Actual, October 1897.	Actual, October 1896.
Zanzibar	S 55° E	S 1° E	45	51	95	96
Seychelles	S 31° E	S 53° E	55	53	193	153

Winds were hence much more easterly at Zanzibar than in the corresponding month of 1896.

Humidity and Cloud.

The amount of vapour present in the air was above the normal over the whole of North-Eastern India and North Madras. As the variations of temperature were small, the mean relative humidity at most stations in that large area was above the normal. The excess was greatest at Patna (+6) and Hazaribagh, Chittagong and Akyab (each + 5). The following gives comparative data for this area :—

DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, October 1897.	Average normal, October.	Variation of actual from normal, October 1897.	Average actual, October 1897.	Average normal, October.	Variation of actual from normal, October 1897.
	"	"	"	%	%	
Burma	·938	·880	+·058	87	84	+3
Assam	·870	·789	+·081	84	81	+3
Bengal	·872	·820	+·052	81	80	+1
Bihar	·763	·725	+·038	77	72	+5
Chota Nagpur	·593	·539	+·054	69	64	+5
Orissa	·829	·801	+·028	79	77	+2
North Madras	·807	·786	+·021	73	73	0

The mean humidity of the month was also in excess in Sind, Cutch, Kathiawar, South-West Rajputana, the West Deccan and Mysore, as is shewn by the following data :—

DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Average actual, October 1897.	Average normal, October.	Variation of actual from normal, October 1897.	Average actual, October 1897.	Average normal, October.	Variation of actual from normal, October 1897.
	"	"	"	%	%	
Sind	·560	·533	+·027	56	52	+ 4
South-West Rajputana	·554	·440	+·114	56	42	+14
West Deccan	·561	·539	+·022	68	65	+ 3
Mysore	·606	·585	+·021	73	71	+ 2
West coast	·836	·821	+·015	80	81	— 1

The variations were small except in the area represented

by Kurrachee, Deesa and Mount Abu. Data for these stations are given below :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.	Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.
	"	"	"	%	%	
Kurrachee . . .	·740	·646	+·094	70	63	+ 7
Deesa	·554	·440	+·114	56	42	+14
Mount Abu . . .	·369	·339	+·030	51	45	+ 6

The air was drier than usual over the remainder of India. The deficiency was considerable in the Punjab and also locally in the areas represented by Jeypore, Buldana, Bellary and Trichinopoly. The following table gives comparative data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.	Actual, October 1897.	Normal, October.	Variation of actual from normal, October 1897.
	"	"	"	%	%	
Ludhiana . . .	·389	·464	—·075	43	53	—10
Mooltan . . .	·452	·518	—·066	46	53	— 7
Peshawar . . .	·341	·363	—·022	42	47	— 5
Murree . . .	·205	·333	—·028	36	45	— 9
Jeypore . . .	·362	·406	—·044	37	43	— 6
Buldana . . .	·489	·523	—·034	52	59	— 7
Bellary . . .	·553	·621	—·068	55	63	— 8
Trichinopoly . .	·738	·865	—·027	65	72	— 7

The air was slightly damper at all the hill stations in Northern India except at Murree where the mean humidity of the month was 9 below the normal, and Quetta where it was 7 in defect.

The following gives a brief summary of the mean hygrometric condition of the month in India.

(1) The air was considerably damper in North-Eastern India and Burma. The excess was largest and most marked in Arakan, Central Bihar and Chota Nagpur.

(2) It was also damper in Sind, Cutch, Kathiawar, Gujarat, South-West and Central Rajputana, the West Deccan and Mysore. The excess was very marked in Lower Sind and South-West Rajputana.

(3) The air was drier, on the mean of the month, over the remainder of India. The variations from the normal conditions were generally small in this area, but were moderately large in the Punjab and locally at Trichinopoly, Bellary, Buldana, Jeypore and Quetta.

The variations of the cloud amount were similar in character to those of the humidity at the majority of stations, a deficiency in one element accompanying a deficiency in the other element of observation and *vice versâ*.

The mean cloud amount was much larger than usual at Port Blair and in Arakan and South-East Bengal. The following gives data in illustration :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, October 1897.	Normal, October.	Variation from normal, October 1897.
Port Blair	8·0	6·0	+2·0
Diamond Island	8·1	5·7	+2·4
Akyab	7·3	4·8	+2·5
Chittagong	6·4	4·4	+2·0
Narayangunge	6·3	4·2	+2·1

There was also more cloud than usual in Assam, Bengal, Bihar, Chota Nagpur, the eastern districts of the North-Western Provinces, Central Provinces, Baghelkhand and North Madras. The following gives comparative data for these areas :—

DIVISION.	MEAN CLOUD AMOUNT.		
	Average actual, October 1897.	Average normal, October.	Variation from normal October 1897.
Bengal	6·0	4·3	+1·7
Orissa	5·6	4·6	+1·0
Chota Nagpur	7·0	4·4	+2·6
Bihar	3·7	2·9	+0·8
Assam	5·5	4·6	+0·9
North-Western Provinces (East) . .	3·3	1·8	+1·5
Baghelkhand	2·4	2·2	+0·2
Central Provinces	3·3	2·7	+0·6
North Madras	5·1	4·2	+0·9

The excess was largest in amount in Bengal and Chota Nagpur and decreased westwards.

There was somewhat less cloud than usual in the Punjab, Baluchistan, Sind and Rajputana over the greater

part of which area the air was considerably drier than usual. The following gives comparative data for this area of slightly decreased cloud :—

Division.	Mean cloud amount.		
	Average actual, October 1897.	Normal, October.	Variation from normal, October 1897.
Baluchistan (Quetta)	0·1	0·6	—0·5
Punjab	0·6	0·9	—0·3
Sind	0·4	0·7	—0·3
Rajputana	1·2	1·5	—0·3

The mean cloud amount of the month was slightly below the normal in the western half of the Peninsula and Southern India. The following table gives data in illustration :—

Station.	Mean cloud amount.		
	Actual, October 1897.	Normal, October.	Variation from normal, October 1897.
Kurrachee	0·7	0·9	—0·2
Bombay	3·4	4·1	—0·7
Cochin	5·3	5·9	—0·6
Madras	5·8	6·0	—0·2
Trichinopoly	5·3	7·2	—1·9

Skies were practically clear throughout the month in the Punjab, the greater part of the North-Western Provinces, the Punjab, Rajputana, Baluchistan, Persia and Arabia. The following gives comparative data for stations at which the mean cloud amount was 0·5 or less :—

Province.	Station.	Mean cloud amount.		
		Actual, October 1897.	Normal, October.	Variation from normal, October 1897.
North-Western Provinces.	Roorkee	0·5	0·9	—0·4
	Meerut	0·5	0·7	—0·2
Punjab	Lahore	0·4	0·7	—0·3
	Ludhiana	0·5	1·0	—0·5
	Mooltan	0	0·4	—0·4
Sind	Jacobabad	0	0·4	—0·4
Baluchistan	Quetta	0·1	0·6	—0·5
Arabia	Muscat	0	0·3	—0·3
	Aden	0·4	1·7	—1·3

Cloud was in moderate to considerable defect at the hill stations in the North-Western Himalayas and at Mount Abu, but was larger than usual in amount in the Sikkim Himalayas and at the hill stations in the Central Provinces and Berar.

The following gives comparative data for five hill stations :—

Station.	Mean cloud amount.		
	Actual, October 1897.	Normal, October.	Variation from normal, October 1897.
Leh	2·5	3·8	—1·3
Chakrata	1·0	1·7	—0·7
Mount Abu	1·2	1·9	—0·7
Darjeeling	6·5	5·8	+0·7
Pachmarhi	4·3	3·2	+1·1

The following is a brief summary of the mean distribution of cloud in October 1897.

(1) Cloud was in large excess at Port Blair and in Burma, Arakan and South-East Bengal.

(2) It was in slight to moderate excess in Bihar, Chota Nagpur, the Central Provinces, Berar and North Madras.

(3) Cloud was in defect over the remainder of India, the deficiency being generally small in amount.

(4) Cloud was in moderate defect in the North-Western Himalayas, and in slight excess in Sikkim.

Rainfall.

The rainfall of October is due to the retreating south-west monsoon current. Over the whole of North-Western and Central India the average rainfall of the month is less than two inches, and diminishes in amount westwards to the Indus Valley, for which 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 average rainfall ranges between two and five inches, whilst in Lower Burma and the Peninsula south of Lat. 13°N., it ranges between five and thirteen inches, and is

greatest in amount in the Madras coast districts from Vizagapatam to Cuddalore.

The rainfall of the month occurred chiefly during three periods. The following gives a brief account of these periods:—

1st.—From the 1st to the 6th. A cyclonic storm of moderate intensity passed northwards through North Madras, the Central Provinces and Chota Nagpur into Bihar. Southern India obtained moderate general rain on the 1st and 2nd, and Burma, North-Eastern India, North Madras and the eastern districts of the Central Provinces during the period. The rainfall was very heavy in North Bihar and the eastern districts of the North-Western Provinces, and moderate to heavy in the remainder of the area affected by the storm.

2nd.—From the 12th to 19th. This rainfall was due to a diffused disturbance. Burma received moderate rain from the 12th to the 18th, Southern India from 13th to the 16th, and North Madras and North-Eastern India from the 15th to the 20th. This rainfall was heaviest in North-Eastern India.

3rd.—From the 21st to the 25th, when Burma and East Bengal obtained light to heavy rain from the second cyclonic storm of the month.

The rainfall was more or less in excess in the greater part of Burma, the whole of North-Eastern India, the eastern division of the Central Provinces and North Madras, or in 24 rainfall divisions out of 57. The excess was large and marked in North Bihar, the eastern districts of the North-Western Provinces, South Bengal and North Madras which received from two to four times their normal amount.

The rainfall of the month was below the normal over the remainder of India. The deficiency was small in actual amount in North-Western and Central India, moderate in the Deccan and west coast, and was large in the divisions of Madras which usually receive heavy rain in October from the retreating south-west monsoon. The deficiency was, absolutely and relatively, greatest in the Coromandel coast districts the greater part of which obtained hardly one-fourth of its normal amount.

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

Province.	Division.	Number of rainy days. Average actual, October 1897.	Number of rainy days. Average normal, October.	Rainfall. Average actual, October 1897.	Rainfall. Average normal, October.	Rainfall. Variation of actual from normal, October 1897.
				Inches.	Inches.	Inches.
Burma	Tenasserim	20·1	?	15·31	8·83	+ 6·48
	Lower Burma (Deltaic)	15·3	?	10·22	8·94	+ 1·28
	Central do.	14·5	?	9·42	6·40	+ 3·02
	Upper do.	7·7	?	5·21	5·24	— 0·03
	Arakan	14·5	?	12·51	10·22	+ 2·29
Bengal and Assam	Eastern Bengal	7·6	5·9	7·29	5·55	+ 1·74
	Assam (Surma)	7·4	6·2	4·30	5·86	— 1·56
	Do. (Hills)	10·4	8·9	9·15	7·82	+ 1·33
	Do. (Brahmaputra)	8·5	5·7	6·40	3·96	+ 2·44
	Deltaic Bengal	9·4	5·5	7·58	4·51	+ 3·07
	Central do.	8·0	4·4	7·15	3·56	+ 3·59
	North do.	6·7	4·1	7·91	4·54	+ 3·37
	Bengal Hills	8·6	6·0	9·43	6·16	+ 3·27
	Orissa	10·1	6·7	10·50	5·85	+ 4·65
	Chota Nagpur	7·8	3·9	5·79	2·89	+ 2·90
	Bihar (South)	7·3	2·8	5·88	2·60	+ 3·28
	Do. (North)	7·1	2·7	7·76	2·84	+ 4·92
North-Western Provinces and Oudh.	North-Western Provinces (East)	5·4	2·0	6·77	2·18	+ 4·59
	Oudh (South)	1·4	1·6	0·72	1·60	— 0·88
	Do. (North)	1·1	1·5	1·14	1·61	— 0·47
	North-Western Provinces (Central)	0·7	1·2	0·32	1·04	— 0·72
	Do. do. (West)	0·1	0·7	0·08	0·54	— 0·46
	Do. do. (Submontane, East)	3·9	2·1	6·68	2·87	+ 3·81
	Do. do. (do. West)	0·1	0·9	0·06	0·83	— 0·77
	Do. do. (Hills)	0·7	1·6	0·35	1·51	— 1·16
Punjab	Punjab (South-East)	0·2	0·5	0·06	0·36	— 0·30
	Do. (South)	0·4	0·5	0·16	0·21	— 0·05
	Do. (Central)	0·1	0·6	0·01	0·35	— 0·34
	Do. (Submontane)	0·1	0·6	0·03	0·36	— 0·33
	Do. (Hills)	0·4	1·3	0·12	0·90	— 0·78
	Do. (North)	0·3	0·9	0·08	0·46	— 0·38
	Do. (West)	0·1	0·3	0·02	0·11	— 0·09

Province.	Division.	Number of rainy days. Average actual, October 1897.	Number of rainy days. Average normal, October.	Rainfall. Average actual, October 1897.	Rainfall. Average normal, October.	Rainfall. Variation of actual from normal, October 1897.
				Inches.	Inches.	Inches.
Bombay and Malabar Coast Districts, Madras.	Malabar	10·0	12·0	8·48	10·04	− 1·56
	Travancore	9·5	?	7·51	?	?
	Madras (South Central)	5·1	8·2	4·14	5·92	− 1·78
	Coorg	10·7	?	7·93	?	?
	Mysore	5·2	8·0	3·60	5·51	− 1·91
	Konkan	6·7	7·6	6·57	5·52	+ 1·05
	Bombay Deccan	7·2	7·4	4·87	5·00	− 0·13
	Hyderabad North	3·8	?	1·78	2·75	− 0·97
	Khandesh	3·3	5·6	2·08	3·61	− 1·53
Central Provinces and Berar.	Berar	1·8	?	0·72	2·49	− 1·77
	Central Provinces (West)	1·7	2·6	0·99	2·08	− 1·09
	Do. do. (Central)	2·3	2·4	1·25	1·85	− 0·60
	Do. do. (East)	5·0	2·6	4·67	2·06	+ 2·61
Bombay (North)	Gujarat	1·2	2·3	0·68	1·36	− 0·68
	Kathiawar	1·5	0·5	1·08	0·69	+ 0·39
	Sind	0	?	0	0·03	− 0·03
	Baluchistan Hills	0	?	0	0·10	− 0·10
Rajputana and Central India.	Central India (East)	1·3	?	0·78	1·51	− 0·73
	Rajputana (East) and Central India (West)	0·4	?	0·20	0·34	− 0·14
	Rajputana (West)	0·6	?	0·40	0·07	+ 0·33
Madras	East Coast (North)	7·7	7·6	8·95	5·75	+ 3·20
	Do. (do.) (a)	9·0	6·7	9·37	4·76	+ 4·61
	Hyderabad (South)	3·9	?	3·81	3·07	+ 0·74
	Madras (Central)	3·7	6·6	2·48	5·55	− 3·07
	East Coast (Central)	3·4	8·4	2·42	9·75	− 7·33
	Do. (South)	4·2	9·2	3·82	8·34	− 4·52
	Madras (South)	4·8	7·8	3·37	6·04	− 2·67

Tenasserim, Arakan, Lower and Central Burma and the Hill districts of Upper Burma received almost daily rain during the month. The daily falls were generally light to moderate in amount but exceeded 4 inches at the stations for which data are given below:—

District.	Station.	Rainfall in 24 hours preceding 8 A.M. of date.	Date.
		Inches.	
Chin Hills	Fort White	7·68	25th October.
Toungoo	Shwegyin	5·68	12th ,,
Thaton	Kyaikto	5·37	2nd ,,
,,	Thaton	5·20	17th ,,
Chin Hills	Falam	4·45	25th ,,
Arakan Hill Tracts	Paletwa	4·36	25th ,,
Thayetmyo	Minhla	4·30	12th ,,
Kyaukpyu	An	4·21	30th ,,
Chin Hills	Haka	4·16	24th ,,
Akyab	Maungdaw	4·05	25th ,,

The rainfall of the month was normal in Upper Burma and more or less considerably in excess over the remainder of the province as is shown by the following data:—

Division.	Rainfall. Average actual, October 1897.	Rainfall. Average normal, October.	Rainfall. Variation from normal, October 1897.
	Inches.	Inches.	Inches.
Tenasserim	15·31	8·83	+6·48
Lower Burma (Deltaic)	10·22	8·94	+1·28
Central Burma	9·42	6·40	+3·02
Upper Burma	5·21	5·24	−0·03
Arakan	12·51	10·22	+2·29

The rainfall of the month in Bengal was unusually large in amount and occurred chiefly during two well-defined periods.

The first period was from the 1st to the 6th when the rainfall accompanied the advance of a cyclonic storm of moderate intensity northwards from North Madras to North Bihar. Rain fell over the whole province during the period, but it was heaviest in the districts in North Bihar, chiefly affected by the storm when it was filling up.

The following gives falls in 24 hours exceeding 6 inches in amount during the storm :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
CHAMPARAN	Bagaha	5th October	8·54
	,,	6th ,,	6·76
MUZAFFARPUR	Ramnagar	5th ,,	6·50
	,,	6th ,,	7·75
RANGPUR	Sunderganj	5th ,,	8·26
	,,	6th ,,	10·77
	Ulipur	6th ,,	6·35
	Gobindganj	6th ,,	6·50
DARJEELING	Mungpoo	5th ,,	6·92

The second period of rainfall extended from the 16th to the 21st. The precipitation during this period was moderately heavy in Orissa, South-West Bengal and Bihar, and light in North and East Bengal.

The Chittagong district and the South Lushai Hills obtained heavy cyclonic downpours on the 25th from the cyclone, which crossed the Chittagong coast on the evening of the 24th. The following gives the more noteworthy falls :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
CHITTAGONG	Satkanya	25th	9·30
	Chittagong	,,	7·51
	Cox's Bazar	,,	7·23
SOUTH LUSHAI HILLS.	Bandarban	,,	10·02
	Rangamati	,,	8·20
	Demagiri	,,	6·00

The rainfall of the month was more or less considerably in excess over the whole province as is shown by the cllowing statement :—

DIVISION.	NUMBER OF RAINY DAYS.			RAINFALL.		
	Average actual, October 1897.	Average normal, October.	Variation from normal.	Average actual, October 1897.	Average normal, October.	Variation from normal.
				Inches.	Inches.	Inches.
Orissa	10·1	6·7	+3·4	10·50	5·85	+4·65
Chota Nagpur	7·8	3·9	+3·9	5·79	2·89	+2·90
Eastern Bengal	7·6	5·9	+1·7	7·29	5·55	+1·74
Deltaic ,,	9·4	5·5	+3·9	7·58	4·51	+3·07
Central ,,	8·0	4·4	+3·6	7·15	3·56	+3·59
North ,,	6·7	4·1	+2·6	7·91	4·54	+3·37
Bengal Hills	8·6	6·0	+2·6	9·43	6·16	+3·27
South Bihar	7·3	2·8	+4·5	5·88	2·60	+3·28
North ,,	7·1	2·7	+4·4	7·76	2·84	+4·92

It was most largely in excess in the districts for which data are given below :—

DIVISION.	DISTRICT.	RAINFALL.			
		Average actual, October 1897.	Average normal, October.	Variation from normal.	Percentage variation.
		Inches.	Inches.	Inches.	Inches.
SOUTH-WEST BENGAL.	Howrah	9·73	3·66	+6·07	+166
	Calcutta	8·61	4·39	+4·22	+96
	Birbhum	7·75	3·53	+4·22	+120
	Bankura	6·34	3·24	+3·10	+96
NORTH BENGAL.	Darjeeling	10·60	4·72	+5·88	+125
	Pabna	8·13	4·14	+3·99	+96
	Bogra	7·51	3·89	+3·62	+93
BIHAR	Purnea	9·46	3·29	+6·17	+187
	Champaran	8·88	3·46	+5·42	+157
	Sonthal Parganas.	8·60	3·85	+4·75	+123
	Bhagalpur	8·50	2·79	+5·71	+205
	Gaya	6·48	2·42	+4·06	+168
	Monghyr	5·79	2·37	+3·42	+144
ORISSA	Balasore	15·28	5·51	+9·77	+177
CHOTA NAGPUR	Palamau	7·69	2·64	+5·05	+191

Assam received general and moderately heavy rain from the 2nd to the 7th. A partial break followed lasting until the 13th or 14th. Occasional showers fell in the Surma Valley and the eastern districts of the Brahmaputra Valley (including Goalpara and Kamrup) during the next

ten days. Fairly general but moderate rain was received in the eastern districts of the Brahmaputra division during the period. Little or no rain fell during the last week of the month. The total rainfall of the month was in moderate defect in the Surma Valley division by amounts averaging 27 per cent. of the normal fall and in large excess in the Brahmaputra Valley, and in moderate excess in the hill division. The following gives a statement of the rainfall of the month in the two rainfall divisions of the plain districts of the Province :—

Division.	Number of rainy days			Rainfall.			
	Average actual, October 1897.	Average normal, October.	Variation of actual from normal, October 1897.	Average actual, October 1897.	Average normal, October.	Variation of actual from normal, October 1897.	Percentage variation from normal.
				Inches.	Inches.	Inches.	
Assam (Surma)	7·4	6·2	+1·2	4·30	5·86	—1·56	—27
Do. (Brahmaputra.)	8·5	5·7	+2·8	6·40	3·96	+2·44	+62

The eastern districts of the North-Western Provinces, including Ghazipur, Benares, Jaunpur, Mirzapur, Allahabad, Gorakhpur, Basti, Azamgarh and Ballia received moderate to heavy rain during the two periods of heavy rain in the adjacent province of Bihar, *viz.*, from the 4th to the 6th, and the 18th to the 20th. The rainfall was especially heavy in the Gorakhpur district on the 5th, on which day it received an average of 5·52 inches. The Azamgarh district obtained an average of 4·31 inches on the same date, and the Jaunpur district of 4·65 inches.

The following gives a comparative statement of the rainfall of the month in these districts :—

District.	Rainfall.			
	Average actual, October 1897.	Average normal, October.	Variation from normal.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Gorakhpur	9·54	3·01	+6·53	+217
Basti	3·74	2·69	+1·05	+ 39
Azamgarh	7·17	2·34	+4·83	+206
Ballia	5·47	3·54	+1·93	+ 55
Ghazipur	6·41	2·40	+4·01	+167
Benares	7·30	1·91	+5·39	+282
Jaunpur	7·37	2·81	+4·56	+162
Mirzapur	10·02	2·00	+8·02	+401
Allahabad	4·25	1·96	+2·29	+117

The rainfall of the month was hence in large excess in the eastern districts for which data are given above. Over the remainder of the province the rainfall of the month was either actually *nil* or very light, and restricted to very light sporadic showers, and the total rainfall of the month was hence even smaller than the small normal amount. The following gives comparative data for the eight rainfall divisions of the province :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, October 1897.	Average normal, October.	Variation from normal.	Average actual, October 1897.	Average normal, October.	Variation from normal.
				Inches.	Inches.	Inches.
North-Western Provinces, East.	5·4	2·0	+3·4	6·77	2·18	+4·59
South Oudh	1·4	1·6	—0·2	0·72	1·60	—0·88
North "	1·1	1·5	—0·4	1·14	1·61	—0·47
North-Western Provinces, Central.	0·7	1·2	—0·5	0·32	1·04	—0·72
North-Western Provinces, West.	0·1	0·7	—0·6	0·08	0·54	—0·46
North-Western Provinces, East Submontane.	3·9	2·1	+1·8	6·68	2·87	+3·81
North-Western Provinces, West Submontane.	0·1	0·9	—0·8	0·06	0·83	—0·77
North-Western Provinces Hills.	0·7	1·6	—0·9	0·35	1·51	—1·16

Some light local showers were received in a few districts of the Punjab, more especially Kangra and Rawalpindi, during the feeble disturbance of the 9th to the 11th. The rainfall averaged less than a tenth of an inch in five out of the seven divisions and less than two-tenths of an inch in the remaining two divisions. The following gives comparative data in illustration :—

Division.	Number of rainy days.			Rainfall.		
	Average actual, October 1897.	Average normal, October.	Variation of actual from normal, October 1897.	Average actual, October 1897.	Average normal, October.	Variation of actual from normal, October 1897.
				Inch.	Inch.	Inch.
South-East Punjab	0·2	0·5	—0·3	0·06	0·36	—0·30
South Punjab	0·4	0·5	—0·1	0·16	0·21	—0·05
Central "	0·1	0·6	—0·5	0·01	0·35	—0·34
Punjab (Submontane)	0·1	0·6	—0·5	0·03	0·36	—0·33
" Hills	0·4	1·3	—0·9	0·12	0·90	—0·78
North Punjab	0·3	0·9	—0·6	0·08	0·46	—0·38
West "	0·1	0·3	—0·2	0·02	0·11	—0·09

No rain fell in British Baluchistan during the month.

There was one period of very slight disturbance and rain in Kashmir, from the 10th to the 12th. The rainfall was, however, of no importance.

Rajputana and Central India obtained local showers from the 7th to the 10th. The falls chiefly accompanied local thundershowers and were in a few cases heavy, more especially at Mount Abu and in Ajmere.

The eastern districts of the Central Provinces, including Sambalpur and Bilaspur, received heavy rain on the 4th and 5th. Light local showers fell in other districts on these days. Fairly general rain was received over the greater part of the Province from the 18th to the 23rd. No rain fell during this period in the Narsinghpur, Saugor, Damoh, Hoshangabad and Nimar districts. The rainfall was heaviest in the districts of Bilaspur, Raipur and Chanda. Showers were also received during this period in Berar. The rainfall of the month was in considerable excess in the eastern division, but below the normal in the central and western divisions and in large defect in Berar. The following gives comparative data:—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average actual, October 1897.	Average normal, October.	Variation of actual from normal, October 1897.	Average actual, October 1897.	Average normal, October.	Variation of actual from normal, October 1897.
				Inches.	Inches.	Inches.
Central Provinces (Central).	2·3	2·4	—0·1	1·25	1·85	—0·60
Central Provinces (West).	1·7	2·6	—0·9	0·99	2·08	—1·09
Central Provinces (East)	5·0	2·6	+2·4	4·67	2·06	+2·61
Berar	1·8	?	?	0·72	2·49	—1·77

No rain fell in Sind during the month. The periods of moderate to heavy rain in the Konkan were the 1st to the 6th and the 10th to the 15th. The chief periods of showery weather in the Deccan including the districts of Dharwar, Bijapur, Belgaum and Kolhapur were the 1st to the 6th, the 10th to the 14th, the 21st and the 22nd. Showers were also received on the 27th, but were restricted to the south-western districts. The districts of Nasik and Khandesh in the North-Deccan and the Gujarat and Kathiawar divisions obtained moderate to heavy showers during the first fortnight of the month.

Falls exceeding 4 inches in 24 hours were registered at the following stations in the Presidency during the month:—

District.	Station.	Total rainfall of month.	Rainfall in 24 hours preceding 8 A.M. of date.	Date.
		Inches.	Inches.	
North Kanara . .	Karwar . .	8·34	4·91	1st
	Honavar . .	12·57	6·45	1st
	Bhatkal . .	13·93	5·08	4th
Ratnagiri . . .	Ratnagiri . .	13·51	5·67	5th
	Rajapur . .	13·16	4·23	3rd
Kolaba . . .	Matheran . .	10·48	5·03	4th
	Mangaon . .	16·25	4·20	13th
Belgaum . . .	Sampgaon .	11·56	5·17	2nd
Kolhapur . . .	Miraj . .	7·85	4·35	14th
Ahmednagar . .	Sangamneri. .	7·59	4·35	12th
Kathiawar . .	Manikvada (Jetalsar.)	9·05	5·10	7th

The total rainfall for the month was below the normal in Khandesh and Gujarat, practically normal in the Bombay Deccan and Sind, and above the normal in the Konkan and Kathiawar

The following table gives comparative data of the rainfall of the month for the six divisions of the Bombay Presidency:—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average actual, October 1897.	Average normal, October.	Variation from normal, October 1897.	Average actual, October 1897.	Average normal, October.	Variation from normal, October 1897.
				Inches.	Inches.	Inches.
Konkan . . .	6·7	7·6	—0·9	6·57	5·52	+1·05
Bombay Deccan . .	7·2	7·4	—0·2	4·87	5·00	—0·13
Khandesh . . .	3·3	5·6	—2·3	2·08	3·61	—1·53
Gujarat . . .	1·2	2·3	—1·1	0·68	1·36	—0·68
Kathiawar . . .	1·5	0·5	+1·0	1·08	0·69	+0·39
Sind	0	?	?	0	0·03	—0·03

The Hyderabad State obtained fairly general rain from the 1st to the 6th and again from the 18th to the 23rd. The rainfall of the month was in moderate excess in the southern division, and in slight defect in the northern division.

The districts of Ganjam, Vizagapatam and Godavari in Madras received heavy rain from the 2nd to the 4th, and moderate to heavy rain from the 13th to the 20th. The Godavari district obtained the large average of 4·58 inches on the 3rd, the Vizagapatam district of 2·23 inches on the same day, and the Ganjam district of 2·41 inches on the

3rd, and of 2·47 inches on the 4th. Falls ranging between 5 and 8 inches were recorded at several stations. The rainfall of the month was in considerable to large excess in these three districts.

Over the remainder of the Madras Presidency, the rain fall was very scanty. The chief periods of showery weather were the 12th to the 16th and the 26th to the 31st. The most striking feature of the month was the absence of general rainfall in the Presidency. The rainfall of the month was in defect in all districts except the three northern districts. The deficiency was least in actual amount in the Malabar and Salem districts and greatest in the coast districts including Nellore, Chingleput, Madras and Tanjore which received barely one-third of the normal rainfall of the month. The following table gives comparative data for the 22 collectorates based on the rainfall statement of the month published in the *Madras Gazette* :—

District.	Number of rainy days.		Rainfall.			Percentage variation.
	Actual, October 1897.	Normal, October.	Actual, October 1897.	Normal, October.	Variation from normal.	
			Inches.	Inches.	Inches.	
Ganjam	10·0	7·5	12·48	7·87	+4·61	+59
Vizagapatam	8·3	7·4	8.99	6·47	+2·52	+39
Godavari	7·2	7·8	10·20	7·57	+2·63	+35
Kistna	5·2	7·6	3·92	6·35	—2·43	—38
Nellore	3·4	8·4	2·42	9·75	—7·33	—75
Chingleput	2·8	9·3	2·57	9·89	—7·32	—74
Madras	3·0	10·0	3·56	10·99	—7·43	—68
North Arcot	4·2	8·3	3·69	7·23	—3·54	—49
South Arcot	5·3	9·4	5·14	8·79	—3·65	—42
Tanjore	4·1	10·1	3·34	8·92	—5·58	—63
Trichinopoly	4·5	9·3	4·39	6·91	—2·52	—36
Madura	4·7	8·0	3·14	6·34	—3·20	—50
Tinnevelly	5·0	6·8	3·65	5·63	—1·98	—35
Malabar	10·4	12·1	8·37	9·48	—1·11	—12
South Canara	9·2	11·8	8 68	10·84	—2·16	—20
Salem	5·1	8·6	4·77	6·26	—1·49	—24
Coimbatore	5·2	7·8	3·31	5·50	—2·19	—40
Nilgiris	9·1	12·4	5·48	9·49	—4·01	—42
Cuddapah	2·9	7·0	2·28	6·53	—4·25	—65
Anantapur	4·0	6·3	2·66	5·46	—2·80	—51
Bellary	4·3	6·3	2·64	4·76	—2·12	—45
Kurnool	3·8	6·0	2·38	5·27	—2·89	—55

Appendix I.

The Chittagong district is a long narrow strip, running approximately from north-north-west to south-south-east, about 165 miles long, and in the widest part about 25 miles broad, but on the average not more than from 12 to 15 miles. It lies between the Bay of Bengal on the west and the Hill Tracts of Chittagong and of Arrakan on the east. The hills on the east run generally parallel to the coast. There are several small rivers rising in the hills and falling into the Bay of Bengal. The principal of these are the Kornafully, on which, at a distance of 12 miles from its mouth, the town of Chittagong is situated, the Sangu, south of Chittagong, and the Mahamuri, still further south and about the middle of the district. On its approach to the sea this last divides into many mouths, passing through a deltaic tract, consisting of mangrove swamps with cultivation on portions where cultivation is practicable. Opposite this tract, and separated from it by narrow channels navigable by small craft, are the islands of Kutubdia (about 13 miles long and 2 to 3 miles broad), Matarbari (about 9 miles long by 3 or 4 broad), Moiskhal (about 60 or 70 miles long by 7 or 8 broad) and smaller islands. The middle and east sides of Moiskhal are high (one hill being 288 feet above the level of the sea); but its other sides, and all the other islands, are very low. These low tracts, as well as most of the portions of main land opposite them, are generally protected by embankments, without which cultivation would be impossible.

It has now been ascertained that the main force of the cyclone of the 24th ultimo was confined to a strip, extending from about 14 miles above Chittagong town on the north to a point some 4 miles below Cox's Bazar on the south, about 70 miles wide in all. North and south of this strip little damage has been done, but within it the force of the cyclone was very great. The portions swamped by the storm-wave consisted of the islands described in the preceding paragraph (except the high parts of Moiskhal) and a strip of low land on the main land opposite. The area of the tracts affected is about 225 square miles; of this some 32 miles are to be deducted for mangrove jungle, leaving 193 miles of cultivated land; but again, not the whole of this was submerged. On the main land portions only of villages on the the east of the main land were actually swept by the wave; but it has not been possible to estimate the area and population of those parts which escaped; the whole, therefore, has been taken into account.

The different phases of the cyclone must of course have differed according to the position of the observer. We have unfortunately but one systematic and clear account, *viz.*, that of Captain Good, the Port Officer. As early as the 22nd October, he had of his own motion notified that he expected bad weather. At 11 A.M. on Sunday the 24th he received from Calcutta an urgent message that the centre of the cyclone would pass across the face of the Sunderbuns. He hoisted storm signal No. 1, and sent round a notice to the merchants and to the ships in port. He ordered steam to be kept up in the steamers *Gekko* and *Active*, and personally saw all the boats belonging to Government and the Port Commissioners placed in safety in the khals. By 4 P.M. the barometer had fallen from 29·745″ to 29·370″, and the wind stood at north-east. At 5 P.M. it backed to north-north-east, and the squalls became very severe, with heavy rain. At 6 P.M. the barometer was at 29·20″, and the wind veered to north, blowing with increased fury, its velocity being estimated at 80 miles an hour. The largest trees were uprooted, and almost all cutcha buildings were levelled to the ground. It was dark by this time. From 6 P.M. until 10 P.M., when the barometer stood at 28·750″ (the lowest reading observed), the wind remained between north-east and north. It then lulled for about seven minutes, and again blew with redoubled violence from the north-west, and the barometer began to rise; the wind gradually went round to west, and then to the south-west, from which quarter it was blowing at about 1-30 A.M., when the storm ended.

The Superintendent of the South Lushai Hills reports that it began to blow hard at 9 P.M., and by 10 P.M. there was a hurricane accompanied by pelting rain. The storm abated at 12-30 A.M., having in the meantime made great havoc in the buildings and trees.

It will be observed that the greatest part of the storm and the severest took place in the dark; and no doubt this circumstance must have materially increased the loss of life. Complete information has not yet reached us, but the sum of what we have is truly appalling. The Commissioner

has given me the following statement derived from imperfect police reports :—

STATION AND OUTPOST.	Number of deaths reported.	REMARKS.
1	2	3
Kutubdia	174	These are the submerged tracts.
Chakaria	1,196	
Harbang	281	
Banskali	164	
Jaldi	1,034	
Moiskhal	3,686	
Cox's Bazar	16	
Satkanya	274*	* Probably part only due to drowning. The cyclone here is said to have been extraordinarily violent.
Patiya	126	
Raujan	75	
Fatikchhari	2	
Chittagong Town . . .	13	
TOTAL .	7,041	

The above is, I fear, much below the truth. The mortality in Kutubdia is known to have been greater than is stated above, and the deaths in Chakaria alone are estimated by the Tahsildar at Cox's Bazar at no fewer than 4,845! This is only an estimate and wants confirmation; but the Settlement Officer, Mr. Allen, in a note which he has prepared for me, says that "the disproportionately high mortality in Chakaria, as compared with that on the apparently more exposed island of Kutubdia, is explained by the fact that the wave rushed up the great estuaries of the Mahamuri river, and was thus particularly fatal to the inhabitants of those parts who dwell on the banks of these tidal khals for the sake of the convenience of communication." The Collector, after visiting the littoral tracts, says that in many cases the village sites have been obliterated, and everything swept away. In these villages the mortality among women and children has been very great. In the case of four villages which he visited he says that the few survivors have lost everything. They were clothed with rags found in the jungles, and were living in rough huts made out of jungle and the fragments of their ruined houses. They were eating the half-ripened rice from their fields and drinking brackish water. In Rajakhali, a village on the main land, the panchayet has noted in his collection books the loss of 1,006 people. The number of inhabitants according to the census was 1,802, but had probably increased to about 2,000. Bearing in mind that the police figures are obtained from the chaukidars and that some of the chaukidars themselves must have been among the victims, I fear that the total loss of life must be 10,000 or 12,000 at the very least; a disproportionate number of these were no doubt women and children who had not the strength and activity to take refuge in trees.

The following table shows the number of villages submerged, their area in square miles, their population as ascertained by the last census and their noabad revenue :—

THANA OR OUTPOST.	Number of villages.	Area in square miles.	Population.	NOABAD REVENUE IN RUPEES—		
				Of taluks.	Of raiyats' holdings.	TOTAL.
1	2	3	4	5	6	7
Banskhali thana . .	5	5	3,388	1,965	315	2,280
Jaldi, outpost of Banskhali.	15	51	33,264	21,039	4,067	25,106
Moiskhal thana . .	26	64	25,861	3,793	...	3,793
Kutubdia outpost. .	6	35	11,343	11,075	22,113	33,188
Chakaria thana . .	13	38	12,747	18,805	27,526	46,331
TOTAL	65	193	86,603	56,677	54,021	1,10,698

The table already given indicates that many deaths occurred in places not submerged. I have no information as to the manner in which they were caused; doubtless most of them were due to falling houses and trees.

It is impossible for me to estimate the loss from the destruction of houses. It will certainly be very great. Yet, except in the worst places, portions at least of the materials will generally be available to be used again. In Chittagong town itself the people were energetically repairing damages, and I was told that from the present appearance of the place, I could not form an idea of its condition immediately after the cyclone. No doubt in the remaining tracts not injured by the storm-wave the same activity is to be found. I have ordered that the tolls levied by the Forest Department on chhan grass, bamboos, canes, jarul wood, tali wood, and chowagree wood in the Chittagong forests shall be reduced by one-half for two months, and that fees on passes issued by the Khas Mahal Department for cutting jungle in areas affected by the cyclone shall be remitted altogether. These measures will make it easier to renew the huts which have been destroyed.

The destruction of cattle has also been on a very large scale, but the measure of the loss is at present impossible to estimate. I was informed of one village in which there were formerly 3,000 head, but at present only 90 remain. The cultivators who have survived will certainly require

extensive advances to enable them to replenish their stocks.

In the portions of the district falling within the path of the severe cyclone, but not affected by the storm-wave, the crops appear to have been less injured than was at first feared; it is now thought that not more than 4 annas has been lost, but it must be remembered that, up to the occurrence of the cyclone, the promise was exceptionally good; probably in the tract in question the outturn will not be eventually much less than an average crop. The Patiya, Kodala and Chandpur tea gardens are reported to have suffered greatly, but I have no details. In the area of 193 square miles of rice cultivation said to have been submerged, the estimated outturn is from 2 to 4 annas: it has been explained that portions of that area were not actually swept by the wave. On the other hand, it is probable that other portions were totally ruined.

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

Number to District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	I.—Burma Coast and Bay Islands.		...	...	−·006	...	...	...	...	...	...	...	87·2	−0·1	76·5	+1·4	81·8	+0·7	10·7	...	...	...	...	16·7
1	Tenasserim and Bay Islands.	Car Nicobars*	?	29·897	?	?	29·956	19th	29·778	12th	·178	79·9	85·5	?	76·5	?	81·0	?	9·0	89·9	24th	74·7	7th	15·2
		Port Blair	61	29·855	?	29·847	29·934	27th	29·750	13th	·184	80·6	85·6	?	77·4†	?	81·5†	?	8·2	88·2	11th & 29th.	75·6	13th	12·6
		Mergui	96	29·848	?	29·876	29·935	1st	29·745	13th	·190	79·8	87·5	?	74·7	?	81·1	?	12·8	90·1	24th & 31st.	73·1	1st & 30th.	17·0
		Tavoy	26	29·932	+·012	29·859	30·034	1st	29·824	13th	·200	75·5	87·6	+0·1	74·6	+1·5	81·1	+0·8	13·0	91·7	31st	72·2	26th	19·5
		Moulmein	94	29·854	+·008	29·885	29·939	27th	29·766	13th	·173	78·9	88·1	−0·1	76·0	+1·6	82·1	+0·8	12·1	91·5	3 days	73·3	3 days	18·2
2	Lower Burma	Rangoon	41	29·876	−·017	29·854	29·962	27th	29·784	21st	·178	79·2	87·3	+0·1	76·4	+0·8	81·9	+0·5	10·9	90·2	2 days	72·9	30th	17·3
		Bassein	27	29·887	−·013	29·849	29·980	27th	29·798	13th	·182	80·3	87·1	+0·1	76·5	+1·5	81·8	+0·8	10·6	89·7	21st	74·3	31st	15·4
		Diamond Island	41	29·866	−·012	29·842	29·952	27th & 30th	29·774	14th & 22nd.	·178	82·2	85·8	−0·6	78·2	?	82·1	?	7·6	88·1	2 days	75·3	2nd	12·8
5	Arakan	Akyab	20	29·878	?	29·841	29·980	27th	29·696	24th	·284	80·6	87·1	−0·8	78·0	+1·2	82·4	+0·2	9·1	91·3	23rd	74·2	30th	17·1
3	Central Burma.	Toungoo	183	29·729	−·015	29·855	29·837	30th	29·652	13th	·185	79·7	90·0	+0·3	76·3	+1·8	83·2	+1·1	13·7	95·7	22nd	74·2	5 days	21·5
	II.—Burma Inland		...	...	−·021	...	...	...	...	...	...	...	90·3	+0·1	75·2	+2·4	82·8	+1·3	15·1	...	...	...	...	25·1
	Central Burma.	Thayetmyo	134	29·770	−·022	29·846	29·874	30th	29·695	24th	·179	79·6	89·8	−0·3	75·7	+1·7	82·8	+0·7	14·1	95·1	7th	73·1	3 days	22·0
4	Upper Burma	Minbu	?	29·742	−·020	?	29·850	30th	29·652	24th	·198	79·2	90·2	−1·1	76·2	+1·8	83·2	+0·4	14·0	95·6	3 days	72·1	17th	23·5
		Yamethin	645	29·260	−·020	29·858	29·357	27th	29·181	24th	·176	79·3	92·2	−0·1	74·6	+1·4	83·4	+0·7	17·6	99·0	7th	71·2	31st	27·8
		Mandalay	249?	29·640	−·028	29·839	29·752	27th	29·497	25th	·255	81·6	91·9	+0·3	77·3	+2·6	84·6	+1·5	14·6	97·0	7th	74·1	2 days	22·9
		Kindat	?	29·513	−·023	?	29·661	2 days	29·328	25th	·333	79·4	88·1	+0·9	75·1	+3·7	81·6	+2·3	13·0	93·3	23rd	70·0	31st	23·3
		Bhamo	?	29·526	−·013	?	29·656	31st	29·341	25th	·315	76·3	89·5	+0·7	72·3	+3·1	80·9	+1·9	17·2	95·1	23rd	63·8	2 days	31·3
4(a)	Burma Hill Stations.	Taungyi	?			Not	recorde	d.				69·9	77·9	?	61·5	?	69·7	?	16·4	83·2	22nd	55·5	31st	27·7
		Lashio	?	27·160	−·010	?	27·256	30th	27·070	7th	·186	69·9	85·4	+2·7	66·1	+3·6	75·8	+3·2	19·3	90·5	17th	58·0	30th	32·5
	III.—Assam		...	...	−·032	...	...	...	...	...	..	...	87·0	+0·7	74·8	+2·7	80·9	+1·7	12·2	...	...	...	...	23·3
7	Surma	Silchar	104	29·795	−·018	29·852	29·915	31st	29·629	25th	·286	78·9	90·7	+1·9	75·0	+2·6	82·9	+2·3	15·7	95·6	2 days	69·3	3 days	26·3
9	Brahmaputra	Sibsagar	333	29·576	−·042	29·870	29·723	27th	29·412	21st	·311	75·9	85·4	+0·3	73·6	+2·7	79·5	+1·5	11·8	90 2	9th	65·0	30th	25·2
		Dhubri	115	29·779	−·036	29·850	29·928	27th	29·634	25th	·294	78·2	85·0	0	75·8	+2·8	80·4	+1·4	9·2	88·7	26th	70·2	3 days	18·5
	IV.—Bengal and Orissa		...	...	−·039	...	...	...	...	...	...	...	87·1	−0·1	74·7	+1·6	81·0	+0·8	12·4	...	...	...	...	26·0
6	East Bengal	Chittagong	87	29·798	−·031	29·832	29·914	31st	29·622	24th	·292	80·8	88·1	+1·7	76·3	+2·6	82·2	+2·2	11·8	90·2	2 days	73·6	10th	16·6
		Lungleh	?			Not	recorde	d.				68·6*	76·0*	?	65·7*	?	70·9*	?	10·3	81·0	23rd	55·4	26th	25·6
		Noakhali	43	29·830	?	29·820	29·953	31st	29·655	24th	·298	80·9	86·7	?	76·1	?	81·4	?	10·6	90·5	23rd	68·8	26th	21·7
		Comilla	36	29·844	?	29·828	29·964	31st	29·683	24th	·281	81·1	88·6	?	75·1	?	81·9	?	13·5	92·3	23rd	67·8	29th	24·5
		Sirajganj	49	29·822	?	29·821	29·961	27th	29·700	25th	·261	79·7	85·8	?	75·0*	?	80·5*	?	10·8	89·3	15th	61·8	29th	27·5
		Narayanganj	26	29·850	−·030	29·825	29·983	27th	29·700	24th	·283	81·1	88·2	+0·2	77·9	+2·8	83·0	+1·5	10·3	91·1	23rd	72·2	2 days	18·9
		Barisal	13	29·852	−·035	29·810	29·989	31st	29·681	24th	·308	81·8	87·6	+0·1	?	?	?	?	?	91·8	22nd	74·9	3rd	16·9
		Mymensingh	59	29·823	?	29·834	29·918	27th	29·669	25th	·279	79·9	87·1	+0·3	76·1	+3·0	81·6	+1·7	11·0	90·7	14th	69·6	2 days	21·1
10	Deltaic Bengal.	Faridpur	46	29·832	?	29·826	29·967	31st	29·702	24th	·265	80·0	87·3	?	75·9	?	81·6	?	11·4	91·3	23rd	67·9	26th	23·4
		Jessore	33	29·847	−·033	29·827	30·000	31st	29·717	24th	·283	80·8	88·4	−0·2	76·3	+1·4	82·4	+0·6	12·1	92·5	11th	67·2	26th	25·3
		Calcutta	21	29·848	−·042	29·815	30·018	31st	29·681	4th	·337	79·5	86·0	−0·6	75·1	+0·7	80·6	+0·1	10·9	89·4	12th	63·2	27th	26·2
		Saugor Island	25	29·825	−·057	29·794	29·992	31st	29·628	4th	·364	80·7	86·8	0	77·1	+1·0	82·0	+0·5	9·7	90·4	1st	65·0	28th	25·4
		Krishnagar	47	29·828	?	29·824	29·991	31st	29·679	4th	·312	80·1	89·0	?	74·4	?	81·7	?	14·6	93·8	1st	61·7	26th	32·1
		Midnapore	149	29·708	?	29·806	29·886	31st	29·486	4th	·400	79·1	88·3	?	73·7	?	81·1	?	14·6	93·3	1st	60·7	27th	32·6

* Mean of 30 days.
† „ „ 29 „

I.

in India, Burma, etc., in October 1897.

Wind direction. Number of winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind velocity: Mean velocity in miles per hour.	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 October 1897.	Normal rainfall for period, 1st to 31st October.	Variation from normal of period, 1st to 31st October.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11·57	9·48	+2·20	...	...	...	...	I.—Burma Coast and Bay Islands.		
...	3	4	...	...	3	8	2	...	2·7	?		92	·935	8·6	19	?	?	10·59	?	?	10·59	?	?	2·22	Car Nicobars*	Tenasserim and Bay Islands,	1
4	1	...	...	1	3	8	10	4	6·5	7	?	91	·950	7·2	22	?	?	13·05	12·17	+ 0·88	13·05	12·17	+ 0·88	1·43	Port Blair .		
...	3	2	...	3	4	6	4	9	1·2	1·5	− 20	89	·904	4·4	23	?	?	14·16	13·54	+ 0·62	14·16	13·54	+ 0·62	1·97	Mergui,		
28	...	...	...	...	...	1	...	2	0·9	?	?	92	·904	5·5	17	?	?	11·77	10·13	+ 1·64	11·77	10·13	+ 1·64	2·07	Tavoy.		
...	3	2	5	10	4	1	3	8	2·4	1·7	+ 42	92	·908	8·1	21	11·55	+9·45	10·06	8·10	+ 1·96	10·06	8·10	+ 1·96	1·10	Moulmein.		
...	1	3	4	6	8	4	3	2	2·3	3·2	− 28	94	·943	8·0	17	9·09	+7·91	11·23	6·74	+ 4·49	11·23	6·74	+ 4·49	3·28	Rangoon .	Lower Burma.	2
8	1	2	4	9	3	2	1	1	4·0	2·5	+ 60	93	·969	5·8	16	12·18	+3·82	10·78	8·21	+ 2·57	10·78	8·21	+ 2·57	2·39	Bassein.		
4	3	3	5	4	5	4	2	1	10·3	6·4	+ 61	85	·929	8·2	11	11·60	−0·60	7·54	9·22	− 1·68	7·54	9·22	− 1·68	2·08	Diamond Island.		
...	7	16	1	2	4	...	1	...	3·1	2·3	+ 35	93	·981	8·8	15	8·64	+6·36	18·87	10·44	+ 8·43	18·87	10·44	+ 8·43	3·80	Akyab .	Arakan.	5
8	3	1	3	8	3	2	1	2	2·6	1·8	+ 44	90	·928	7·0	11	10·55	+0·45	7·65	6·76	+ 0·89	7·65	6·76	+ 0·89	1·22	Toungoo .	Central Burma.	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·72	4·50	+1·21	...	...	...	...	II.—Burma Inland.		
...	6	...	...	6	14	1	...	4	3·4	3·1	+ 10	79	·800	7·4	14	7·91	+6·09	10·51	4·24	+ 6·27	10·51	4·24	+ 6·27	2·41	Thayetmyo.	Central Burma.	3
7	2	...	2	10	4	1	2	3	7·0	?	?	87	·879	7·6	12	?	?	8·51	3·04	+ 5·47	8·51	3·04	+ 5·47	2·09	Minbu .	Upper Burma.	4
8	2	2	...	12	3	2	...	2	3·7	?	?	87	·875	6·2	6	?	?	3·80	4·74	− 0·94	3·80	4·74	− 0·94	1·51	Yamethin.		
9	4	...	1	3	12	2	...	...	3·5	?	?	84	·903	5·3	7	?	?	4·04	5·08	− 1·04	4·04	5·08	− 1·04	1·38	Mandalay.		
9	3	3	4	...	9	1	...	2	?	?	?	92	·918	5·8	9	?	?	4·80	6·15	− 1·35	4·80	6·15	− 1·35	1·31	Kindat.		
5	2	10	1	...	1	4	3	4	2·1	?	?	93	·855	3·8	7	?	?	2·63	3·76	− 1·13	2·63	3·76	− 1·13	0·50	Bhamo.		
6	...	...	2	6	7	3	4	3	?	?	?	84	·623	9·9	12	?	?	6·46	?	?	6·46	?	?	1·09	Taunggyi.	Burma Hill Stations.	4(a)
				Not recorded.					?	?	?	95	·700	9·0	10	?	?	3·42	3·19	+ 0·23	3·42	3·19	+ 0·23	0·81	Lashio.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·04	5·00	+2·04	...	...	...	...	III.—Assam.		
20	...	2	2	1	1	1	2	2	1·8	2·1	+ 14	90	·905	6·1	7	7·75	−0·75	2·87	6·65	− 3·78	2·87	6·65	− 3·78	0·85	Silchar .	Surma,	7
9	...	7	4	5	1	4	1	...	1·8	2·0	− 10	97	·879	8·3	11	7·30	+3·70	12·40	4·84	+ 7·56	12·40	4·84	+ 7·56	2·33	Sibsagar .	Brahmaputra,	9
1	2	7	7	1	4	5	4	...	4·8	2·9	+ 66	91	·870	5·4	8	3·93	+4·07	5·84	3·50	+ 2·34	5·84	3·50	+ 2·34	2·59	Dhubri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·88	5·32	+2·56	...	...	...	...	IV.—Bengal and Orissa.		
4	2	4	6	6	1	..	...	1	3·0	3·0	0	91	·966	6·5	7	7·00	0	13·21	6·24	+ 6·97	13·21	6·24	+ 6·97	9·48	Chittagong	East Bengal.	6
				Not recorded.					?	?	?	91*	·660*	?	11	?	?	11·90	10·98	+ 0·92	11·90	10·98	+ 0·92	7·65	Lungleh.		
...	4	7	4	6	...	3	3	4	3·1	?	?	90	·954	3·6	8	7·31	+0·69	5·97	7·70	− 1·73	5·97	7·70	− 1·73	1·35	Noakhali.		
5	7	7	5	4	2	...	1	...	2·5	?	?	82	·876	4·7	5	5·83	−0·83	1·80	5·20	− 3·40	1·80	5·20	− 3·40	0·95	Comilla.		
				Not recorded.					?	?	?	87	·892	2·8	8	4·88	+3·12	8·79	4·23	+ 4·56	8·79	4·23	+ 4·56	1·87	Sirajganj.		
1	8	4	3	5	1	2	4	3	4·3	2·3	+ 87	88	·940	6·1	8	5·46	+2·54	6·04	4·42	+ 1·62	6·04	4·42	+ 1·62	1·68	Narayanganj		
16	2	4	1	2	...	1	1	...	1·9	?	?	85	·931	5·0	12	6·23	+5·77	11·16	5·61	+ 5·55	11·16	5·61	+ 5·55	4·53	Barisal.		
19	...	...	4	7	...	...	...	1	?	?	?	89	·912	5·2	7	5·77	+1·23	3·88	5·62	− 1·74	3·88	5·62	− 1·74	0·93	Mymensingh.		
18	6	...	...	2	3	...	1	1	1·2	?	?	90	·932	4·1	8	5·23	−2·77	4·14	4·09	+ 0·05	4·14	4·09	+ 0·05	1·72	Faridpur .	Deltaic Bengal.	10
17	...	2	...	4	2	3	1	2	1·3	2·1	− 38	86	·910	5·8	11	5·92	+5·08	7·99	4·55	+ 3·44	7·99	4·55	+ 3·44	1·33	Jessore.		
6	8	2	5	2	1	3	3	1	3·1	3·2	− 3	85	·869	4·9	10	6·04	+3·96	8·61	4·39	+4·22	8·61	4·39	+ 4·22	1·77	Calcutta.		
2	5	5	3	4	2	1	3	6	10·0	6·5	+ 55	85	·896	6·8	15	8·15	+6·85	14·81	9·14	+ 5·67	14·81	9·14	+ 5·67	4·60	Saugor Island.		
...	6	2	5	4	3	...	6	5	3·5	?	?	84	·873	4·9	6	5·35	+0·65	3·51	4·22	− 0·71	3·51	4·22	− 0·71	1·50	Krishnagar.		
9	11	4	1	2	2	...	1	1	1·5	?	?	82	·831	3·6	11	5·15	+5·85	7·09	4·30	+ 2·79	7·09	4·30	+ 2·79	1·63	Midnapore.		

†† variables 10.

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. Mean actual pressure (reduced to 30°).	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.	Temperature of air. 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.
11	Central Bengal	Bankura	298	29·547	?	29·799	29·722	27th	29·338	4th	·384	78·6	87·5	?	73·6	?	80·6	?	13·9	92·6	11th	61·7	26th	30·9
		Raniganj	334	29·539	?	29·827	29·711	31st	29·337	4th	·374	76·8	87·3	?	72·6	?	80·0	?	14·7	92·2	1st & 2nd.	60·1	26th	32·1
		Burdwan	99	29·778	−·037	29·826	29·939	27th	29·606	4th	·333	79·6	88·5	−0·2	75·5	+0·8	82·0	+0·3	13·0	92·9	11th	64·8	26th	28·1
		Naya Dumka	489	29·376	?	29·830	29·542	31st	29·186	5th	·356	77·3	86·5	?	71·8	?	79·2	?	14·7	91·0	11th	59·0	26th & 27th.	32·0
		Berhampore	67	29·803	−·048	29·820	29·958	31st	29·647	5th	·311	78·8	87·4	−0·3	75·1	+0·6	81·4	+0·2	12·3	92·2	10th	64·2	27th	28·0
		Rampur Boalia.	70	29·803	?	29·824	29·954	31st	29·677	5th	·277	79·9	87·6	?	75·1	?	81·4	?	12·5	92·1	11th	66·1	27th	26·0
		Malda	72	29·792	?	29·816	29·954	31st	29·638	5th	·316	78·9	88·1	?	73·6	?	80·9	?	14·5	92·6	1st & 11th.	62·0	26th & 27th.	30·6
		Bogra	61	29·813	?	29·827	29·948	27th	29·694	24th	·254	79·3	87·3	+0·4	75·3	+3·0	81·4	+1·7	12·0	90·2	3 days	67·2	26th	23·0
12	North Bengal	Dinajpur	123	29·757	−·027	29·836	29·904	30th	29·629	5th	·275	78·9	87·9	+0·5	73·8	?	80·9	?	14·1	91·8	3 days	64·8	27th	27·0
		Rangpur	123	29·761	?	29·840	29·898	31st	29·632	24th	·266	79·5	87·4	?	75·0	?	81·2	?	12·4	91·2	11th	68·2	26th	23·0
		Jalpaiguri	284	29·597	−·032	29·844	29·748	27th	29·459	24th	·289	76·6	86·8	+0·5	72·7	+3·5	79·8	+2·0	14·1	90·4	3 days	64·6	29th	25·8
		Cooch Behar	150?	29·728	?	29·832	29·860	30th	29·582	24th	·278	79·0	87·1	?	74·0	?	80·5	?	13·1	91·1	15th	67·6	31st	23·5
17	North Bihar	Purnea	125	29·756	−·030	29·837	29·911	31st	29·600	5th	·311	77·0	86·8	−0·7	73·5	+2·3	80·2	+0·8	13·3	92·2	1st	64·3	27th	27·9
14	Orissa	Balasore	46	29·814?	−·039	29·808?	30·005	31st	29·534	4th	·471	78·6	87·4	−0·2	73·6	+0·5	80·6	+0·2	13·8	92·4	8th	60·6	2 days	31·8
		False Point	21	29·835	−·051	29·798	30·024	31st	29·568	4th	·456	80·1	87·1	−0·2	74·9	+0·2	81·0	0	12·2	91·5	8th	63·0	28th	28·5
		Cuttack	80	29·768	−·060	29·792	29·969	31st	29·449	4th	·520	77·6	88·1	−1·8	74·8	+0·3	81·5	−0·8	13·3	93·4	3 days	63·7	2 days	29·7
		Shortt's Island	?	20·825	?	?	30·017	27th	29·554	4th	·463	82·8	87·7	?	79·4	?	83·5	?	8·3	92·2	11th	72·8	28th	19·4
		Puri	20	29·835	?	29·798	30·028	31st	29·525	3rd	·503	80·4	88·8	?	76·7	?	82·8	?	12·1	94·7	1st	67·6	27th & 28th.	27·1
	V.—Gangetic Plain and Chota Nagpur.		...	...	−·037	...	...	...	...	...	...	...		−1·3	69·9	+0·7	78·7	−0·3	17·5	...	...	...	...	34·5
15	Chota Nagpur	Hazaribagh	2,007	27·851	−·046	29·827	28·001	30th	27·609	5th	·392	72·7	81·7	−1·4	67·2	+0·4	74·4	−0·5	14·5	86·2	1st	57·7	28th & 31st.	28·5
		Ranchi	2,128	27·743	−·028	29·837	27·894	31st	27·485	4th	·409	72·5	81·2	−1·5	66·9	+1·5	74·1	0	14·3	86·2	1st & 22nd.	56·0	28th	30·2
		Daltonganj	730?	29·147	?	29·846	29·332	30th & 31st	28·886	5th	·446	74·6	86·9	?	68·0	?	77·5	?	18·9	92·1	1st	54·0	30th	38·1
		Chaibassa	760	29·092	?	29·811	29·277	31st	28·778	4th	·499	76·0	88·0*	−0·1	71·7	+1·4	79·7*	+0·7	16·3	92·4	11th & 22nd.	57·5	27th	34·9
16	South Bihar	Gaya	375	29·491	−·042	29·825	29·668	30th	29·176	5th	·492	76·1	88·9	−0·4	71·4	+0·5	80·2	+0·1	17·5	93·9	1st	61·7	3 days	32·2
		Dehri	351	29·506	?	29·817	29·681	30th	29·143	5th	·538	77·0	87·0	?	71·5	?	79·3	?	15·5	95·3	27th	60·1	30th	35·2
		Patna	183	29·685	−·048	29·823	29·862	30th	29·342	5th	·520	77·3	86·3	−2·0	72·7	+0·2	79·4	−0·9	13·6	92·5	1st	62·8	26th	29·7
		Arrah	190	29·683	?	29·828	29·865	30th	29·296	5th	·569	76·5	87·6	?	71·6	?	79·6	?	16·0	94·4	1st	60·5	31st	33·9
		Buxar	239	29·627	?	29·825	29·865	30th	29·255	5th	·550	77·3	86·9	?	71·2	?	79·1	?	15·7	93·0	2nd	59·9	27th	33·1
17	North Bihar	Bhagalpur	160	29·711	?	29·826	29·876	30th	29·505	5th	·371	79·0	87·3	?	72·9	?	80·1	?	14·4	92·2	1st	60·2	26th	32·0
		Darbhanga	166	29·709	−·043	29·832	29·884	30th	29·476	5th	·408	77·7	85·4	−0·9	73·4	0	79·4	−0·5	12·0	92·0	1st	64·4	26th	27·6
		Muzaffarpur	178	29·681	?	29·816	29·851	30th	29·382	5th	·469	76·6	85·5	?	71·6	?	78·6	?	13·9	92·7	1st & 2nd.	60·3	26th	32·4
		Motihari	224	29·638	?	29·824	29·808	30th	29·367	5th	·441	75·1	85·3	?	69·8	?	77·6	?	15·5	93·0	1st	57·9	26th	35·1
		Chapra	181	29·688	?	29·826	29·860	30th	29·319	5th	·541	76·8	86·6	?	72·4	?	79·5	?	14·2	93·3	1st	63·1	29th	30·2
18	N.-W. Provs., East.	Benares	267	29·610	−·028	29·838	29·773	31st	29·337	5th	·436	74·6	86·9	−3·1	69·2	+0·5	78·1	−1·3	17·7	93·8	2nd & 3rd.	56·2	29th	37·6
		Allahabad	309	29·570	−·028	29·839	29·727	31st	29·374	5th	·353	75·9	89·3	−0·6	68·8	+1·2	79·1	+0·3	20·5	95·6	3rd	56·4	28th & 29th.	39·2
23	N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·600	−·043	29·819	29·764	30th	29·344	5th	·420	76·2	86·8	−1·9	70·8	+0·5	78·8	−0·7	16·0	93·9	2nd	60·3	26th	33·6
19	South Oudh	Lucknow	368	29·506	−·028	29·839	29·666	31st	29·332	5th	·334	76·7	93·1	?+2·2	67·5	?+1·9	80·3	?+2·1	25·6	96·8	10th	54·7	28th & 29th.	42·1
20	North Oudh	Bahraich	403	29·461	?	29·831	29·625	27th	29·281	5th	·344	76·4	90·4	?	68·6	?	79·5	?	21·8	94·4	1st	57·5	29th	36·9
21	N.-W. Provs. (Central).	Cawnpore	416	29·457	?	29·834	29·616	31st	29·280	5th	·336	77·0	92·3	?	66·6	?	79·5	?	25·7	96·3	9th	55·5	30th	40·8
		Mainpuri	516	29·354	?	29·842	29·510	27th	28·168	5th	·342	72·6	91·8	?	64·6	?	78·2	?	27·2	96·3	9th	54·6	30th	41·7

* Mean of 30 days.

I.—*continued.*

in India, Burma, etc., in October 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity: Mean velocity in miles per hour.	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 October 1897.	Normal rainfall for period, 1st to 31st October.	Variation from normal of period, 1st to 31st October.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
12	1	1	4	3	1	...	3	1	2·9	?	?	81	·810	4·6	7	5·19	+ 1·81	4·77	3·82	+ 0·95	4·77	3·82	+ 0·95	2·33	Bankura .	Central Bengal	11
10	3	1	4	3	...	...	3	7	2·0	?	?	88	·823	4·4	9	4·35	+ 4·65	7·30	3·31	+ 3·99	7·30	3·31	+ 3·99	2·42	Raniganj.		
23	...	3	3	1	...	...	1	...	1·3	2·1	−38	85	·878	5·6	8	4·27	+ 3·73	6·36	3·61	+ 2·75	6·36	3·61	+ 2·75	2·78	Burdwan.		
11	3	2	4	4	1	2	...	4	1·5	?	?	79	·751	5·9	7	4·88	+ 2·12	8·34	4·22	+ 4·12	8·34	4·22	+ 4·12	2·90	Naya Dumka		
24	1	...	4	1	...	1	...	...	1·0	2·1	−52	87	·862	5·4	7	5·43	+ 1·57	6·21	3·83	+ 2·38	6·21	3·83	+ 2·38	1·72	Berhampore.		
11	5	4	3	1	2	1	2	2	2·1	?	?	85	·885	4·3	8	5·19	+ 2·81	4·90	4·11	+ 0·79	4·90	4·11	+ 0·79	1·30	Rampur Boalia.		
...	3	3	1	5	9	7	3	...	1·6	?	?	84	·840	2·5	7	4·62	+ 2·38	6·99	4·42	+ 2·57	6·99	4·42	+ 2·57	2·71	Malda.		
		Not recorded.							?	?	?	87	·882	3·8	8	5·00	+ 3·00	8·11	3·74	+ 4·37	8·11	3·74	+ 4·37	4·35	Bogra.		
...	1	6	5	1	2	2	5	9	4·3	?	?	86	·854	4·5	6	3·46	+ 2·54	8·61	4·55	+ 4·06	8·61	4·55	+ 4·06	3·19	Dinajpur .	North Bengal.	12
		Not recorded.							?	?	?	90	·910	4·6	8	4·00	+ 4·00	8·35	5·44	+ 2·91	8·35	5·44	+ 2·91	3·34	Rangpur.		
...	7	6	4	4	3	1	2	4	1·8	?	?	89	·818	1·5	7	4·81	+ 2·19	5·13	5·32	− 0·19	5·13	5·32	− 0·19	1·65	Jalpaiguri.		
10	...	3	10	7	1	...	...	...	1·5	?	?	87	·864	4·0*	7	?	?	6·81	5·98	+ 0·83	6·81	5·98	+ 0·83	2·29	Cooch Behar		
6	1	4	8	...	2	2	4	4	3·3	1·4	+136	89	·799	4·7	8	3·46	+ 4·54	10·41	3·57	+ 6·84	10·41	3·57	+ 6·84	4·16	Purnea .	North Bihar.	17
8	5	5	...	1	3	4	2	3	2·2	?	?	86	·859	4·1	11	6·74	+ 4·26	14·24	6·13	+ 8·11	14·24	6·13	+ 8·11	4·25	Balasore .	Orissa.	14
1	2	2	3	4	3	1	6	9	7·3	6·1	+20	84	·882	5·6	10	7·92	+ 2·08	10·59	9·19	+ 1·40	10·59	9·19	+ 1·40	4·84	False Point.		
7	4	4	4	1	...	3	7	1	3·0	1·9	+58	83	·804	4·5	11	6·38	+ 4·62	6·03	5·64	+ 0·39	6·03	5·64	+ 0·39	1·01	Cuttack.		
...	9	3	3	3	3	...	7	3	10·2	?	?	77	·868	5·1	12	?	?	12·08	3·84	+ 8·24	12·08	3·84	+ 8·24	3·44	Shortt's Island.		
9	9	3	1	...	2	2	1	4	6·8	?	?	82	·866	4·0	9	8·62	+ 0·38	8·17	8·90	− 0·73	8·17	8·90	− 0·73	3·38	Puri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·08	2·55	+2·53	...	...	...	...	V.—Gangetic Plain and Chota Nagpur.		
3	4	1	4	2	3	1	6	7	8·0	5·0	+60	77	·629	6·5	9	4·69	+ 4·31	5·49	3·41	+ 2·08	5·49	3·41	+ 2·08	1·17	Hazaribagh.	Chota Nagpur.	15
9	2	2	5	1	2	2	2	6	6·0	?	?	78	·629	4·4	9	4·73	+ 4·27	5·62	2·95	+ 2·67	5·62	2·95	+ 2·67	1·16	Ranchi.		
...	3	3	3	1	3	13	5	...	2·0	?	?	77	·680	2·5	6	3·19	+ 2·81	6·84	2·50	+ 4·34	6·84	2·50	+ 4·34	2·08	Daltonganj.		
15	1	2	1	1	1	5	5	...	1·0	?	?	75	·792	4·2	6	4·46	+ 1·54	2·62	2·72	− 0·10	2·62	2·72	− 0·10	0·89	Chaibassa.		
13	...	1	3	3	2	5	3	1	4·0	1·5	+167	79	·715	4·9	8	2·96	+ 5·04	6·79	2·27	+ 4·52	6·79	2·27	+ 4·52	1·75	Gaya .	South Bihar.	16
6	...	...	4	2	2	15	2	...	5·8	?	?	79	·746	3·6	6	2·77	+ 3·23	4·24	2·63	+ 1·61	4·24	2·63	+ 1·61	1·59	Dehri.		
6	...	3	5	3	3	2	6	3	2·9	1·9	+53	81	·773	4·1	8	3·19	+ 4·81	7·13	3·25	+ 3·88	7·13	3·25	+ 3·88	2·12	Patna.		
2	2	5	5	3	2	4	7	1	1·9	?	?	84	·779	3·3	9	3·62	+ 5·38	4·48	2·99	+ 1·49	4·48	2·99	+ 1·49	1·64	Arrah.		
2	1	1	6	2	1	1	16	1	4·2	?	?	78	·742	3·9	5	3·04	+ 1·96	4·20	3·26	+ 0·94	4·20	3·26	+ 0·94	2·38	Buxar.		
17	1	3	1	3	...	...	6	...	1·8	?	?	82	·820	5·1	8	3·12	+ 4·88	7·59	2·80	+ 4·79	7·59	2·80	+ 4·79	3·36	Bhagalpur.	North Bihar	17
6	...	3	6	3	...	3	8	2	3·0	2·2	+36	84	·797	3·6	7	3·08	+ 3·92	7·19	2·84	+ 4·35	7·19	2·84	+ 4·35	3·63	Darbhanga.		
10	1	3	5	3	1	1	3	4	2·9	?	?	85	·797	3·2	8	2·81	+ 5·19	12·28	3·11	+ 9·17	12·28	3·11	+ 9·17	5·86	Muzaffarpur		
...	5	6	7	2	...	5	5	1	3·9	?	?	92	·817	1·6	6	2·58	+ 3·42	6·73	3·39	+ 3·34	6·73	3·39	+ 3·34	3·24	Motihari.		
11	...	1	5	3	...	4	5	1	2·7	?	?	82	·767	4·1	8	2·85	+ 5·15	4·32	3·08	+ 1·24	4·32	3·08	+ 1·24	1·34	Chapra.†		
10	1	2	4	...	...	5	8	1	3·4	2·6	+31	81	·717	3·6	6	2·45	+ 3·55	6·87	2·30	+ 4·57	6·87	2·30	+ 4·57	2·98	Benares .	N.-W. Provs., East.	18
1	1	1	7	2	1	2	10	6	4·5	2·8	+61	75	·688	3·1	4	1·64	+ 2·36	4·33	1·83	+ 2·50	4·33	1·83	+ 2·50	2·08	Allahabad.		
4	3	9	2	1	...	3	5	4	1·7	1·3	+31	80	·733	2·7	2	2·64	− 0·64	9·23	3·77	+ 5·46	9·23	3·77	+ 5·46	6·88	Gorakhpur	N.-W. Provinces (East Sub-montane).	23
15	1	1	4	2	...	...	7	1	1·4	1·9	−26	69	·656	1·6	0	1·36	− 1·36	0·01	0·83	− 0·82	0·01	0·83	− 0·82	0·01	Lucknow .	South Oudh.	19
2	...	4	8	3	1	5	2	6	1·9	?	?	74	·698	0·7	1	?	?	0·52	1·69	− 1·17	0·52	1·69	− 1·17	0·51	Bahraich .	North Oudh.	20
7	1	...	3	2	...	6	8	4	2·0	?	?	60	·583	0·7	0	1·60	− 1·60	0·10	1·08	− 0·98	0·10	1·08	− 0·98	0·06	Cawnpore .	N.-W. Provs. (Central).	21
5	3	1	2	1	1	1	16	1	2·1	?	?	63	·529	1·5	0	?	?	0	0·82	− 0·82	0	0·82	− 0·82	0	Mainpuri.		

† Wind observations of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	VI.—Upper Sub-Himalayas.		...	...	−·027	...	...	...	...	...	...	...	91·1	+0·9	62·5	+0·3	76·9	+0·6	28·6	...	...	...	...	43·7
24	N.-W. Provinces, West (Sub-Montane).	Bareilly	568	29·301	−·022	29·847	29·468	30th	29·112	5th	·356	72·9	88·9	−0·3	65·9	+0·7	77·4	+0·2	23·0	91·9	2nd & 9th	53·2	27th	38·7
		Dehra Dun	2,233	27·648	−·039	29·864	27·796	30th	27·470	5th	·326	68·7	84·5	+2·9	62·2	+1·4	73·4	+2·2	22·3	87·0	1st & 10th	54·0	28th	33·0
		Roorkee	887	28·971	−·038	29·852	29·140	30th	28·776	5th	·364	68·2	89·7	+0·6	61·1	−0·4	75·4	+0·1	28·6	93·2	10th	49·3	28th	43·9
22	N.-W. P., West.	Meerut	738	29·130	−·024	29·855	29·280	30th	28·920	5th	·360	69·4	90·7	+0·6	61·6	−1·1	76·2	−0·3	29·1	94·2	6th	52·6	3 days	41·6
26	South-East Punjab.	Delhi	718	29·153	−·022	29·851	29·295	27th	28·958	5th	·337	73·0	91·4	?	68·3	+0·3	79·9	?	23·1	96·2	6th	57·4	30th	38·8
28	Central Punjab.	Lahore	702	29·162	−·022	29·855	29·300	30th	28·960	5th	·340	69·7	92·7	?	62·2	+2·2	77·5	?	30·5	99·6	3rd	52·7	19th	46·9
27	South Punjab	Sirsa	662	29·215	−·013	29·862	29·355	30th	29·012	5th	343	70·9	94·4	−1·4	62·9	+0·4	78·7	−0·5	31·5	101·3	4th	51·7	26th	49·6
		Patiala	818	29·052	?	29·855	29·231	30th	28·854	5th	·377	72·5	92·4	?	62·0	?	77·2	?	30·4	99·4	11th	52·9	27th & 29th	46·5
29	Punjab (Sub-Montane).	Ludhiana	812	29·048	−·033	29·851	29·205	30th	28·858	5th	·347	70·5	91·9	0	63·6	+0·2	77·8	+0·1	28·3	96·6	4th	54·7	26th & 29th	41·9
		Sialkot	830	29·033	?	29·859	29·185	30th	28·854	5th	·331	69·8	94·0	+2·0	62·6	+0·8	78·3	+1·4	31·4	100·7	1st	53·2	28th	47·5
		Umballa	892	28·972	?	29·854	29·142	30th	28·794	5th	·348	68·1	91·9	?	61·4	?	76·7	?	30·5	94·5	7th	49·5	29th	45·0
31	North Punjab	Rawalpindi	1,643	28·205	−·029	29·862	28·349	30th	28·037	5th	·312	68·3	90·7	+2·8	56·6	+0·7	73·7	+1·8	34·1	97·6	1st	47·0	28th	50·6
	VII.—Indus Valley and North-West Rajputana.		...	...	−·020	...	...	...	...	...	...	...	95·3	+0·2	63·5	−2·3	79·4	−1·1	31·7	...	...	...	...	49·1
31	North Punjab	Peshawar	1,110	28·781	−·041	29·859	28·932	30th	28·595	5th	·337	66·9	90·4	+2·0	56·9	−0·4	73·7	+0·6	33·5	96·5	3rd	47·5	25th	49·0
32	West Punjab	Khushab	612	29·256	?	29·858	29·422	27th	29·076	5th	·346	71·1	94·9	?	61·5	?	78·2	?	33·4	102·8	3rd	49·0	25th	53·8
		Montgomery	558	29·310	?	29·848	29·451	27th	29·115	5th	·336	71·2	96·9	?	61·5	?	79·2	?	35·4	105·5	4th	50·5	24th	55·0
		D. I. Khan	594	29·298	−·028	29·856	29·457	27th	29·114	5th	·343	70·0	94·5	+1·2	59·2	−2·4	76·8	−0·6	35·3	101·2	3rd	49·0	27th & 28th	52·2
		Mooltan	420	29·450	−·026	29·851	29·596	31st	29·268	5th	·331	72·3	96·5	+1·5?	63·4	−1·3?	80·0	+0·1?	33·1	103·4	3rd & 4th	53·4	25th	50·0
47	Sind	Jacobabad	185	29·703	−·062	29·853	29·866	31st	29·508	4th	·358	71·2	99·8	+1·8	59·2	+3·9	79·5	−1·1	40·6	108·4	3rd & 5th	49·0	23rd	59·4
		Hyderabad	96	29·818	?	29·869	29·986	31st	29·641	5th	·345	77·9	96·9	−0·5?	69·9	−0·6?	83·4	−0·6?	27·0	103·6	3rd & 4th	58·0	21st	45·6
		Kurrachee	30	29·901	−·001	29·882	30·062	31st	29·737	5th	·325	78·7	91·5	−1·5	70·3	−1·3	81·0	−1·4	21·2	95·3	21st	62·0	22nd	33·8
51	West Rajputana	Bickaneer	771	29·114	?	29·865	29·284	31st	28·968	4th	·316	77·0	94·9	−0·7	69·1	−3·4	82·0	−2·1	25·8	102·1	4th & 5th	58·6	20th	43·5
		Pachpadra*	380	29·408?	?	29·845?	29·643	31st	29·354	5th	·289	73·1	97·1	?	63·3	?	80·2	?	33·8	102·5	5th & 6th	50·1	21st	52·4
		Jodhpur	782	29·126	?	29·885	29·276	31st	28·966	5th	·310	74·8	94·4	?	64·4	?	79·5	?	30·0	99·1	4th	53·2	25th	45·9
	VIII.—East Rajputana, Central India and Gujarat.		...	...	−·005	...	...	...	...	...	...	...	92·0	−0·5	66·8	−1·0	79·5	−0·7	25·2	...	...	...	...	38·8
50	East Rajputana	Jeypore	1,431	28·489	−·013	29·904	28·636	27th	28·322	5th	·314	74·1	93·7	+0·5	63·4	−1·1	78·6	−0·3	30·3	98·5	3rd	53·1	23rd	45·4
		Kotah	?	29·079	?	?	29·227	27th	28·909	5th	·318	77·9	93·2	?	68·8	?	81·0	?	24·4	97·0	6th	58·5	30th	38·5
		Sambhar	1,254?	28·653	−·010	29·895?	28·789	27th & 31st	28·484	5th	·305	72·4	91·6	0	62·7	−2·0	77·2	−1·0	28·9	97·0	5th	50·9	29th	46·1
		Ajmere	1,611	28·314	−·012	29·930	28·449	31st	28·162	5th	·287	68·8	89·1	−2·3	60·8	−2·2	75·0	−2·3	28·3	93·4	5th	48·8	25th	44·6
		Deesa	466	29·464	+·001	29·895	29·606	27th	29·332	4th	·274	75·5	93·1	−2·9	64·5	−2·4	78·8	−2·7	28·6	96·3	4th	54·1	3 days	42·2
46	Kathiawar and Cutch.	Bhuj	395	29·553	+·022	29·906	29·690	31st	29·423	5th	·267	79·1	93·9	−1·8	68·4	−2·8	81·3	−2·3	25·5	97·5	12th	63·4	26th	34·1
		Rajkot	429	29·516	+·010	29·903	29·658	27th	29·394	4th	·264	77·4	91·2	−4·0	66·7	−1·7	79·0	−2·9	24·5	93·4	17th	55·0	21st	38·4
		Veraval		29·914	?	29·874	30·048	27th	29·802	5th	·246	79·0	89·2	?	72·2	?	80·7	?	17·0	96·6	23rd	66·3	5 days	30·3
		Ghadechi	35	29·893	?	29·878	30·038	27th	29·782	5th	·256	78·6	93·5	?	69·3	?	81·4	?	24·2	97·6	23rd	60·7	19th & 21st	36·9
49	Central India	Nowgong	757	29·137	−·024	29·868	29·291	27th & 31st	28·978	5th	·313	72·5	91·1	+0·7	65·7	+0·6	78·4	+0·7	25·4	96·0	7th	55·0	3 days	41·0
		Indore	1,823	28·110	+·001	29·906	28·244	31st	27·978	4th	·266	73·4	87·9	+0·8	63·1	−0·6	75·5	+0·1	24·8	90·2	2nd & 4th	52·6	31st	37·6
		Neemuch	1,630	28·315	+·016	29·918	28·457	27th	28·166	5th	·291	76·7	90·7	+0·8	62·5	−2·1	76·6	−0·7	28·2	95·3	5th	53·3	23rd	42·0
45	Gujarat	Surat	39	29·892	−·007	29·874	30·023	31st	29·786	5th	·237	79·2	93·9	+1·4	71·7	+1·2	82·7	+1·3	22·0	97·2	23rd	62·5	20th	34·7
		Ahmedabad	164	29·775	?	29·887	29·924	27th	29·652	4th	·272	78·9	93·8	?	71·7	?	82·8	?	22·1	96·7	17th	65·6	20th & 21st	31·1
22	N.-W. P., West	Agra	555	29·325	−·032	29·850	29·479	27th	29·140	5th	·339	75·6	95·0	+0·1	67·5	−0·3	80·3	−0·1	25·5	96·5	8th	58·9	26th & 27th	37·6
21	N.-W. P., Central.	Jhansi	858	29·042	−·011	29·865	29·195	27th	28·870	5th	·325	79·3	93·6	+1·2	70·5?	+2·0	82·1	+1·6	23·1	97·6	8th	57·9	29th	39·7

* Mean of 30 days.

I—*continued.*

in India, Burma, etc., in October 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	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 October 1897.	Normal rainfall for period, 1st to 31st October.	Variation from normal of period, 1st to 31st October.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·03	0·46	−0·42	...	...	...	...	VI.—Upper Sub-Himalayas.		
5	...	3	...	1	...	3	3	6	0·8	1·9	−58	73	·614	0·6	0	0·91	−0·91	0	1·15	−1·15	0	1·15	−1·15	0	Bareilly	N.-W. Provinces, West (Sub-montane).	24
29	...	1	...	...	...	...	1	...	0·8	1·7	−53	69	·495	1·0	0	1·20	−1·20	0	0·99	−0·99	0	0·99	−0·99	0	Dehra Dun		
28	...	...	...	3	...	...	...	...	0·8	1·4	−43	78	·555	0·5	0	0·55	−0·55	0	0·43	−0·43	0	0·43	−0·43	0	Roorkee.		
24	...	...	...	...	...	1	6	...	1·0	1·4	−29	60	·450	0·2	0	0·45	−0·45	0	0·42	−0·42	0	0·42	−0·42	0	Meerut	N.-W. Provinces, West.	22
3	...	2	...	...	...	...	18	8	4·2	2·4	+75	46	·398	0·2	0	0·18	−0·18	0	0·08	−0·08	0	0·08	−0·08	0	Delhi	South-East Punjab.	26
24	...	...	...	4	...	...	2	1	1·2	1·6	−25	61	·455	0·4	0	0·45	−0·45	0	0·26	−0·26	0	0·26	−0·26	0	Lahore	Central Punjab	27
1	3	...	1	4	2	3	11	6	4·7	2·5	+88	52	·414	0·3	1	0·64	+0·36	0·15	0·14	+0·01	0·15	0·14	+0·01	0·15	Sirsa	South Punjab.	
17	...	...	...	...	1	11	2	...	3·2	?	?	67*	·552	0·4	0	?	?	0	?	?	0	?	?	0	Patiala.		
27	...	1	...	1	...	1	...	1	1·0	0·9	+11	57	·442	0·8	0	0·55	−0·55	0·06	0·40	−0·34	0·06	0·40	−0·34	0·06	Ludhiana	Punjab (Sub-montane).	28
13	2	9	4	2	...	...	1	...	1·3	1·4	− 7	56	·415	0·4	1	0·82	+0·18	0·10	0·31	−0·21	0·10	0·31	−0·21	0·10	Sialkot.		
23	...	1	...	1	1	...	2	3	1·0	?	?	74	·526	0·3	0	?	?	0	0·31	−0·31	0	0·31	−0·31	0	Umballa.		
26	2	...	...	...	...	...	2	1	1·7	1·2	+42	59	·419	0·9	0	1·45	−1·45	0·07	0·55	−0·48	0·07	0·55	−0·48	0·07	Rawalpindi	North Punjab.	31
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·23	0·05	+0·17	...	...	...	...	VII.—Indus Valley and North-West Rajputana.		
19	1	1	...	...	4	3	2	1	2·3	2·5	− 8	56	·382	0·5	0	0·27	−0·27	0	0·11	−0·11	0	0·11	−0·11	0	Peshawar	North Punjab.	31
7	2	8	2	1	3	4	3	1	3·2	?	?	45	·366	0·2	0	0·20	−0·20	0	0·07	−0·07	0	0·07	−0·07	0	Khushab	West Punjab.	23
7	2	2	...	4	9	4	1	2	4·4	?	?	44	·383	0·3	0	0·10	−0·10	0	0·06	−0·06	0	0·06	−0·06	0	Montgomery		
21	4	4	...	...	...	...	...	2	1·0	1·2	−17	66	·494	0	0	0·09	−0·09	0	0·05	−0·05	0	0·05	−0·05	0	D. I. Khan		
25	...	...	...	2	...	3	1	...	0·7	2·0	−65	63	·508	0	0	0	0	0	0	0	0	0	0	0	Mooltan.		
18	3	1	1	3	2	1	...	2	2·3	2·2	+ 5	57	·457	0	0	0	0	0	0	0	0	0	0	0	Jacobabad	Sind.	47
5	1	...	...	..	10	14	1	...	8·7	7·8	+12	67	·643	0·3	0	0	0	0	0	0	0	0	0	0	Hyderabad.		
6	4	6	4	1	1	2	6	1	6·3	9·7	−35	78	·761	1·0	0	0	0	0	0	0	0	0	0	0	Kurrachee.		
5	2	1	...	...	4	12	5	2	2·7	4·0	−33	48	·455	1·3	1	?	?	0·16	0·10	+0·06	0·16	0·10	+0·06	0·16	Bickaneer	West Rajputana.	
...	6	4	2	3	4	5	4	2	4·6	3·7	+24	58	·501	0·1	2	?	?	0·35	0·05	+0·30	0·35	0·05	+0·30	0·20	Pachpadra†		
19	1	1	...	1	1	7	1	...	1·5	?	?	55	·498	1·1	2	?	?	1·97	0·13	+1·84	1·97	0·13	+1·84	1·86	Jodhpur.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·40	0.68	−0·27	...	...	...	...	VIII.—East Rajputana, Central India and Gujarat.		
6	4	...	...	...	...	...	3	18	3·2	3·7	−14	52	·452	1·2	0	0·90	−0·90	0·07	0·30	−0·23	0·07	0·30	−0·23	0·07	Jeypore	East Rajputana.	50
10	3	...	2	...	...	2	8	6	3·7	?	?	48	·478	1·0	0	?	?	0·07	0·50	−0·43	0·07	0·50	−0·43	0·07	Kotah.		
24	...	...	...	...	...	...	4	3	2·5	4·7	−47	57	·482	1·0	2	0·50	+1·50	0·45	0·17	+0·28	0·45	0·17	+0·28	0·23	Sambhar.		
18	1	...	...	...	2	2	7	1	2·9	2·6	+12	70	·512	0·9	2	0·64	+1·36	0·97	0·31	+0·66	0·97	0·31	+0·66	0·77	Ajmere.		
...	3	6	8	2	2	3	5	2	5·6	6·7	−16	69	·631	1·0	1	0·45	+0·55	0 54	0·35	+0·19	0·54	0·35	+0·19	0·54	Deesa.		
...	6	...	...	...	1	2	8	14	6·5	6·0	+ 8	66	·661	1·1	1	?	?	0·17	0·35	−0·18	0·17	0·35	−0·18	0·17	Bhuj	Kathiawar and Cutch.	46
2	8	6	1	..	...	...	5	9	3·6	5·6	−36	70	·672	1·6	4	1·27	+2·73	1·49	0·45	+1·04	1·49	0·45	+1·04	1·08	Rajkot		
1	20	5	1	...	...	...	1	3	5·3	?	?	70	·704	1·6	1	?	?	0·13	1·27	−1·14	0·13	1·27	−1·14	0·13	Veraval.		
...	5	1	...	...	...	1	5	19	5·4	?	?	61	·607	2·4	1	?	?	0·42	?	?	0·42	?	?	0·42	Ghadechi.		
7	5	...	2	...	4	7	6	...	2·0	1·5	+33	70	·596	1·9	0	1·82	−1·82	0	1·17	−1·17	0	1·17	−1·17	0	Nowgong	Central India.	49
14	5	8	...	...	...	...	2	2	2·0	2·3	−13	72	·606	2·2	1	3·09	−2·09	0·39	1·45	−1·06	0·39	1·45	−1·06	0·38	Indore.		
4	2	10	1	...	2	2	3	7	5·3	7·9	−33	49	·454	0·4	1	1·09	−0 09	0·20	0·49	−0·29	0·20	0·49	−0·29	0·15	Neemuch.		
4	12	5	2	1	4	1	...	2	2·5	5·1	−51	71	·720	1·8	3	3·00	0	1·33	1·53	−0·20	1·33	1·53	−0·20	1·00	Surat	Gujarat.	45
5	3	8	3	1	...	1	1	9	3·0	?	?	64	·637	1·4	0	?	?	0·02	0·62	−0·60	0·02	0·62	−0·60	0·02	Ahmedabad		
3	1	...	...	...	...	6	...	20	3·8	3·0	+27	55	·513	0·8	0	0·45	−0·45	0·05	0·47	−0·42	0·05	0·47	−0·42	0·05	Agra	N.-W. P., West	22
12	1	...	...	...	...	3	5	10	1·2	2·6	−54	45	·468	0·7	1	1·27	−0·27	0·14	0·70	−0·56	0·14	0·70	−0·56	0·14	Jhansi	N.-W. P., Central.	21

† Wind observations of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	IX.—Deccan		...	...	−·008	...	...	...	...	...	...	...	88·5	+0·8	68·3	+1·0	78·4	+0·9	20·2	...	...	...	...	35·3
38	Bombay, Deccan	Belgaum	2,521	27·412	+·015	29·885	27·500	31st	27·349	1st	·151	71·4	83·1	+0·7	64·8	?	73·9	?	18·3	87·2	27th	55·9	30th	31·3
		Sholapur	1,590	28·333	−·001	29·882	28·457	31st	28·253	2nd	·204	76·2	88·9	?	70·2	+2·3	79·6	?	18·7	92·7	11th	59·0	30th	33·7
		Poona	1,840	28·098	−·002	29·902	28·213	31st	28·013	4th	·200	73·7	88·1	+0·6	67·0	+0·6	77·6	+0·6	21·1	91·5	22nd	56·9	20th	34·6
		Bijapur	1,946	27·981	?	29·879	28·082	27th	27·900	3rd	·182	75·1	87·4	?	67·8	?	77·6	?	19·6	90·7	12th & 24th	54·0	31st	36·7
40	Khandesh	Malegaon	1,430	28·497	−·008	29·892	28·634	31st	28·386	4th	·248	76·7	90·1	+0·5	67·0	+1·7	78·6	+1·1	23·1	92·9	6th	56·4	31st	36·5
		Ahmednagar	2,152	27·787	?	29·889	27·909	30th	27·694	4th	·215	75·4	85·7	?	66·2	?	75·9	?	19·5	90·3	27th	52·0	31st	38·3
41	Berar	Akola	930	28·993	0	29·884	29·155	31st	28·861	4th	·294	76·7	92·5	+2·4	68·2	+2·2	80·4	+2·3	24·3	94·9	8th & 24th	53·1	31st	41·8
		Amraoti	1,215	28·696	−·006	29·879	28·855	31st	28·547	4th	·308	76·5	91·3	+1·9	69·5	+2·0	80·4	+2·0	21·8	94·2	7th	59·3	31st	34·9
42	Central Provinces, West.	Khandwa	1,044	28·874	+·001	29·892	29·027	31st	28·734	4th	·293	74·7	91·9	+2·0	66·9	+0·8	79·4	+1·4	25·0	94·7	22nd	53·6	31st	41·1
		Hoshangabad	1,006	28·905	−·008	29·889	29·073	27th	28·699	4th	·374	73·8	90·0	+0·9	66·5	−0·5	78·3	+0·2	23·5	92·4	2nd & 7th	55·8	3 days	36·6
		Nagpur	1,025	28·863	?	29·856	29·037	27th	28·676	4th	·361	76·4	90·6	+1·2	69·6	+1·3	80·2	+1·3	21·0	94·6	8th & 10th	58·7	4 days	35·9
43	Central Provinces, Central.	Chanda	634	29·277	−·003	29·865	29·452	27th	29·100	4th	·352	76·9	90·2	+0·8	70·7	+2·2	80·5	+1·5	19·5	95·7	1st	56·2	31st	39·5
		Seoni	2,033	27·873	−·016	29·866	28·027	27th	27·672	4th	·355	73·8	85·6	−0·4	64·7	+0·4	75·1	0	20·9	90·0	7th	53·5	3 days	36·5
		Jubbulpore	1,327	28·561	−·026	29·869	28·723	27th	28·360	4th	·363	73·4	87·6	+0·8	64·8	+0·6	76·2	+0·7	22·8	91·4	7th & 9th	51·4	29th & 30th	40·0
		Saugor	1,807	28·091	−·021	29·865	28·240	27th	27·934	4th	·306	75·3	86·5	?	66·6	+1·4	76·5	?	19·9	89·8	8th	58·6	30th	31·2
49	Central India	Sutna	1,040	28·842	−·026	29·860	29·004	27th	28·667	4th	·337	74·5	87·7	+0·3	67·2	+1·6	77·5	+1·01	20·5	91·4	6 days	53·8	27th	37·6
44	Central Provinces, East.	Raipur	970	28·915	−·008	29·818	29·073	31st	28·662	4th	·411	75·5	87·4	−0·4	70·2	+0·4	78·8	0	17·2	92·3	2nd	58·7	30th	33·6
		Sambalpur	486	29·330	?	29·821	29·574	27th	28·990	4th	·584	76·8	87·1	−1·6	72·0	−0·2	79·6	−0·9	15·1	92·6	1st	59·2	3 days	33·4
39	Hyderabad (North).	Aurangabad	1,865	...	...			...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Indur	?			Not	recorded					78·5	88·5	?	70·2	?	79·4	?	18·3	90·8	3 days	56·1	31st	34·7
		Bidar	2,165?	27·752	?	29·858	27·886	27th	27·583	3rd	·303	76·1	86·1	?	62·8	?	74·4	?	23·3	90·0	16th	58·2	31st	31·8
53	Hyderabad (South).	Gulbarga	1,502	28·420	?	29·881	28·535	28th	28·365	3 days	·170	76·5	90·0	?	69·9	?	80·0	?	20·1	93·6	24th	59·0	29th	34·6
		Raichur	1,309	28·595	?	29·859	28·720	31st	28·525	15th	·195	77·7	88·9	?	72·4	?	80·7	?	16·5	92·1	12th & 23rd	64·1	29th	28·0
		Hyderabad (Deccan).	1,690	28·218	−·001	29·866	28·361	27th	28·103	2nd & 3rd	·258	75·6	87·8	+1·0	69·7	+1·9	78·7	+1·5	18·1	90·4	5 days	58·3	3 days	32·1
		Secunderabad	1,787	28·124	−·019	29·870	28·264	27th	28·010	3rd	·254	74·7	88·6	+1·8	68·5	+0·7	78·6	+1·3	20·1	92·6	7th & 23rd	57·6	29th & 30th	35·0
		Khamamet	373	29·507	?	29·827	29·671	31st	29·348	2nd	·323	79·2	90·8	?	72·9	?	81·9	?	17·9	94·5	18th	60·2	30th	34·3
	X.—West Coast		...	...	+·017	...	...	...	...	...	...	...	85·9	+0·5	75·3	+0·9	80·7	+0·7	10·6	...	...	...	...	19·8
37	Konkan	Bombay	37	29·903	+·008	29·880	30·017	31st	29·830	5th	·187	79·8	87·4	+0·1	76·7	+0·5	82·1	+0·3	10·7	89·5	16th & 29th	73·0	20th	16·5
		Ratnagiri	110	29·817	+·023	29·866	29·909	31st	29·741	15th	·168	79·2	87·2	−1·0	74·6	+1·1	80·9	+0·1	12·6	93·9	30th	66·9	31st	27·0
		Mormugao	60	29·894	?	29·890	29·982	27th	29·819	15th	·163	78·6	85·8	?	75·4	?	80·6	?	10·4	89·0	29th	69·4	31st	19·6
		Goa	199	29·740	+·026	29·877	29·814	27th & 31st	29·664	15th	·150	79·1	84·2	?	75·9	?	80·1	?	8·3	89·0	30th	70·0	31st	19·0
		Karwar	44	29·898	+·018	29·874	29·977	27th	29·820	15th	·157	76·5	85·8	+0·8	73·9	+0·8	79·9	+0·8	11·9	91·3	30th	64·5	30th	26·8
33	Malabar	Cochin	11	29·949	+·015	29·887	30·019	27th	29·851	15th	·168	79·6	87·4	+1·7	75·7	+1·3	81·6	+1·5	11·7	90·3	21th	72·7	20th	17·6
		Calicut	27	29·929	+·013	29·885	29·993	27th	29·817	15th	·176	79·7	86·7	+0·9	75·2	+1·1	81·0	+1·0	11·5	91·4	9th	70·5	15th	23·9
		Mangalore	65	29·892	+·014	29·890	29·960	27th	29·801	14th	·159	78·9	85·5	+0·4	74·9	+0·8	80·2	+0·6	10·6	88·3	3 days	72·9	19th	15·4
		Trivandrum	198	29·744	?	29·874	29·827	31st	29·646	14th	·181	78·6	83·3	?	75·6	?	79·5	?	7·7	85·0	13th	72·5	5 days	12·5
	XI.—South India		...	...	−·003	...	...	...	...	...	...	...	88·8	+1·5	73·3	+1·3	81·0	+1·4	15·6	...	...	...	..	26·9
57	Madras (South).	Pamban	37	29·892	?	29·856	29·993	31st	29·829	16th	·164	82·7	88·8	?	78·8	?	83·8	?	10·0	91·3	10th & 18th	74·2	30th	17·1
		Tinnevelly	168	29·760	?	29·857	29·869	31st	29·663	14th	·206	83·7	96·1	?	78·3	?	87·2	?	17·8	102·4	8th	72·4	20th	30·0
		Madura	447	29·469	+·005	29·854	29·579	27th	29·376	14th	·203	80·7	91·6	?	74·8	+1·0	83·2	?	16·8	95·4	3 days	71·0	30th	24·4

I—*continued.*

in India, Burma, etc., in October 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	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 October 1897.	Normal rainfall for period, 1st to 31st October.	Variation from normal of period, 1st to 31st October.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·66	3·12	−0·46	...	...	...	...	IX.—Deccan.		
14	1	3	3	...	...	2	4	4	8·9	10·5	−15	80	·620	5·0	7	8·09	−1·09	3·53	6·39	− 2·86	3·53	6·39	− 2·86	1·88	Belgaum	Bombay Deccan.	38
5	6	2	4	2	1	3	2	6	9·2	7·4	+24	65	·595	5·1	7	5·91	+1·09	2·94	5·10	− 2·16	2·94	5·10	− 2·16	0·77	Sholapur.		
2	...	3	4	3	3	11	2	3	6·5	5·8	+12	79	·658	5·0	7	6·18	+0·52	6·31	4·80	+ 1·51	6·31	4·80	+ 1·51	1·35	Poona.		
2	2	3	3	...	...	5	10	6	4·2	?	?	75	·663	4·4	7	7·70	−0·70	6·34	4·56	+ 1·78	6·34	4·56	+ 1·78	1·75	Bijapur.		
9	1	...	...	...	...	2	13	6	8·1	4·5	+80	64	·592	4·5	2	4·18	−2·18	2·59	2·84	− 0·25	2·59	2·84	− 0·25	2·35	Malegaon	Khandesh.	40
...	15	2	...	1	3	1	...	9	11·5	?	?	67	·595	4·2	3	?	?	2·62	3·34	− 0·72	2·62	3·34	− 0·72	1·81	Ahmednagar.		
13	1	...	3	3	...	...	4	7	3·8	3·3	+15	67	·628	3·2	0	4·09	−4·09	0·04	3·50	− 3·46	0·04	3·50	− 3·46	0·03	Akola	Berar.	41
...	5	6	8	2	1	3	5	1	2·5	2·9	−14	66	·608	3·5	2	4·09	−2·09	0·69	2·88	− 2·19	0·69	2·88	− 2·19	0·49	Amraoti.		
11	1	3	1	...	...	...	5	10	3·7	2·9	+28	67	·587	1·6	2	3·27	−1·27	0·49	1·73	− 1·24	0·49	1·73	− 1·24	0·28	Khandwa	Central Provinces, West.	42
19	1	2	3	...	3	3	...	...	0·8	1·5	−47	71	·610	2·3	1	3·18	−2·18	0·19	1·82	− 1·63	0·19	1·82	− 1·63	0·15	Hoshangabad.		
27	2	...	...	...	...	...	...	2	4·3	4·3	0	70	·646	4·3	3	3·55	−0·55	0·91	2·95	− 2·04	0·91	2·95	− 2·04	0·40	Nagpur.		
12	6	3	...	...	...	1	5	4	1·6	2·3	−30	76	·720	3·6	5	?	?	3·43	2·24	+ 1·19	3·43	2·24	+ 1·19	2·78	Chanda	Central Provinces, Central.	43
...	7	14	1	1	...	2	3	3	2·9	3·1	− 6	66	·566	3·2	2	3·55	−1·55	0·78	2·36	− 1·58	0·78	2·36	− 1·58	0·45	Seoni.		
20	2	5	...	...	1	1	1	1	0·6	2·1	−71	79	·663	3·8	1	2·45	−1·45	0·62	2·07	− 1·45	0·62	2·07	− 1·45	0·48	Jubbulpore.		
1	5	4	1	1	...	7	9	3	6·3	2·7	+133	57	·507	1·7	2	2·91	−0·91	0·98	1·45	− 0·47	0·98	1·45	− 0·47	0·82	Saugor.		
8	12	2	...	...	...	...	6	3	3·8	4·3	−12	70	·615	2·3	3	2·09	+0·91	1·99	2·37	− 0·38	1·99	2·37	− 0·38	1·24	Sutna	Central India.	49
13	2	6	5	...	1	3	...	1	4·8	3·8	+26	77	·686	4·2	4	3·82	+0·18	2·87	2·29	+ 0·58	2·87	2·29	+ 0·58	1·55	Raipur	Central Provinces, East.	44
...	10	11	2	5	1	1	...	1	4·5	2·0	+125	82	·761	3·3	6	?	?	3·44	2·04	+ 1·40	3·44	2·04	+ 1·40	1·70	Sambalpur.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Aurangabad	Hyderabad (North).	39
15	6	2	1	...	...	...	3	4	4·3	?	?	73	·717	3·3	2	?	?	2·19	2·63	− 0·44	2·19	2·63	− 0·44	1·46	Indur.		
...	9	4	7	1	1	1	4	4	6·9	?	?	79	·715	2·1	4	?	?	0·82	3·65	− 2·83	0·82	3·65	− 2·83	0·35	Bidar.		
16	...	7	...	...	...	2	...	6	8·3	?	?	74	·681	3·2	5	?	?	4·09	3·06	+ 1·03	4·09	3·06	+ 1·03	2·50	Gulbarga.	Hyderabad (South).	53
...	7	1	2	...	...	2	14	5	7·9	?	?	72	·695	2·7	6	?	?	6·18	4·22	+ 1·96	6·18	4·22	+ 1·96	2·44	Raichur.		
17	3	...	1	1	...	...	5	4	3·7	?	?	76	·677	3·3	5	?	?	4·73	3·08	+ 1·65	4·73	3·08	+ 1·65	2·75	Hyderabad (Deccan).		
12	2	4	...	...	...	...	3	10	4·3	3·8	+13	70	·609	3·3	2	?	?	2·08	3·08	− 1·00	2·08	3·08	− 1·00	1·63	Secunderabad.		
23	2	...	...	...	...	...	1	5	4·3	?	?	80	·819	1·1	3	?	?	5·66	3·52	+ 2·14	5·66	3·52	+ 2·14	3·32	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·53	7·85	−0·32	...	...	...	...	X.—West Coast.		
1	5	10	7	4	3	...	1	...	8·5	9·8	−13	81	·838	4·1	4	3·45	+0·55	2·62	2·47	+ 0·15	2·62	2·47	+ 0·15	1·02	Bombay.	Konkan.	37
13	1	...	5	9	2	1	...	...	3·9	7·7	−49	83	·829	4·6	6	5·91	+0·09	14·32	4·28	+10·04	14·32	4·28	+10·04	5·32	Ratnagiri.		
2	3	2	1	7	2	3	5	6	6·3	?	?	91	·898	5·4	7	?	?	5·07	7·49	− 2·42	5·07	7·49	− 2·42	1·22	Mormugao.		
4	1	7	11	1	5	1	...	1	?	?	?	83	·828	6·0	6	?	?	2·42	5·97	− 3·55	2·42	5·97	− 3·55	0·60	Goa.		
7	1	5	15	...	...	1	2	...	2·8	?	?	89	·811	4·0	5	9·09	−4·09	10·75	7·68	+ 3·07	10·75	7·68	+ 3·07	2·74	Karwar.		
10	5	11	1	..	1	...	1	2	5·6	?	?	85	·873	5·3	14	15·09	−1·09	10·62	14·01	− 3·39	10·62	14·01	− 3·39	1·92	Cochin	Malabar.	33
7	3	4	7	1	2	...	2	5	8·8	?	?	83	·845	5·6	10	10·44	−0·44	8·47	10·17	− 1·70	8·47	10·17	− 1·70	2·39	Calicut.		
6	...	...	13	7	1	2	1	1	2·3	2·7	−15	87	·855	6·0	9	9·90	−0·90	6·44	7·82	− 1·38	6·44	7·82	− 1·38	2·56	Mangalore.		
5	14	3	3	...	...	...	...	6	5·3	?	?	83	·817	6·5	6	?	?	7·05	10·76	− 3·71	7·05	10·76	− 3·71	4·68	Trivandrum.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·30	7·72	−2·42	...	...	...	...	XI.—South India.		
3	5	2	...	5	2	9	4	1	?	?	?	80	·891	2·6	4	7·50	−3·50	3·43	6·86	− 3·43	3·43	6·86	− 3·43	1·26	Pamban	Madras (South).	57
...	3	...	1	1	1	5	8	12	5·3	?	?	64	·739	4·1	7	7·30	−0·30	3·36	6·73	− 3·37	3·36	6·73	− 3·37	1·47	Tinnevelly.		
4	12	2	...	1	...	...	...	12	2·8	2·9	− 3	73	·768	4·1	9	9·73	−0·73	4·59	8·21	− 3·62	4·59	8·21	− 3·62	1·11	Madura.		

Table

Abstract of Observations taken at 8 A.M. at 213 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.
34	Madras, South Central.	Salem	940	29·012	+·009	29·898	29·116	27th	28·920	15th	·196	78·7	90·6	+1·3	72·8	+2·3	81·7	+1·8	17·8	94·4	30th	67·9	29th	26·5
		Coimbatore	1,348	28·583	+·006	29·884	28·693	27th	28·488	15th	·205	76·7	89·3	+1·3	71·8	+1·2	80·6	+1·3	17·5	94·9	26th	66·8	20th	28·1
35	Coorg	Mercara	3,781	26·253	+·021	?	26·330	27th	26·178	15th	·152	67·3	74·8	−0·6	63·0	+0·9	68·9	+0·2	11·8	78·0	3 days	57·7	30th	20·3
36	Mysore	Chitaldroog	2,405	27·543	?	29·882	27·641	27th	27·468	15th	·173	75·0	83·5	?	67·7	?	75·6	?	15·8	87·1	27th	59·9	30th	27·2
		Bangalore	3,021	26·963	+·007	29·894	27·055	27th	26·881	15th	·174	70·7	82·3	+1·3	65·9	+1·0	74·1	+1·2	16·4	84·8	24th & 27th.	59·9	29th & 30th.	24·9
		Hassan	3,091	26·896	?	29·899	26·970	27th	26·817	15th	·153	71·8	80·7	?	64·0	?	72·4	?	16·7	83·6	27th	53·4	30th	30·2
		Mysore	2,518	27·458	?	29·908	27·542	27th	27·369	15th	·173	72·2	84·2	?	66·5	?	75·4	?	17·7	86·9	24th	60·9	30th	26·0
56	Madras, East Coast, South.	Negapatam	31	29·885	+·003	29·845	29·992	27th	29·794	15th	·198	82·9	91·5	+3·6	77·3	+1·7	81·4	+2·7	14·2	96·7	7th	71·9	15th	24·8
		Cuddalore	12	29·890	?	29·831	30·013	27th	29·793	15th	·220	81·7	90·9	?	74·9	?	82·9	?	16·0	95·3	8th	69·2	13th & 30th.	26·1
		Trichinopoly	255	29·664	+·001	29·853	29·773	27th	29·566	15th	·207	80·5	92·9	+2·1	75·5	+1·5	84·2	+1·8	17·4	97·1	26th	70·9	13th	26·2
		Madras	22	29·884	−·008	29·837	30·018	27th	29·785	15th	·233	81·8	92·0	+3·0	75·9	+0·7	84·0	+1·9	16·1	96·0	19th	68·5	29th	27·5
55	Madras, East Coast, Central.	Nellore	71	29·818	?	29·823	29·959	27th	29·721	2nd	·238	83·2	94·5	?	77·2	?	85·9	?	17·3	99·8	24th	70·6	29th	29·2
		Masulipatam	15	29·871	−·013	29·820	30·027	27th	29·727	2nd	·300	81·4	89·8	+0·8	76·9	+1·2	83·3	+1·0	12·9	94·1	7th	72·1	31st	22·0
54	Madras, Central	Cuddapah	433	29·472	−·015	29·846	29·596	31st	29·390	15th	·206	81·1	93·3	+3·4	75·7	+1·6	84·5	+2·5	17·6	97·1	24th	68·5	29th	28·6
		Kurnool	923	28·979	−·014	29·853	29·116	31st	28·901	3rd	·215	77·4	90·5	+1·2	71·2	?	80·9	?	19·3	93·7	13th	59·3	29th	34·4
		Bellary	1,475	28·447	+·004	29·875	28·569	31st	28·369	2nd	·200	77·8	89·8	+0·4	71·9	+1·1	80·9	+0·8	17·9	93·2	23rd & 26th	60·1	29th	33·1
52	Madras, East Coast, North.	Rajahmundry	112			Not recorded.						79·2	90·8	+1·4	75·0	+0·2	82·9	+0·8	15·8	95·0	12th	65·0	29th	30·0
		Cocanada	26	29·843	−·020	29·804	30·016	27th	29·646	3rd	·370	80·8	89·0	?	76·8	+1·1	82·9	?	12·2	94·6	24th	66·0	29th	28·6
		Vizagapatam	31	29·833	−·032	29·802	30·024	27th	29·553	3rd	·471	81·6	89·1	−0·2	75·8	+1·8	82·5	+0·9	13·3	93·2	2nd	63·9	29th	29·3
		Waltair	?			Not recorded.						81·5	88·4	?	77·4	?	82·8	?	11·0	92·2	1st & 2nd.	68·9	29th	23·3
		Gopalpur	21	29·827	?	29·788	30·025	31st	29·428	3rd	·597	78·4	87·0	?	73·1	?	80·1	?	13·9	90·3	3 days	62·1	30th	28·2
	XII.—Hill Stations																							
48	Baluchistan	Sharigh	?	25·903	?	?	26·020	31st	25·780	4th & 5th.	·240	72·1	86·7	?	48·6	?	67·6	?	38·1	96·0	4th	42·0	25th	54·0
		Pishin	?			Not recorded.						?	75·5	?	33·2	?	54·4	?	42·3	88·0	1st	23·9	25th	64·1
		Quetta	5,502	24·740	+·017	...	24·831	20th	24·637	5th	·194	52·9	75·3	+0·4	36·1	−3·1	55·7	−1·4	39·2	84·7	3rd	28·3	24th	56·4
		Kalat*	?			Not recorded.						49·5	73·5	?	27·0	?	50·3		46·5	85·5	3rd	18·4	23rd	67·1
		Chaman	4,311	25·794	?	...	25·902	21st	25·681	5th	·221	63·3	78·8	?	49·3	?	64·0	?	29·5	90·2	4th	42·1	21st	48·1
30	Punjab	Leh	11,503			Not recorded.						39·0	60·5	?	31·5	?	46·0	?	29·0	71·4	1st	26·0	3 days	45·4
		Srinagar	5,204	24·969	?	?	25·081	20th	24·834	5th	·247	48·0	71·3	?	39·9	?	55·6	?	31·4	79·8	1st	32·4	27th	47·4
		Skardu	?	22·960	?	?	23·109	20th	22·785	4th	·324	47·1	68·0	?	40·8	?	54·4	?	27·2	79·5	1st	31·7	26th	47·8
		Dras	?	20·861	?	?	20·974	20th	20·785	5th	·189	37·5	56·3	?	25·9	?	41·1	?	30·4	68·9	1st	12·1	18th	56·8
		Gilgit	?	25·238*	?	?	25·379	20th	25·059	4th	·320	60·1	74·1	?	54·8	?	64·5	?	19·3	83·5	1st	48·9	28th	34·6
		Chitral	?			Not recorded.						51·4	77·0	?	43·6	?	60·3	?	33·4	89·2	4th	36·2	14th	53·0
		Killa Drosh	?			Not recorded.						63·2	78·4	?	52·7	?	65·5	?	25·7	90·2	3rd	44·9	15th	45·3
		Para Chinar	6,000	24·505	?	?	24·604	27th	24·404	5th	·200	59·1	75·7	?	48·7	?	62·2	?	27·0	83·4	4th	43·3	18th & 20th.	40·1
		Cherat	?	25·750	?	?	25·865	27th	25·621	5th	·244	66·4	79·7	?	60·1	?	69·9	?	19·6	88·9	1st	51·5	26th & 27th.	37·4
		Murree	6,334	23·907	−·001	?	24·000	30th	23·799	5th	·201	60·4	70·2	+1·0	56·3	+3·1	63·3	+2·1	13·9	75·2	4 days	46·9	11th	28·3
		Poo	?			Not recorded						?	68·5*	?	43·7	?	56·2*	?	24·8	75·2	1st	38·9	30th & 31st.	36·3
		Simla	7,224	23·167	−·014	?	23·259	20th	23·042	5th	·217	56·1	62·9	+0·4	51·5	+0·5	57·2	+0·5	11·4	67·7	4th	46·4	30th	21·3
25	N.-W. Provinces	Chakrata	7,022	23·335	+·008	?	23·425	20th	23·193	5th	·232	57·5	67·5	+1·5	52·3	+1·6	60·0	+1·6	15·2	70·2	21st & 23rd.	46·2	28th & 31st.	24·0
		Mussooree	6,705	23·572	?	?	23·672	20th	23·432	5th	·240	58·9	66·1	+1·9	53·2	+1·7	59·7	+1·8	12·9	69·3	4th	48·0	29th & 30th	21·3
		Ranikhet	6,069	24·154	+·005	?	24·244	30th	23·999	5th	·245	60·2	70·1	+1·0	55·8	+1·8	63·0	+1·4	14·3	74·0	1st & 7th.	50·5	28th	23·5
		Muktesar	?	22·901	?	?	22·970	20th	22·738	6th	·232	57·8	66·2	?	51·8	?	59·0	?	14·4	69·4	7th	46·9	30th	22·5

* Mean of 30 days.

I—*continued.*

in India, Burma, etc., in October 1897—continued.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity. Mean velocity in miles per hour.	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 October 1897.	Normal rainfall for period, 1st to 31st October.	Variation from normal of period, 1st to 31st October.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
7	...	1	2	...	2	13	4	2	2·8	2·8	0	80	·801	5·4	4	11·36	−7·36	6·29	6·89	− 0·60	6·29	6·89	− 0·60	5·14	Salem	Madras, South Central.	34
...	2	...	7	...	...	6	16	...	2·6	3·5	−26	83	·769	4·4	1	8·91	−7·91	0·35	5·94	− 5·59	0·35	5·94	− 5·59	0·22	Coimbatore		
24	1	2	...	...	...	1	2	1	2·6	3·6	−28	87	·592	7·0	14	13·50	+0·50	7·17	9·60	− 2·43	7·17	9·60	− 2·43	1·29	Mercara	Coorg.	35
1	...	1	3	1	...	10	13	2	6·3	?	?	79	·647	6·7	4	?	?	2·78	4·70	− 1·92	2·78	4·70	− 1·92	0·99	Chitaldroog.	Mysore.	36
...	...	1	3	3	...	9	11	4	5·9	4·0	+48	88	·661	6·5	8	10·00	−2·00	4·80	7·15	− 2·35	4·80	7·15	− 2·35	1·55	Bangalore.		
...	4	5	2	2	...	1	9	8	2·4	?	?	81	·630	6·6	5	?	?	2·70	5·68	− 2·98	2·70	5·68	− 2·98	1·29	Hassan.		
4	...	2	1	...	...	11	11	2	7·5	?	?	83	·654	6·7	8	?	?	8·78	6·66	+ 2·12	8·78	6·66	+ 2·12	2·29	Mysore.		
3	...	...	...	...	...	8	12	8	5·3	3·7	+43	80	·903	4·9	4	10·82	−6·82	3·24	10·59	− 7·35	3·24	10·59	− 7·35	1·40	Negapatam	Madras, East Coast, South.	56
...	2	1	...	...	4	9	12	3	0·9	?	?	83	·902	2·3	7	9·40	−2·40	7·50	9·56	− 2·06	7·50	9·56	− 2·06	4·90	Cuddalore.		
10	...	1	...	...	...	4	11	5	3·9	3·8	+ 3	76	·786	5·5	4	10·00	−6·00	5·22	7·49	− 2·27	5·22	7·49	− 2·27	2·72	Trichinopoly		
...	5	...	...	...	3	11	8	4	4·2	5·0	−16	80	·882	5·6	3	12·09	−9·09	3·56	11·00	− 7·44	3·56	11·00	− 7·44	2·45	Madras.		
11	...	...	...	1	1	...	9	9	4·4	?	?	77	·872	7·6	3	8·90	−5·90	2·84	9·28	− 6·44	2·84	9·28	− 6·44	1·95	Nellore	Madras, East Coast, Central.	55
6	8	4	...	1	1	...	4	7	4·4	4·4	0	83	·899	5·6	7	9·91	−2·91	3·57	9·34	− 5·77	3·57	9·34	− 5·77	1·30	Masulipatam.		
...	...	3	1	5	...	13	6	3	?	?	?	76	·810	4·0	3	6·80	−3·80	4·83	6·33	− 1·50	4·83	6·33	− 1·50	2·36	Cuddapah.	Madras, Central.	54
16	...	...	...	...	...	...	12	3	?	?	?	74	·699	5·0	5	7·00	−2·00	1·71	5·03	− 3·32	1·71	5·03	− 3·32	0·53	Kurnool.		
10	...	1	...	...	...	...	11	9	2·7	4·3	−37	60	·580	5·7	4	6·73	−2·73	3·97	4·29	− 0·32	3·97	4·29	− 0·32	2·40	Bellary.		
6	20	...	1	...	...	...	4	...	?	?	?	78	·779	5·5	10	7·80	+2·20	11·48	5·96	+ 5·52	11·48	5·96	+ 5·52	4·95	Rajahmundry.	Madras, East Coast, North.	52
1	10	4	..	...	...	3	7	6	6·1	?	?	76	·812	3·8	9	10·00	−1·00	9·28	10·36	− 1·08	9·28	10·36	− 1·08	5·14	Cocanada.		
26	...	...	...	...	...	2	2	1	0·5	2·0	−75	78	·818	4·7	5	10·36	−5·36	7·41	10·54	− 3·13	7·41	10·54	− 3·13	4·78	Vizagapatam.		
...	2	5	2	2	1	10	6	3	9·1	?	?	76	·826	5·1				No rain gauge.							Waltair.		
...	14	1	1	...	...	2	1	12	11·5	6·3	+83	82	·812	4·0	10	9·44	+0·56	13·02	9·35	+ 3·67	13·02	9·35	+ 3·67	2·53	Gopalpur.		
																									XII.—Hill Stations.		
2	1	1	2	3	...	9	9	4	7·1	?	?	16	·123	0	0	?	?	0	0·17	− 0·17	0	0·17	− 0·17	0	Sharigh.	Baluchistan	48
				Not recorded.					?	?	?	?	?	?	0	?	?	0	0·06	− 0·06	0	0·06	− 0·06	0	Pishin.		
31	...	...	...	...	...	...	...	...	1·6	3·0	−47	45	·187	0	0	0·18	−0·18	0	0·07	− 0·07	0	0·07	− 0·07	0	Quetta.		
...	1	...	9	4	12	2	3	...	?	?	?	?	?	0	0	?	?	0	0·07	− 0·07	0	0·07	− 0·07	0	Kalat.		
...	...	2	8	17	...	1	2	1	9·5	?	?	31	·180	0	0	?	?	0	0·09	− 0·09	0	0·09	− 0·09	0	Chaman.		
...	...	...	...	...	1	7	23	...	3·0	2·0	+50	56	·128	1·5	0	?	?	0·05	0·23	− 0·18	0·05	0·23	−0·18	0·05	Leh	Punjab.	30
6	2	3	1	9	7	...	1	2	4·3	?	?	88	·302	1·7	1	?	?	0·10	?	?	0·10	?	?	0·10	Srinagar.		
20	...	4	2	...	1	2	2	...	3·7	?	?	71	·233	2·4	0	?	?	0	0·02	− 0·02	0	0·02	− 0·02	0	Skardu		
30	...	...	...	...	...	1	...	...	3·5	?	?	86	·198	2·4	3	?	?	0·66	1·64	− 0·98	0·66	1·64	−0·98	0·25	Dras.		
16	...	...	...	...	...	6	8	1	3·6	?	?	43	·222	3·2	0	?	?	0·08	0·16	− 0·08	0·08	0·16	− 0·08	0·08	Gilgit.		
8	11	5	...	2	2	...	...	...	?	?	?	68	·255	0	0	?	?	0	?	?	0	?	?	0	Chitral.†		
1	...	3	2	5	1	7	6	...	?	?	?	34	·198	3·9	1	?	?	0·53	?	?	0·53	?	?	0·39	Killa Drosh‡		
...	11	6	1	...	...	4	4	5	5·7	?	?	34	·176	0·2	0	?	?	0·07	?	?	0·07	?	?	0·07	Para Chinar		
3	17	1	...	...	3	1	...	6	11·6	?	?	31	·205	0·3	0	?	?	0·02	0·10	− 0·08	0·02	0·10	− 0·08	0·01	Cherat.		
16	2	...	...	2	5	...	2	4	4·4	5·7	−23	37	·200	1·2	1	2·45	−1·45	0·61	1·65	− 1·04	0·61	1·65	− 1·04	0·60	Murree.		
...	1	2	5	3	1	5	9	5	?	?	?	?	?	1·2	1	?	?	0·20	0·75	− 0·55	0·20	0·75	− 0·55	0·20	Poo.		
8	10	8	...	2	2	1	...	...	4·3	2·5	+72	52	·235	0·9	1	1·27	−0·27	0·29	1·22	− 0·93	0·29	1·22	− 0·93	0·29	Simla.		
28	2	...	1	...	...	...	...	...	8·6	5·1	+69	64	·302	1·0	0	?	?	0	0·84	− 0·84	0	0·84	− 0·84	0	Chakrata	N.-W. Provinces	25
...	2	4	15	2	...	...	...	8	?	8·5	?	67	·337	1·2	0	1·40	−1·40	0·05	1·04	− 0·99	0·05	1·04	− 0·99	0·05	Mussooree.		
13	2	...	1	2	1	2	1	9	2·4	1·7	+41	76	·400	1·3	0	1·09	−1·09	0·06	1·48	− 1·42	0·06	1·48	−1·42	0·03	Ranikhet.		
...	...	...	10	11	1	1	...	7	0·9	?	?	64	·311	2·8	1	?	?	0·85	?	?	0·85	?	?	0·84	Muktesar,††		

†† Wind observations of 30 days.
† ,, ,, 28 ,,

‡ Six variables.

Table

Abstract of Observations taken at 8 A.M. at 213 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
13	Bengal	Yatung	10,480?			Not recorded.						?	57·9	?	43·5	?	50·7	?	14·4	68·0	16th	31·9	30th & 31st.	36·1
		Darjeeling	7,408	23·046	−·015	?	23·127	20th	22·933	25th	·194	55·8	61·6	+0·8	51·4	+2·4	56·6	+1·6	10·2	67·1	2 days	44·8	29th	22·3
		Gantok	5,660	24·571	?	?	24·634	27th	24·426	5th	·208	62·2	69·4	?	47·7	?	58·6	?	21·7	73·2	13th	40·0	29th	33·2
	Central India	Mount Abu	3,945	26·099	−·018	?	26·227	31st	26·000	5th	·227	69·1	74·8	−4·1	61·8	−2·4	68·3	−3·3	13·0	79·2	4th	57·9	29th	21·3
		Pachmarhi	3,528	26·469	−·024	?	26·604	27th	26·317	4th	·287	71·1	77·6	+0·3	60·2	+0·3	69·0	+0·3	17·4	80·7	7th	47·3	30th & 31st.	33·4
	South India	Wellington	6,200	24·258	−·005	?	24·342	27th	24·178	15th	·164	62·6	71·5	+3·0	54·5	−0·5	63·0	+1·3	17·0	74·2	24th	48·7	20th	25·5
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·898	?	29·836	30·022	27th	29·805	14th	·217	80·8	89·4	?	77·1	?	83·3	?	12·3	93·5	24th & 25th.	75·0	3 days	18·5
		Colombo	40	29·929	+·014	29·895	30·020	27th	29·836	14th	·184	82·0	87·5	?	77·1	?	82·3	?	10·4	90·5	26th	73·5	21st & 29th.	17·0
	Persia	Meshed	3,104			Not recorded.						52·6	?	?	44·3	?	?	?	?	?	?	37·9	21st & 22nd.	?
		Teheran	?	26·135*	?	?	26·425	18th	26·005	2nd	·420	65·2	79·2	?	56·1	?	67·6	?	23·1	84·7	3rd	50·5	31st	34·2
				25·517*	?	?	25·760	18th	25·400	24th	·360													
		Ispahan	?	24·536*	?	?	24·720	18th	24·440	24th	·280	60·4	80·8	?	45·5	?	63·2	?	35·3	86·7	2nd	40·3	22nd	46·4
				24·869*	?	?	25·040	18th	24·760	24th	·280													
		Bushire	14	29·965	+·024	29·938	30·074	18th	29·819	5th	·255	79·7	87·8	−0·1	70·7	0	79·3	−0·1	17·1	94·5	26th	65·7	24th	28·8
		Jask	?	29·955	?	29·907	30·096	21st	29·787	5th	·309	81·7	91·5	?	75·2	?	83·4	?	16·3	102·2	6th	66·2	31st	36·0
	Arabia	Muscat	20	29·958	?	29·926	30·089	21st	29·787	5th	·302	85·6	33·0	?	83·0	?	85·5	?	5·0	94·3	3 days	76·6	28th	17·7
		Baghdad	220	29·719	?	29·918	29·987	31st	29·549	14th	·438	69·4	91·9	−1·8	63·9	+1·8	77·9	0	28·0	97·2	8th	58·3	22nd	38·9
		Aden	94	29·897	+·024	29·922	29·984	28th	29·798	8th	186	82·7	91·8	+0·6	77·9	+0·8	84·9	+0·7	13·9	97·8	17th	73·4	26th & 31st.	24·4
		Perim	?	29·765	?	?	29·844	28th	29·679	8th	·165	85·8	92·9	?	?	?	?	?	?	98·3	8th	?	?	?
	Afghanistan	Kabul	?			Not recorded.						46·8	78·4	?	40·3	?	59·3	?	38·1	86·1	3rd & 4th	34·4	26th	51·7
	Central Asia	Kashgar	?	25·734‡	?	?	25·914	21st	25·454	30th	·460	51·7	70·5	?	42·9	?	56·7	?	27·6	80·9	2nd	35·3	24th	45·6
	Arabian Sea Islands.	Amini Devi	15																					
		Minicoy	10	29·914	?	?	29·971	27th	29·798	14th	·173	81·3	86·4	?	?	?	?	?	?	88·5	25th & 26th.	?	...	?
	Africa	Zanzibar	73	30·040	?	30·040	30·124	3rd & 4th.	29·955	31st	·169	78·4	82·7	?	75·6	?	79·2	?	7·1	86·0	23rd & 30th	73·3	6th	12·7

NOTE.—When a query is inserted against any reading or in the variation returns for any stations the

* Aneroid and uncorrected.

‡ Aneroid corrected.

I—*concluded.*

in India, Burma, etc., in October 1897—concluded.

Wind Direction. Number of Winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Velocity: Mean velocity in miles per hour.	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 October 1897.	Normal rainfall for period, 1st to 31st October.	Variation from normal of period, 1st to 31st October.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
				Not recorded.					?	?	?	?	?	?	8	?	?	7·33	2·49	+4·84	7·33	2·49	+4·84	2·44	Yatung	Bengal.	13
4	...	9	5	4	1	3	3	2	3·6	2·6	+38	94	·420	6·7	11	4·92	+6·08	13·03	5·83	+7·20	13·03	5·83	+7·20	5·31	Darjeeling.		
25	...	2	1	...	...	...	...	...	2·8	?	?	85	·478	?	13	?	?	11·43	6·89	+4·54	11·43	6·89	+4·54	2·57	Gantok, (a)		
7	2	7	...	3	...	4	4	4	5·5	4·0	+38	59	·396	1·2	2	0·60	+1·40	2·54	0·71	+1·83	2·54	0·71	+1·83	2·19	Mount Abu	Central India.	
17	5	3	...	...	...	1	1	4	5·7	2·9	+97	60	·471	4·3	2	4·27	−2·27	0·81	2·63	−1·82	0·81	2·63	−1·82	0·54	Pachmarhi.		
20	1	3	...	2	1	3	1	...	2·5	2·6	− 4	81	·466	6·0	8	15·89	−7·89	2·17	12·10	−9·93	2·17	12·10	−9·93	0·70	Wellington.	South India.	
																									XIII.—Extra India.		
2	...	...	...	...	...	29	...	...	8·1	?	?	83	·873	3·2	5	?	?	2·81	8·41	−5·60	2·81	8·41	−5·60	1·20	Trincomalee	Ceylon.	
...	2	...	...	5	2	13	9	...	8·5	7·3	+17	80	·879	5·2	7	?	?	4·80	13·51	−8·71	4·80	13·51	−8·71	1·89	Colombo.		
				Not recorded.					?	?	?	68	·271	1·3	1	?	?	0·10	0·79	−0·69	0·10	0·79	−0·69	0·10	Meshed.	Persia.	
16	9	3	1	...	1	1	...	...	3·5	?	?	41	·255	1·3	0	?	?	0	0·17	−0·17	0	0·17	−0·17	0	Teheran.		
5	1	1	5	7	...	1	7	4	2·5	?	?	18	·101	0·5	0	?	?	0	0·30	−0·30	0	0·30	−0·30	0	Ispahan.		
...	3	9	7	8	1	1	1	1	5·4	6·5	−17	61	·620	0·1	0	?	?	0	0·10	−0·10	0	0·10	−0·10	0	Bushire.		
3	10	1	7	...	...	...	...	10	8·7	?	?	70	·762	0	0	?	?	0	0·07	−0·07	0	0·07	−0·07	0	Jask.		
...	1	1	5	...	...	2	10	12	3·8	?	?	63	7·45	0	0	?	?	0	0·04	−0·04	0	0·04	−0·04	0	Muscat	Arabia.	
9	9	3	1	1	...	...	1	7	3·1	?	?	54	·385	0	0	?	?	0	?	?	0	?	?	0	Baghdad.		
3	1	12	11	2	...	...	...	2	9·8†	12·2	−20	64	·712	0·3	0	?	?	0	0·02	−0·02	0	0·02	−0·02	0	Aden.		
6	...	7	1	12	...	...	...	...	10·6	?	?	68	·839	1·2	0	?	?	0	0·09	−0·09	0	0·09	−0·09	0	Perim (b)		
12	...	1	3	...	3	4	6	2	?	?	?	52	·172	0·3	0	?	?	0	0·03	−0·03	0	0·03	−0·03	0	Kabul	Afghanistan.	
...	5	1	5	...	6	2	8	2	?	?	?	70	·256	3·2	0	?	?	0	0·07	−0·07	0	0·07	−0·07	0	Kashgar	Central Asia.	
																									Amini Devi	Arabian Sea Islands.	
1	2	...	...	...	2	1	10	15	6·2	?	?	77	·825	?	7	?	?	3·56	?	?	3·56	?	?	1·64	Minicoy.		
...	2	3	1	15	7	3	...	...	3·9	?	?	83	·802	4·8	8	?	?	4·76	3·72	+1·04	4·76	3·72	+1·04	1·27	Zanzibar	Africa.	

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

† Mean of 30 days.

(a) Wind observations of 28 days.

(b) Five variables.

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.
Burma Coast and Bay Islands.	Port Blair	...	29·869	29·770	·099	29·818	+·009	29·809	85·9	77·4‡	8·5	88·7	75·6	13·1	83·4	83·4	80·5‡	+0·3	75·7	79·7	79·3	78·2
	Rangoon	...	·891	·763	·128	·832	−·015	·810	87·3	76·4	10·9	90·3	72·9	17·4	82·4	81·2	80·2	+0·4	75·1	79·5	80·0	78·2
	Diamond Island	...	·883	·775	·108	·827	−·017	·802	86·0	78·3	7·7	88·5	75·2	13·3	84·3	83·2	81·0	+1·0	76·3	79·5	78·3	78·0
	Cocos Island	111	·837	·739	·098	·786	+·028	·829	87·8	78·1	9·7	90·2	75·7	14·5	84·4	83·2	81·3	+1·5	75·3	80·2	78·8	78·1
	Akyab	...	·887	·778	·109	·834	−·020?	·796	87·0	77·7	9·3	91·3	74·4	16·9	83·6	84·8	81·8	+0·5	75·2	80·9	81·7	79·3
Assam.	Silchar	...	·803	·679	·124	·745	−·030	·800	90·7	75·0	15·7	95·8	69·2	26·6	84·5	88·0	81·7	+2·7	73·9	79·1	79·2	77·4
	Sibsagar	...	·587	·454	·133	·520	−·042	·809	85·1	73·4	11·7	89·7	65·1	24·6	80·1	83·3	78·1	+2·0	73·0	77·5	78·3	76·3
	Dhubri	...	·791	·668	·123	·726	−·038	·795	84·8	75·8	9·0	88·5	70·1	18·4	80·4	83·5	79·4	+1·7	74·1	76·9	77·4	76·1
Bengal and Orissa.	Chittagong	...	·811	·688	·123	·750	−·037	·784	87·6§	76·3§	11·3	90·2	73·8	16·4	84·3§	84·6§	81·2§	+2·2	76·0§	80·1§	80·8§	79·0
	Narayanganj	...	·854	·755	·109	·808	−·029	·782	88·1	77·9	10·2	91·1	72·2	18·9	84·4	85·2	82·5	+2·1	75·7	79·3	79·0	78·0
	Calcutta (Alipore)	...	·861	·756	·105	·804	−·032	·771	85·8	75·1	10·7	89·3	63·4	25·9	82·5	83·4	80·1	+0·1	73·7	76·5	76·6	75·6
	Saugor Island	...	·835	·736	·099	·781	−·049	·749	86·6	76·9	9·7	90·1	65·0	25·1	83·5	84·1	80·6	+0·4	74·8	78·2	77·7	76·9
	Burdwan	...	·790	·682	·108	·731	−·036	·777	88·3	75·5	12·8	92·6	64·8	27·8	84·1	85·4	81·1	−0·1	73·7	77·9	77·5	76·4
	Berhampore	...	·813	·714	·099	·759	−·035	·774	87·2	75·0	12·2	92·2	64·2	28·0	83·2	85·3	80·5	−0·1	72·8	76·8	77·2	75·6
	False Point	...	·849	·747	·102	·796	−·051	·759	86·8	74·9	11·9	91·5	63·0	28·5	84·2	85·0	79·9	+0·1	74·0	77·7	77·4	76·4
	Cuttack	...	·781	·676	·105	·727	−·056	·749	87·9	74·8	13·1	93·3	63·8	29·5	81·8	84·7	80·2	−0·6	73·4	75·6	75·5	74·8
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·865	27·780	·085	27·825	−·043	·783	81·4	67·2	14·2	85·3	57·6	27·7	77·2	78·1	73·1	−0·4	63·8	68·7	69·0	67·2
	Patna	...	29·701	29·603	·098	29·648	−·034	·784	86·0	72·7	13·3	91·7	62·8	28·9	81·4	84·2	78·6	−0·6	70·5	74·5	74·7	73·2
	Darbhanga	...	·722	·623	·099	·669	−·036	·789	85·1	73·4	11·7	91·5	64·5	27·0	81·6	83·6	78·6	−0·7	71·8	75·2	75·3	74·1
	Allahabad	...	·583	·473	·110	·522	−·033	·785	89·3	68·8	20·5	95·8	56·2	39·6	81·7	87·8	78·1	−0·5	66·2	72·4	73·8	70·8
	Lucknow	...	·519	·393	·126	·450	−·046	·774	92·9	?	?	96·8	?	?	85·1	88·9	?	?	65·6	72·2	72·7	70·2
Upper Sub-Himalayas.	Dehra Dun	...	27·668	27·587	·081	27·616	−·036	·800	84·4	62·2	22·2	86·8	54·1	32·7	77·1	79·2	71·6	+1·0	58·2	65·6	66·5	63·4
	Roorkee	...	28·988	28·884	·104	28·925	−·039	·777	89·6	61·0	28·6	93·3	49·5	43·8	80·6	86·7	74·2	+0·1	59·9	69·4	68·0	65·8
	Meerut	...	29·151	29·051	·100	29·094	−·023	·795	90·4	61·6	28·8	94·1	52·5	41·6	80·8	88·4	75·1	−0·5	58·6	65·4	67·2	63·7
	Lahore	...	·181	·086	·095	·127	−·023	·794	92·5	62·2	30·3	99·6	52·9	46·7	80·5	92·1	76·5	+2·0	56·5	65·4	68·8	63·6
	Ludhiana	...	·068	28·976	·092	·014	−·028	·792	92·0	63·6	28·4	96·1	54·6	41·5	81·9	89·2	76·5	+1·3	58·0	65·3	65·7	63·0
Indus Valley and N.-W. Rajputana.	Peshawar	...	28·795	·702	·093	28·742	−·037	·833	90·1	57·0	33·1	96·5	47·5	49·0	79·9	86·4	71·9	+1·0	50·4	62·9	65·0	59·4
	Mooltan	...	29·469	29·378†	·091	29·417	−·015	·804†	96·2	63·5	32·7	103·4	53·4	50·0	82·4	93·1†	78·4	+0·8	57·2	67·9	70·7†	65·3
	Jacobabad	...	·719	·609	·110	·657	−·009	·800	99·4	59·1	40·3	108·5	48·8	59·7	86·3	96·8	77·9	−0·6	54·6	66·5	69·5	63·5
	Kurrachee	...	·913	·817	·096	·866	−·006	·846	91·0	70·3	20·7	95·7	62·2	33·5	86·1	87·1	79·7	0	67·9	76·0	76·8	73·5
E. Rajputana, C. India and Gujarat.	Jeypore	...	28·506	28·409	·097	28·452	−·006	·825	93·5	63·3	30·2	98·4	53·0	45·4	86·4	90·8	76·8	+0·6	55·6	65·7	65·9	62·4
	Ajmere	...	·324	·233	·091	·275	−·016	·840	89·1	60·9	28·2	93·2	48·8	44·4	81·1	87·7	74·0	−1·3	56·6	66·6	69·2	64·1
	Deesa	...	29·472	29·365	·107	29·413	−·002	·829	93·2	64·5	28·7	96·3	54·0	42·3	85·8	91·7	78·7	−2·0	62·2	71·8	71·2	68·4
	Nowgong	...	·145	·043	·102	·089	−·021	·798	90·8	65·5	25·3	96·0	55·0	41·0	83·1	88·8	77·5	+0·8	61·6	69·9	69·6	67·0
	Agra	...	·339	·239	·100	·278	−·035	·790	93·0	67·5	25·5	96·5	58·9	37·6	85·4	89·7	79·1	+1·1	60·7	69·8	69·9	66·8
Deccan.	Belgaum	...	27·418	27·318	·100	27·367	+·012	·800	83·1	64·7	18·4	87·1	56·0	31·1	77·2	78·6	72·3	0	64·2	68·3	69·1	67·2
	Sholapur	...	28·333	28·213	·120	28·276	−·003	·800	89·0	70·0	19·0	92·6	58·9	33·7	82·2	85·0	77·9	+0·7	66·4	70·1	69·8	68·8
	Poona	...	·099	27·989	·110	·048	+·004	·819	88·0	67·1	20·9	91·6	57·2	34·4	80·3	83·5	76·3	+0·2	65·7	70·1	70·1	68·6
	Akola	...	·997	28·874	·123	·931	−·005	·807	92·4	68·2	24·2	94·8	53·3	41·5	84·7	90·2	80·5	+2·1	64·6	71·5	71·8	69·3
	Buldana	2,132	27·805	27·697	·108	27·747	−·008	·800	86·4	68·8	17·6	88·4	60·6	27·8	81·2	83·9	77·7	+1·1	62·2	67·4	67·2	65·6

† Mean of 30 days. ‡ Mean of 29 days. § Mean of 24 days.

II.

at 85 Stations in India, Burma, etc., in October 1897.

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.		
																									%	%						
·865‡	·964	·944	·924	+·013	92‡	84	83	86	0	7·9	8·1	8·0	+2·0	...	1	3	3	4	7	15	20	8	S 68° W	S 1° W	51	25	154	150	...	...	Port Blair	Burma Coast and Bay Islands.
·854	·972	·972	·933	+·045	94	88	83	88	+ 4	8·2	6·8	7·5	+1·6	...	3	8	9	11	15	10	3	3	S 28° E	S 36° E	35	28	56	74	...	...	Rangoon	
·882	·943	·906	·910	+·043	91	80	80	84	+ 1	7·8	8·3	8·1	+2·4	6	3	3	11	10	6	10	8	5	S 7° E	S 56° E	19	17	238*	172	...	...	Diamond Island	
·842	·973	·926	·914	+·034	88	82	82	84	+ 1	6·5	6·4	6·5	+1·3	...	1	6	2	3	23	18	1	8	S 22° W	S 67° E	17	13	?	?	5·98	1·58	Cocos Island.	
·843	1·021	1·047	·970	+·087	89	89	87	88	+ 5	7·9	6·7	7·3	+2·5	...	2	16	6	9	5	8	10	6	N 84° E	S 64° E	6	8	77	59	...	...	Akyab	
·826	·923	·881	·877	+·073	94	78	67	80	0	6·5	5·6	6·1	+1·3	31	1	3	6	2	3	3	9	4	S 82° W	S 60° E	6	7	44	41	...	...	Silchar	Assam.
·813	·915	·906	·878	+·087	98	89	79	89	+ 4	7·1	5·4	6·3	+0·1	20	...	25	6	3	2	5	1	...	N 65° E	N 69° E	39	47	54*	48	...	...	Sibsagar	
·822	·881	·862	·855	+·083	92	85	75	84	+ 4	4·4	3·7	4·1	+1·3	3	1	15	12	2	6	12	9	2	S 59° E	N 59° E	10	20	117*	89	...	...	Dhubri	
·893‡	·975‡	1·002‡	·957	+·109	98§	83§	84§	88	+ 5	6·8§	6·0§	6·4	+2·0	3	5	7	4	8	3	4	2	12	N 11° E	N 11° W	13	13	§77*	66	...	...	Chittagong (e)	Bengal and Orissa.
·864	·937	·911	·904	+·070	90	79	75	81	+ 2	6·5	6·0	6·3	+2·1	...	6	11	6	14	5	4	2	14	N 57° E	S 9° E	18	3	107	63	...	...	Narayanganj	
·824	·844	·834	·834	+·015	93	75	73	80	− 1	5·8	5·8	5·8	+1·7	2	11	6	10	7	4	9	8	5	N 20° E	N 44° W	6	11	74	67	...	...	Calcutta (Alipore).	
·841	·898	·872	·870	+·013	89	78	74	80	− 1	6·9	6·2	6·6	+1·9	...	9	8	6	10	5	2	9	13	N 6° W	N 8° W	18	13	235	174	...	...	Saugor Island.	
·819	·881	·849	·850	+·069	91	74	70	78	+ 4	5·8	5·4	5·6	+1·5	38	10	3	5	2	2	1	...	1	N 40° E	N 10° E	18	26	33	47	...	...	Burdwan	
·788	·843	·834	·822	+·037	89	73	69	77	− 1	5·2	5·0	5·1	+0·7	47	3	1	6	...	2	2	...	1	N 78° E	N 35° W	8	17	24*	52	...	...	Berhampore	
·839	·882	·852	·858	+·033	96	74	70	80	+ 1	6·0	5·8	5·9	+1·1	3	9	5	7	13	7	3	7	8	S 89° E	N 50° E	8	22	156*	145	...	...	False Point	
·817	·812	·771	·800	+·024	93	74	65	77	+ 3	4·9	5·4	5·2	+0·8	8	5	20	4	1	4	5	10	5	N 7° E	N 34° E	24	21	68	43	...	...	Cuttack	
·564	·608	·606	·593	+·054	80	64	62	69	+ 5	7·0	7·0	7·0	+2·6	1	21	3	12	3	4	2	5	11	N 5° E	N 35° W	39	24	179	124	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·730	·769	·742	·747	+·053	89	71	64	75	+ 6	4·4	3·6	4·0	+0·7	3	...	8	10	6	4	10	13	8	S 55° W	N 45° W	11	5	72*	49	...	...	Patna	
·770	·794	·773	·779	+·022	92	74	68	78	+ 3	3·5	3·3	3·4	+0·8	3	1	7	14	8	1	5	17	6	W	S 4° W	0·3	1	68	52	...	...	Darbhanga	
·632	·685	·658	·659	+·039	86	63	51	66	0	3·4	3·2	3·3	+1·5	4	8	9	7	1	3	2	12	16	N 26° W	N 49° W	37	18	111*	66	...	...	Allahabad	
?	·632	·601	?	?	?	52	44	?	?	1·5	1·5	1·5	−0·3	12	12	1	8	...	...	2	16	11	N 40° W	N 30° W	40	40	31*	47	...	...	Lucknow	
·445	·492	·497	·478	+·028	78	52	49	60	− 2	0·7	0·7	0·7	−0·5	26	8	3	6	4	4	2	3	6	N 21° E	N 39° W	11	21	16	33	...	...	Dehra Dun	Upper Sub-Himalayas.
·518	·578	·443	·513	+·019	93	54	34	60	+ 2	0·5	0·4	0·5	−0·4	30	2	1	1	8	1	1	3	15	N 49° W	S 6° E	14	6	16	31	...	...	Roorkee	
·471	·434	·393	·433	−·060	82	41	29	51	− 6	0·4	0·5	0·5	−0·2	30	...	...	1	...	...	...	28	3	N 86° W	N 55° W	47	35	30*	31	...	...	Meerut	
·395	·433	·396	·408	−·034	68	41	26	45	− 2	0·5	0·2	0·4	−0·3	27	5	4	2	2	2	2	11	7	N 54° W	N 7° W	23	11	27	39	...	...	Lahore	
·425	·416	·326	·389	−·075	69	37	23	43	−10	0·4	0·6	0·5	−0·5	33	4	4	...	1	...	2	2	16	N 34° W	N 39° W	32	22	24	26	...	...	Ludhiana	
·295	·369	·358	·341	−·022	61	36	28	42	− 5	0·8	1·9	1·4	−0·1	34	4	8	9	3	1	1	1	1	N 66° E	N 52° E	26	33	55*	60	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·400	·497	·458†	·452	−·066	66	44	29†	46	− 7	0	0	0	−0·4	38	...	...	...	11	...	11	1	...	S 3° W	S 46° W	27	17	13*	39	...	...	Mooltan	
·383	·393	·361	·379	−·040	73	31	20	42	0	0	0	0	−0·4	40	2	...	...	...	5	8	2	5	S 65° W	S 27° E	20	9	57*	54	...	...	Jacobabad	
·664	·769	·788	·740	+·094	88	62	61	70	+ 7	0·9	0·5	0·7	−0·2	1	1	...	1	...	12	32	15	...	S 48° W	S 72° W	57	61	191*	235	...	...	Kurrachee	
·366	·385	·335	·362	−·044	59	30	23	37	− 6	0·8	2·1	1·5	−0·2	...	6	2	...	...	...	3	27	24	N 63° W	N 22° W	81	37	75	77	...	...	Jeypore	E. Rajputana, C. India and Gujarat.
·432	·489	·491	·471	+·010	75	45	38	53	+ 4	0·8	1·8	1·3	+0·2	4	8	7	2	...	2	3	25	11	N 59° W	N 73° W	52	28	71	66	...	...	Ajmere	
·551	·606	·504	·554	+·114	86	49	34	56	+14	0·9	0·8	0·9	−0·9	...	5	10	15	3	6	5	9	9	N 36° E	N 82° E	14	12	134‡	161	...	...	Deesa	
·518	·568	·477	·521	−·016	78	49	35	54	− 4	1·9	2·4	2·2	−0·4	2	14	2	4	...	...	5	25	10	N 58° W	N 55° W	58	39	41*	35	...	...	Nowgong	
·463	·535	·474	·491	+·004	65	43	33	47	− 2	0·7	0·5	0·6	−0·3	...	...	3	...	3	...	3	...	53	N 45° W	N 66° W	81	45	110*	74	...	...	Agra	
·599	·586	·599	·595	+·006	97	63	63	74	+ 2	5·0	4·7	4·9	−0·7	...	10	9	6	3	...	10	14	6	N 43° W	N 54° E	27	13	218‖	241	...	...	Belgaum	Deccan.
·616	·595	·544	·585	+·006	82	54	47	61	− 1	4·7	6·4	5·6	−0·3	...	11	12	6	5	1	7	4	16	N 9° W	N 55° E	23	22	172*	193	...	...	Sholapur	
·621	·609	·576	·602	+·053	92	59	52	68	+ 8	4·9	5·2	5·1	+0·2	1	2	5	7	9	1	17	12	8	S 78° W	N 37° E	25	19	175*	139	...	...	Poona	
·578	·605	·541	·574	+·063	82	50	38	57	− 3	3·0	4·3	3·7	+0·5	4	10	12	7	3	...	1	4	21	N 5° W	N 16° E	49	32	92*	83	...	...	Akola	
·490	·509	·467	·489	−·034	68	48	40	52	− 7	2·9	4·2	3·6	−0·1	1	17	13	6	...	...	1	5	19	N 6° W	N 24° E	63	49	111	125	0·36	0·36	Buldana	

* Corrected. ‖ Mean of 25 days. (e) 48 Wind observations.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 85 Stations

Meteorological Province	Station	Elevation of bar-cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Deccan—*concluded.*	Khandwa	...	28·879	28·767	·112	28·819	−·007	29·809	91·9	66·9	25·0	94·7	53·6	41·1	85·6	89·9	78·3	+1·4	62·6	71·5	71·4	68·5
	Hoshangabad	...	·911	·793	·118	·848	−·012	·807	89·9	66·4	23·5	92·2	55·8	36·4	83·1	88·4	77·2	+0·3	63·0	70·4	70·4	67·9
	Nagpur	...	·870	·754	·116	·808	−·016	·781	90·5	69·5	21·0	94·7	58·6	36·1	83·9	87·3	80·0	+1·2	65·4	72·2	71·3	69·6
	Do. (Sanitary Commr.'s Office)	...	·891	·776	·115	·830	?	792†	91·9	69·9	22·0	95·2	57·6	37·6	85·6	89·2†	80·2†	?	65·7	72·9‡	72·6¶	70·4
	Jubbulpore	...	·570	·463	·107	·513	−·025	·790	87·4	64·8	22·6	91·8	51·5	40·3	80·4	85·3	75·0	+1·0	63·5	70·7	70·2	68·1
	Saugor	...	·102	27·999	·103	·047	−·031	·790	86·4	66·6	19·8	89·8	58·6	31·2	81·8	84·9	75·5	+0·2	59·5	66·8	66·0	63·1
	Sutna	...	·846	28·748	·098	·792	−·029	·789	87·5	67·1	20·4	91·9	53·8	38·1	82·9	85·6	76·2	+0·7	63·7	69·6	68·9	67·4
	Raipur	...	·921	·812	·109	·863	−·027	·769	87·1	70·1	17·0	92·1	58·7	33·4	81·6	84·7	78·8	0	67·3	72·3	71·3	70·3
	Hyderabad (Deccan)	...	·222	·107	·115	·163	−·010	·783	87·8	69·6	18·2	90·6	58·2	32·4	82·5	84·2	77·8	+0·9	67·1	72·0	72·0	70·4
West Coast	Bombay	...	29·908	29·803	·105	29·852	+·010	·829	87·4	76·7	10·7	89·6	72·8	16·8	83·1	85·1	81·4	+0·3	73·2	77·1	78·1	76·1
	Ratnagiri	...	·828	·727	·101	·774	+·018	·821	87·4	74·4	13·0	93·8	66·7	27·1	84·1	84·0	80·0	+0·1	72·4	77·3	78·7	76·5
	Karwar	...	·907	·802	·105	·851	+·019	·826	85·9	73·9	12·0	91·1	64·8	26·3	81·9	83·9	79·3	+0·9	72·7	76·1	76·4	75·1
	Cochin	...	·958	·866	·092	·908	+·021	·845	87·4	75·7	11·7	90·5	72·5	18·0	83·4	84·5	80·8	+1·2	74·0	77·7	77·9	76·5
South India	Salem	...	·008	28·878	·130	28·949	+·005	·820	90·7	72·8	17·9	94·3	68·2	26·1	83·2	87·2	79·8	+1·8	71·4	75·3	76·4	74·4
	Mercara	...	26·260	26·166	·094	26·219	+·017	?	75·0	63·0	12·0	78·2	57·9	20·3	70·9	69·3	67·6	−0·1	61·3	66·4	66·5	64·7
	Chitaldroog	...	27·547	27·429	·118	27·490	+·015	·805	83·6	67·6	16·0	87·3	59·9	27·4	77·2	81·5	75·1	0	65·1	69·4	69·6	68·0
	Bangalore	...	26·964	26·850	·114	26·911	+·005	·810	82·4	65·9	16·5	85·0	59·7	25·3	76·0	79·0	73·3	+1·3	64·9	69·1	68·7	67·6
	Hassan	...	·902	·794	·108	·852	+·005	·818	80·8	64·0	16·8	83·6	53·4	30·2	76·3	78·1	71·7	+0·3	63·3	68·4	68·7	66·8
	Mysore	...	27·456	27·339	·117	27·398	+·012	·819	84·1	66·5	17·6	86·6	60·8	25·8	77·9	80·9	74·5	−0·2	65·5	70·4	70·0	68·6
	Trichinopoly	...	29·670	29·535	·135	29·609	+·007	·794	92·9	75·5	17·4	97·1	70·9	26·2	85·9	89·9	82·4	+2·0	71·3†	75·7	76·8	74·6
	Madras	...	·888	·775	·113	·835	−·006	·786	91·8	76·0	15·8	95·9	68·7	27·2	86·2	87·8	83·0	+1·9	?	78·0	79·1	77·7
	Bellary	...	28·452	28·321	·131	28·389	−·007	·793	89·8	71·9	17·9	93·2	60·1	33·1	83·0	87·1	79·6	+0·8	66·3	69·4	70·1	68·6
	Cocanada	...	29·853	29·741	·112	29·792	−·046	·754	89·7	76·7	12·0	94·4	66·0	28·4	85·1	88·3	82·2	+1·2	74·0	76·7	75·7	75·5
	Vizagapatam	...	·842	·733	·109	·783	−·038	·751	88·9	75·7	13·2	93·1	63·7	29·4	85·7	85·9	82·2	−0·1	74·1	77·0	77·1	76·0
Hill Station, Baluchistan	Quetta	...	24·717	24·668	·079	24·698	+·015	?	75·0	36·1	38·9	84·6	26·1	56·5	64·5	71·9	54·8	−0·8	30·2	48·2	51·1	43·2
Hill Stations, Punjab	Leh	...			Not re	corded.			60·0	31·5	28·5	70·1	26·0	44·1	46·8	56·7	45·9	+3·3	27·9	36·8	38·0	34·2
	Srinagar	...	24·975	24·878	·097	24·917	−·021	?	71·1	?	?	78·3	?	?	57·7	68·6	?	?	?	53·3	63·3	?
	Murree	...	23·933	23·892	·041	23·904	+·002	?	69·9	56·4	13·5	75·3	46·9	28·4	65·0	66·4	62·1	+2·9	43·5	50·8	51·6	48·6
	Kailang	10,087	20·817	20·707	·110	20·770	−·039	?	60·4	31·9	28·5	68·3	27·5	40·8	49·9	55·6	43·6	+1·2	29·5	39·0	41·5	36·7
	Simla (Ridge)	...	23·186	23·136	·050	23·152	−·008	?	62·7	51·5	11·2	67·7	46·4	21·3	58·5	59·1	56·0	−0·2	44·8	49·7	50·3	48·2
Hill Stations, N.W.P.	Chakrata	...	·354	·295	·059	·316	−·011	?	67·3	52·3	15·0	70·4	46·4	24·0	63·3	61·7	58·2	+1·4	47·3	54·3	53·3	51·6
	Ranikhet	...	24·172	24·100	·072	24·121	+·002	?	69·8	55·8	14·0	74·0	50·7	23·3	65·7	66·9	61·9	+1·2	51·5	57·3	58·3	55·7
	Muktesar	...	22·930	22·867	·063	22·899	?	?	65·8	51·8	14·0	69·5	46·9	22·6	61·2	61·3	57·7	?	46·1	53·6	54·5	51·4
Hill Station, Nepal	Katmandu	4,388	25·624	25·554	·070	25·588	?	?	79·1	60·0	19·1	85·8	49·0	36·8	71·2	73·9	68·3	+1·4	58·8	65·1	65·8	63·2
Hill Station, Bengal	Darjeeling	...	23·062	22·992§	·070	23·027	+·009	?	61·2	51·4	9·8	67·1	44·7	22·4	58·4	58·7§	55·5§	+1·1	51·5	56·9	56·3§	54·9
Hill Stations, Central India	Mount Abu	...	26·114	26·042	·072	26·072	−·022	?	74·8	61·8	13·0	79·4	57·9	21·5	73·2	72·8	67·8	−2·8	54·1	59·6	60·9	58·2
	Pachmarhi	...	·485	·406	·079	·442	−·021	?	77·5	60·2	17·3	80·7	47·5	33·2	74·5	75·8	68·4	+0·7	56·6	63·3	63·9	61·3
	Chikalda	3,642	·380	·289	·091	·331	−·010	?	77·3	65·2	12·1	81·2	59·6	21·6	73·5	75·4	70·8	+0·7	58·4	63·1	64·8	62·1

† Mean of 30 days. § Mean of 26 days. ‡ Mean of 2 days. ¶ Mean of 2½ days.

II—*continued.*

in India, Burma, etc., in October 1897—continued.

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 month.		
																									%	%						
·532	·605	·538	·558	+·018	78	49	40	56	− 1	1·5	2·5	2·0	−0·4	6	13	25	4	3	1	...	2	8	N 26° E	N 22° E	60	35	90	71	...	...	Khandwa.	Deccan—*concluded.*
·551	·590	·528	·556	−·032	82	52	39	58	− 4	2·2	3·4	2·8	+0·3	32	5	9	5	1	1	2	2	5	N 24° E	N 18° E	21	20	17	42	...	...	Hoshangabad.	
·587	·641	·573	·600	+·019	80	56	45	60	0	4·0	4·9	4·5	+0·7	23	16	13	3	...	...	...	2	5	N 13° E	N 37° E	47	49	102	102	...	...	Nagpur . .	
·595	·666‡	·611¶	·624	?	80	54‡	46¶	60	?	3·2	3·8	3·5	?	3	37	10	1	...	...	...	1	10	N	?	82	?	32*	?	...	...	Do (Sanitary Commr.'s Office)	
·591	·639	·558	·596	+·030	93	60	46	66	+ 1	3·5	3·7	3·6	+0·9	26	6	11	1	...	1	4	4	9	N 15° W	N 9° E	27	16	?	47	...	...	Jubbulpore .	
·434	·481	·416	·445	−·053	64	44	34	47	− 9	1·3	3·0	2·2	+0·3	11	17	6	2	...	1	3	15	7	N 34° W	N 31° W	45	33	147	53	...	...	Saugor . .	
·576	·569	·512	·552	+·026	82	50	43	58	+ 1	2·1	2·5	2·4	+0·2	...	33	1	2	...	...	...	6	20	N 29° W	N 29° W	82	47	79*	100	...	...	Sutna . .	
·645	·679	·600	·641	+·007	85	63	51	66	0	3·8	4·8	4·3	+0·7	16	4	19	6	4	3	3	4	3	N 50° E	N 31° E	29	35	114*	96	...	...	Raipur . .	
·644	·663	·639	·649	0	87	60	55	67	− 3	3·2	5·3	4·3	0	25	4	3	5	6	1	...	10	8	N 33° W	S 80° E	13	33	88*	96	...	...	Hyderabad (Deccan).	
·777	·855	·871	·834	−·006	84	75	72	77	− 3	3·8	2·9	3·4	−0·7	...	6	8	7	2	7	3	6	23	N 31° W	N 14° E	32	33	204	226	...	...	Bombay . .	West Coast.
·774	·853	·913	·847	+·051	90	74	79	81	+ 5	3·9	4·4	4·2	+0·9	1	4	1	3	2	2	12	18	19	N 79° W	N 74° W	57	22	127	162	...	...	Ratnagiri .	
·795	·826	·810	·810	−·005	95	76	70	80	− 3	3·1	4·9	4·0	−0·5	1	4	1	...	...	...	3	31	22	N 69° W	N 76° W	82	63	66	54	...	...	Karwar . .	
·819	·872	·865	·852	+·018	92	76	73	80	− 3	4·9	5·7	5·3	−0·6	7	2	2	...	...	1	4	17	29	N 63° W	S 87° W	71	44	133	103	...	...	Cochin . .	
·754	·773	·764	·764	+·013	93	68	60	74	− 2	4·8	6·0	5·4	−0·4	18	...	6	2	1	3	14	11	7	S 76° W	S 50° W	31	29	68	60	...	...	Salem . .	South India.
·527	·602	·621	·583	+·007	91	80	87	86	+ 1	7·6	8·2	7·9	+0·3	47	1	5	1	...	...	1	4	3	N 22° W	N 26° W	10	25	60	93	...	...	Mercara . .	
·594	·624	·579	·599	+·033	87	67	54	69	+ 4	5·5	6·3	5·9	−0·1	6	5	9	...	1	1	11	18	11	N 70° W	N 28° E	45	15	131*	143	...	...	Chitaldroog .	
·607	·635	·586	·609	+·017	94	71	60	75	0	5·9	6·2	6·1	+0·3	1	5	6	4		1	14	18	11	N 80° W	N 8° W	43	8	140*	105	...	...	Bangalore .	
·580	·606	·595	·594	+·015	96	67	62	75	0	7·1	7·0	7·1	0	...	5	14	10	3	...	5	14	11	N 11° W	N 42° E	27	24	58*	63	...	...	Hassan . .	
·615	·651	·601	·622	+·020	95	63	58	74	+ 3	6·9	6·6	6·8	+0·2	14	4	1	3	3	...	13	20	4	S 82° W	N 42° E	43	13	178*	185	...	...	Mysore . .	
·715†	·752	·746	·738	−·027	81†	61	53	65	− 7	4·5	6·1	5·3	−1·9	25	1	3	...	...	3	3	20	7	N 83° W	N 44° W	40	28	95	87	...	...	Trichinopoly .	
?	·853	·878	·883	+·050	?	69	67	78	− 2	5·6	6·0	5·8	−0·2	...	10	7	9	5	3	8	12	8	N 34° W	N 55° E	16	17	104	118	.	...	Madras . .	
·582	·549	·527	·553	−·068	74	49	41	55	− 8	6·2	7·2	6·7	+0·2	22	1	...	5	...	...	1	21	12	N 71° W	N 42° E	43	14	66	104	...	...	Bellary . .	
·814	·812	·747	·791	0	87	67	59	71	− 3	4·2	4·3	4·3	+0·5	...	3	12	12	12	...	10	8	5	S 87° E	N 83° E	16	32	149*	178	...		Cocanada .	
·828	·818	·821	·822	+·042	93	66	66	75	+ 3	5·9	5·9	5·9	+1·2	9	2	8	3	7	4	8	9	12	N 81° W	S 73° E	16	10	12	43	...	...	Vizagapatam .	
·113	·172	·162	·149	−·037	55	28	20	34	− 7	0·1	0	0·1	−0·5	34	7	...	...	...	...	...	3	18	N 39° W	N 59° W	40	44	29*	54	...	...	Quetta . .	Hill Station, Baluchistan.
·124	·133	·069	·109	+·009	72	44	17	44	+ 4	1·4	3·5	2·5	−1·3	...	...	...	...	1	1	17	43	...	S 76° W	S 55° W	89	42	73	44	.	...	Leh . .	Hill Stations, Punjab.
?	·361	·527	?	?	?	74	72	?	?	1·3	3·0	2·2	−0·6	12	9	9	...	6	4	1	3	18	N 17° W	N 18° W	32	12	81*	75	...	...	Srinagar. .	
·153	·227	·235	·205	−·028	34	37	36	36	− 9	1·0	2·3	1·7	−0·4	44	9	3	...	2	...	1	...	3	N 4° E	S 22° E	18	16	106*	158	...	...	Murree . .	
·145	·147	·142	·145	+·011	80	41	33	51	+ 1	1·7	3·4	2·6	−0·8	...	...	...	2	8	9	24	17	2	S 42° W	S 37° W	66	64	46	37	0·28	0·08	Kailang .	
·232	·269	·279	·260	+·014	60	54	54	56	+ 4	1·5	1·5	1·5	0	17	14	6	3	...	12	7	...	3	N 4° E	N 77° W	5	26	104	108	...	...	Simla (Ridge).	
·280	·333	·326	·313	+·029	70	56	58	61	+ 1	0·7	1·2	1·0	−0·7	9	3	...	2	2	46	...	...	...	S 5° E	S 64° W	72	32	207	129	...	...	Chakrata .	Hill Stations, N.-W. P.
·343	·388	·404	·378	+·050	75	61	60	65	+ 4	2·1	2·1	2·1	+0·4	11	2	4	3	2	2	9	19	10	N 85° W	S 55° W	40	51	64*	49	...	...	Ranikhet .	
·258	·333	·360	·317	?	67	62	66	65	?	2·7	3·7	3·2	?	...	...	6	9	24	7	3	2	11	S 52° E	?	37	?	22*	?	...	...	Muktesar .	
·491	·551	·545	·529	+·055	93	72	65	77	+ 4	5·3	6·0	5·7	+1·8	...	...	...	26	3	1	6	23	3	S 10° W	W	10	38	17	16	7·69	4·26	Katmandu .	Hill Station, Nepal.
?	·419	·431§	?	?	?	91	87§	?	?	7·0‖	6·0‖	6·5	+0·7	1	2	14	12	1	1	9	13	4	N 3° E	S 78° W	12	21	85	85	...	...	Darjeeling .	Hill Station, Bengal.
·339	·361	·406	·369	+·030	60	44	50	51	+ 6	1·0	1·4	1·2	−0·7	1	8	11	...	5	7	12	10	8	N 79° W	N 40° W	21	9	131*	109	...	...	Mount Abu .	Hill Stations, Central India.
·431	·465	·464	·453	+·014	80	54	52	62	+ 1	4·1	4·4	4·3	+1·1	24	16	4	1	1	...	1	5	10	N 18° W	N 25° E	42	32	101*	75	...	...	Pachmarhi .	
·421	·465	·498	·462	−·004	67	57	56	60	− 2	3·7	4·6	4·2	+0·5	14	23	11	...	2	...	1	...	11	N 1° E	N 2° E	60	40	237*	139	0·27	0·16	Chikalda .	

* Corrected.

‖ Mean of 25 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 85 Stations

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.
Hill Station, South India.	Wellington	...	24·262	24·191	·071	24·227	+·008	?	71·5	54·7	16·8	74·4	48·5	25·9	66·9	65·9	61·7	+0·9	53·6	61·2	61·3	58·7
Extra India.	Muscat	...	29·965	29·887	·078	29·926	+·013	29·893	87·8	83·0	4·8	94·4	76·6	17·8	87·1	87·2	85·3	+2·4	70·0	76·5	77·7	74·7
	Aden	...	·902	·803	·099	·853	+·027	·877	91·6	77·9	13·7	97·9	73·3	24·6	87·3	88·0	84·1	+1·2	69·9	74·9	74·8	73·2
	Perim	...	·773	·669	·104	·721	+·047	?	92·8	?	?	98·3	?	?	89·0	89·6	?	?	?	78·5	78·3	?
	Zanzibar	...	30·042	·920	·122	·981	+·027	·981	82·7	75·6	7·1	86·0	73·3	12·7	80·0	81·9	79·0	−0·1	72·7	74·9	75·2	74·3
	Port Victoria (Seychelles)	15	·027	·943	·084	·985	+·030	·924	82·3	75·9	6·4	85·3	71·7	13·6	81·3	81·8	79·0	−0·1	71·6	75·2	74·9	73·9
	Mauritius	181	?	?	?	·954	0	30·084	?	?	?	88·4	54·7	33·7	?	?	72·4	−0·3	?	?	?	?

II—*concluded.*

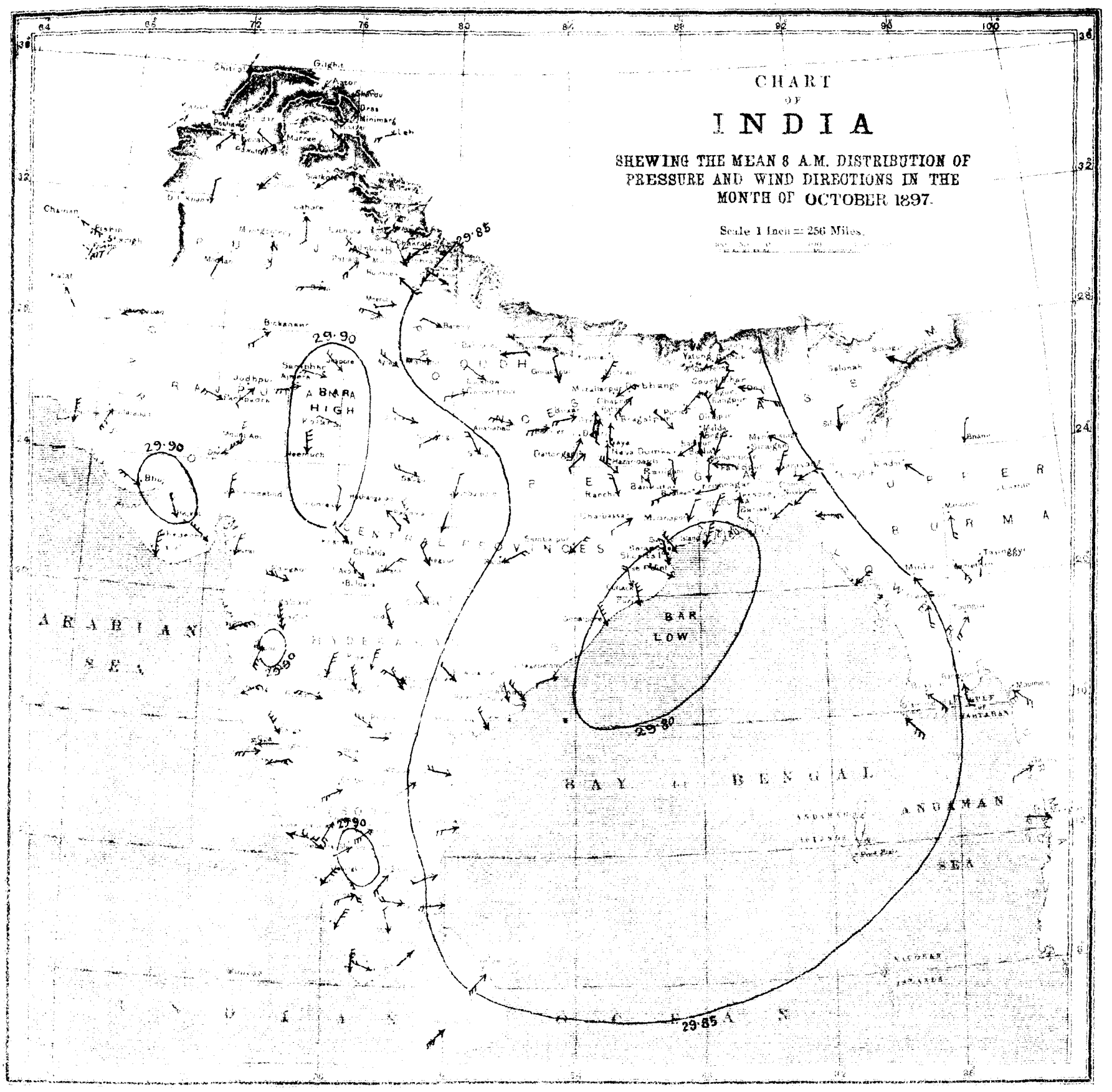
in India, Burma, etc., in October 1897—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of Winds from											Wind Stradiness.		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.		
																									%	%						
·403	·480	·496	·460	+·016	94	73	77	81	−2	8·0	8·6	8·3	+0·9	4	6	2	1	25	11	8	2	2	S 23° E	S 36° E	45	34	55	54	...	...	Wellington .	Hill Station, South India.
·570	·771	·817	·720	−·046	51	61	64	59	−8	0	0	0	−0·3	...	3	11	12	...	...	...	5	31	N 13° W	N 7° E	53	46	91	86	...	...	Muscat . .	Extra India.
·635	·706	·691	·677	−·043	66	54	52	57	−7	0·3	0·4	0·4	−1·3	1	1	4	18	11	11	13	...	3	S 38° E	S 80° E	45	56	256*	316	...	...	Aden . .	
?	·841	·826	?	?	?	63	59	?	?	0·9	0·6	0·8	−0·4	6	...	3	1	40	—	...	...	...	S 50° E	S 62° E	66	84	406	444	...	...	Perim(a) .	
·767	·797	·786	·783	+·012	86	78	72	79	+1	6·3	4·6	5·5	+0·9	...	6	11	6	19	13	6	—	1	S 55° E	S 3° E	45	53	95*	120	...	...	Zanzibar .	
·719	·792	·774	·762	−·018	81	74	71	75	−3	5·8	6·9	6·4	+0·2	5	2	2	8	18	21	1	2	3	S 31° E	S 44° E	55	59	193	183	4·20	1·14	Port Victoria (Seychelles).	
?	?	?	·569	?	?	?	?	74	+2	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	254	268	1·40	0·20	Mauritius .	

G. I. C. P. O.—No. 100 Meteo.—10-2-98.—385.

* Corrected.

(a) Variables 12.

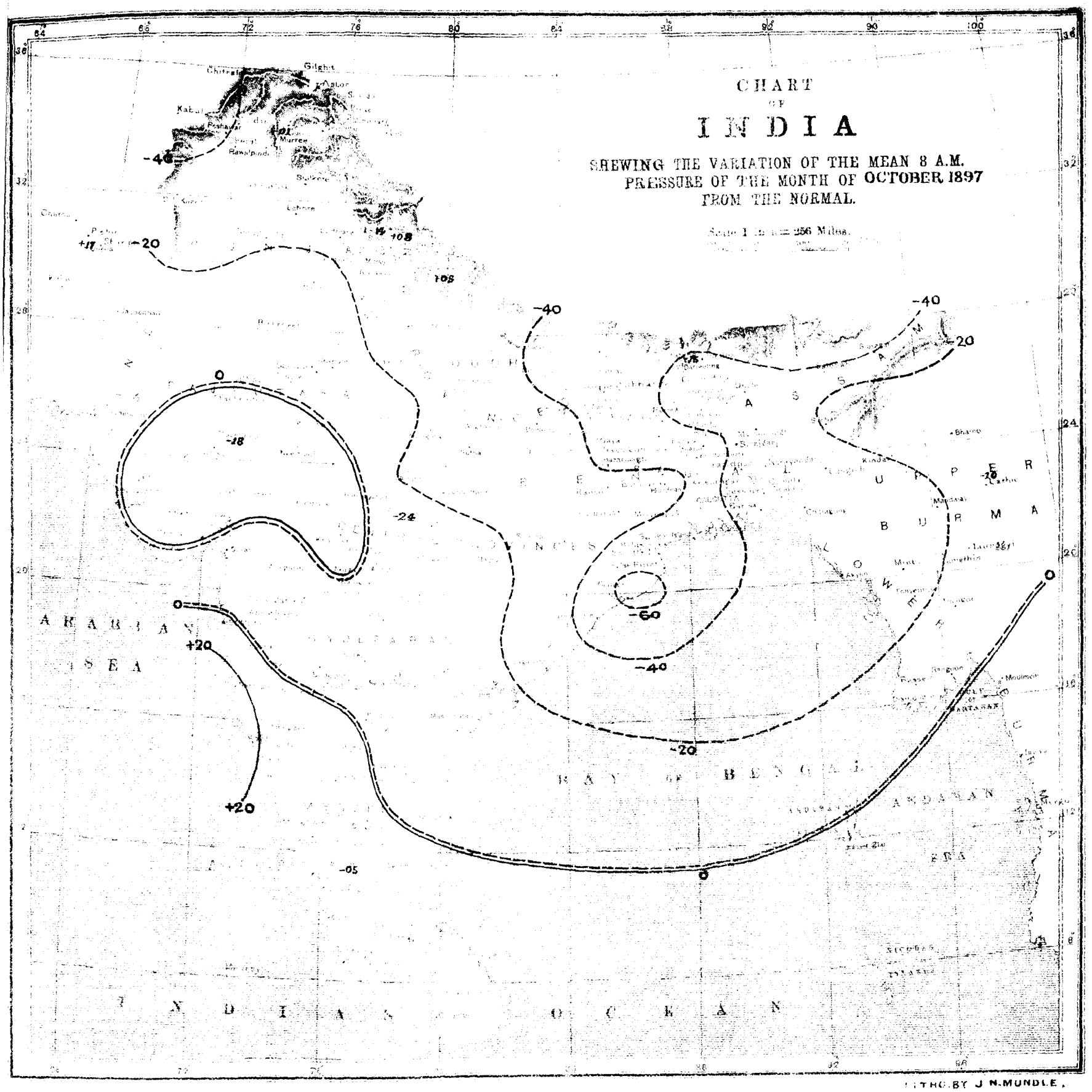


Explanation.

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 above 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.

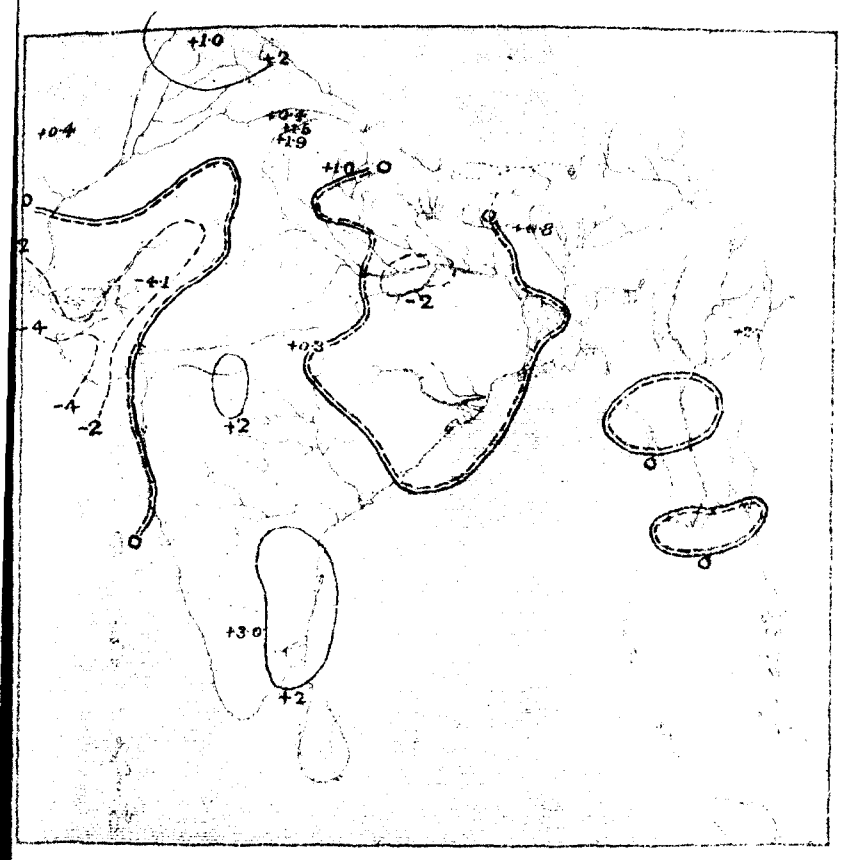
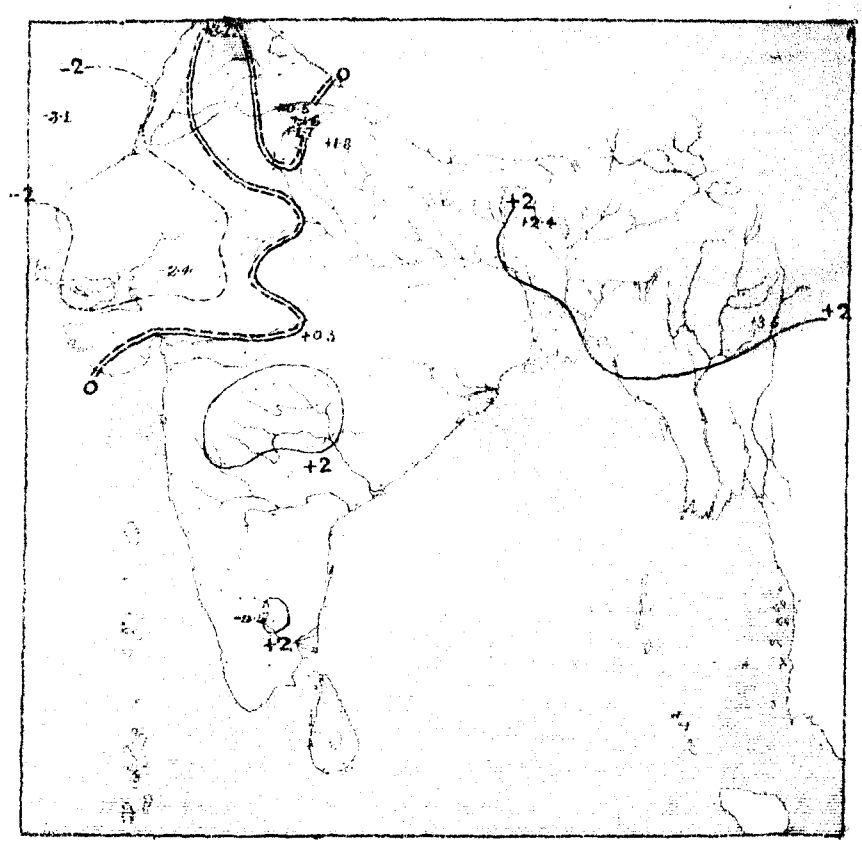


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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.

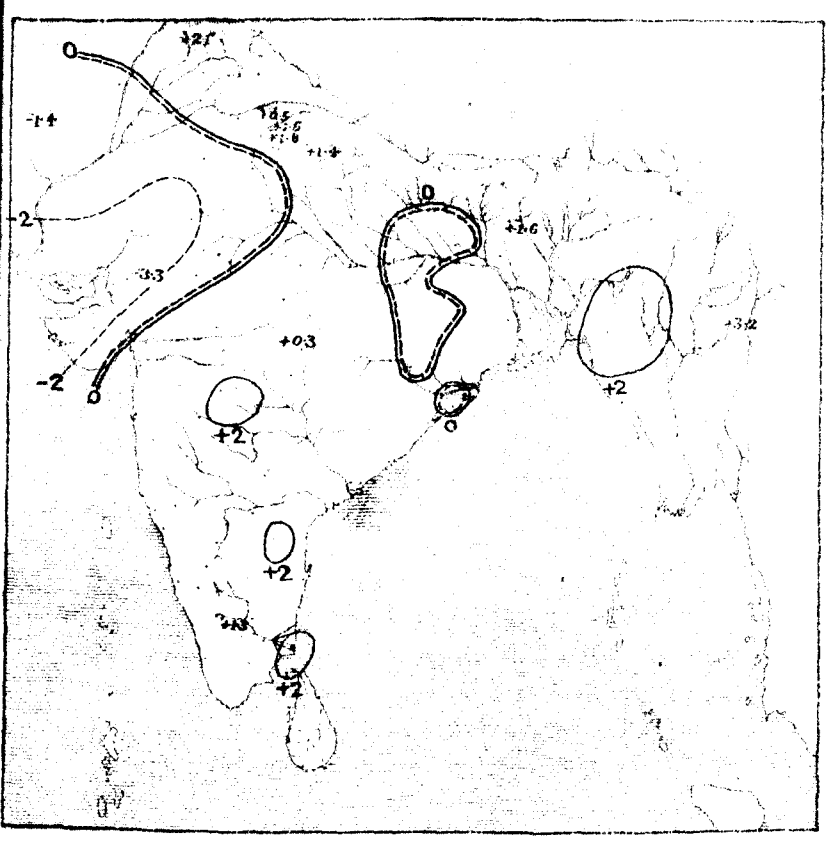
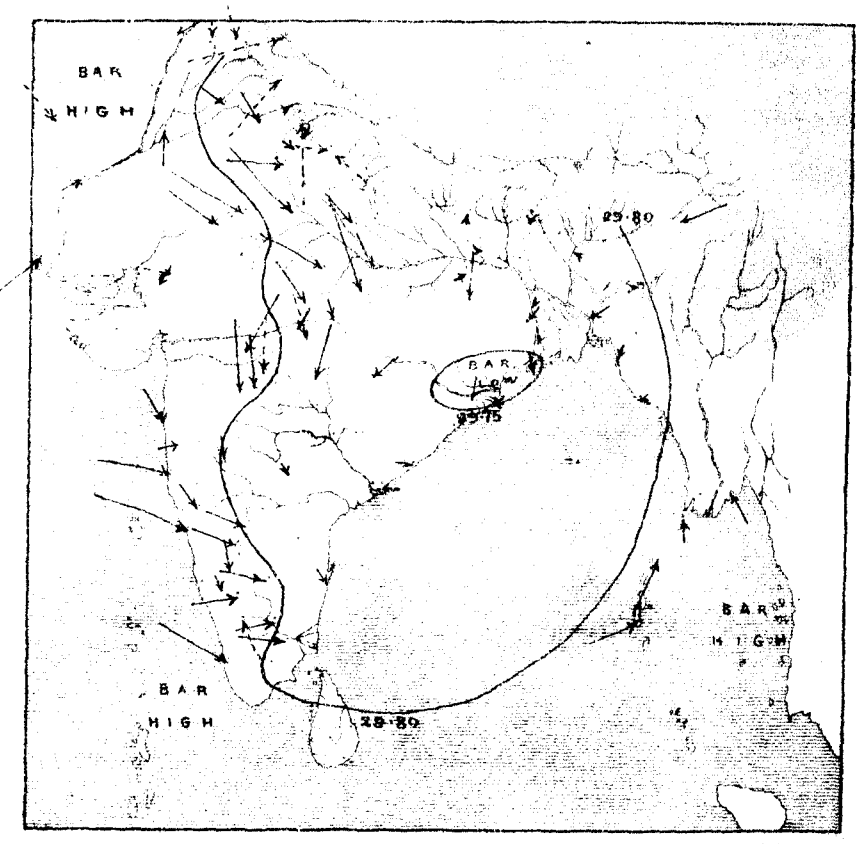


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF OCTOBER 1897.



LITHO. BY J. N. MUNDLE

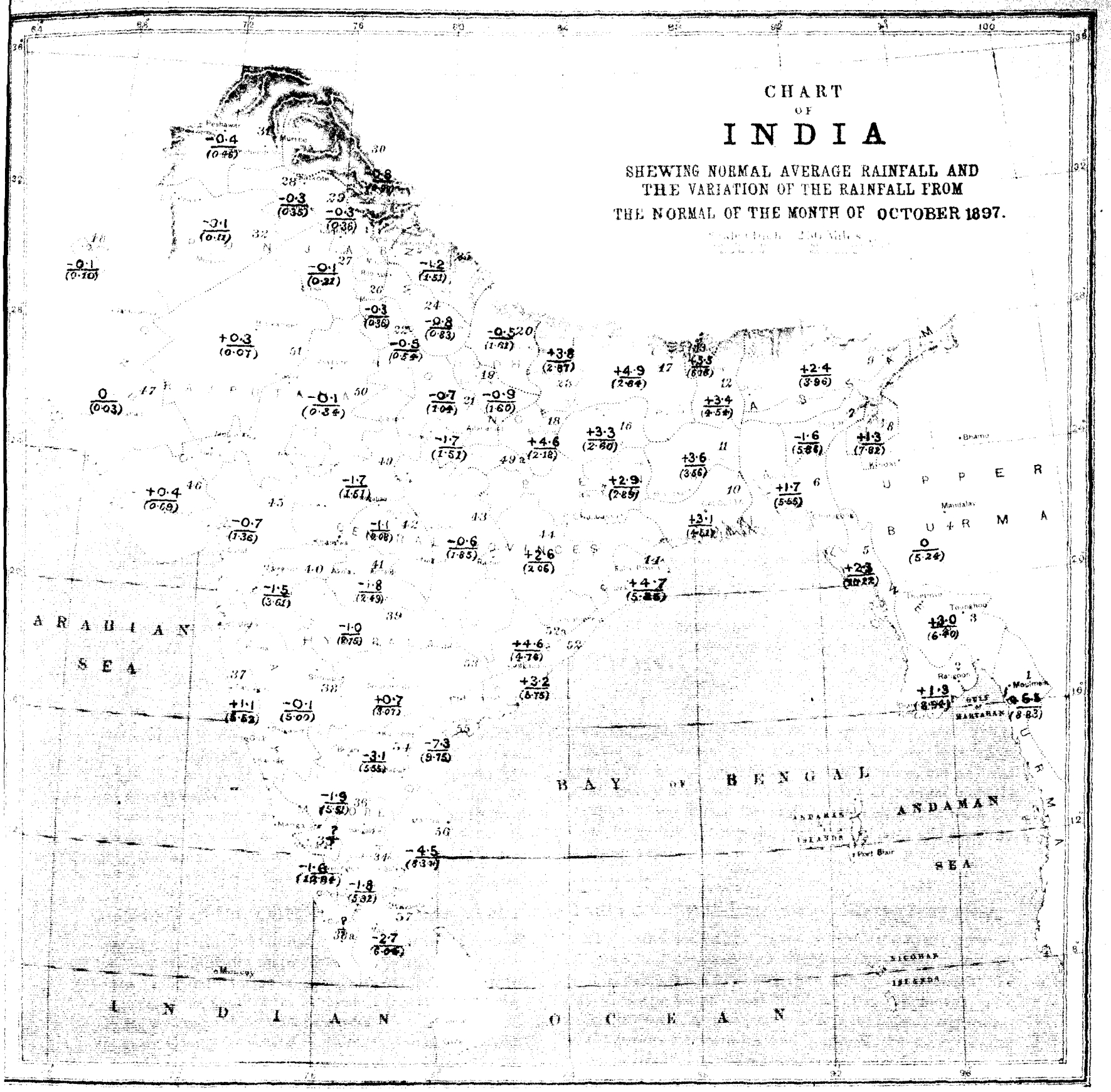
Explanation.

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

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of ⅕th of an inch being equal to 100 per cent.

Explanation.

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



Explanation.

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

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

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Weather Bureau

GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, NOVEMBER, 1897.

INTRODUCTION.

THIS review of the weather in India during the month of November 1897 is based on observations taken daily at 8 A.M. at 212 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 86 stations. In the rainfall summary the rainfall data of the meteorological observatories and the weekly rainfall telegrams received during the month from district officers throughout India, 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, 1897.

The normal meteorological conditions of the month of November are in many respects similar to those of October, as the month forms a part of the transition period during which the south-west monsoon current is retreating from the Indian land and sea areas.

Pressure usually increases in Northern India, and hence the gradients favouring the extension and increasing intensity of the north-east winds in the Bay and Arabian Sea become steeper during the month. Pressure (8 A.M.) at the commencement of the month ranges normally between 29·96″ in the Punjab and 29·86″ in the centre and south of the Bay, and at the end of the month between 30·10″ in the Punjab and Central Rajputana and 29·90″ in the south of the Bay.

The total range of pressure hence usually increases from an average of one-tenth to an average of two-tenths of an inch during the month.

The most important feature in the mean distribution of pressure is the existence of a very shallow belt or trough of low pressure which stretches across the centre of the Bay from the Coromandel coast to the Andamans, and which defines the area over which the humid south-west winds across the entrance and south of the Bay recurve through south, south-east and east, and finally blow as north-east winds on the Coromandel coast, and usually give moderate to heavy rain in Central and South Madras and Mysore during the month.

Over the whole of Northern and Central India the weather is almost invariably fine, with clear skies and light winds.

North-westerly to westerly winds prevail in the Gangetic Plain, and northerly winds in Bengal. In Rajputana and Central India winds range between north and north-east and are light and somewhat unsteady. Easterly

winds obtain in the Peninsula, the air movement in that area forming part of the general drift from north-east to south-west across the north of the Bay and the north and centre of the Arabian Sea.

Temperature falls rapidly in North-Western India during the month, and the mean temperature of the month ranges from 62° in the North Punjab to 80° in the Andamans, the south of the Bay and West Ceylon. The daily range of temperature is always large in Northern India in November, in consequence of the clearness and dryness of the atmosphere, and exceeds 30° over a large part of the Punjab, Sind, Rajputana, Central India, Berar, the Central Provinces and the North-Western Provinces.

The month is almost invariably rainless over the whole of India to the north of Lat. 21° N., except in Assam and Bengal which occasionally receive rain during the existence of the cyclonic storms of the month. These storms usually originate in the centre of the Bay and travel westwards to the Coromandel or North 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 West Mysore and the Nilgiris, Palnis and other hills of Southern India.

The following gives a summary of the more important changes of meteorological conditions and the chief features of the weather in India during November 1897:—

At the commencement of the month pressure was in general excess. The excess was greatest in the Deccan. Temperature was below the normal in the area of greatest excess of pressure and was considerably to largely above it in Baluchistan and North-Western India. The following gives the variations of temperature from the normal in these areas for the 1st:—

Province.	Variation from normal of		
	Mean maximum temperature, 1st November.	Mean minimum temperature, 1st November.	Mean temperature, 1st November.
	°	°	°
Baluchistan	+9·7	+6·3	+8·0
Sind	—0·2	+6·4	+3·1
Punjab	+1·9	+5·4	+3·7
Rajputana	+2·3	+1·6	+2·0
North-Western Provinces and Oudh	+1·1	+2·3	+1·7
Central Provinces	+0·1	—5·5	—2·7
Berar	+0·6	—5·2	—2·3
Deccan	+0·1	—5·9	—2·9

The night temperature was more largely in excess than the day temperature in North-Western India. In the Deccan area the day temperature was normal and the night temperature in large defect.

No large or important change occurred during the next three days.

Light to moderate showers were received in Southern India but the rainfall was not sufficient in amount to reduce temperature below the normal.

The most noteworthy feature of this period from the 1st to the 4th was the unusual dryness of the atmosphere in the Deccan. Skies were clear over the whole of India with the exception of the southern districts of Madras.

The period from the 5th to the 8th was characterized by fine weather over the whole of India. Temperature continued steadily in excess in Northern India. The following gives data for the period from the 5th to the 8th:—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of November.			
	5th	6th	7th	8th
	°	°	°	°
Baluchistan	+4·4	+4·0	+8·8	+8·4
Punjab	+1·8	+2·2	+2·2	+2·3
Sind	+3·1	+4·2	+2·8	+3·0
Rajputana	+2·4	+1·7	+0·8	+2·0
North-Western Provinces and Oudh.	+3·8	+2·0	+2·0	+3·0
Bihar	+1·7	+1·4	+2·1	+1·9
Chota Nagpur	+1·3	+1·0	+0·2	+2·8
Bengal	+0·2	—0·3	+0·6	+2·8

Temperature was, on the other hand, below the normal over the greater part of the Peninsula due to unusually low night temperature. The following shews that the variations were smaller than during the first period:—

Province or area.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of November.			
	5th	6th	7th	8th
	°	°	°	°
Berar	—0·3	—0·3	+0·9	—1·4
Central Provinces	+0·3	+0·7	+0·1	—5·7
Deccan	—2·0	—2·7	—2·0	—2·8
Mysore	—4·6	—2·2	0	—0·2
Bombay Coast	—0·3	+0·3	+0·9	+0·7

Weather was feebly unsettled in the Bay from the 8th to the 12th. It was squally with occasional heavy showers between the Arakan and North Madras coasts. Orissa and North Madras received moderate rain from the 9th to the 11th. Pressure was, relatively to the adjacent land areas, low in the north and centre of the Bay during this period but increased again on the 12th when fine weather set in over the Bay.

Temperature was in excess over nearly the whole of India (excluding Burma) from the 9th to the 12th. The excess was greatest in North-Western and Southern India in the areas for which data are given below :—

PROVINCE OR AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF NOVEMBER.			
	9th	10th	11th	12th
	°	°	°	°
Baluchistan	+7·6	+6·7	+8·4	+9·5
Punjab	+2·8	+3·6	+4·3	+4·2
Sind	+1·6	+2·9	+3·8	+5·4
Rajputana	+0·8	+0·4	+2·3	+3·7
Deccan	+0·5	+2·4	+2·7	+2·1
South Madras	0	+2·2	+3·2	+5·1

The most important feature of this period was the extension of a cool wave from Assam southwards over Burma. The following indicates this extension :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF NOVEMBER.				
	8th	9th	10th	11th	12th
	°	°	°	°	°
Sibsagar	—2·5	—3·1	—3·2	—3·0	—2·1
Bhamo	—2·1	—3·0	—0·2	—2·9	—5·7
Kindat	+1·1	+0·6	+1·5	—0·5	—2·7
Mandalay	+2·7	—0·7	+1·1	—4·2	—4·4
Yamethin	+0·1	—1·4	—2·3	—0·5	—4·1
Thayetmyo	+0·8	—0·4	—2·3	+1·0	+0·9

Fine weather with clear or lightly clouded skies continued during the next four days (from the 12th to the 16th), except in Assam, Burma and East Bengal, which received light to moderate daily showers. This rainfall intensified the reduction of temperature in these areas initiated by the cool wave. The following gives data in illustration :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF NOVEMBER.				
	12th	13th	14th	15th	16th
	°	°	°	°	°
Assam (Brahmaputra)	—2·1	+0·2	—2·3	—2·7	0
Burma (Upper)	—3·6	—3·6	—2·9	—2·7	—6·2
,, (Central)	+1·1	—1·9	—18	+0·8	—4·6
,, (Lower)	+0·7	—1·0	+1·6	+0·9	+0·3

Temperature was steadily in moderate to considerable excess in Baluchistan and North-Western India and in decreasing excess in Southern India. The following gives variation data for the first area :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF NOVEMBER.				
	12th	13th	14th	15th	16th
	°	°	°	°	°
Baluchistan	+9·5	+8·1	+6·2	+7·2	+8·1
Punjab	+4·2	+3·9	+4·1	+4·0	+3·2
Sind	+5·4	+4·5	+4·7	+3·4	+4·1
Rajputana	+3·7	+4·9	+3·5	+2·9	+2·1
North-Western Provinces and Oudh.	+3·1	+2·9	+3·0	+2·9	+2·8

The temperature conditions varied rapidly during the remainder of the month. Temperature increased above the normal in Upper and Central Burma during the last five days of the month, but was in large defect in Lower Burma until the end of the month. The following gives data :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF NOVEMBER.								
	12th	15th	17th	19th	21st	23rd	25th	27th	30th
	°	°	°	°	°	°	°	°	°
Burma (Upper)	—3·6	—2·7	—3·5	—4·0	—1·4	—1·0	—1·2	+0·4	+3·5
,, (Central)	+1·1	+0·8	—5·2	—3·8	+0·1	—0·4	0	+0·9	+0·9
,, (Lower)	+0·7	+0·9	—2·3	—1·7	—3·7	—0·7	—0·2	—3·3	—2·6

Pressure on the 17th was in slight relative excess in the Deccan and in considerable relative defect in the south-east of the Bay and the Andaman Sea. Weather became feebly unsettled in the Andaman Sea on the 18th and a shallow diffused disturbance of squally rainy weather was slowly transferred across the Bay during the period from the 19th to the 25th. The strongest winds experienced by vessels were of force 6. There was a tendency to the establishment of a cyclonic circulation but it never passed beyond the initial stage.

During this period from the 18th to the 24th, fine settled weather with clear skies and steady pressure conditions held in India.

Temperature was in excess throughout the period in Baluchistan and North-Western India but by smaller amounts than during the first fortnight of the month. The following gives data :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF NOVEMBER.					
	19th	20th	21st	22nd	23rd	24th
	°	°	°	°	°	°
Baluchistan . . .	+6·0	+8·1	+6·8	+6·3	+4·9	+3·7
Punjab . . .	+2·8	+2·1	+2·2	+1·7	+1·6	+1·2
Sind	+2·0	+2·0	+1·2	+0·2	0	+1·3
Rajputana . . .	+0·9	+0·6	+0·6	+0·6	+0·2	—0·8
North-Western Provinces and Oudh.	+2·4	+2·4	+2·5	+3·8	+3·1	+2·5

The feeble disturbance covered the Madras Coast on the morning of the 25th and was followed by the extension of humid winds and light to moderate rain in Southern India which continued during the remainder of the month.

Temperature was throughout the same period in slight to moderate excess in Baluchistan, Upper and North-Eastern India and the Deccan, and was normal or in slight to moderate defect in Rajputana, Central India, Berar and the Central Provinces. The following gives data for these areas from the 26th to the 30th:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF NOVEMBER.				
	26th	27th	28th	29th	30th
	°	°	°	°	°
Baluchistan . .	+6·5	+5·1	+4·4	+3·5	+1·9
Bengal and Assam .	+1·1	+1·2	+1·5	+2·2	+0·7
North-Western Provinces and Oudh.	+1·8	+1·5	+1·4	+1·4	+0·4
Punjab . . .	+0·9	+1·1	+0·8	+1·1	+1·0
Sind and Rajputana .	+0·2	—0·2	—0·1	+0·6	+2·0
Central India and Gujarat.	+0·2	—0·6	—0·2	—0·8	—1·2
Central Provinces and Berar.	+0·4	—1·4	—1·8	—1·8	—1·1
Bombay . . .	+0·8	+1·0	+0·5	+0·8	+0·8
Madras . . .	+3·4	+2·7	+3·6	+2·7	+0·8

Temperature was above the normal in Persia from the 1st to the 12th when a sudden change of wind occurred which reduced temperature and the amount of aqueous vapour very largely. The following data for Baghdad and Bushire for the period 10th to the 15th show the character of the change:—

DATE.	BAGHDAD.			BUSHIRE.		
	VARIATION FROM NORMAL OF		Actual aqueous vapour pressure.	VARIATION FROM NORMAL OF		Actual aqueous vapour pressure.
	Mean maximum temperature.	Mean minimum temperature.		Mean maximum temperature.	Mean minimum temperature.	
	°	°	"	°	°	"
10th . .	+ 0·2	+ 4·7	·435	+ 6·2	+ 2·1	·559
11th . .	+ 0·7	+ 1·9	·297	+ 4·6	+ 6·0	·536
12th . .	— 1·0	+ 3·5	·297	+ 3·7	+ 2·2	·366
13th . .	— 5·8	— 4·2	·246	+ 1·0	+ 6·0	·398
14th . .	—15·4	—18·8	·100	+ 0·2	+ 3·6	·401
15th . .	—26·5	—21·1	·110	—11·4	—13·0	·160

The conditions introduced by this change were persistent, and weather was hence remarkably cool and dry in Persia during the remainder of the month.

Pressure.—The mean pressure of the Indian land area was ·008″ below the normal. Pressure was in relative defect in Northern India, Bengal and the greater part of the Bay, but the anomalies were small except in the Indus Valley and the north-west angle of the Bay where they slightly exceeded ·02″. Pressure was in relative excess in the Peninsula. The excess was greatest in North

Bombay and Berar, whether it ranged between 02" and ·03". Pressure was in excess at the hill stations, more especially when compared with that at the neighbouring plains stations, the vertical pressure anomalies ranging from ·002" for Darjeeling to ·12" for Leh and ·06" for Quetta.

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

METEOROLOGICAL PROVINCE.	Variation from normal of mean 8 A.M. pressure of November 1897.	Pressure anomaly, November 1897.
	"	"
Burma Coast and Bay Islands	—·009	—·001
Burma Inland	—·009	—·001
Assam	—·008	0
Bengal and Orissa	—·015	—·007
Gangetic Plain and Chota Nagpur	—·021	—·013
Upper Sub-Himalayas	—·020	—·012
Indus Valley and North-West Rajputana	—·027	—·019
East Rajputana, Central India and Gujarat	+·002	+·010
Deccan	+·002	+·010
West Coast	+·008	+·016
South India	0	+·008

Temperature.—The variations of the temperature conditions from the normal were generally moderate in amount and well-marked. The mean day temperature of the month was in slight to moderate defect and the night temperature normal or in slight defect in Assam, Burma and East Bengal. The mean temperature of the month was hence in slight defect in that area. Temperature, both by day and night, was steadily above the normal over Northern and Central India. The excess was most marked in the Indus Valley and Baluchistan. Hence the mean temperature of the month was in general excess in that area. The excess was absolutely greatest at Jacobabad (+4°·8) and at the hill stations of Quetta (+5°·9), Kailang (+5°·7), Murree (+5°·3) and Leh (+4°·6).

The day temperature of the month was in slight excess in the northern half of the Peninsula and in moderate to considerable excess in the southern half. The minimum temperature (due to the unusual dryness of the air) was in slight to considerable defect in the Deccan, North Bombay, Berar, the Central Provinces and Central India (West). The mean temperature of the month was hence in slight defect in the West Deccan, the Konkan, Khandesh and Gujarat. It was in slight to moderate excess in Madras generally, the excess being greatest at Cuddapah (+2°·9), Salem (+2°·4) and Trichinopoly (+2°·2).

The following table gives variation data of the mean temperature conditions of the month for the eleven meteorological provinces of India:—

METEOROLOGICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, November 1897.	Mean minimum temperature, November 1897.	Mean daily temperature, November 1897.
	°	°	°
Burma Coast and Bay Islands	—0·7	+0·2	—0·3
Burma Inland	—1·6	0	—0·8
Assam	—0·7	—1·0	—0·9
Bengal and Orissa	+0·1	+1·1	+0·6
Gangetic Plain and Chota Nagpur.	+1·4	+2·6	+2·0
Upper Sub-Himalayas	+1·8	+3·3	+2·6
Indus Valley and North-West Rajputana.	+3·4	+3·1	+3·3
East Rajputana, Central India and Gujarat.	+1·9	+0·6	+1·3
Deccan	+1·6	—1·2	+0·2
West Coast	+1·7	—0·7	+0·5
South India	+2·5	+0·2	+1·4

Winds—Were steadier and more easterly than usual in Burma and in East and Central Bengal. Winds were more directly from the north and feebler than usual in the Gangetic Plain. Winds were remarkably unsteady in the Indus Valley, and were on the mean of the month, from southerly directions, instead of the normal northerly directions, in Sind. Winds were steadier and more westerly (or less easterly) than usual in Rajputana, Central India, the northern half of the Peninsula and the Konkan coast. Winds were practically normal in direction and strength in the Madras coast districts. Winds at Zanzibar and the Seychelles shifted from south-easterly to northerly directions early in the month and were considerably below their normal strength.

Humidity and Cloud.—The air contained a slightly larger amount of vapour than usual in Burma, Northern and Central India, and the mean humidity of the month was generally in excess by small amounts. The excess was largish in Sind and South-West Rajputana, where southerly winds prevailed to an unusual extent during the month. Thus the mean humidity of the month was 9 in excess at Kurrachee, 7 in excess at Jacobabad and 8 in excess at Deesa.

The air was abnormally dry over the whole of the Peninsula due mainly to a large deficiency in the amount of aqueous vapour. The mean humidity of the month was more than 10 below the normal in the Deccan, Mysore and Berar. The deficiency was absolutely greatest at Bellary (—19), Sholapur (—16) and Buldana (—15). The air was much drier at the Punjab and Sikkim hill

stations and also in Baluchistan and Persia. It is noteworthy that the air was drier in Assam, the only region where the rainfall of the month was in excess.

Cloud was in excess in Burma, South Bengal, Orissa and North Madras. The excess was, however, large only at Port Blair and Akyab. There was less cloud than usual over the remainder of India and the deficiency increased westwards into the interior. It was absolutely greatest in the Western Himalayan region and in Mysore, the West Deccan and the Konkan in which it ranged between 2 and 3 in amount. Skies were practically or actually free from cloud during the month over a considerable portion of North-Western and Western India and Persia. The mean cloud amount of the month was *nil* for Bombay, Mount Abu and Deesa.

The following table gives variation data of the mean aqueous vapour pressure, mean humidity and mean cloud amount of ten meteorological provinces :—

Meteorological Province.	Variation from normal of		
	Mean aqueous vapour pressure, November 1897.	Mean humidity, November 1897.	Mean cloud amount, November 1897.
	"		
Burma Coast and Bay Islands	+·010	+3	+1·3
Assam	—·024	—2	—0·2
Bengal and Orissa	+·016	+1	0
Gangetic Plain and Chota Nagpur	+·057	+3	—0·2
Upper Sub-Himalayas	+·027	+2	+1·0
Indus Valley and North-West Rajputana.	+·043	+2	—1·1
East Rajputana, Central India and Gujarat.	+·038	+4	—1·2
Deccan	—·065	—7	—1·5
West Coast	—·072	—7	—1·5
South India	—·053	—8	—1·3

Rainfall.—The rainfall of the month was very scanty except in Burma and Assam. No rain was received over the greater part of the country including the five meteorological provinces of the Gangetic Plain and Chota Nagpur, Upper Sub-Himalayas, Indus Valley and North-West Rajputana, East Rajputana, Central India and Gujarat and in the Deccan and also in Baluchistan. The chief periods of rainfall were the 1st to 4th, the 12th to the 16th and the 25th to the 30th. In the first and third of these periods Southern India received light to moderate rain from local showers. During the second period, Burma, Assam and parts of Bengal obtained occasional rain. The rainfall of the month was normal in Burma, in slight defect in Bengal and in moderate excess in Assam. It was in large defect in the areas which usually receive moderate to heavy rain from the retreating south-west monsoon in November, *viz*, the Deccan, West Coast and South India. The rainfall was especially scanty in the Madras or Coromandel coast districts where it was from 60 to 90 per cent. below the normal.

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

Meteorological Province.	Rainfall.		
	Mean actual for November 1897.	Mean normal for November.	Variation from normal, November 1897.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	3·99	3·97	+0·02
Burma Inland	1·31	1·39	—0·08
Assam	1·37	0·85	+0·52
Bengal and Orissa	0·77	1·04	—0·28
Gangetic Plain and Chota Nagpur	0·01	0·22	—0·21
Upper Sub-Himalayas	0	0·15	—0·15
Indus Valley and North-West Rajputana.	0	0·16	—0·16
East Rajputana, Central India, and Gujarat.	0	0·23	—0·23
Deccan	0·02	0·93	—0·91
West Coast	1·15	3·06	—1·91
South India	2·59	6·14	—3·55

Atmospheric Pressure.

The mean pressure of the Indian land area in the month of November 1897, as in the corresponding month of 1896, was ·008" below the normal.

The abnormal features of the pressure distribution of the month were, however, different from those of the corresponding month of the previous year.

Pressure was, relatively to the general condition, in defect over the whole of Northern India and the north

and south-east of the Bay. The negative anomalies were small in amount except in the Indus Valley and at the head of the Bay where they were greater than ·020″ at the stations for which data are given below :—

STATION.	Variation from normal of mean 8 A. M. pressure of November 1897.	Pressure anomaly, November 1897.
	″	″
Peshawar	—·045	—·037
Multan	—·036	—·028
Jacobabad	—·034	—·026
Dera Ismail Khan	—·031	—·023
Saugor Island	—·032	—·024

The pressure anomalies were positive over the Peninsula, the Western State of Centrals India, Cutch, Kathiawar and Gujarat. The anomalies exceeded ·02″ at the following stations in these areas :—

STATIONS.	Variation from normal of mean 8 A. M. pressure of November 1897.	Pressure anomaly, November 1897.
	″	″
Bhuj	+·019	+·027
Akola	+·019	+·027
Ratnagiri	+·017	+·025
Khandwa	+·016	+·024
Neemuch	+·016	+·024
Goa	+·015	+·023
Bombay	+·015	+·023
Rajkot	+·015	+·023
Poona	+·013	+·021

The variations of pressure at the hill stations were somewhat large. Pressure was relatively in slight to moderate excess or the vertical anomalies were positive, as is shown by the following data for eight pairs of stations :—

HILL STATION.	Variation from normal, of pressure (a)	PLAIN STATION.	Variation from normal, of pressure. (b)	Vertical pressure anomaly or (a)—(b).
	″		″	″
Leh	+·076	Lahore	—·044	+·120
Kailang	—·013	Lahore	—·044	+·031
Quetta	+·023	Jacobabad	—·034	+·057
Murree	+·011	Rawalpindi	—·020	+·031
Simla	+·001	Ludhiana	—·024	+·025
Chakrata	+·018	Roorkee	—·023	+·041
Ranikhet	+·022	Barielly	—·006	+·028
Darjeeling	—·010	Dhubri	—·012	+·002

The chief features of the pressure distribution of the month were :—

(1) General slight deficiency.

(2) Local defect in Northern India, moderate in amount in the Indus Valley and South Bengal and slight elsewhere.

(3) Local excess in the Peninsula, greatest in Kathiawar, Gujarat, the Konkan, Khandesh and Berar.

(4) Moderate excess of pressure at the hill stations in Northern India as compared with the neighbouring plains stations.

Barometric depressions and cyclonic storms of the month.

On the first of the month the barometer was above the normal average in all parts of India (excepting the Punjab), the abnormal excess being greatest, as was also the case at the close of the previous month in the north and centre of the Peninsula. Pressure gave way over the whole of India on the 2nd but increased again on the 3rd and 4th. These changes, however, did not affect the relative distribution of pressure at this time, the chief features of which were a considerable local excess in the north and centre of the Peninsula and a local deficiency in Lower Burma and the south-east of the Bay. Southern India and the Andamans received light showers during the period from the 1st to the 4th. Fine clear weather obtained over Northern and Central India.

Shallow depression of the 6th to the 9th November.—The pressure changes of the next three days, the 5th to the 7th, were not large in amount, but their general effect was to increase pressure in North-Western India and to decrease it in the south and south-east of the Bay. Fine weather prevailed in India during this period and showers were received in Lower Burma and the Andamans. Weather was squally and unsettled on the 6th and 7th in the south and south-east of the Bay. The following 8 A.M. data for the 7th extracted from the

logs of vessels in the south and south-east of the Bay show the character and extent of the disturbed weather :—

Name of vessel.	8 A.M. Position		Barometer corrected.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Pundua* .	2 20	101 22	29·804(?)	var.	...	Heavy squalls of wind and rain.
S.S. *Clan Campbell.*	7 22	82 38	?	NW	4	Moderate Sea, squally with heavy rain.
R. I. M. S. *Canning.*	7 42	84 12	29·774	NNW	2	Fine and clear, midnight squally with lightning.
S.S. *Sirsa* . .	8 23	81 35	29·774	N	4	Cross swell cloudy, 4 P.M., squally with rain.
S.S. *Congella* .	8 40	82 47	29·781	calm	0 to 2	Rainy.

Over the whole of the north, centre and west of the Bay weather was fine with gentle northerly breezes.

Pressure changed irregularly but slightly over the Bay on the 7th and 8th and a large closed area of slight deficiency of pressure lay over the centre of the Bay on these days. Winds were, however, light and more or less irregular in direction and there was little tendency to the development of a cyclonic circulation. The squally weather extended westwards, so that on the 9th it was chiefly shown in the west and centre of the Bay, as is indicated by the following data :—

Name of vessel.	8 A.M. Position.		Barometer corrected.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
R. I. M. S. *Dalhousie.*	6 07	82 12	·849	WSW	3	
S.S. *Catharine Apcar.*	11 57	95 42	·906	NW	1	
S.S. *Okara* .	12 19	85 05	832	ENE	4	Sea smooth, 4 P.M. light rain squalls.
S.S. *Kerbela* .	Madras		·860	...	...	
S.S. *Karagola* .	21 47	91 02	29·888	NE	2	
S.S. *Malda* .	Calcutta		·908	?	?	8 P.M. rainy.

The shallow depression gradually filled up during the next 48 hours, during which light showers were received in Orissa and the northern districts of Madras. Weather improved in the Bay, so that on the 11th, only eight vessels out of the thirty-one from which reports have been received had rain showers during the day.

Pressure gave way in Upper India on the 10th and 11th and a shallow depression was shown in Sind on the 12th. It filled up during the next 24 hours and was of no importance, as it did not even give rise to cloud in Baluchistan or the Punjab Himalayas.

Assam and the greater part of Burma received light to moderate daily showers from the 12th to the 16th, whilst fine weather held steadily in India. The pressure changes during this period were somewhat irregular in Burma, and pressure was also in slight relative defect. The conditions, however, throw little light on the direct causes of the rainfall, which was extremely beneficial to the crops, in Upper Burma.

Shallow depression of the 18th to the 25th November.—Pressure increased over the Indian area on the 17th and 18th. Moderate gradients obtained in the north and west of the Bay, whilst a large area of uniform pressure lay over the south-east. The following data show the character of the weather in that area at 8 A.M. of the 18th :—

Station or Vessel.	8 A.M. Position.		Barometer corrected.		Wind.		Weather.
	Lat. N.	Long E.	Reading.	Variation from normal.	Direction.	Force.	
	° ′	° ′	″				
Port Blair . .	...	...	29·816	?	NNE	8*	
Diamond Island .	...	...	·884	—·011	NNE	11*	
Cocos Island .	...	...	·888	?	NNE	...	
R.I.M.S. *Canning*	9 43	86 16	·821	?	ENE	3	Overcast 4 A.M., squally with rain.
S.S. *City of Lucknow.*	9 54	83 33	·887	?	NNE	5	Moderate sea.
S.S. *Sui-Sang* .	10 39	96 05	·843	?	Var.	...	Squally with thick rain.
S S. *Karagola* .	16 30	96 16	·876	?	E	2	
S.S. *Mecca* .	16 35	92 59	·899	?	N	2	

* Average hourly velocity in miles.

Light and unsteady north-easterly winds prevailed over the Andaman Sea and the east of the Bay, and weather was fine with local showers and the sea smooth.

Pressure fell slightly on the 19th at Port Blair and Diamond Island, and a shallow depression lay over the south-east of the Bay between the Nicobars and Diamond Island. The depression was deepest at Port Blair. Winds were only moderate in force and were from north-north-east. Diamond Island, on the other hand, reported very violent winds with a high sea. The observer described the weather changes on the 18th and 19th in the following terms :—

18th.—"From about 3 P.M., the weather took a change for the worse, and increasing cloud and winds indicated stormy weather. From 6 P.M., the velocity of wind gradually increasing, and sea was getting rough. Pallio-Cumulus clouds moving rapidly from north-east

where heavy banks of clouds were visible. Wind vane, oscillating rapidly between north-north-east and east-north-east. Storm seems to be coming over island.

19th.—"Weather much the same since 2 P.M., with this exception, that velocity of wind is abating, and the sea is more rough. Wind vane oscillating rapidly between north-north-east and east-north-east."

The following data for vessels in the east of the Bay indicate the character of the winds and weather in the depression at 8 A.M. of the 19th :—

Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction	Force.	Weather.
	° ′	° ′	″			
S.S. *Loodiana* .	5 5[illegible]	97 56	29·87[illegible]	NE	4	Overcast with rain at times.
S.S. *Litimbro* .	6 07	89 44	?	NW	2	4 P.M., heavy rain.
S.S. *Sui-Sang* .	14 1	93 28	29·843	NNE	5	Beam sea 8 P.M. squally with rain.
S.S. *Madura* .	16 12	96 10	·928	ENE	6	Squally with rain.
S.S. *Pundua* .	16 52	92 52	·872	NE	5	

Weather was squally in the shallow depression, and fresh to strong north-east winds prevailed in the northern portion, but the storm was apparently of slight intensity.

20th November.—The pressure changes during the previous 24 hours were small and irregular in India, and pressure increased locally but slightly at Diamond Island and Port Blair. The wind at Port Blair shifted from north-north-east to south-south-west, but the velocity only averaged five miles per hour during the previous 24 hours.

The shallow depression had hence been transferred westwards, and if there was a centre, it was probably to the west or west-north-west of Port Blair. There are no data for the central depression. The following gives the available data for the centre and south-east of the Bay :—

Station or Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer corrected. Reading.	Wind. Direction.	Force.	Weather.
	° ′	° ′	″			
Port Blair . .	...	...	29·837	SSW	5*	
Cocos Island .	...	...	·870	SSW	3 to 5	
S.S. *Loodiana* .	6 40	93 45	·840	S	5	Southerly swell occasional slight rain.
S.S. *Lawada* .	9 18	83 28	·860	NNE	4	
S.S. *City of Lucknow.*	13 02	84 46	·897	N	5	Moderate sea. 4 A.M. squally with frequent showers.
S.S. *Warora* .	14 43	93 52	·852	SE	6	Beam sea, squally with rain.
S.S. *Kohinur* .	15 58	93 59	·882	ENE	4	Drizzling rain.

* Average hourly velocity in miles.

21st November.—The barometric changes were again small and irregular over the Indian land area. The diffused disturbance had apparently shifted again slightly westwards and lay over the centre of the Bay. The available data given below indicate its position roughly at 8 A.M. of this day—

Station or Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer corrected. Reading.	Variation from normal.	Wind. Direction.	Force.	Weather.
	° ′	° ′	″	″			
Diamond Island .	...	...	29·924	+ ·022	ENE	24*	Gale of wind.
Cocos Island .	...	...	·928	?	N	1 to 2	
Port Blair .	...	...	·879	?	NNW	5	
S.S *Manica* .	8 24	82 37	·877	?	NNE	4	Moderate N. swell. 8 P.M., sharp squalls.
S.S. *Naderi* .	9 41	83 45	·840	?	NW	4	Moderate sea. 4 P.M. drizzling rain.
S.S. *City of Venice*	11 26	84 15	·847	?	NNE	5	Squally and heavy rain.
S.S. *Lawada* .	12 21	84 40	·868	?	NNE	5	Moderate sea. 4 P.M., passing showers.
S.S. *City of Lucknow.*	16 09	85 52	·897	?	NE	5	High sea. Unsettled.
S.S *Kohinur* .	18 41	91 7	·861	?	ESE	3 to 4	Cloudy.

* Average hourly velocity in miles.

The data show that north-east winds prevailed over the western portion of the southern half of the Bay as at Port Blair. Weather was, however, squally with fresh to strong winds in about Lat. 12° N and Long. 86° E, and it is probable that the feeble disturbance, which passed over the Andamans on the 19th, was in that position at 8 A.M. of the 21st. It is, however, clear that the disturbance was only of slight intensity.

22nd November.—Pressure had increased slightly over the whole of India and fine weather with clear or lightly clouded skies, held steadily. Weather was, as on the previous day, disturbed in the centre of the Bay. The following gives the available data :—

Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction.	Force.	Weather.
	° ′	° ′	″			
S.S. *Loodiana*	9 22	85 13	29·882	calm	0	Slight swell.
S.S. *Manica* .	11 36	84 10	·887	N	2	Moderate head swell.
S.S. *Naderi* .	12 53	84 54	·880	NW	4	Moderate sea. Cloudy 4 A.M., squally.
S.S. *City of Venice*	15 17	85 47	?	N	5	Confused sea. Squally with rain.
S.S. *Lawada* .	15 30	85 55	·834	NW	4	Moderate sea. Cloudy, noon, squally with light rain.

The data indicate feeble and diffused disturbance in the centre of the Bay. The irregularity of the wind directions shows that there was no well-defined cyclonic circulation.

23rd November.—The pressure changes were small, except in the North-West Punjab, where pressure had increased briskly.

The data obtained from vessels in the Bay indicate that the diffused disturbance continued to drift, or extend slowly westwards. The following gives the available information showing its character at 8 A.M. :—

Name of Vessel.	8 A.M. Position. Lat. N.		Long. E.		Barometer corrected.	Wind. Direction.	Force.	Weather.
	°	′	°	′	″			
S.S. *Loodiana*	10	5	81	0	29·913	NW	2	
S.S. *Logician*	11	46	84	3	?	N	2	
S.S. *Clan Lindsay*	15	52	82	9	·909	NW	4	
S. S. *Manica*	15	5	85	39	·887	S	2	
S.S. *Scindia*	16	9	82	25	?	NNW	2	N. E. swell.
S. S. *Naderi*	16	14	86	13	?	E	2	Moderate sea. Midnight, squally with heavy rain.

Winds were, generally, light and irregular in direction in the area of unsettled weather. Two vessels had heavy rain during the day, two light rain and the rest fine weather.

24th November.—Pressure was remarkably steady at this time in India, and fine weather continued. The area of feebly unsettled weather was now approaching the Madras coast. The S.S. *Clan Lindsay*, about 150 miles east of Nellore at 8 A.M., had light variable winds with a continual downpour of rain during the day. Winds were increasing and sea rising on the North Madras coast.

25th November.—The disturbance affected the Madras coast on the morning of this day. This is shown clearly by the following observations recorded at the Madras Observatory on this day :—

Hour.	Barometer. Reading.	Corrected.	Corrected for hourly var.	Wind. Direction.	Force preceding hour.	Rain.
A.M.	″	″	″	points.	Miles.	Inch.
2	30·09	29·88	29·90	27	9	0·09
3	·05	·84	·86	23	11	0·13
4	·02	·81	·83	22	13	0·50
5	·00	·79	·80	20 to 24	20	0·54
6	·01	·80	·79	17	19	0·36
7	·06	·85	·82	15	23	0·80
8	·12	·91	·86	14	20	0·62
9	·15	·94	·88	15	16	0·00
10	30·17	29·96	29·91	15	15	0·07

Between 5 A.M. and 7 A.M. there were gusts registered by the Dines Anemometer up to 34 miles per hour=51 miles by the Robinson scale.

North-east humid winds prevailed in Southern India and gave daily rain from the 25th to the end of the month. The rainfall was moderate in amount but fairly general.

The disturbance under discussion contrasts strongly with the storm which appeared in the Andaman Sea in the month of October. It probably originated in the Andaman Sea in an area of persistent low pressure during the greater part of the month. It never developed beyond the stage of squally disturbance and was transferred slowly across the Bay, in about six days, from the Andamans on the 19th to the Madras coast on the 25th. It was followed by a brief period of humid winds in Southern India which gave moderate and greatly-needed rain.

Pressure changed rapidly and largely in North-Western India during this period, from the 25th to the end of the month, but fine clear weather continued throughout.

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the north and north-west of India.

North-Western Provinces Himalayas.

The following snowfall report for the period, 16th October to the 15th November, has been received from the Commissioner of Kumaon :—

Malla Danpur.—Snow fell as under—

	Feet.	Inches.
14th October	1	0
30th ditto	1	0
13th and 14th November	1	6
Total	3	6

Malla Johar.—Snow fell as under—

	Feet.	Inches.
1st November	3	0
2nd ditto	3	0
10th ditto	3	0
Total	9	0

Malla Byans, Chaudans and Darma.—Snow fell as under—

	Feet.	Inches.
31st October	0	6
1st November	0	3
12th ditto	0	3
Total	1	0

The snowfall was greater in amount than during the corresponding period of previous years and weather was hence much colder than usual.

Summary of special storm reports.

The weather was much more settled than is frequently the case in November and there were no local storms reported. Series of observations were recorded at Diamond Island, Cocanada and several other coast stations during the stormy weather of the 19th to the 25th. The information has been utilized in the pressure section.

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

Arabian Sea.—Ordinary north-east monsoon winds obtained steadily throughout the month over the whole of the Arabian Sea, except in the extreme south where the air motion was characterized by even greater unsteadiness than usual, north-easterly and south-easterly winds alternating with winds from between north and west. Weather was fine and clear in the region of north-east winds, but feebly unsettled in the south-east, more especially during three brief periods, *viz.*, the 1st to the 3rd, the 11th to the 13th and the 16th to the 18th.

Bay of Bengal.—Except in the south-west, where winds were more westerly than usual, the air circulationover the Bay was of the usual character during the first seven days of the month. Weather was more or less showery during this period in the area of westerly winds and fine and clear over the remainder of the Bay. The air movement over the Bay ranged between 2·2 and 3·5 and averaged 3·0 for the whole of the period.

Winds fell off rather rapidly during the next three days and averaged only 2·1 in force on the morning of the 10th as compared with 3·2, their normal intensity in November. Conditions were feebly disturbed from the 8th to the 12th over the greater part of the Bay, several vessels experiencing heavy squalls on these days.

No significant change occurred until the 16th when the winds began to strengthen again in force. The mean intensity of the air movement, as derived from the data of eighteen vessels, was 3·9 at 8 A.M. of the 17th or 1·5 greater than on the preceding day. There was at this time a moderate local deficiency of pressure over the south-east of the Bay. A feeble storm formed over this area of local deficiency of pressure on the 18th and 19th, and, drifting slowly westwards across the Bay, passed inland across the Coromandel coast on the morning of the 25th. Winds were irregularly cyclonic over the Bay during the existence of the storm, but it was throughout a feeble disturbance and its influence over the winds and weather was hence not marked, the strongest winds reported by vessels being only of force 6. With the disappearance of the disturbance fairly normal north-east winds were re-established over the Bay and held steadily until the end of the month

From the preceding account of the weather in the Indian seas it will be seen that strongly marked north-east monsoon conditions obtained generally over both the Bay of Bengal and the Arabian sea, and that weather was finer than usual in both areas.

Temperature of the Air.

The variations of the mean temperature conditions of the month were large and strongly marked, and, in many respects, were similar to those reported in November 1896. The mean temperature of the whole month was more or less considerably in excess over nearly the whole of India and in defect over Burma, Assam and the adjoining parts of Bengal.

The mean maximum or day temperature of the month was higher than usual except in Assam, the eastern districts of Bengal and Orissa. In these regions it was in slight defect. It was in slight to moderate defect in Burma. The deficiency was more than 2° in amount at Bhamo (—2°·8) and Minbu (—2°·6).

The excess was most pronounced in Upper India and the southern half of the Peninsula. The excess in the Peninsula was due to the scanty rainfall and the prevalence

of much finer weather than usual during the month. In Upper India it was probably the result of abnormal conditions prevailing in the Persian area.

The following gives comparative data for the stations at which the abnormal excess was more than 3° in amount:—

Station.	Mean maximum temperature.		
	Actual, November 1897.	Normal, November.	Variation of actual from normal, November 1897.
	°	°	°
Cuddapah	91·4	86·6	+4·8
Bangalore	82·4	78·5	+3·9
Madras	88·5	85·0	+3·5
Bellary	89·7	86·3	+3·4
Trichinopoly	90·1	86·7	+3·4
Salem	90·0	86·9	+3·1
Jacobabad	90·7	85·9	+4·8
Hyderabad	91·3	87·2	+4·1
Secunderabad	86·1	82·9	+3·2
Hill Stations: Quetta	73·4	63·8	+9·6
Hill Stations: Murree	65·3	61·0	+4·3

The most remarkable feature was the large excess in the day temperature at Quetta (where it was nearly 10° above the normal). This feature apparently did not extend over Persia. The following gives variation data for stations in that area:—

Station.	Mean maximum temperature.		
	Actual, November 1897.	Normal, November.	Variation of actual from normal, November. 1897.
	°	°	°
Teheran	62·1	64·8 ?	−2·7 ?
Ispahan	64·9	65·2 ?	−0·3 ?
Bushire	75·7	79·0	−3·3
Baghdad	70·0	76·6	−6·6

The mean night or minimum temperature of the month was in slight defect in Assam and Central Burma. It was in moderate to large defect in the western half of the Peninsula, more especially in the area represented by the stations for which data are given below:—

Division.	Station.	Mean minimum temperature.		
		Actual, November 1897.	Normal, November.	Variation of actual from normal, November 1897.
		°	°	°
West Deccan	Poona	54·1	59·7	−5·6
West Deccan	Malegaon	53·1	56·8	−3·7
West Deccan	Belgaum	58·6	61·6	−3·0

The mean night or minimum temperature of the month exceeded the normal elsewhere, the abnormal excess being moderate to considerable in amount over a large area, including almost the whole of Upper India. The excess was over 3° in amount at many stations in the Gangetic Plain, the Punjab and Upper Sind, as is shown by the following data:—

Province.	Station.	Mean minimum temperature.		
		Actual, November 1897.	Normal, November.	Variation of actual from normal, November 1897.
		°	°	°
Sind	Jacobabad	54·2	49·4	+4·8
Punjab	Lahore	52·2	46·2	+6·0
Punjab	Ludhiana	54·0	50·0	+4·0
Punjab	Sialkot	52·2	48·5	+3·7
Punjab	Mooltan	54·9	51·5	+3·4
Punjab	Sirsa	51·5	48·1	+3·4
Punjab	Delhi	58·5	55·4	+3·1
North-Western Provinces and Oudh	Jhansi	60·7	56·7	+4·
North-Western Provinces and Oudh	Lucknow	55·8	51·8	+4·0
North-Western Provinces and Oudh	Bareilly	55·9	52·1	+3·8
North-Western Provinces and Oudh	Agra	58·3	54·9	+3·4
North-Western Provinces and Oudh	Allahabad	57·6	54·4	+3·2
North-Western Provinces and Oudh	Gorakhpur	60·6	57·5	+3·1
North-Western Provinces and Oudh	Meerut	52·6	49·5	+3·1
Bihar	Patna	63·5	59·9	+3·6
Bihar	Gaya	62·3	59·1	+3·2

The night temperature was also above the normal at the hill stations, but the excess was large in amount only at Murree where the mean night temperature of the month was 6°·3 above the normal.

The preceding remarks have shown that both the day and night temperatures were in defect in Assam and the greater part of Burma, and the mean temperature was normal or in slight defect in these two areas. The day temperature was in slight to considerable excess in the Peninsula, but the night temperature was below the normal to a similar extent over the whole of that area except Southern India and North Madras. The mean temperature of the month was hence in slight defect in the West Deccan and in slight excess over the remainder of the Peninsula, except in the area represented by the stations for which data are given below in which it was in moderate excess :—

Station.	Mean daily temperature.		
	Actual, November, 1897.	Normal, November.	Variation of actual from normal, November 1897.
	°	°	°
Cuddapah	80·9	78·0	+2·9
Salem	79·9	77·5	+2·4
Trichinopoly	81·4	79·2	+2·2

Both the day and night temperatures were more or less in excess over the whole of Northern and Central India and hence also the mean temperature. The excess was more than 2° in amount in the western half of Bihar, the North-Western Provinces, the Punjab, Upper Sind and Baluchistan. It was 3° and upwards in the area represented by the stations for which data are given below :—

Province or Division.	Station.	Mean daily temperature.		
		Actual, November 1897.	Normal, November.	Variation of actual from normal, November 1897.
		°	°	°
Baluchistan	Quetta	53·3	47·4	+5·9
Upper Sind	Jacobabad	72·5	67·7	+4·8
Punjab	Rawalpindi	63·0	59·5	+3·5
	Lahore	67·0	63·8	+3·2?
	Sialkot	67·6	64·5	+3·1
	Mooltan	70·8	67·8	+3·0
North-Western Provinces and Oudh.	Lucknow	71·1	67·4	+3·7
	Jhansi	73·8	70·5	+3·3

The increased temperature was hence most marked in Baluchistan and Upper Sind.

The following gives comparative temperature data for the 56 meteorological divisions of the Empire :—

Province.	Division.	Actual Temperature.					Variation from normal of November 1897 of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	87·3	70·9	79·1	16·4	31·0	−0·7	+0·8	−1·5
	Lower Burma (Deltaic)	85·5	73·0	79·3	12·6	22·6	−0·8	−0·2	−0·6
	Central do.	87·0	68·9	78·0	18·1	30·5	−0·3	−0·3	0
	Upper do.	83·6	65·6	74·6	18·0	34·0	−1·9	+0·1	−2·0
	Arakan	84·4	72·2	78·3	12·2	24·1	−1·1	+0·3	−1·4
Bengal and Assam	Eastern Bengal	81·1	63·6	72·2	17·5	29·2	−0·2	+0·4	−0·6
	Assam (Surma)	86·2	63·1	74·7	23·1	38·1	?	?	?
	Do. (Brahmaputra)	78·5	60·8	69·7	17·8	27·4	−0·7	−1·0	+0·3
	Deltaic Bengal	82·5	64·8	73·7	17·7	28·7	+0·1	+0·6	−0·5
	Central do.	82·6	63·9	73·2	18·7	29·4	+0·6	+1·5	−0·9
	North do.	82·1	61·3	71·8	20·8	30·6	+0·4	+0·9	−0·5
	Bengal Hills	56·1	37·8	47·0	18·3	30·0	+1·3	+0·9	+0·4
	Orissa	82·8	68·2	75·5	14·6	26·5	−0·5	+1·2	−1·7
	Chota Nagpur	80·2	59·7	69·7	21·1	35·1	+0·8	+1·8	−1·0
	South Bihar	83·7	62·3	73·0	21·4	35·0	+1·2	+3·6	−2·4
	North do.	82·3	61·5	71·9	20·8	33·1	+0·8	+2·1	−1·3
North-Western Provinces and Oudh.	North-Western Provinces (East)	83·4	58·0	70·8	25·4	39·6	+1·4	+3·1	−1·7
	Oudh (South)	86·3	55·8	71·1	30·5	43·6	+3·4	+4·0	−0·6
	Do. (North)	84·2	58·0	71·1	26·2	39·4	?	?	?
	North-Western Provinces (Central)	85·8	57·2	71·5	28·6	44·6	+2·6	+4·0	−1·4
	Do. do. (West)	84·0	55·5	69·8	28·6	43·9	+1·5	+3·3	−1·8
	Do. do. (East Sub-montane)	82·6	60·6	71·6	22·0	34·6	+1·0	+3·1	−2·1
	Do. do. (West do.)	80·2	54·0	67·1	26·2	39·8	+1·7	+3·1	−1·4
	Do. do. (Hills)	60·3	45·7	53·0	14·6	25·2	+0·6	+1·2	−0·6

Province.	Division.	Actual temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of November 1897 of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Punjab	Punjab (South-East)	83·1	58·5	70·8	24·6	40·8	+0·1?	+3·1?	—3·0 ?
	Do. (South)	83·5	52·6	68·1	30·9	45·7	+0·7	+3·4	—2·7
	Do. (Central)	81·7	52·2	67·0	29·5	43·9	?	?	?
	Do. (Submontane)	82·6	52·4	67·5	30·2	44·8	+1·7	+3·9	—2·2
	Do. (Hill Districts)	63·7	38·0	50·8	25·7	39·8	+3·2	+4·4	—1·2
	Do. (North)	80·2	45·2	62·8	35·0	52·5	+3·4	+2·1	+1·3
	Do. (West)	85·1	51·0	68·1	34·2	48·0	+2·6	+3·4	—0·8
Bombay and Malabar Coast Districts (Madras).	Malabar Coast	87·4	74·1	80·7	13·3	19·1	+1·7	+0·6	+1·1
	Madras (South Central)	88·7	69·3	79·1	19·4	30·1	+2·3	+0·8	+1·5
	Coorg	76·9	61·2	69·1	15·7	24·3	+1·9	+0·9	+1·0
	Mysore	83·2	61·6	72·4	21·6	31·2	+3·9	—0·3	+4·2
	Konkan	88·5	69·3	78·9	19·2	26·0	+1·6	—2·1	+3·7
	Bombay Deccan	86·4	57·5	72·0	29·0	37·4	+1·9	—3·5	+5·4
	Hyderabad (North)	83·1	59·5	71·3	23·6	33·5	?	?	?
	Khandesh	85·4	52·9	69·2	32·6	42·4	+1·2	—3·7	+4·9
Central Provinces and Berar.	Berar	87·3	57·9	72·6	29·4	39·8	+1·7	—0·9	+2·6
	Central Provinces (West)	86·5	75·7	71·1	30·7	42·6	+2·0	—2·0	+4·0
	Do. (Central)	82·6	55·3	69·0	27·3	40·1	+1·0	—0·2	+1·2
	Do. (East)	83·3	62·1	72·7	21·2	34·0	+0·6	+0·8	—0·2
Bombay (North)	Gujarat	91·7	62·2	76·9	29·6	38·1	+2·4	—0·9	+3·3
	Kathiawar and Cutch	89·6	60·8	75·2	28·9	39·7	+1·9	0	+1·9
	Sind	89·9	59·6	74·8	30·3	44·7	+4·8	+4·8	0
	Baluchistan Hills	75·8	35·4	55·6	40·5	56·2	+9·6	+2·2	+7·4
Rajputana and Central India.	Central India (East)	83·4	53·7	68·6	29·7	42·8	+1·9	—0·2	+2·1
	Rajputana (East), Central India (West)	87·0	54·3	70·7	32·6	45·9	+1·7	+0·4	+1·3
	Do. (West)	89·0	55·3	72·2	33·7	48·5	?	?	?
Madras	East Coast (North)	84·7	77·0	77·4	14·8	25·3	+1·3	+0·6	+0·7
	Hyderabad (South)	86·8	62·3	74·6	24·4	35·1	+3·0	—1·6	+4·6
	Madras (Central)	90·1	65·8	78·0	24·3	34·3	+3·6	—0·6	+4·2
	East Coast (Central)	88·1	71·8	80·0	16·4	26·8	+2·9	—0·2	+3·1
	Do. (South)	88·0	72·5	80·3	15·5	26·0	+3·1	+0·3	+2·8
	Madras (South)	88·5	74·9	81·7	13·6	21·2	+1·0	+0·4	+0·6

At the commencement of the month temperature was in large excess both by day and night in North-Western India, as is shewn by the following data :—

Province.	Variation from normal of Mean maximum temperature, 1st November.	Mean minimum temperature, 1st November.	Mean temperature, 1st November.
	°	°	°
Baluchistan	+9·7	+6·3	+8·0
Punjab	+1·9	+5·4	+3·7
Sind	—0·2	+6·4	+3·1
Rajputana	+2·3	+1·6	+2·0
North-Western Provinces and Oudh	+1·1	+2·3	+1·7

Over the greater part of the Peninsula temperature was considerably below the normal, due almost solely to the unusually low night temperature (associated with great and abnormal dryness of the atmosphere). The following gives data :—

Province or area.	Variation from normal of Mean maximum temperature, 1st November.	Mean minimum temperature, 1st November.	Mean temperature, 1st November.
	°	°	°
Central Provinces	+0·1	—5·5	—2·7
Berar	+0·6	—6·7	—3·1
Deccan	+0·5	—6·1	—2·8
Orissa	+0·3	—4·3	—2·0
Chota Nagpur	—0·5	—2·9	—1·7

Elsewhere the variations from the normal conditions were small and unimportant.

No important change occurred during the next eight days. The following table, giving variation data for the 24 hours preceding 8 A.M. of the 8th, shows that the

abnormal features of the temperature conditions were the same in character on that day as on the 1st :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 8th November.	Mean minimum temperature, 8th November.	Mean temperature, 8th November.
	°	°	°
Burma	+1·2	+0·9	+1·1
Bengal and Assam	+2·9	+1·7	+2·3
North-Western Provinces and Oudh	+3·2	+2·8	+3·0
Punjab	+1·2	+3·4	+2·3
Sind and Rajputana	+2·0	+2·4	+2·2
Central India and Gujarat	+0·7	—1·6	—0·5
Central Provinces and Berar	+0·1	—1·4	—0·7
Bombay	+2·0	—3·1	—0·6
Madras	+1·9	—1·9	0

During the feebly disturbed weather of the 8th to the 12th in the Bay the air became damper in the Peninsula and temperature, more especially the night temperature, increased considerably. Temperature was hence, during this period, in general excess in India. These conditions are illustrated by the variation data for the 11th given below :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 11th November.	Mean minimum temperature, 11th November.	Mean temperature, 11th November.
	°	°	°
Burma	—1·4	+1·3	—0·1
Bengal and Assam	+0·1	+2·6	+1·4
North-Western Provinces and Oudh	+2·0	+3·3	+2·7
Punjab	+4·4	+4·2	+4·3
Sind and Rajputana	+3·7	+2·7	+3·2
Central India and Gujarat	+1·6	—1·0	+0·3
Central Provinces and Berar	+1·8	+4·2	+3·0
Bombay	+0·8	—0·1	+0·4
Madras	+4·2	+1·9	+3·1

The most important feature of this period was the advance of a cool wave southwards from Assam across Upper Burma. The following data illustrate its progress :—

DIVISION.	STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF NOVEMBER				
		8th.	9th.	10th.	11th.	12th.
		°	°	°	°	°
ASSAM (BRAHMAPUTRA)	Sibsagar	—2·5	—3·1	—3·2	—3·0	—2·1
UPPER BURMA	Bhamo	—2·1	—3·0	—0·2	—2·9	—5·7
	Kindat	+1·1	+0·6	+1·5	—0·5	—2·7
	Mandalay	+2·7	—0·7	+1·1	—4·2	—4·4
	Yamethin	+0·1	—1·4	—2·3	—0·5	—4·1
CENTRAL BURMA	Toungoo	+0·8	+1·3	+0·4	+1·1	+1·3

Assam and Burma received light to moderate rain during the next four days which further reduced temperature in that area. The following gives the variations in the rainfall divisions of this area :—

DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF NOVEMBER				
	12th.	13th.	14th.	15th.	16th.
	°	°	°	°	°
Assam (Brahmaputra)	—2·1	+0·2	—2·3	—2·7	0
Upper Burma	—3·6	—3·6	—2·9	—2·7	—6·2
Central do.	+1·1	—1·9	—1·8	+0·8	—4·6
Lower do.	+0·7	—1·0	+1·6	+0·9	+0·3

Temperature was during the same period more or less in excess in India. The excess was throughout large in Baluchistan and Upper India. It was also large at the beginning of the period in Southern India, but decreased in amount considerably on the 14th and 15th and was small on the 16th. The following gives mean temperature variation data for the 12th, 14th and 16th :—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF NOVEMBER		
	12th.	14th.	16th.
	°	°	°
Baluchistan	+9·5	+6·2	+8·1
Burma	—0·8	—0·7	—2·7
Bengal and Assam	+1·4	+0·9	+0·4
North-Western Provinces and Oudh	+3·1	+3·0	+2·8
Punjab	+4·2	+4·1	+3·2
Sind and Rajputana	+4·9	+4·2	+3·2
Central India and Gujarat	+0·5	+1·8	+1·0
Central Provinces and Berar	+2·0	+1·1	+0·4
Bombay	+1·2	+0·6	+0·7
Madras	+4·6	+2·5	+1·1

A remarkable change occurred in the temperature conditions in Persia and at Baghdad during this period of which an account is given at the end of the section.

Weather was feebly unsettled in the Bay from the 19th to the 25th owing to the slow westward transfer of an area of squally rainy weather. Temperature continued more or less below the normal in Burma during this period, as is shown by the following data for each alternate day from the 17th to the 25th :—

Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of November				
	17th.	19th.	21st.	23rd.	25th.
	°	°	°	°	°
Burma (Upper)	—3·5	—4·0	—1·4	—1·6	—1·2
Do. (Central)	—5·2	—3·8	+1·0	—0·4	0
Do. (Lower)	—2·3	—1·7	—3·7	—0·7	—0·2

Temperature was also during the same period above the normal generally in India and Baluchistan. The night temperature was below the normal to a remarkable extent in the Deccan and Bombay coast districts, but, with this exception, both the day and night temperatures were in excess. The following gives variation data for each second day from the 17th to the 25th :—

Political Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of November				
	17th.	19th.	21st.	23rd.	25th.
	°	°	°	°	°
Bengal and Assam	+0·4	+0·7	—0·7	+1·2	—0·1
North-Western Provinces and Oudh.	+2·6	+2·4	+2·5	+3·1	+1·9
Punjab	+2·6	+2·8	+2·2	+1·6	+1·4
Sind and Rajputana	+1·8	+1·7	+1·1	+0·1	+0·1
Central India and Gujarat	+0·7	+0·3	+0·2	+1·0	+0·4
Central Provinces and Berar	—0·1	+0·9	+0·9	+1·9	+0·5
Bombay	—0·2	+0·4	+0·8	—0·5	—0·5
Madras	+1·0	+0·6	+0·1	+1·1	+3·4

The rainfall in Southern India from the 25th to the 30th exercised little effect in reducing temperature which hence continued in general excess in India, as is shown by the following data :—

Political Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of November				
	26th.	27th.	28th.	29th.	30th.
	°	°	°	°	°
Bengal and Assam	+1·1	+1·2	+1·5	+2·2	+0·7
North-Western Provinces and Oudh.	+1·8	+1·5	+1·4	+1·4	+0·4
Punjab	+0·9	+1·1	+0·8	+1·1	+1·0
Sind and Rajputana	+0·2	—0·2	—0·1	+0·6	+2·0
Central India and Gujarat	+0·2	—0·6	—0·2	—0·8	—1·2
Central Provinces and Berar	+0·4	—1·4	—1·8	—1·8	—1·1
Bombay	+0·8	+1·0	+0·5	+0·8	+0·8
Madras	+3·4	+2·7	+3·6	+2·7	+0·8

Temperature increased rapidly in Upper Burma on the 28th and 29th, but was in moderate defect at the end of the month in Lower Burma. The following data illustrate these changes :—

Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of November				
	26th.	27th.	28th.	29th.	30th.
	°	°	°	°	°
Burma (Upper)	—0·4	+0·4	+0·2	+1·3	+3·5
Do. (Central)	—0·1	+0·9	+0·8	+0·3	+0·9
Do. (Lower)	—1·7	—3·4	—3·2	—2·9	—2·6

The most important features of the temperature conditions of India during the month were as follows :—

(1) Steady excess of temperature, both by day and night, over nearly the whole of Northern India and Baluchistan.

(2) The low night temperature during the greater part of the month in the Deccan, Berar and the Central Provinces.

(3) The persistent low temperature in Burma and Assam from the 12th to nearly the end of the month.

(4) The persistent high temperature in the Coromandel coast districts and Southern India, accompanying the scanty rainfall of the period.

The temperature conditions at Baghdad and in Persia were very remarkable and apparently in no way related to the conditions in Baluchistan or India. From the 1st to the 11th, when strongly marked anticyclonic conditions prevailed in Europe, temperature at Baghdad and Bushire, the only stations for which there are fairly reliable normal data, was more or less in excess. Temperature fell steadily and very rapidly below the normal on the 13th and 14th and continued more or less in defect during the remainder of the month.

The following gives variation data at intervals during the month selected to show fully the remarkable character

of the change which occurred in the Persian area during the 13th and 14th:—

Date.	Baghdad. Variation from normal of Mean maximum temperature.	Baghdad. Variation from normal of Mean minimum temperature.	Bushire. Variation from normal of Mean maximum temperature.	Bushire. Variation from normal of Mean minimum temperature.
	°	°	°	°
1st	—3·3	+6·7	+1·3	+1·0
3rd	+6·2	+8·2	+0·6	+0·4
7th	+2·4	+5·4	+2·5	+4·8
10th	+0·2	+4·7	+6·2	+2·1
11th	+0·7	+1·9	+4·6	+6·0
12th	—1·0	+3·5	+3·7	+2·2
13th	—5·8	—4·2	+1·0	+6·0
14th	—15·4	—18·8	+0·2	+3·6
15th	—26·5	—21·1	—11·4	—13·0
16th	—22·3	—16·3	—17·9	—15·1
19th	—13·5	—13·8	—12·2	—7·3
22nd	—8·4	—10·5	—11·6	—11·1
25th	—13·7	—6·1	—5·8	—7·4
28th	—8·4	—8·5	—6·2	—2·1

It may be noted that fine weather with clear skies prevailed during the greater part of the month in Persia.

The change at Bushire was ushered in by a duststorm and a severe gale from the north. Pressure was remarkably high in Persia during the period from the 12th to the 16th, as is shown by the following data:—

Date.	8 A.M. Pressure reduced to sea-level and constant gravity at Lat. 45° at Bushire.	Baghdad.
	"	"
12th	29·931	30·198
13th	30·048	·231
14th	·286	·460
15th	·223	·646
16th	·141	·546

Pressure at Baghdad on the 15th was nearly half an inch above the normal. A reference to the English and Russian charts of the period indicates that an area of very high pressure which had lain over Central and Southern Russia from the 1st to the 12th was transferred south-eastwards into Persia during the next 48 hours.

The following table gives the variations of the mean temperature week by week during the month and also for the whole month:—

Political Province.	Variation from normal of mean temperature of week ending 6th November.	13th November.	20th November.	27th November.	For November 1897.
	°	°	°	°	°
Burma	+1·3	+0·2	—2·2	—1·0	—0·5
Bengal and Assam	—0·1	+1·6	+0·4	+0·5	+0·7
North-Western Provinces and Oudh.	+2·7	+2·8	+2·7	+2·4	+2·6
Punjab	+3·2	+3·3	+3·0	+1·4	+2·6
Sind and Rajputana	+3·3	+3·0	+2·6	+0·3	+2·2
Central India and Gujarat	+1·0	+0·3	+0·9	+0·4	+0·6
Central Provinces and Berar	—0·9	+1·4	+0·8	+0·7	+0·4
Bombay	—0·8	0	+0·3	—0·1	0
Madras	—0·2	+1·9	+1·1	+2·0	+1·9

Winds.

Winds were stronger than usual at Port Blair, and the percentage of steadiness was somewhat higher than the normal. The normal direction for the month at this station is N 81° E, while the mean wind direction for the month under review was S 89° E and hence, as in November 1895 and November 1896, there was a feeble southerly instead of the normal northerly component in the wind direction.

Winds were much steadier than usual at Rangoon, Diamond Island and Akyab. The mean wind directions of these stations were more easterly than usual. Winds were practically of normal strength at the stations in Burma.

The wind was more easterly than usual in the interior of Orissa, as is shown by the following table:—

Station.	Wind direction. Actual, November 1897.	Normal, November.	Easterly deflection.
False Point	N 19° E	N 27° E	— 8°
Cuttack	N 36° E	N 13° E	+23°

In Bengal the variations of the wind direction from the normal were related to the deficient pressure in the north of the Bay. The northerly winds of the month were more easterly than usual in Central and East Bengal, whereas

in South-West Bengal and Orissa, as represented by Saugor Island and False Point, they were less easterly than usual. The following gives data in illustration for five representative stations:—

Station.	Wind direction.		
	Actual, November 1897.	Normal, November.	Westerly deflection.
Chittagong	N 27° E	N 19° W	−46°
Narayanganj	N 2° E	N 16° W	−18°
Calcutta	N 2° E	N 14° W	−16°
Saugor Island	N 12° W	N 3° E	+15°
False Point	N 19° E	N 27° E	− 8°

Winds were of normal strength and much steadier than usual in South and East Bengal, but were unusually light and unsteady in West and Central Bengal, as is shown by the following data:—

Station.	Velocity in miles per diem.			Steadiness.		
	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.	Actual percentage, November 1897.	Normal percentage, November.	Variation from normal, November 1897.
Burdwan	17	42	−25	30	64	−34
Berhampore	12	39	−27	13	54	−41

Winds were also considerably lighter than usual and very unsteady in the area of slightly deficient pressure extending over Bihar, Chota Nagpur, the North-Western Provinces and the Central Punjab. The following gives comparative data for these areas:—

Province or Division.	Velocity in miles per diem.			Steadiness.		
	Average actual, November 1897.	Average normal, November.	Percentage variation from normal, November 1897.	Average actual, percentage, November 1897.	Average normal, percentage, November.	Variation from normal, November 1897.
Bihar	31	41	−24	17	36	−19
Chota Nagpur	108	110	− 2	37	45	− 8
North-Western Provinces.	34	39	−13	31	28	+ 3
Central Punjab	15	32	−53	15	18	− 3

The westerly element in the winds over this area was unusually weak, and the mean wind directions were hence much more northerly than usual over the greater part of the area.

The following gives data for five representative stations in that area:—

Station.	Wind direction.			Velocity in miles per diem.		
	Actual, November 1897.	Normal, November.	Northerly deflection.	Actual, November 1897.	Normal, November.	Percentage variation from normal, November 1897.
Patna	N 12° W	N 61° W	+49°	30	40	−25
Hazaribagh	N 7° E	N 30° W	+37°	108	110	− 2
Allahabad	N 27° W	N 52° W	+25°	62	49	+27
Lucknow	N 31° W	N 40° W	+ 9°	14	34	−59
Darbhanga	N 42° W	S 85° W	+53°	32	41	−22

In the area of greatest deficiency of pressure which included the Indus Valley from Peshawar to Jacobabad, winds were remarkably unsteady and were chiefly from southerly directions in Sind. The following gives data in illustration:—

Station.	Wind direction.		Steadiness.		
	Actual, November 1897.	Normal, November.	Actual percentage, November 1897.	Normal percentage, November.	Variation from normal, November 1897.
Mooltan	N 82° E	S 27° W	8	5	+3
Jacobabad	S 68° W	N 13° W	2	11	− 9
Kurrachee	S 61° W	N 85° W	51	18	+33

The prevalence of increased pressure in North Bombay and the West Deccan throughout the month accompanied a corresponding modification of the winds. The mean wind directions were more westerly than usual in Rajputana and Central India, where winds were of normal intensity and increased steadiness. The following gives three examples showing the large westerly deflection and increased steadiness of the winds in these provinces:—

Station.	Wind direction.		Steadiness.		
	Actual, November 1897.	Normal, November.	Average actual percentage, November 1897.	Average normal percentage, November.	Variation from normal, November 1897.
Jeypore	N 62° W	N 19° W	55	36	+19
Ajmere	N 56° W	N 14° E	33	7	+26
Nowgong	N 44° W	N 25° W	53	33	+20

In the Central Provinces and Deccan, winds were more northerly and less easterly than usual. The deflection varied considerably from station to station, but averaged about 15°. Winds were slightly weaker and less steady than usual. They were remarkably unsteady at Poona for which data are given below :—

Station.	Steadiness.			Wind direction.	
	Actual percentage, November 1897.	Normal percentage, November.	Variation from normal, November 1897.	Actual, November 1897.	Normal, November.
Poona . . .	9	60	—51	S 12° E	N 82° E

Winds were also less easterly and more northerly on the Bombay Coast, but were otherwise normal in character. The mean wind direction at Bombay was N 5° E, the normal being N 18° E. The deflection was hence nearly as large as in the Deccan.

Winds were of normal steadiness, but weaker than usual in Mysore. The northerly element in their mean directions was stronger than usual, as is shown by the following data :—

Station.	Wind direction.		
	Actual, November 1897.	Normal, November.	Northerly deflection.
Mysore	N 61° E	N 78° E	+17°
Hassan	N 64° E	N 71° E	+ 7°
Chitaldroog	N 60° E	N 74° E	+14°

The air movement varied little from the normal in the Madras Coast districts, notwithstanding the abnormal conditions of the month. The following gives data in illustration :—

Station.	Velocity in miles per diem.		
	Actual, November 1897.	Normal, November.	Percentage variation from normal, November 1897.
Madras	158	156	+1
Cocanada	236	259	—9
Trichinopoly	91	93	—2

The winds differed somewhat irregularly from the normal at the hill stations in Northern India. They were in most cases less steady than usual. The most interesting feature was the contrast between the mean wind directions as determined from the 8 hours and from the 10 and 16 hours observations.

The following gives the most striking cases :—

Station.	Mean Wind direction given in	
	Table I.	Table II.
Murree	S 15° E	N 37° E
Simla	N 23° E	S 52° W
Chakrata	N	S 2° E
Ranikhet	N 56° E	S 76° W
Muktesar	S 58° E	S 13° W

This contrast is due to the fact that in the Western Himalayas winds from southerly directions (from the plains to the hills) prevail from about 9 A.M. to 5 P.M., whereas during the remainder of the day, winds from northerly directions (*i.e.*, blowing from the hills to the plains in the lower strata) obtain. The means of 10 and 16 hours hence give approximately the direction of the up-current, whilst the mean 8 A.M. wind directions give that of the down air movement shortly before its termination. The latter is hence much more unsteady than the former.

Another important feature was the abnormal wind direction at Zanzibar and the Seychelles, as is shown below :—

Station.	Wind direction.	
	Actual, November 1897.	Normal, November.
Zanzibar	N 77° E	S 31° E
Seychelles	N 42° W	S 70 E°

The data indicate that the south-east trades had withdrawn further south than usual, and that north-east trades prevailed during the greater part of the month in the Arabian Sea and as far south as the equatorial belt. This is of course in accordance with the high pressure conditions which obtained in the Persian and Arabian area and the northern half of the Arabian Sea.

Humidity and Cloud.

The air contained somewhat less vapour than usual at Port Blair and in Assam, but the mean humidity of the month was generally in slight excess due to the prevalence of lower temperature than usual.

The mean pressure of the aqueous vapour constituent of the air was in excess in Bengal, Bihar, Chota Nagpur, the North-Western Provinces, the Punjab, Sind, Rajputana and Central India to a moderate extent. As temperature was above the normal, the mean humidity of the month was normal or in slight to moderate excess in these areas. The following gives comparative data for these areas :—

Province or Division.	Absolute Humidity.			Relative Humidity.		
	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.	Actual, November 1897.	Nmal, November.	Variation from normal, November 1897.
	"	"	"	%	%	
Bengal . .	·610	·594	+·016	72	71	+1
Bihar . .	·545	·500	+·045	68	66	+2
Chota Nagpur	·427	·360	+·067	62	54	+8
North-Western Provinces.	·405	·356	+·049	59	56	+3
Punjab . .	·318	·313	+·005	51	52	—1
Sind . .	·472	·374	+·098	57	49	+8
Rajputana .	·326	·300	+·026	45	41	+4
Central India .	·368	·335	+·033	53	51	+2

The excess was large and marked in Lower Sind and South-West Rajputana where abnormal southerly winds prevailed during a part of the month. The following gives data for stations in this area of large excess :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.
	"	"	"		%	
Kurrachee . . .	·564	·450	+·114	63	54	+9
Deesa	·318	·281	+·037	42	34	+8
Mount Abu . . .	·264	·244	+·020	43	39	+4

The air was also slightly damper at Ranikhet, Chakrata, Mussoorie and Simla, but was much drier than usual at Darjeeling, Murree and Quetta. Data for the last three stations are given below :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.
	"	"	"	%	%	
Darjeeling . . .	·248	·265	—·017	71	80	— 9
Murree. . . .	·150	·158	—·008	32	42	—10
Quetta	·156	·151	+·005	39	47	— 8

The air was abnormally dry over the whole of the Peninsula, and the amount of aqueous vapour contained in the air was from ten to thirty per cent. below the normal. The following gives comparative data for this area of decreased humidity :—

Division or Area.	Absolute Humidity.			Relative Humidity.		
	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.
	"	"	"	%	%	
Berar	·297	·403	—·106	40	52	—12
Central Provinces .	·362	·390	—·028	50	53	— 3
Bombay Coast . .	·643	·715	—·072	65	72	— 7
Deccan . . .	·345	·469	—·124	46	58	—12
Madras Coast . .	·684	·750	—·066	70	74	— 4
Mysore . . .	·460	·533	—·073	59	70	—11

This feature was most strongly exhibited in the Deccan, in which area the mean humidity of the month was from 10 to 20 below the normal. The following gives comparative data for stations at which the mean humidity of the month was 15 or upwards below the normal :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.
	"	"	"	%	%	
Bellary . . .	·377	·540	—·163	43	62	—19
Sholapur . . .	·299	·460	—·161	37	53	—16
Buldana . . .	·266	·395	—·129	35	50	—15

The mean humidity conditions of the month were hence large and marked. The chief were—

(1) Slight to moderate excess in the amount of aqueous vapour present in the air and increased humidity in Burma and Northern and Central India. The increase was greatest in Sind and South-West Rajputana.

(2) Abnormal dryness of the air in the Peninsula, most marked in the Central Deccan districts as represented by Bellary, Sholapur and Buldana.

(3) Increased dryness of the air in Baluchistan and Persia.

The variations of the mean cloud amount of the month from the normal were as marked as those of the humidity.

There was more cloud than usual in the Andamans, Burma, South Bengal, Orissa and North Madras. The variations were small except at Port Blair (+2·5) and perhaps Akyab (+2·1).

Cloud was in defect during the month over the remainder of the country. The deficiency was almost without exception more than 1·0 to the west of the 80° meridian. The following gives comparative data for the areas in which the mean cloud amount of the month was more than 1·0 below the normal:—

Province or area.	Mean cloud amount.		
	Actual, November 1897.	Normal, November.	Variation from Normal, November 1897.
Baluchistan	0·3	1·5	—1·2
Punjab	0·3	1·7	—1·4
Sind	0·4	1·3	—0·9
Rajputana	0·1	1·4	—1·3
Central India	0·2	1·4	—1·2
Central Provinces	0·7	1·8	—1·1
Berar	0·6	2·0	—1·4
Deccan	1·0	3·2	—2·2
West Coast	1·1	2·6	—1·5

The data indicate that the deficiency was greatest in the Deccan, Mysore and the Konkan coast. The following gives data for stations in these areas at which the cloud amount was more than 2·0 in defect:—

Station.	Mean cloud amount.		
	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.
Belgaum	0·8	3·4	—2·6
Sholapur	1·1	3·6	—2·5
Mysore	4·0	6·5	—2·5
Hassan	4·0	6·4	—2·4
Poona	0·4	2·7	—2·3
Bombay	0	2·1	—2·1
Karwar	0·3	2·4	—2·1
Chitaldroog	2·6	2·7	—2·1

Skies were also unusually free from cloud in the Himalayan region and at the majority of the hill stations the mean cloud amount of the month was 2·0 or upwards in defect, as is shown below—

Station.	Mean cloud amount.		
	Actual, November 1897.	Normal, November.	Variation from normal, November 1897.
Kailang	0·6	3·7	—3·1
Srinagar	0·4	3·2	—2·8
Leh	1·4	4·1	—2·7
Murree	0·8	3·0	—2·2
Simla	0·3	2·3	—2·0

The deficiency was 1·2 at Quetta and 1·5 at Darjeeling.

A noteworthy feature of the meteorology of India during the month was the almost entire absence of cloud. The mean cloud amount of the month was below 0·6 at 28 out of 82 second class stations. It was less than 0·2 at the stations for which data are given below—

Station.	Mean cloud amount, November 1897.
Mount Abu	0
Bombay	0
Deesa	0
Roorkee	0·1
Meerut	0·1
Ajmere	0·1
Nowgong	0·1
Agra	0·1

The Assam or Brahmaputra Valley received light local showers on the 1st, 2nd and 3rd. Fine dry weather then prevailed until the 12th. Light showers gave fairly general rain on the 13th, 14th and 15th in Cachar and the Sibsagar and Lakhimpur districts of the Assam Valley. Cachar again received light showers on the 24th and 25th. The Assam Valley from Kamrup westwards obtained light to moderate showers from the 24th to the 30th. The following gives comparative data for the eleven districts of the province :—

District.	Number of rainy days.			Rainfall.		
	Average actual, November 1897.	Average normal, November.	Variation from normal, November 1897.	Average actual, November 1897.	Average normal, November.	Variation from normal, November 1897.
				Inches.	Inches.	Inches.
Cachar	2·9	2·0	+0·9	1·70	1·23	+0·47
Sylhet	1·6	1·1	+0·5	0·73	0·55	+0·18
Goalpara	1·0	0·4	+0·6	0·11	0·13	—0·02
Kamrup	1·2	0·8	+0·4	0·31	0·32	—0·01
Darrang	1·5	1·1	+0·4	0·56	0·38	+0·18
Nowgong	1·3	0·9	+0·4	0·50	0·27	+0·23
Sibsagar	2·7	1·5	+1·2	0·87	0·73	+0·14
Lakhimpur	1·6	2·0	—0·4	0·56	0·96	—0·40
Naga Hills	4·3	3·2	+1·1	1·29	1·40	—0·11
Khasia and Jaintia Hills	1·8	1·8	0	0·54	1·07	—0·53
North Lushai Hills	2·5	?	?	0·51	?	?

Light showers fell in Sikkim and the Jalpaiguri and Cooch Behar districts of Bengal on the 1st, 2nd and 3rd. Fairly general and moderately heavy rain was received in Orissa from the 8th to the 11th, due to a feeble disturbance in the Bay. The heaviest falls recorded in 24 hours in Orissa exceeding two inches were as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Puri	Nayagarh	9th November	3·80
	Puri	10th ,,	2·70
	Satpara	10th ,,	2·50
	Gop	10th ,,	2·20
	Bhanpur	9th ,,	2·15
	Puri	9th ,,	2·08

South-West Bengal obtained moderate showers on the 14th and East Bengal local showers from the 11th to the 15th and again on the 24th and 25th.

The rainfall was below the normal in all districts, except Orissa and Sikkim where it was practically normal.

The following table gives comparative data of the rainfall of the month for the nine divisions of the province :—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average actual, November 1897.	Average normal, November.	Variation from normal, November 1897.	Average actual, November 1897.	Average normal, November.	Variation from normal, November 1897.
				Inches.	Inches.	Inch.
Eastern Bengal	0·8	1·6	—0·8	0·38	1·30	—0·92
Deltaic ,,	0·6	1·1	—0·5	0·17	0·91	—0·74
Central ,,	0·5	0·8	—0·3	0·23	0·57	—0·34
North ,,	0·3	0·3	0	0·09	0·15	—0·06
Bengal Hills	1·1	0·9	+0·2	0·52	0·38	+0·14
Orissa	2·5	2·0	+0·5	2·20	2·09	+0·11
Chota Nagpur	0·4	0·8	—0·4	0·23	0·47	—0·24
South Bihar	0	0·4	—0·4	0·03	0·24	—0·21
North ,,	0·1	0·3	—0·2	0·08	0·13	—0·05

No rain fell in Baluchistan, Sind or in any part of the Bombay Presidency during the month. The total rainfall for the month was below the normal in all the divisions for which the data are given below—

Meteorological Division.	Number of rainy days.			Rainfall.		
	Average actual, November 1897.	Average normal, November.	Variation from normal, November 1897.	Average actual, November 1897.	Average normal, November.	Variation from nomal, November 1897.
				Inches.	Inches.	Inches.
Konkan	0	1·7	—1·7	0·01	1·10	—1·09
Bombay Deccan	0	2·4	—2·4	0	1·43	—1·43
Khandesh	0	1·4	—1·4	0	0·92	—0·92
Gujarat	0	0·4	—0·4	0	0·18	—0·18
Kathiawar	0	0·2	—0·2	0	0·32	—0·32
Sind	0	?	?	0	0·07	—0·07
Baluchistan Hills	0	?	?	0	0·67	—0·67

There were three periods of general rainfall in the Madras Presidency.

The first period was from the 1st to the 3rd or 4th during which the districts of East Coast Central and South, Madras South and South Central, Madras Hill districts and Coorg received light to moderate rain.

The second period of fairly general rainfall extended from the 8th to the 15th, and the rainfall was almost restricted to the East Coast North, the East Coast South, East Coast Central, Madras South and Madras South Central divisions. The rainfall, was heaviest in the districts of Ganjam and Travancore where falls exceeding three inches were recorded at several stations.

The third or the last period of the month extended from the 23rd or 24th to the end of the month. During this period general rain fell over the whole Presidency excepting the districts of Vizagapatam, Godavari, Anantapur, Bellary and Kurnool, which received a few scattered showers. The rainfall was locally heaviest during this period in the Madura district.

The falls exceeding 4 inches in 24 hours were recorded at the following stations of the Madras Presidency :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Travancore State	Kattarakary	12th November	6·55
Coimbatore	Perundurai	14th ,,	6·15
Madura	Sivagunga	26th ,,	5·95
Travancore State	Padmanabhapuram	1st ,,	5·60
Ganjam	Ichapur	9th ,,	5·70
,,	Rambah	9th ,,	5·00
,,	Chatrapur	9th ,,	4·69
Travancore State	Kartigapally	11th ,,	4·43
Madura	Thirupathur	10th ,,	4·42
Ganjam	Gopalpur	9th ,,	4·13
Travancore State	Karungapally	11th ,,	4·10

The most striking feature of the rainfall of the month was the general deficiency in all districts except Coimbatore. The deficiency was least in actual amount in the Ganjam, Vizagapatam, Bellary, Trichinopoly and Madura districts, and greatest in the coast districts, including Nellore, Chingleput, Madras, Arcot and Tanjore, which received barely one-third of the normal fall of the month.

The following gives data for each of the 22 collectorates of the Presidency :—

DISTRICT.	NUMBER OF RAINY DAYS.		RAINFALL.		
	Average actual, November 1897.	Average normal, November.	Average actual, November 1897.	Average normal, November.	Variation from normal, November 1897.
			Inches.	Inches.	Inches.
Ganjam	3·3	3·3	3·18	3·33	—0·15
Vizagapatam	3·0	4·2	2·01	3·27	—1·26
Godavari	2·1	3·1	1·45	3·22	—1·77
Kistna	1·1	3·3	0·55	3·20	—2·65
Nellore	3·6	7·6	3·03	9·22	—6·19
Chingleput	6·3	9·9	5·37	11·46	—6·09
Madras	7·0	11·0	7·50	13·75	—6·25
North Arcot	3·7	7·3	2·17	7·64	—5·47
South ,,	5·2	9·2	3·87	8·72	—4·85
Tanjore	4·9	10·2	3·04	10·42	—7·38
Trichinopoly	5·2	7·1	3·01	4·53	—1·52
Madura	5·6	7·7	4·56	5·53	—0·97
Tinnevelly	6·3	9·1	5·12	7·11	—1·99
Malabar	4·0	6·6	2·19	4·66	—2·47
South Canara	0·7	4·3	0·57	3·07	—2·50
Salem	3·1	5·9	1·73	3·80	—2·07
Coimbatore	5·5	5·9	3·97	3·64	+0·33
Nilgiris	5·6	8·6	2·87	5·62	—2·75
Cuddapah	2·6	4·8	1·31	3·85	—2·54
Anantapur	0·4	4·7	0·14	2·98	—2·84
Bellary	0·3	2·3	0·10	1·30	—1·20
Kurnool	0·2	2·9	0·06	1·50	—1·44

Table

Abstract of Observations taken at 8 A.M. at 214

Number of District.	Meteorological Province or District.	Station.	Elevation of barometer above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	I.—Burma Coast and Bay Islands.		...	...	−·009	...	...	...	...	...	...	...	86·0	−0·7	72·6	+0·2	79·3	−0·3	13·4	...	...	...	...	24·2
1	Tenasserim and Bay Islands.	Car-Nicobars.	?	29·885	?	29·838	29·956	9th	29·763	30th	·193	79·0	83·6	?	74·6	?	79·1	?	9·0	87·2	9th	73·0	30th	14·2
		Port Blair	61	29·851	?	29·843	29·919	25th	29·793	30th	·126	80·2	86·3	?	77·1†	?	81·6†	?	9·2	89·4	2nd	74·8	29th	14·6
		Mergui	96	29·869	?	29·899	29·946	25th	29·796	12th	·150	77·3	86·9	?	71·3	?	79·1	?	15·6	90·1	6th	61·2	28th	28·9
		Tavoy	26	29·955	−·013	29·912	30·035	25th	29·872	15th	·163	75·5	87·1	−0·9	69·7	+1·0	78·4	+0·1	17·4	91·2	1st	58·2	30th	33·0
		Moulmein	94	29·888	−·003	29·921	29·967	25th	29·815	2 days	·152	75·8	87·9	−0·4	71·7	+0·6	79·8	+0·1	16·2	94·5	3rd	63·4	27th	31·1
2	Lower Burma	Rangoon	41	29·925	−·015	29·903	30·016	25th	29·866	12th	·150	74·9	86·0	−1·3	71·2	−1·7	78·6	−1·5	14·8	89·7	2nd	64·4	30th	25·3
		Bassein	27	29·945	−·005	29·907	30·035	25th	29·887	13th	·148	75·7	85·6	−0·3	72·1	+0·3	78·9	0	13·5	89·2	3rd	65·7	29th	23·5
		Diamond Island	41	29·915	−·012	29·891	29·989	25th	29·856	13th	·133	79·5	85·0	−0·7	75·6	+0·7	80·3	0	9·4	90·6	10th	71·4	20th	19·2
5	Arakan	Akyab	20	29·954	−·008	29·917	30·040	25th	29·890	13th	·150	75·3	84·4	−1·1	72·2	+0·3	78·3	−0·4	12·2	88·8	2 days	64·7	19th	24·1
3	Central Burma	Toungoo	183	29·788	−·009	29·917	29·883	25th	29·726	11th	·157	73·6	86·7	−0·3	70·2	−0·1	78·5	−0·2	16·5	92·7	3rd	64·2	2 days	28·5
	II.—Burma Inland		...	...	−·009	...	...	...	...	...	...	...	84·2	−1·6	65·9	0	75·1	−0·8	18·3	...	...	...	...	33·7
3	Central Burma	Thayetmyo	134	29·855	−·006	29·933	29·962	25th	29·786	2nd	·176	74·2	87·2	−0·3	67·5	−0·5	77·4	−0·4	19·7	91·1	4th	58·7	19th	32·4
4	Upper Burma	Minbu	?	29·839?	?	?	29·948	25th	29·747	2nd	·201	74·0	86·5	?	69·6	+1·6	78·1	?	16·9	91·6	9th	64·1	19th	27·5
		Yamethin	645	29·336	?	29·946	29·443	25th	29·266	2nd	·177	72·1	87·4	−1·6	67·1	+0·4	77·3	−0·6	20·3	96·0	3rd	57·2	19th	38·8
		Mandalay	249?	29·735?	?	29·943	29·813	25th	29·650	2nd	·193	71·9	84·8	−1·8	67·8	+0·6	76·3	−0·6	17·0	92·0	2nd	59·2	19th	32·8
		Kindat	?	29·654	−·012	?	29·785	25th	29·544	13th	·241	67·3	80·2	−1·3	64·0	−0·5	72·1	−0·9	16·2	89·8	7th	55·0	19th	34·8
		Bhamo	?	29·656	?	?	29·779	25th	29·560	2nd	·219	64·6	79·0	−2·8	59·5	0	69·3	−1·4	19·5	86·0	2 days	49·9	2 days	36·1
(a)4	Burma Hill Stations.	Taunggyi	?			Not recorded.						63·7	73·7	?	54·1	?	63·9	?	19·6	78·2	4 days	47·5	17th	30·7
		Lashio	?	27·209	−·045	?	27·300	25th	27·062	22nd	·238	60·0	76·8	0	55·2	+1·0	66·0	+0·5	11·6	86·0	8th	40·9	19th	45·1
	III.—Assam		...	...	−·008	...	...	...	...	...	...	...	81·1	−0·7	61·5	−1·0	71·3	−0·9	19·5	...	...	...	...	30·9
7	Surma	Silchar	104	29·912	?	29·972	30·021	24th	29·832	13th	·189	68·8	86·2	?	63·1	−0·7	74·7	?	23·1	92·5	2 days	54·4	20th	38·1
9	Brahmaputra	Sibsagar	333	29·717	−·003	30·022	29·802	25th	29·640	13th	·162	62·3	77·3	−1·1	58·5	−1·3	67·9	−1·2	18·8	81·8	2nd	52·4	24th	29·4
		Dhubri	115	29·907	−·012	29·982	29·997	25th	29·832	2nd	·165	68·2	79·7	−0·3	63·0	−0·6	71·4	−0·5	16·7	84·1	2nd	58·8	21st	25·3
	IV.—Bengal and Orissa		...	...	−·015	...	...	...	...	...	...	...	82·2	+0·1	64·3	+1·1	73·1	+0·6	17·9	...	...	...	...	29·0
6	East Bengal	Chittagong	87	29·894	−·013	29·931	29·961	24th	29·825	13th	·136	Observations not recorded.												
		Lungleh	?			Not recorded.						62·3	70·9	?	59·1	?	65·0	?	11·8	76·7	8th & 9th,	54·2	17th	22·5
		Noakhali	43	29·941	?	29·932	30·035	24th	29·861	11th	·174	72·3	83·2	?	66·0	?	74·6	?	17·2	89·5	9th	60·0	3 days	29·5
		Comilla	36	29·947	?	29·932	30·035	24th	29·874	7th	·161	72·1	84·2	?	63·9	?	74·1	?	20·3	89·4	8th & 9th	56·0	22nd	33·4
		Sirajganj	49	29·941	?	29·941	30·031	24th	29·860	13th	·171	68·5	80·3	?	62·6*	?	70·9*	?	17·7	86·4	8th	58·9	21st	27·5
		Narayanganj	26	29·965	−·010	29·940	30·048	2 days	29·878	13th	·170	72·0	83·5	−0·2	66·4	+0·5	75·0	+0·2	17·1	89·6	8th	60·3	22nd	29·3
		Barisal	13	29·963	?	29·921	30·052	13th	29·879	13th	·173	74·1	83·4	+1·2	63·6‡	?	73·3‡	?	19·8	88·3	2 days	58·2	20th	30·1
		Mymensingh	59	29·936	−·008	29·948	30·030	24th	29·852	13th	·178	69·6	82·0	−0·3	63·5	+0·3	72·8	0	18·5	87·6	7th	55·6	22nd	32·0
10	Deltaic Bengal	Faridpur	46	29·953	?	29·948	30·046	25th	29·857	13th	·189	69·4	81·6	?	63·5	?	72·6	?	18·1	87·8	9th	57·0	22nd	30·8
		Jessore	33	29·969	−·012	29·950	30·058	24th	29·872	13th	·186	71·3	82·7	−0·6	64·5	+0·3	73·7	−0·2	18·2	88·5	8th	58·6	3 days	29·9
		Calcutta	21	29·983	−·019	29·950	30·069	25th	29·881	13th	·188	70·8	81·0	−0·2	65·4	+0·8	73·2	+0·3	15·6	83·8	2 days	60·2	30th	23·6
		Saugor Island	25	29·961	−·032	29·931	30·041	24th	29·868	13th	·173	72·6	82·4	+1·0	67·6	+0·6	75·0	+0·8	14·8	86·9	12th	62·4	21st	24·5
		Krishnagar	47	29·965	?	29·962	30·053	25th	29·861	13th	·192	70·9	83·7	?	63·3	?	73·5	?	20·4	89·6	9th	56·5	22nd	33·1
		Midnapore	149	29·846	?	29·947	29·926	25th	29·753	13th	·173	70·7	83·6	?	64·5	?	74·1	?	19·1	89·3	4th	59·2	21st & 30th.	30·1

* Mean of 22 days. † Mean of 27 days. ‡ Mean of 2 days.

I.

Stations in India, Burma, etc., in November 1897.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 October to 30th November 1897.	Normal rainfall for period, from 1st October to 30th November	Variation from normal of period, 1st October to 30th November.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
																									I.—Burma Coast and Bay Islands.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·93	3·97	+0·02	...	...	...	...			
...	1	4	2	2	4	5	1	1	3·0	?	?	92	·913	8·0	...	?	?	23·36	?	?	33·95	?	?	5·35	Car-Nicobars¶	Tenasserim and Bay Islands.	1
...	3	4	6	5	2	1	3	6	7·6	7·1	+ 7	89	·913	7·3	20	?	?	17·66	8·97	+ 8·69	33·71	21·14	+ 9·57	3·76	Port Blair		
...	7	7	8	2	2	...	1	3	0·9	1·6	−44	83	·783	3·9	9	?	?	5·16	3·63	+ 1·53	19·32	17·17	+ 2·15	2·12	Mergui.		
29	...	1	...	...	...	...	...	...	0·4	?	?	86	·770	1·9	7	?	?	4·72	2·13	+ 2·59	16·49	12·26	+ 4·23	2·57	Tavoy.		
...	4	8	5	7	...	1	4	1	2·6	2·4	+ 8	83	·749	4·6	4	2·18	+ 1·82	1·09	2·32	− 1·23	11·15	10·42	+ 0·73	0·46	Moulmein.		
...	4	12	10	4	...	...	...	...	3·9	4·4	−11	89	·776	4·1	5	3·18	+ 1·82	1·71	2·98	− 1·27	12·94	9·72	+ 3·22	0·44	Rangoon	Lower Burma.	
4	3	14	7	2	...	...	...	...	4·6	3·1	+48	84	·756	3·0	3	5·55	− 2·55	1·58	4·21	− 2·63	12·36	12·42	− 0·06	0·30	Bassein.		
3	4	13	10	...	...	...	...	...	12·9	8·6	+50	79	·795	4·9	4	7·10	− 3·10	1·78	7·21	− 5·43	9·32	16·43	− 7·11	0·76	Diamond Island.		
...	7	22	1	...	...	...	...	...	2·1	2·2	− 5	90	·791	5·5	3	3·09	− 0·09	2·18	2·94	− 0·76	21·05	13·38	+ 7·67	1·16	Akyab	Arakan.	5
3	12	2	2	...	...	...	...	11	2·3	1·7	+35	88	·714	5·1	0	2·36	− 2·36	0·05	1·37	− 1·32	7·70	8·13	− 0·43	0·05	Toungoo.	Central Burma.	3
																									II.—Burma Inland.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·31	1·39	−0·08	...	...	...	...			
...	23	4	...	...	...	...	...	3	2·9	3·5	−17	71	·599	2·2	1	3·45	− 2·45	0·15	2·16	− 2·01	10·66	6·40	+ 4·26	0·11	Thayetmyo.	Central Burma.	3
1	4	...	...	2	1	...	8	14	9·7	?	?	76	·650	3·9	1	?	?	0·39	1·18	− 0·79	8·90	4·22	+ 4·68	0·35	Minbu	Upper Burma.	4
4	5	...	...	2	...	...	...	19	4·8	?	?	84	·668	4·9	1	?	?	0·20	1·13	− 0·93	4·00	5·87	− 1·87	0·18	Yamethin.		
18	5	7	...	...	...	...	...	...	1·8	?	?	87	·686	5·0	4	?	?	1·51	1·28	+ 0·23	5·55	6·36	− 0·81	0·70	Mandalay.		
17	1	7	3	...	...	...	...	2	0·8	?	?	94	·640	5·0	5	?	?	2·81	1·73	+ 1·08	7·61	7·88	− 0·27	0·90	Kindat.		
15	3	10	...	...	...	...	...	...	2·3	?	?	93	·571	4·8	5	?	?	2·81	0·87	+ 1·94	5·44	4·63	+ 0·81	0·80	Bhamo.		
8	1	2	2	7	7	1	1	1	?	?	?	79	·472	6·9	5	?	?	1·91	?	?	8·37	?	?	0·55	Taunggyi	Burma Hill Stations.	4(a)
			Not	rec	orde	d.			?	?	?	93	·489	8·1	6	?	?	3·74	1·24	+ 2·50	7·16	4·43	+ 2·73	1·11	Lashio		
																									III.—Assam.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·37	0·85	+0·52	...	...	...	...			
22	1	3	3	...	1	...	...	...	2·1	2·1	0	85	·613	3·2	2	1·86	+ 0·14	2·59	1·31	+ 1·28	5·46	7·96	− 2·50	1·38	Silchar	Surma.	7
18	...	6	3	2	...	1	...	...	1·8	1·7	+ 6	98	·556	7·3	4	2·00	+ 2·00	1·53	0·98	+ 0·55	13·93	5·82	+ 8·11	0·58	Sibsagar	Brahmaputra.	9
...	1	12	15	...	1	...	1	...	6·6	4·9	+35	85	·591	1·1	0	0·47	− 0·47	0	0·26	− 0·26	5·84	3·76	+ 2·08	0	Dhubri.		
																									IV.—Bengal and Orissa.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	0·77	1·04	−0·28	...	...	...	...			
4	3	12	10	1	...	...	...	...	?	3·0	?	?	?	?	2	1·96	+ 0·04	0·34	1·53	− 1·19	13·55	7·77	+ 5·78	0·13	Chittagong	East Bengal.	6
			Not	rec	orde	d.			?	?	?	88	·495	?	5	?	?	3·08	2·10	+ 0·98	14·98	13·08	+ 1·90	1·38	Lungleh.		
...	8	18	1	1	...	...	...	2	2·0	?	?	86	·682	1·8	1	1·58	− 0·58	0·27	1·81	− 1·54	6·24	9·51	− 3·27	0·26	Noakhali.		
13	12	3	2	...	...	...	...	...	1·2	?	?	81	·637	2·1	0	1·88	− 1·88	0	1·14	− 1·14	1·80	6·34	− 4·54	0	Comilla.		
			Not	rec	orde	d.			?	?	?	91	·636	1·9†	1	0·96	+ 0·04	1·48	0·60	+ 0·88	10·27	4·83	+ 5·44	1·48	Sirajganj.		
4	9	6	4	2	...	...	...	5	2·4	1·9	+26	85	·669	2·4	0	1·85	− 1·85	0·09	1·74	− 1·65	6·13	6·16	− 0·03	0·05	Narayanganj.		
15	3	10	...	...	...	...	1	1	2·0	?	?	80	·683	3·1	0	1·58	− 1·58	0	1·27	− 1·27	11·16	6·88	+ 4·28	0	Barisal.		
25	...	...	1	1	...	...	1	2	?	?	?	88	·636	?	1	1·00	0	0·32	0·61	− 0·29	4·20	6·23	− 2·03	0·30	Mymensingh.		
30	...	...	...	...	...	...	...	...	1·0	?	?	89	·642	1·9	2	1·27	+ 0·73	0·62	1·18	− 0·56	4·76	5·27	− 0·51	0·46	Faridpur	Deltaic Bengal	10
17	5	2	...	1	1	1	...	3	0·8	1·8	−56	85	·642	2·1	1	1·27	− 0·27	0·61	1·22	− 0·61	8·60	5·77	+ 2·83	0·54	Jessore.		
9	11	5	...	1	...	...	1	3	1·6	3·0	−47	82	·624	2·1	0	1·00	− 1·00	0	0·66	− 0·66	8·61	5·05	+ 3·56	0	Calcutta.		
...	15	9	...	...	...	...	2	4	8·0	6·4	+25	86	·690	3·4	0	1·58	− 1·58	0·11	1·52	− 1·41	14·92	10·66	+ 4·26	0·07	Saugor Island.		
1	7	3	3	2	...	...	4	10	2·6	?	?	82	·622	2·0	2	0·88	+ 1·12	0·63	0·94	− 0·31	4·14	5·16	− 1·02	0·48	Krishnagar.		
7	21	1	...	...	...	...	...	1	1·4	?	?	76	·573	2·0	0	0·96	− 0·96	0	0·63	− 0·63	7·09	4·93	+ 2·16	0	Midnapore.		

¶ Wind observations of 20 days.

Table

Abstract of Observations taken at 8 A.M. at 214 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M. in inches. 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.	Temperature of Air. 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.
11	Central Bengal.	Bankura	298	29·680	?	29·940	29·700	25th	29·596	2nd	·164	69·7	83·3	?	64·3	?	73·8	?	19·0	87·8	4th	59·5	30th	28·3
		Raniganj	334	29·677	?	29·973	29·760	25th	29·584	13th	·176	68·2	83·0	?	62·8	?	72·9	?	20·2	88·2	4th	56·4	30th	31·8
		Burdwan	99	29·916	−·014	29·966	30·001	25th	29·817	13th	·184	71·0	84·0	+1·3	65·9	+1·8	75·0	+1·6	18·1	88·3	8th	61·3	30th	27·0
		Naya Dumka	489	29·512	?	29·978	29·596	25th	29·411	13th	·185	69·4	81·5	?	62·3	?	71·9	?	19·2	85·9	9th	55·1	30th	30·8
		Berhampore	67	29·939	−·025	29·956	30·027	25th	29·839	13th	·188	69·4	82·1	+0·3	65·4	+1·3	73·8	+0·8	16·7	86·2	2 days	61·2	2 days	25·0
		Rampur Boalia	70	29·929	?	29·950	30·020	25th	29·830	13th	·190	70·5	81·9	?	64·3	?	73·1	?	17·6	87·1	8th	58·1	22nd	29·0
		Malda	72	29·932	?	29·959	30·007	25th	29·842	13th	·165	69·1	82·5	?	62·2	?	72·4	?	20·3	86·9	8th & 11th	54·7	30th	32·2
		Bogra	61	29·938	?	29·953	30·035	25th	29·868	13th	·167	69·1	82·3	+0·2	63·7	+1·5	73·0	+0·9	18·6	88·2	8th	57·2	22nd	31·0
12	North Bengal	Dinajpur	123	29·890	+·003	29·973	29·981	25th	29·799	13th	·185	68·3	82·6	+0·2	61·3	+1·0	72·0	+0·6	21·3	86·3	8th	53·9	22nd	32·4
		Rangpur	123	29·889	?	29·971	29·987	25th	29·812	13th	·175	68·7	82·0	?	62·9	?	72·5	?	19·1	85·4	7th	55·8	22nd	29·6
		Jalpaiguri	284	29·729	−·013	29·983	29·815	25th	29·644	13th	·171	66·6	82·2	+0·5	60·3	+0·7	71·4	+0·6	21·9	85·8	8th	55·1	22nd	30·7
		Cooch Behar	150?	29·863	?	29·972	29·950	25th	29·780	13th	·170	67·7	81·6	?	60·6	?	71·1	?	21·0	85·3	1st	55·5	30th	29·8
17	North Bihar	Purnea	125	29·895	−·006	29·980	29·986	25th	29·805	13th	·181	65·2	82·1	+0·2	61·6	+2·8	71·9	+1·5	20·5	85·8	10th	53·7	30th	32·1
14	Orissa	Balasore	46	29·964?	?	29·959?	30·039	24th	29·861	13th	·178	69·5	83·4	+0·7	64·1	+1·7	73·8	+1·2	19·3	87·4	2 days	56·5	28th	30·9
		False Point	21	29·976	−·020	29·939	30·032	25th	29·884	13th	·148	72·5	81·8	?	66·7	+1·0	74·3	?	15·1	87·4	5th	59·0	30th	28·4
		Cuttack	80	29·916	−·024	29·941	29·983	25th	29·830	13th	·153	69·8	83·3	−1·7	66·7	+0·6	75·0	−0·6	16·6	89·4	5th	60·1	30th	29·3
		Shortt's Island	?	29·973	?	?	30·060	25th	29·869	13th	·191	77·5	82·0	?	74·8	?	78·3	?	7·4	86·6	5th	69·0	30th	17·6
		Puri	20	29·982	?	29·945	30·035	18th	29·891	12th	·144	72·3	83·5	?	68·7	?	76·1	?	14·8	89·7	4th & 5th	63·6	29th	26·1
	V.—Gangetic Plain and Chota Nagpur.		...	...	−·021	...	...	...	...	...	...	...	82·9	+1·4	59·9	+2·6	71·4	+2·0	23·1	...	...	...	...	36·7
15	Chota Nagpur	Hazaribagh	2,007	27·967	−·020	29·977	28·050	25th	27·885	13th	·165	66·1	77·6	+0·9	59·0	+1·3	68·3	+1·1	18·6	83·8	4th	51·1	30th	32·7
		Ranchi	2,128	27·847	?	29·978	27·925	25th	27·755	13th	·170	65·7	77·0	+0·6	59·0	+3·0	68·0	+1·8	18·0	82·8	4th	50·3	30th	32·5
		Daltonganj	730?	29·298	?	30·015	29·394	25th	29·200	13th	·194	66·0	82·6	?	57·4	?	70·0	?	25·2	88·1	3rd & 4th	47·0	30th	41·1
		Chaibassa	760	29·233	?	29·973	29·303	25th	29·140	13th	·163	66·1	83·5	+1·0	61·1	+1·1	72·3	+1·1	22·4	89·1	4th	55·0	30th	34·1
16	South Bihar	Gaya	375	29·638	−·020	29·982	29·733	25th	29·533	2nd	·200	66·9	84·4	?	62·3	+3·2	73·4	?	22·1	89·7	4th	55·8	30th	33·9
		Dehri †	351	29·663	?	29·982	29·739	25th	29·561	2nd	·178	70·4	83·6	?	63·0	?	73·3	?	20·6	88·8	3rd	55·6	30th	33·2
		Patna	183	29·835	−·028	29·977	29·935	25th	29·730	2nd	·205	69·4	82·6	+1·2	63·5	+3·6	73·1	+2·4	19·1	86·5	9th	52·4	30th	34·1
		Arrah	190	29·826*	?	29·976*	29·934	25th	29·728	2nd	·206	67·9	83·9	?	60·7	?	72·3	?	23·2	88·3	3rd	52·0	30th	36·3
		Buxar	239	29·780	?	29·983	29·883	25th	29·672	2nd	·211	70·1	84·0	?	62·2	?	73·1	?	21·8	89·0	3rd	51·4	30th	37·6
17	North Bihar	Bhagalpur	160	29·857	?	29·975	29·948	25th	29·771	2nd	·177	70·4	82·9	?	62·1	?	72·6	?	20·8	87·0	10th	52·6	30th	34·4
		Darbhanga	166	29·854	−·016	29·981	29·924	23rd	29·761	13th	·163	68·8	82·0	+1·2	63·3	+1·3	72·6	+1·3	18·7	86·1	2 days	55·5	30th	30·6
		Muzaffarpur	178	29·836	?	29·975	29·936	25th	29·739	2nd	·197	68·1	81·3	?	61·5	?	71·4	?	19·8	85·7	7th	52·1	30th	33·6
		Motihari	224	29·796	?	29·988	29·904	25th	29·695	2nd	·209	65·3	82·5	?	58·5	?	70·5	?	24·0	88·0	7th	52·9	28th & 29th.	35·1
		Chapra	181	29·844	?	29·986	29·950	25th	29·731	2nd	·219	68·2	82·8	?	62·1	?	72·5	?	20·7	86·6	9th	54·1	30th	32·5
18	N.-W. P., East	Benares	267	29·751?	?	29·987?	29·853	25th	29·641	2nd	·212	65·1	82·7	+0·8	58·4	+2·9	70·6	+1·9	24·3	88·7	3rd	50·2	30th	36·5
		Allahabad	309	29·709	−·021	29·987	29·816	25th	29·595	2nd	·221	66·3	84·0	+2·0	57·6	+3·2	70·9	+2·6	26·4	90·6	3rd	49·9	30th	40·7
23	N.-W. P. (East Submontane).	Gorakhpur	256	29·746	−·023	29·971	29·853	25th	29·632	2nd	·221	67·4	82·6	+1·0	60·6	+3·1	71·6	+2·1	22·0	87·4	8th	52·8	30th	34·6
19	South Oudh	Lucknow	368	29·618	−·018	29·992	29·756	25th	29·500	2nd	·256	64·5	86·3	+3·4	55·8	+4·0	71·1	+3·7	30·5	93·8	3rd	50·2	25th	43·6
20	North Oudh	Bahraich	403	29·603	?	29·984	29·708	25th	29·477	2nd	·231	66·8	84·2	?	58·0	?	71·1	?	26·2	88·4	2nd & 11th	49·0	30th	39·4
21	N.-W. Provinces (Central).	Cawnpore	416	29·594	?	29·984	29·710	25th	29·459	2nd	·251	65·3	85·4	?	55·5	?	70·4	?	29·9	93·3	3rd	47·0	29th	46·3
		Mainpuri	516	29·485	?	29·987	29·597	25th	29·341	2nd	·256	62·1	85·2	?	55·4	?	70·3	?	29·8	93·3	2nd	48·1	29th	45·2

I—*continued.*

in India, Burma, etc., in November 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 October to 30th November 1897.	Normal rainfall for period from 1st October to 30th November.	Variation from normal of period 1st October to 30th November.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
19	2	...	...	...	..	...	5	4	2·0	?	?	77	·564	1·4	2	0·85	+ 1·15	0·37	0·52	− 0·15	5·14	4·34	+ 0·80	0·21	Bankura	Central Bengal.	11
9	6	2	...	...	...	...	3	10	1·7	?	?	82	·572	1·7	1	0·65	+ 0·35	0·63	0·50	+ 0·13	7·93	3·81	+ 4·12	0·63	Raniganj.		
25	2	...	...	...	...	...	...	3	0·8	1·9	−58	80	·612	1·7	2	0·88	+ 1·12	0·27	0·67	− 0·40	6·63	4·28	+ 2·35	0·16	Burdwan.		
11	7	1	2	2	1	...	...	6	0·6	?	?	74	·533	2·2	0	0·60	− 0·60	0	0·37	− 0·37	8·34	4·59	+ 3·75	0	Naya Dumka.		
30	...	...	...	...	...	...	..	...	0·5	1·7	−70	85	·615	1·3	0	0·63	− 0·63	0	0·56	− 0·56	6·21	4·39	+ 1·82	0	Berhampore.		
15	11	2	...	...	...	...	...	2	1·2	?	?	83	·615	1·6	0	0·53	− 0·53	0	0·31	− 0·31	4·90	4·42	+ 0·48	0	Rampur Boalia.		
...	10	1	1	2	3	3	3	7	1·5	?	?	84	·597	0·9	1	0·42	+ 0·58	0·87	0·20	+ 0·67	7·86	4·62	+ 3·24	0·87	Malda.		
			Not	recorde	d.				?	?	?	86	·619	1·4	0	0·65	− 0·65	0·05	0·64	− 0·59	8·16	4·38	+3·78	0·03	Bogra.		
...	6	14	2	1	1	...	3	3	3·2	?	?	82	·567	0·5	0	0·23	− 0·23	0·03	0·08	− 0·05	8·64	4·63	+4·01	0·03	Dinajpur	North Bengal.	12
			Not	recorde	d.				?	?	?	89	·631	1·0	0	0·11	− 0·11	0	0·13	−0·13	8·35	5·57	+ 2·78	0	Rangpur.		
...	8	11	4	1	...	...	1	5	1·8	?	?	83	·541	0	0	0·34	− 0·34	0·05	0·16	− 0·11	5·18	5·48	− 0·30	0·05	Jalpaiguri.		
9	4	3	9	3	2	...	...	...	1·5	?	?	84	·571	0·7*	0	?	?	0·05	0·07	− 0·02	6·86	6·05	+ 0·81	0·05	Cooch Behar		
10	...	4	7	3	1	2	1	2	1·9	1·2	+ 58	90	·563	0·9	0	0·19	− 0·19	0·02	0·08	− 0·06	10·43	3·65	+ 6·78	0·02	Purnea	North Bihar.	17
7	7	2	1	...	...	1	2	10	0·9	?	?	86	·623	2·2	2	1·73	+ 0·27	0·48	1·32	− 0·84	14·72	7·45	+ 7·27	0·34	Balasore	Orissa.	14
...	9	4	...	...	...	...	...	17	5·5	6·5	−15	85	·688	3·6	4	2·73	+ 1·27	4·25	3·23	+ 1·02	14·84	12·42	+ 2·42	1·34	False Point.		
12	3	7	1	...	...	1	5	1	2·3	1·7	+35	80	·583	2·4	3	1·88	+ 1·12	2·08	1·73	+ 0·35	8·11	7·37	+ 0·74	0·75	Cuttack.		
...	17	5	...	...	...	...	3	5	10·3	?	?	71	·676	3·1	1	?	?	0·24	2·40	− 2·16	12·32	6·24	+ 6·08	0·15	Shortt's Island		
5	16	5	1	...	...	...	...	3	?	?	?	81	·652	2·9	6	2·77	+ 3·23	7·58	3·48	+ 4·10	15·75	12·38	+ 3·37	2·70	Puri.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·01	0·22	−0·21	...	...	...	...	V.—Gangetic Plain and Chota Nagpur.		
7	4	2	3	1	3	3	3	4	4·6	4·3	+ 7	72	·465	1·7	0	0·69	− 0·69	0·02	0·29	− 0·27	5·51	3·70	+ 1·81	0·02	Hazaribagh.	Chota Nagpur.	15
17	2	4	1	...	...	1	1	4	1·8	?	?	76	·480	1·6	2	0·80	+ 1·20	0·29	0·43	− 0·14	5·91	3·38	+ 2·53	0·16	Ranchi.		
...	5	4	2	...	5	8	2	4	0·9	?	?	75	·482	1·0	0	0·76	− 0·76	0	0·37	− 0·37	6·84	2·87	+ 3·97	0	Daltonganj.		
23	...	1	...	...	...	2	1	3	0·7	?	?	83	·537	2·2	0	0·92	− 0·92	0	0·45	− 0·45	2·62	3·17	− 0·55	0	Chaibassa.		
16	...	...	3	...	7	3	1	...	2·0	1·2	+67	72	·511	1·2	0	0·53	− 0·53	0	0·38	− 0·38	6·79	2·65	+ 4·14	0	Gaya	South Bihar.	16
1	1	1	1	...	6	14	4	...	3·1	?	?	72	·538	0·5	0	0·54	− 0·54	0	0·28	− 0·28	4·24	2·91	+ 1·33	0	Dehri†		
8	1	3	4	2	2	4	3	3	1·3	1·5	−13	77	·559	0·8	0	0·34	− 0·34	0	0·17	− 0·17	7·13	3·42	+ 3·71	0	Patna.		
1	...	5	5	2	5	6	5	1	1·4	?	?	82	·563	0·3	0	0·46	−0·46	0	0·20	− 0·20	4·48	3·19	+ 1·29	0	Arrah.		
7	1	...	5	4	2	1	8	2	1·8	?	?	69	·514	0·7	0	0·42	− 0·42	0	0·46	−0·46	4·20	3·72	+ 0·48	0	Buxar.		
20	2	3	1	...	..	1	3	...	0·8	?	?	79	·582	1·7	0	0·26	− 0·26	0	0·21	− 0·21	7·59	3·01	+ 4·58	0	Bhagalpur	North Bihar.	17
7	4	2	3	3	1	1	4	5	1·4	1·8	−22	82	·577	0·7	0	0·19	− 0·19	0	0·07	− 0·07	7·19	2·91	+ 4·28	0	Darbhanga.		
16	1	2	3	3	...	...	3	2	1·5	?	?	86	·591	0·5*	0	0·40	− 0·40	0	0·17	− 0·17	12·28	3·28	+ 9·00	0	Muzaffarpur.		
...	2	11	5	1	1	4	4	2	3·3*	?	?	92	·576	0·5	0	0·20	− 0·20	0	0·13	− 0·13	6·73	3·52	+ 3·21	0	Motihari.		
17	1	...	2	1	1	5	1	2	1·0	?	?	81	·565	0·9	0	0·42	− 0·42	0	0·38	− 0·38	4·32	3·46	+ 0·86	0	Chapra.		
18	...	3	...	...	1	5	3	...	1·9	2·1	−10	84	·528	0·9	0	0·82	− 0·82	0	0·36	− 0·36	6·87	2·66	+ 4·21	0	Benares	N.-W. P. East.	18
8	2	...	..	1	3	3	8	5	2·4	2·0	+20	78	·512	0·6	0	0·45	− 0·45	0	0·17	− 0·17	4·33	2·00	+ 2·33	0	Allahabad.		
8	...	8	2	2	1	4	5	...	1·1	0·9	+22	80	·541	1·1	0	0·18	− 0·18	0	0·10	− 0·10	9·23	3·87	+ 5·36	0	Gorakhpur	N.-W. P. (East Submontane).	23
22	1	1	1	...	...	...	5	...	1·0	1·4	−29	75	·466	0·8	0	0·09	− 0·09	0	0·05	− 0·05	0·01	0·88	− 0·87	0	Lucknow	South Oudh.	19
20	...	1	3	1	...	1	1	3	1·2	?	?	75	·503	0·1	0	?	?	0	0	0	0·52	1·69	− 1·17	0	Bahraich	North Oudh.	2
20	...	...	1	...	...	4	4	1	1·2	?	?	63	·427	0·7	0	0	0	0	0·02	− 0·02	0·10	1·10	− 1·00	0	Cawnpore	N.-W. Provinces (Central).	21
11	1	2	1	1	2	1	11	...	1·6	?	?	67	·379	0·1	0	?	?	0	0	0	0	0·82	− 0·82	0	Mainpuri.		

* Mean of 29 days.
† " " 28 "

Table

Abstract of Observations taken at 8 A.M. at 214 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of Air. 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.
	VI.—Upper Sub-Himalayas		...	...	-·020	...	...	...	...	...	...	...	81·9	1·8	52·7	+3·3	67·3	+2·6	29·2	...	...	...	...	43·
24	N.-W. Provinces, West (Submontane).	Bareilly	568	29·438	-·006	29·998	29·552	25th	29·291	2nd	·261	63·0	81·7	+0·7	55·9	+3·8	68·8	+2·3	25·8	85·9	2nd	47·2	30th	38·7
		Dehra Dun	2,233	27·745	-·030	30·011	27·844	25th	27·606	2nd	·238	59·4	76·9	+2·7	54·1	+2·8	65·5	+2·8	22·8	82·0	8th	48·0	30th	34·0
		Roorkee	887	29·098	-·023	30·004	29·210	25th	28·942	2nd	·268	57·6	81·9	+1·6	52·0	+2·8	67·0	+2·2	29·9	87·8	8th	41·0	30th	46·8
22	N.-W. P., West	Meerut	738	29·252	-·021	29·999	29·367	25th	29·085	2nd	·282	58·2	82·0	+1·0	52·6	+3·1	67·3	+2·1	29·4	87·7	1st	44·1	30th	43·6
26	South-East Punjab.	Delhi	718	29·274	-·024	29·992	29·394	25th	29·109	2nd	·285	62·3	83·1	+0·1?	58·5	+3·1?	70·8	+1·6?	24·6	92·2	4th	51·4	29th	40·8
28	Central Punjab.	Lahore	702	29·291	-·025	30·007	29·409	25th	29·121	2nd	·288	57·3	81·7	?	52·2	+6·0	67·0	?	29·5	88·6	2nd	44·7	30th	43·9
27	South Punjab	Sirsa	662	29·344	-·012	30·012	29·467	25th	29·154	2nd	·313	58·1	85·0	+0·7	51·5	+3·4	68·3	+2·1	33·5	92·3	2nd & 13th	44·7	28th	47·6
		Patiala	818	29·176	?	30·004	29·293	25th	28·990	2nd	·303	60·7	82·0	?	53·7	?	67·8	?	28·3	88·7	1st	45·0	30th	43·7
29	Punjab (Submontane).	Ludhiana	812	29·173	-·024	30·001	29·286	25th	28·994	2nd	·292	58·4	81·4	+1·0	54·0	+4·0	67·7	+2·5	27·4	88·6	2nd	47·1	28th	41·5
		Sialkot	830	29·159	-·012	30·011	29·272	25th	28·990	2nd	·282	57·4	83·0	+2·4	52·2	+3·7	67·6	+3·1	30·8	90·1	2nd	42·1	30th	48·0
		Umballa	892	29·094	?	30·005	29·204	25th	28·920	2nd	·284	55·7	83·3	?	50·9	?	67·1	?	32·4	89·0	2nd	44·0	30th	45·0
31	North Punjab	Rawalpindi	1,643	28·311	-·020	30·028	28·414	25th	28·167	2nd	·247	53·2	80·8	+4·1	45·1	+2·9	63·0	+3·5	35·7	87·1	2nd	35·4	30th	51·7
	VII.—Indus Valley and N.-W. Rajputana.		...	...	-·027	...	...	...	...	...	...	...	87·0	+3·4	54·0	+3·1	70·5	+3·3	33·0	...	...	...	...	47·7
31	North Punjab	Peshawar	1,110	28·897	-·045	30·015	29·013	28th	28·775	2nd	·238	51·4	79·6	+2·7	45·3	+1·2	62·5	+2·0	34·3	88·6	11th	35·4	30th	53·2
32	West Punjab	Khushab	612	29·401	?	30·024	29·522	25th	29·228	2nd	·291	56·5	84·4	?	48·9	?	66·7	?	35·5	91·3	10th	43·0	5 days	48·3
		Montgomery	558	29·443	?	30·000	29·558	25th	29·270	2nd	·288	60·3	85·5	?	50·8	?	68·2	?	34·7	92·9	12th	43·0	30th	49·9
		D. I. Khan	594	29·438	-·031	30·016	29·550	25th	29·284	2nd	·266	55·9	84·0	?	49·2	+2·2	66·6	?	34·8	91·3	3rd	42·0	30th	49·3
		Mooltan	420	29·591	-·036	30·008	29·713	28th	29·434	2nd	·279	60·8	86·6	+2·6	54·9	+3·4	70·8	+3·0	31·7	92·3	2nd	47·9	27th & 30th	44·4
47	Sind	Jacobabad	186	29·827	-·034	29·985	29·929	28th	29·678	2nd	·251	62·1	90·7	+4·8	54·2	+4·8	72·5	+4·8	36·5	99·5	12th	48·0	26th	51·5
		Hyderabad	96	29·936	-·006	29·990	30·019	25th	29·795	13th	·224	69·1	91·3	+4·1	60·9	?	76·1	?	30·4	98·1	3rd	52·0	27th	46·1
		Kurrachee	30	30·014	-·010	29·996	30·078	25th	29·894	13th	·184	70·9	87·7	?	63·7	+2·5	75·7	?	24·0	93·4	6th & 10th.	56·4	23rd	37·0
51	West Rajputana	Bickaneer	771	29·243	?	30·016	29·332	25th	29·061	2nd	·271	65·9	86·4	+2·5	57·7	?	72·2	?	28·7	93·2	2nd & 5th.	46·6	28th	46·6
		Pachpadra	380	29·604	?	29·963	29·682	25th	29·594	15th	·088	60·6	91·3	?	52·6	?	72·0	?	38·7	96·5	2nd	44·1	30th	52·4
		Jodhpur	782	29·234	?	29·982	29·325	25th	29·121	2nd	·204	65·7	89·2	?	55·6	?	72·5	?	33·6	93·6	1st & 12th	47·2	30th	46·4
	VIII.—East Rajputana, Central India and Gujarat.		...	...	·002	...	...	...	...	...	...	...	87·6	+1·9	57·3	+0·6	72·5	+1·3	30·3	...	...	...	...	42·6
50	East Rajputana	Jeypore	1,431	28·585	-·015	30·035	28·671	25th	28·460	13th	·211	63·7	86·6	+2·0	54·3	+1·3	70·5	+1·7	32·3	92·5	2nd	46·7	28th & 29th.	45·8
		Kotah	?	29·185	?	?	29·284	25th	29·063	13th	·221	66·9	87·5	?	59·0	?	73·3	?	28·5	95·0	3rd	51·0	28th	44·0
		Sambhar	1,254	28·749	?	30·026	28·835	25th	28·624	13th	·211	60·7	84·8	+2·3	53·3	+1·4	69·1	+1·9	31·5	90·4	3rd	43·9	27th	46·5
		Ajmere	1,611	29·412	-·013	30·068	28·489	25th	28·303	13th	·186	58·3	84·8	+1·7	50·6	+1·2	67·8	+1·5	34·2	89·4	1st	42·4	29th	47·0
		Deesa	466	29·564	+·004	30·006	29·634	25th	29·475	13th	·159	66·6	91·2	+0·8	54·5	-2·3	72·9	-0·8	36·7	95·3	15th	49·1	30th	46·2
46	Kathiawar and Cutch.	Bhuj	395	29·647	+·019	30·007	29·703	25th	29·564	12th & 13th	·139	72·8	90·2	+1·9	62·0	0	76·1	+1·0	28·2	94·5	13th	57·0	23rd & 30th.	37·5
		Rajkot	429	29·601	+·015	29·996	29·650	25th	29·528	12th	·122	70·8	89·3	?	57·9	-0·6	73·7	?	31·4	93·4	13th	50·5	30th	42·9
		Veraval	?	29·991	?	29·951	30·032	1st	29·917	12th	·115	73·6	88·6	?	64·4	?	76·5	?	24·2	93·6	7th & 8th	57·3	11th	36·3
		Ghadechi	35	29·989	?	29·970	30·047	25th	29·915	12th	·132	68·8	90·3	?	58·7	?	74·6	?	31·6	94·1	1st	52·2	30th	41·9
49	Central India	Nowgong	757	29·265	-·019	30·017	29·368	25th	29·145	13th	·223	61·7	82·6	?	54·6	+2·7	68·6	?	28·0	90·0	2nd & 3rd	47·0	29th	43·0
		Indore	1,823	28·199	+·012	30·032	28·272	25th	28·120	13th	·152	64·9	83·6	+1·8	51·4	-2·4	67·5	-0·3	32·2	87·2	4 days	44·6	30th	42·6
		Neemuch	1,630	28·408	+·016	30·040	28·487	25th	28·310	13th	·177	68·1	85·2	+1·8	52·9	-1·3	69·1	+0·3	32·3	91·3	2nd	45·9	28th	45·4
45	Gujarat	Surat	39	29·985	+·013	29·968	30·045	25th	29·904	12th	·141	70·3	92·3	?	61·4	-0·9	76·8	?	30·9	95·2	15th & 16th.	55·5	30th	39·7
		Ahmedabad	164	29·874	?	29·930	29·939	25th	29·793	12th	·146	71·3	91·1	?	62·9	?	77·0	?	28·2	94·2	4 days.	57·7	30th	36·5
22	N.-W. P., West	Agra	555	29·452	?	29·994	29·571	25th	29·304	2nd	·267	64·7	86·0	+2·0	58·3	+3·4	72·2	+2·7	27·7	93·0	2nd & 3rd	48·9	28th	44·1
21	N.-W.P., Central	Jhansi	858	29·163	-·011	30·008	29·265	25th	29·036	13th	·229	69·4	86·8	+2·6	60·7	+4·0	73·8	+3·3	26·1	94·1	3rd	51·9	29th	42·2

I—*continued.*

in India, Burma, etc., in November 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 October to 30th November 1897.	Normal rainfall for period from 1st October to 30th November.	Variation from normal of period, 1st October to 30th November.	Heaviest rainfall during month	Station.	Meteorological Province or District.	Number of District.
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·15	-0·15	...	...	...	...	VI.—Upper Sub-Himalayas.		
23	1	1	1	1	...	...	...	3	0·2	1·7	− 88	79	·464	0	0	0·27	−0·27	0	0·13	− 0·13	0	1·28	− 1·28	0	Bareilly .	N.-W. Provinces, West (Submontane).	24
30	..	...	...	...	...	...	...	...	0·8	1·7	− 53	71	·363	0·7	0	0·60	−0·60	0	0·37	− 0·37	0	1·36	− 1·36	0	Dehra Dun.		
30	...	...	...	...	...	...	...	...	0·4	1·1	− 64	79	·384	0·1	0	0·64	−0·64	0	0·16	− 0·16	0	0·59	− 0·59	0	Roorkee.		
27	...	...	...	...	...	...	3	...	0·5	1·3	− 62	71	·347	0	0	0·36	−0·36	0	0·08	− 0·08	0	0·50	− 0·50	0	Meerut .	N.-W. P., West	22
4	...	...	1	2	...	2	14	7	3·2	2·3	+ 39	52	·292	0·1	0	0·18	−0·18	0	0·07	− 0·07	0	0·15	− 0·15	0	Delhi .	South-East Punjab,	26
30	...	...	...	...	...	...	...	...	0·6	1·4	− 57	73	·344	0	0	0·27	−0·27	0	0·10	− 0·10	0	0·36	− 0·36	0	Lahore .	Central Punjab,	28
...	...	1	2	6	7	9	3	2	2·8	2·0	+ 40	63	·306	0·2	0	0·09	−0·09	0	0·01	− 0·01	0·15	0·15	0	0	Sirsa .		
19	...	...	..	...	...	5	5	1	2·3	P	P	73	·390	0·2	0	P	P	0	P	P	0	P	P	0	Patiala.	South Punjab.	27
23	...	1	1	...	1	1	2	1	0·9	0·8	+ 13	68	·337	0·4	0	0·36	−0·36	0	0·09	− 0·09	0·06	0·49	− 0·43	0	Ludhiana .	Punjab (Submontane),	29
19	...	3	6	2	...	...	...	...	0·5	1·0	− 50	65	·306	0	0	0·18	−0·18	0	0·09	− 0·09	0·10	0·40	− 0·30	0	Sialkot.		
28	...	...	...	...	...	...	1	1	0·6	P	P	80	·358	0	0	P	P	0	0·18	− 0·18	0	0·49	− 0·49	0	Umballa.		
28	1	...	...	...	...	...	...	1	1·0	1·1	− 9	55	·244	0·4	0	0·36	−0·36	0	0·35	− 0·35	0·07	0·90	− 0·83	0	Rawalpindi.	North Punjab.	31
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·16	-0·16	...	...	...	...	VII.—Indus Valley and N.-W. Rajputana.		
25	...	2	...	...	...	1	...	2	1·7	2·1	− 19	69	·258	0·6	0	0·64	−0·64	0	0·57	− 0·57	0	0·68	− 0·68	0	Peshawar .	North Punjab.	31
17	2	3	1	...	3	2	1	1	2·3	P	P	51	·231	0	0	0·40	−0·40	0	0·33	− 0·33	0	0·40	− 0·40	0	Khushab .	West Punjab.	32
14	1	3	1	6	4	1	...	...	2·4	P	P	56	·294	0·3	0	0·20	−0·20	0	0·07	− 0·07	0	0·13	− 0·13	0	Montgomery.		
28	...	...	...	...	...	...	...	1	0·1	0·7	− 86	80	·361	0	0	0·45	−0·45	0	0·21	− 0·21	0	0·26	− 0·26	0	D. I. Khan.		
28	...	1	...	1	...	...	...	...	0·1	1·5	− 93	69	·376	0	0	0·09	−0·09	0	0·10	− 0·10	0	0·10	− 0·10	0	Mooltan.		
17	4	1	3	4	...	1	...	...	2·1	1·6	+ 31	67	·373	0·5	0	0	0	0	0·16	− 0·16	0	0·16	− 0·16	0	Jacobabad	Sind.	47
5	3	...	1	2	6	9	...	4	5·6	6·1	− 8	66	·510	0·6	0	0·20	−0·20	0	0·06	− 0·06	0	0·06	− 0·06	0	Hyderabad.		
4	2	9	9	...	...	...	4	2	5·2	7·9	− 34	72	·555	0·1	0	0·09	−0·09	0	0·09	− 0·09	0	0·09	− 0·09	0	Kurrachee.		
3	1	2	1	...	3	11	3	6	1·9	2·4	− 21	55	·348	0·4	0	P	P	0	0·08	− 0·08	0·16	0·18	− 0·02	0	Bickaneer .	West Rajputana	51
...	11	11	5	...	1	1	...	1	3·8	2·1	+ 81	52	·283	0·1	0	P	P	0	0	0	0·35	0·05	+ 0·30	0	Pachpadra.		
20	...	3	2	3	...	1	...	1	1·2	P	P	44	·276	0·1	0	P	P	0	0·12	− 0·12	1·97	0·25	+ 1·72	0	Jodhpur.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·23	-0·23	...	...	...	...	VIII.—East Rajputana, Cen. India and Gujarat.		
7	8	1	...	...	...	1	4	9	2·5	3·0	− 17	57	·342	0	0	0·20	−0·20	0	0·24	− 0·24	0·07	0·54	− 0·47	0	Jeypore .	East Rajputana.	50
13	...	...	3	...	..	3	5	3	2·2	P	P	38	·315	0	0	P	P	0	0·03	− 0·03	0·07	0·53	− 0·46	0	Kotah.		
22	2	...	...	...	...	...	5	1	2·2	3·4	− 35	53	·281	0	0	0·30	−0·30	0	0·19	− 0·19	0·45	0·36	+ 0·09	0	Sambhar.		
20	2	1	...	...	1	3	1	2	2·6	1·4	+ 84	72	·355	0·1	0	0·27	−0·27	0	0·19	− 0·19	0·97	0·50	+ 0·47	0	Ajmere.		
...	2	5	18	...	1	1	2	1	6·5	7·5	− 13	54	·354	0	0	0·18	−0·18	0	0·16	− 0·16	0·54	0·51	+ 0·03	0	Deesa.		
7	4	1	1	2	...	1	7	7	5·4	4·7	+ 15	57	·411	0	0	P	P	0	0·02	− 0·02	0·17	0·37	− 0·20	0	Bhuj .	Kathiawar and Cutch.	46
9	3	9	7	...	...	...	2	...	3·1	4·9	− 37	52	·409	0·3	0	0·18	−0·18	0	0·36	− 0·36	1·49	0·81	+ 0·68	0	Rajkot.		
1	13	15	...	1	...	...	...	...	4·6	P	P	51	·419	0·1	0	P	P	0	0·87	− 0·87	0·13	1·95	− 1·82	0	Veraval.		
...	2	...	...	...	2	4	6	16	4·5	P	P	48	·329	0	0	P	P	0	P	P	0·42	P	P	0	Ghadechi.		
12	5	1	2	...	1	4	3	2	1·3	1·0	+ 30	72	·401	0	0	0·55	- 0·55	0	0·25	− 0·25	0	1·42	− 1·42	0	Nowgong .	Central India.	49
18	2	6	4	...	...	...	...	...	1·2	2·0	− 40	62	·376	0	0	0·73	−0·73	0	0·45	− 0·45	0·39	1·90	− 1·51	0	Indore.		
10	6	9	...	1	...	...	2	2	4·7	7·5	− 37	47	·323	0	0	0·18	−0·18	0	0·21	− 0·21	0·20	0·70	− 0·50	0	Neemuch.		
6	...	8	14	2	...	...	...	...	2·8	5·9	− 53	55	·415	0	0	0·55	−0·55	0	0·17	− 0·17	1·33	1·70	− 1·37	0	Surat .	Gujarat.	45
...	3	15	8	...	...	1	...	3	3·3	P	P	47	·364	0	0	P	P	0	0·21	− 0·21	0·02	0·83	− 0·81	0	Ahmedabad.		
10	...	1	...	1	...	4	...	14	3·5	2·5	+ 40	61	·375	0	0	0·18	−0·18	0	0·05	− 0·05	0·05	0·52	− 0·47	0	Agra .	N.-W. P., West.	22
24	..	...	...	...	...	5	1	...	1·0	1·8	− 42	46	·332	0·1	0	0·36	−0·36	0	0·12	− 0·12	0.14	0·82	− 0·68	0	Jhansi .	N.W.P., Central.	21

Table

Abstract of Observations taken at 8 A.M. at 214 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.
	IX.—Deccan		...	...	+·002	...	...	...	...	...	...	...	85·2	+1·6	58·0	−1·2	71·6	+0·2	27·2	...	...	...	...	38·1
38	Bombay (Deccan)	Belgaum	2,524	27·451	+·011	29·928	27·494	18th	27·395	11th	·099	70·7	84·4	+2·8	58·6	−3·0	71·5	−0·1	25·8	86·2	6 days	53·9	21st	32·3
		Sholapur	1,590	28·407	+·011	29·975	28·455	18th	28·330	12th	·125	72·5	87·9	+1·0	60·3	−1·9	74·1	−0·5	27·6	91·2	13th	53·0	30th	38·2
		Poona	1,840	28·172	+·013	30·010	28·219	1st	28·099	11th	·120	65·8	87·0	+1·8	54·1	−5·6	70·6	−1·9	32·9	90·0	13th	49·0	29th	41·0
		Bijapur	1,946?	28·048	?	29·866	28·088	1st	27·987	12th	·101	71·3	86·4	?	56·8	?	71·6	?	29·6	90·2	13th	52·1	17th & 18th.	38·1
40	Khandesh	Malegaon	1,430	28·577?	?	30·016?	28·627	1st & 25th.	28·519	13th	·108	62·5	86·9	+1·2	53·1	−3·7	70·0	−1·3	33·8	89·9	15th	46·0	28th	43·9
		Ahmednagar	2,152	27·856	?	29·995	27·906	1st	27·788	11th	·118	67·8	83·9	?	52·6	?	68·3	?	31·3	87·3	12th	46·4	30th	40·9
41	Berar	Akola	930	29·101	+·019	30·017	29·153	25th & 26th.	29·024	11th	·120	66·3	87·8	+1·9	55·0	−1·9	71·4	0	32·8	91·9	12th & 5th.	48·1	3 days	43·8
		Amraoti	1,215	28·801	+·009	30·004	28·859	25th	28·727	11th	·132	69·9	86·7	+1·5	60·8	−0·1	73·8	+0·3	25·9	90·7	15th	54·9	27th	35·8
42	Central Provinces (West).	Khandwa	1,044	28·978	+·016	30·022	29·046	25th	28·897	13th	·149	63·8	88·0	+2·7	52·9	−2·8	70·5	−0·1	35·1	91·7	15th	45·6	28th	46·1
		Hoshangabad	1,006	29·019	+·002	30·031	29·102	25th	28·933	13th	·169	62·2	84·6	+1·2	55·4	−1·2	70·0	0	29·2	88·7	14th	48·8	29th & 30th.	39·9
		Nagpur	1,025	28·978?	?	29·993?	29·039	26th	28·899	11th	·140	67·5	86·8	?	58·9	?	72·8	?	27·9	91·1	15th	49·2	30th	41·9
43	Central Provinces (Central).	Chanda	634	29·397?	+·019?	30·002?	29·457	28th	29·305	11th	·152	66·1	84·6	+0·2	57·3	−1·8	71·0	−0·8	27·3	88·7	15th	49·2	28th	39·5
		Seoni	2,033	27·976	+·006	30·011	28·048	25th	27·894	13th	·154	65·2	81·5	+0·9	53·8	−1·3	67·7	−0·2	27·7	87·0	3rd	45·0	27th	42·0
		Jubbulpore	1,327	28·652	−·012	30·021	28·762	25th	28·593	13th	·169	62·5	82·3	+1·5	52·1	−0·2	67·2	+0·7	30·2	87·4	2nd	42·9	30th	44·5
		Saugor	1,807	28·192?	−·009	29·996?	28·272	25th	28·091	13th	·181	68·6	82·0	+1·3	58·1	+2·1	70·1	+1·7	23·9	86·8	3rd & 5th.	52·6	28th	34·2
49	Central India	Satna	1,040	28·966	−·019	30·011	29·059	25th	28·866	13th	·193	63·8	82·2	+2·1	55·8	+3·0	69·0	+2·6	26·4	87·9	3rd & 4th.	47·8	29th & 30th.	40·1
44	Central Provinces (East).	Raipur	970	29·031	−·011	29·988	29·098	25th	28·949	11th & 13th	·149	66·4	83·5	+1·4	60·9	+0·7	72·2	+1·1	22·6	88·3	3 days	53·3	30th	35·0
		Sambalpur	486	29·526	−·025	29·978	29·593	25th	29·437	13th	·156	69·2	83·0	−0·2	63·2	+0·8	73·1	+0·3	19·8	87·1	4th & 5th.	54·2	30th	32·9
39	Hyderabad (North).	Aurangabad	1,865	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Indur	?				Not recorded.					71·0	84·0	?	56·4	?	70·2	?	27·6	86·7	12th & 13th.	49·0	29th	37·7
		Bidar	2,165?	27·831	?	29·955	27·886	18th	27·756	11th	·130	73·3	82·2	?	62·6	?	72·4	?	19·6	85·6	13th	56·4	27th	29·2
53	Hyderabad (South).	Gulbarga	1,502	28·489	?	29·967	28·563	18th	28·420	11th	·143	71·9	87·0	?	61·0	?	74·0	?	26·0	90·3	13th	51·9	30th	38·4
		Raichur	1,309	28·665	?	29·941	28·725	18th	28·578	12th	·147	74·4	87·0	?	66·4	?	76·8	?	20·6	90·1	12th	60·2	30th	29·9
		Hyderabad (Deccan).	1,690	28·301	+·012	29·976	28·367	18th	28·221	11th	·146	69·2	85·7	+2·8	60·5	−1·6	73·1	+0·6	25·2	88·4	16th	53·3	30th	35·1
		Secunderabad	1,787	28·201	?	29·976	28·269	18th	28·132	11th	·137	67·9	86·1	+3·2	60·6	−1·5	73·4	+0·9	25·5	89·1	12th	52·2	30th	36·9
		Khamamet	373	29·618	?	29·916	29·687	18th	29·519	11th	·168	72·3	88·1	?	63·2	?	75·7	?	24·9	91·5	11th	56·2	30th	35·3
	X.—West Coast		...	...	+·008	...	...	...	...	...	...	...	88·0	+1·7	71·4	−0·7	79·7	+0·5	16·6	...	...	...	...	22·9
37	Konkan	Bombay	37	29·968	+·015	29·945	30·028	25th	29·903	13th	·125	74·4	87·2	+0·7	72·0	−1·1	79·6	−0·2	15·2	90·5	14th	69·0	20th	21·5
		Ratnagiri	110	29·860	+·017	29·909	29·910	1st	29·787	12th	·123	77·5	91·7	+1·3	67·6	−2·3	79·7	−0·5	24·1	95·4	14th & 15th.	63·9	25th	31·5
		Mormugao	60	29·922	?	29·917	29·980	18th	29·858	13th	·122	73·4	87·1	?	70·5	?	78·8	?	16·6	89·0	8 days	67·3	17th & 18th.	21·7
		Goa	199	29·770	+·015	29·908	29·820	18th	29·715	7th	·105	75·7	86·7	?	69·7	?	78·2	?	17·0	91·0	16th	66·5	22nd	24·5
		Karwar	44	29·919	+·006	29·896	29·979	18th	29·851	13th	·128	70·7	89·7	+2·8	66·7	−2·8	78·2	0	23·0	93·3	3rd & 16th.	62·5	17th & 18th.	30·8
33	Malabar	Cochin	11	29·915	+·001	29·883	29·988	22nd	29·886	13th	·102	78·6	89·1	+2·2	74·7	+0·5	81·9	+1·4	14·4	91·3	8th & 16th.	72·2	21st	19·1
		Calicut	27	29·926	−·002	29·882	29·974	18th	29·867	7th	·107	79·1	87·9	+0·8	73·9	+0·8	80·9	+0·8	14·0	89·8	14th & 18th.	70·5	3 days	19·3
		Mangalore	65	29·896	+·003	29·894	29·952	18th	29·842	7th	·110	79·1	89·3	+2·1	73·4	+0·6	81·4	+1·4	15·9	93·3	15th & 27th	69·0	17th	24·3
		Trivandrum	198	29·734	?	29·866	29·774	22nd	29·675	7th	·099	77·6	83·1	?	74·3	?	78·7	?	8·8	85·0	29th	71·5	22nd	13·5
	XI.—South India		...	...	0	...	...	...	...	...	...	...	86·4	+2·5	68·8	+0·2	77·7	+1·4	17·6	...	...	...	...	27·5
57	Madras (South)	Pamban	37	29·914*	?	29·878*	29·977	1st	29·837	7th	·140	80·7*	86·2*	?	76·3*	?	81·3*	?	9·9	89·3	3 days	73·2	24th & 25th.	16·1
		Tinnevelly	168	29·798	?	29·896	29·852	4th	29·712	13th	·140	79·6	91·0	?	75·7	?	83·4	?	15·3	95·2	3 days	71·4	21st	23·8
		Madura	447	29·510	+·008	29·898	29·556	18th	29·428	13th	·128	78·2	88·3	+1·0	72·7	+0·4	80·5	+0·7	15·6	91·4	12th & 13th.	67·6	21st	23·8

* Mean of 29 days.

I—*continued.*

in India, Burma, etc., in November 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 Oct. to 30th November 1897.	Normal rainfall for period, 1st Oct. to 30th November.	Variation from normal of period, 1st Oct. to 30th November.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·02	0·93	−0·91	...	...	...	...	**IX.—Deccan.**		
11	1	7	10	1	...	...	...	...	7·4	11·7	− 37	48	·357	0·5	0	2·73	− 2·73	0	2·11	− 2·11	3·53	8·50	− 4·97	0	Belgaum	Bombay (Deccan).	38
5	2	16	3	3	...	1	...	...	10·3	7·7	+ 34	38	·306	0·8	0	1·73	− 1·73	0	1·15	− 1·15	2·94	6·25	− 3·31	0	Sholapur.		
11	...	2	5	1	1	5	4	1	5·8	5·8	0	56	·359	0·5	0	2·64	− 2·64	0	1·31	− 1·31	6·31	6·11	+ 0·20	0	Poona.		
3	...	1	6	5	...	6	7	2	3·2	?	?	66	·508	0·7	0	2·20	− 2·20	0	1·35	− 1·35	6·34	5·91	+ 0·43	0	Bijapur.		
3	1	...	1	...	...	6	15	4	8·6	4·0	+115	50	·288	0·5	0	1·75	− 1·75	0	0·61	− 0·64	2·59	3·48	− 0·89	0	Malegaon	Khandesh.	40
6	5	3	1	1	1	...	3	10	9·7	?	?	53	·360	0·8	0	?	?	0	0·97	− 0·97	2·62	4·31	− 1·69	0	Ahmednagar.		
5	...	6	9	3	1	3	1	2	3·0	3·4	− 12	53	·345	0·5	0	1·18	− 1·18	0	0·75	− 0·75	0·04	4·25	− 4·21	0	Akola	Berar.	41
...	3	10	11	1	1	2	1	1	2·1	3·0	− 30	51	·381	0·9	0	1·27	− 1·27	0·07	0·62	− 0·55	0·76	3·50	− 2·74	0·04	Amraoti.		
21	...	4	...	...	1	...	1	3	2·7	2·6	+ 4	55	·333	0·2	0	1·09	− 1·09	0	0·31	− 0·31	0·49	2·04	− 1·55	0	Khandwa	Central Provinces (West).	42
11	...	8	8	1	...	1	1	...	1·3	1·9	− 32	66	·369	0·4	0	0·91	− 0·91	0	0·61	− 0·61	0·19	2·43	− 2·24	0	Hoshangabad.		
16	11	3	...	...	...	...	...	...	4·2	4·0	+ 5	59	·400	1·1	0	1·09	− 1·09	0	0·90	− 0·90	0·91	3·85	− 2·94	0	Nagpur.		
15	10	3	...	...	...	...	1	1	1·2	1·8	− 33	76	·502	1·1	0	?	?	0	1·12	− 1·12	3·43	3·36	+ 0·07	0	Chanda	Central Prov. inces (Central).	43
...	4	14	...	1	1	3	3	4	1·8	2·6	− 31	62	·339	0·8	0	0·82	− 0·82	0·02	0·60	− 0·58	0·80	2·96	− 2·16	0·02	Seoni.		
8	...	3	...	9	6	2	2	...	1·2	1·8	− 33	73	·417	0·5	0	1·27	− 1·27	0	0·50	− 0·50	0·62	2·57	− 1·95	0	Jubbulpore.		
4	2	7	5	4	1	4	3	...	4·2	2·3	+ 83	45	·311	0·1	0	0·55	− 0·55	0	0·45	− 0·45	0·98	1·90	− 0·92	0	Saugor.		
10	10	...	1	1	...	...	1	7	2·6	3·2	− 19	65	·390	0·3	0	0·73	− 0·73	0	0·30	− 0·30	1·99	2·67	− 0·68	0	Sutna	Central India	49
15	2	7	1	2	...	2	...	1	3·9	3·3	+ 18	72	·470	2·2	0	1·82	− 1·82	0	0·52	− 0·52	2·87	2·81	+ 0·06	0	Raipur	Central Provinces (East).	44
...	9	18	...	3	...	...	...	...	4·2	1·4	+200	80	·576	2·6	1	?	?	0·21	0·65	− 0·44	3·65	2·69	+ 0·96	0·18	Sambalpur.		
...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	Aurangabad	Hyderabad (North).	39
16	8	3	1	1	1	...	...	...	3·3	?	?	66	·506	0·7	0	?	?	0	1·06	− 1·06	2·19	3·69	− 1·50	0	Indur.		
...	4	14	8	2	...	...	...	2	6·8	?	?	71	·583	0·4	0	?	?	0	1·15	− 1·15	0·82	4·80	− 3·98	0	Bidar.		
6	1	21	...	...	...	...	...	...	8·6	?	?	54	·430	1·0	0	?	?	0	0·64	− 0·64	4·09	3·70	+ 0·39	0	Gulbarga(a)	Hyderabad (South).	53
...	11	10	9	...	...	...	...	...	7·2	?	?	58	·500	0·7	0	?	?	0	0·80	− 0·80	6·18	5·58	+ 0·60	0	Raichur.		
21	1	1	3	1	...	...	...	3	3·2	?	?	65	·471	1·5	0	?	?	0	1·76	− 1·76	4·73	4·84	− 0·11	0	Hyderabad (Deccan).		
15	2	13	...	...	...	...	...	...	3·6	3·5	+ 3	61	·416	1·2	0	?	?	0	1·76	− 1·76	2·08	4·84	− 2·76	0	Secunderabad.		
22	6	...	...	...	...	...	...	2	3·8	?	?	74	·600	0·2	1	?	?	0·16	1·13	− 0·97	5·82	4·88	+ 0·94	0·16	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·15	3·06	−1·91	...	...	...	...	**X.—West Coast.**		
...	...	15	15	...	...	...	...	...	9·1	9·0	− 8	71	·610	0·1	0	1·09	− 1·09	0	0·66	− 0·66	2·62	3·13	− 0·51	0	Bombay	Konkan.	37
11	...	1	14	4	...	...	...	...	4·9	9·0	− 46	48	·446	0·1	0	1·18	− 1·18	0	0·50	− 0·50	14·32	4·78	+ 9·54	0	Ratnagiri.		
...	...	4	17	9	...	...	...	...	7·4	?	?	77	·630	0·2	0	?	?	0	1·18	− 1·18	5·07	8·67	− 3·60	0	Mormugao.		
...	...	14	16	...	...	...	...	...	?	?	?	60	·535	0·3	0	?	?	0	1·45	− 1·45	2·42	7·42	− 5·00	0	Goa.		
4	2	8	16	...	...	...	...	...	2·9	?	?	78	·579	0·5	0	3·82	− 3·82	0	2·63	− 2·63	10·75	10·31	+ 0·44	0	Karwar.		
5	6	14	...	2	2	...	1	...	4·1	?	?	82	·817	4·5	6	10·09	− 4·09	1·74	6·77	− 5·03	12·36	20·78	− 8·42	0·32	Cochin	Malabar.	33
5	1	3	13	7	1	...	...	...	9·3	?	?	80	·789	3·8	3	8·44	− 5·44	2·10	5·06	− 2·96	10·57	15·23	− 4·66	1·40	Calicut.		
...	...	3	16	10	1	...	...	...	2·5	3·0	− 17	74	·748	2·1	0	5·10	− 5·10	0·01	3·09	− 3·08	6·45	10·91	− 4·46	0·01	Mangalore.		
15	5	4	4	1	...	...	...	1	2·7	?	?	85	·809	5·1	8	?	?	6·52	6·24	+ 0·28	13·57	17·00	− 3·43	1·69	Trivandrum.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	2·59	6·14	−3·55	...	...	...	...	**XI.—South India.**		
2	5	15	2	...	3	1	...	1	7·6	?	?	81*	·851*	3·4*	7	8·00	− 1·00	5·92	9·55	−3·63	9·35	16·41	− 7·06	2·62	Pamban*	Madras (South).	57
...	8	4	1	1	...	1	2	13	3·2	?	?	75	·763	4·3	4	10·50	− 6·50	3·76	9·99	−6·23	7·12	16·00	− 8·83	2·45	Tinnevelly.		
3	13	5	1	...	...	...	...	8	3·1	3·8	− 18	75	·734	4·4	6	7·09	−1·09	6·46	4·66	+1·80	11·05	12·87	− 1·82	3·43	Madura.		

* Wind observations of 29 days.
(a) 2 Variable.

Table

Abstract of Observations taken at 8 A.M. at 214 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bat-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.
34	Madras (South Central).	Salem	940	29·045	+·006	29·934	29·103	18th	28·978	11th	·125	77·5	90·0	+3·1	69·7	+1·7	79·9	+2·4	20·3	94·4	12th	63·9	5th	30·5
		Coimbatore	1,348	28·615	+·007	29·923	28·663	18th	28·545	11th	·118	74·4	87·4	+1·5	68·9	−0·2	78·2	+0·7	18·5	92·4	12th	62·8	5th	29·6
35	Coorg	Mercara	3,781	26·259	+·008	?	26·298	18th	26·217	13th	·081	67·1	76·9	+1·9	61·2	+0·9	69·1	+1·4	15·7	80·0	14th	55·7	21st	24·3
36	Mysore	Chitaldroog	2,405	27·577	?	29·918	27·624	18th	27·521	11th & 13th.	·103	73·0	84·2	?	63·8	?	74·0	?	20·4	89·1	13th	59·4	6th	29·7
		Bangalore	3,021	26·980	−·005	29·917	27·030	18th	26·928	7th & 12th	·102	70·1	82·4	+3·9	61·7	−0·3	72·1	+1·8	20·7	87·3	12th	56·9	5th	30·4
		Hassan	3,091	26·915	?	29·919	26·958	18th	26·868	7th	·090	72·1	82·2	?	57·3	?	69·8	?	24·9	86·1	13th	50·1	17th	36·0
		Mysore	2,518	27·473	?	29·926	27·520	18th	27·415	7th	·105	72·0	84·0	?	63·5	?	73·8	?	20·5	86·9	13th	58·4	5th & 17th	28·5
56	Madras (East Coast, South).	Negapatam	31	29·918	−·004	29·879	29·972	20th	29·844	7th	·128	79·4	86·0	+2·3	74·7	+0·8	80·4	+1·6	11·3	93·2	11th	71·0	21st	22·2
		Cuddalore	12	29·948	?	29·889	30·001	3 days	29·882	12th	·119	78·3	87·4	?	71·3	?	79·4	?	16·1	91·3	13th & 25th.	66·2	17th & 21st	25·1
		Trichinopoly	255	29·702	−·004	29·893	29·758	18th	29·630	11th	·128	78·5	90·1	+3·4	72·6	+0·9	81·4	+2·2	17·5	95·5	12th	65·4	21st	30·1
		Madras	22	29·945	−·005	29·898	30·014	19th	29·875	11th	·139	78·5	88·5	+3·5	71·4	−0·9	80·0	+1·3	17·1	91·0	11th & 13th.	64·5	20th	26·5
55	Madras (East Coast, Central).	Nellore	71	29·900	?	29·905	29·970	18th	29·824	11th	·146	78·1	88·6	?	72·3	?	80·5	?	16·3	94·2	12th	68·1	3 days	26·1
		Masulipatam	15	29·971	+·001	29·921	30·055	18th	29·884	11th	·171	77·5	87·6	+2·9	71·2	−0·2	79·4	+1·4	16·4	90·6	24th	63·2	30th	27·4
54	Madras (Central)	Cuddapah	433	29·539	?	29·918	29·604	18th	29·458	12th	·146	77·4	91·4	+4·8	70·3	+1·0	80·9	+2·9	21·1	96·1	12th	65·4	5th & 16th	30·7
		Kurnool	923	29·051	?	29·910	29·112	18th	28·961	12th	·151	71·6	89·1	+2·5	62·0	−2·2	75·6	+0·2	27·1	91·7	12th & 13th	55·2	16th & 3: th.	36·5
		Bellary	1,475	28·507	+·005	29·948	28·569	18th	28·429	12th	·140	74·2	89·7	+3·4	65·0	−0·7	77·4	+1·4	24·7	94·7	13th	59·1	30th	35·6
52	Madras (East Coast, North).	Rajahmundry	112			Not	record	ed.				74·1	88·2	+1·7	69·5	+0·4	78·9	+1·1	18·7	92·0	2nd	64·2	30th	27·8
		Cocanada	26	29·950	−·005	29·911	30·037	18th	29·856	12th	·181	76·0	84·2	+2·4	71·1	+1·1	77·7	+1·8	13·1	88·1	6th	66·5	30th	21·6
		Vizagapatam	31	29·955	−·013	29·921	30·035	18th	29·857	12th	·178	76·7	85·1	−0·1	69·8	+0·4	77·5	+0·2	15·3	90·2	6th	63·9	30th	26·3
		Waltair	?				Not	record	ed.			77·5	84·0	?	72·5	?	78·3	?	11·5	89·2	6th	68·8	19th	20·4
		Gopalpur	21	29·976	?	29·937	30·040	18th	29·893	13th	·147	70·1	82·2	?	67·0	?	74·6	?	15·2	90·3	8th	60·1	30th	30·2
	XII.—Hill Stations.																							
48	Baluchistan	Sharigh	?	25·917	?	?	26·020	8th	25·840	2nd	·180	60·6	80·6	?	41·8	?	61·2	?	38·8	88·0	14th & 19th.	33·0	25th & 26th.	55·0
		Pishin	?			Not	record	ed.				?	74·5	?	27·0	?	50·8	?	47·5	81·0	1st & 20th.	18·3	25th	62·7
		Quetta	5,502	24·787	+·023	?	24·838	10th	24·734	27th	·104	45·0	73·4	+9·6	33·1	+2·2	53·3	+5·9	40·3	79·7	16th	26·3	19th	53·4
		Kalat	?			Not	record	ed.				45·9	74·0	?	27·7	?	50·9	?	46·3	83·9	16th	20·4	30th	63·5
		Chaman	4,311	25·849	?	?	25·908	18th	25·777	26th	·131	58·4	76·7	?	47·3	?	62·0	?	29·4	85·3	16th	39·1	18th	46·2
30	Punjab	Leh	11,503	19·840	?	?	20·001	16th & 17th.	19·668	30th	·333	28·7	52·2	?	22·3	?	37·2	?	29·9	56·6	8th	15·5	30th	41·1
		Srinagar	5,204	25·027	?	?	25·137	17th	24·913	13th	·224	35·8	66·5	?	32·9	?	49·7	?	33·6	70·3	2nd	25·9	30th	44·4
		Skardu	?	23·060	?	?	23·210	16th	22·878	2nd	·332	31·3	59·4	?	28·1	?	43·7	?	31·3	64·4	9th	16·7	25th	47·7
		Dras	?	20·917	?	?	21·049	19th	20·770	30th	·279	25·0	49·6	?	15·5	?	32·6	?	34·1	54·8	8th	10·1	30th	44·7
		Gilgit	?	25·322	?	?	25·470	15th	25·173	1st	·297	47·4	64·9*	?	43·6	?	54·3*	?	21·3	71·0	10th	34·9	30th	36·1
		Chitral	?			Not	record	ed.				41·1	70·7	?	36·9	?	53·8	?	33·8	77·1	2nd	30·0	29th	47·1
		Killa Drash	?			Not	record	ed.				57·1	70·9	?	47·1	?	59·0	?	23·8	78·9	8th	39·4	30th	39·5
		Para Chinar	6,000	24·550	?	?	24·615	8th	24·451	2nd & 3rd.	·164	51·2	71·1	?	42·9	?	57·0	?	28·2	79·7	18th	34·8	28th	44·9
		Cherat	?	25·803	?	?	25·877	8th	25·680	2nd	·197	59·0	72·1	?	50·7	?	61·4	?	21·4	78·3	19th	42·0	27th	36·3
		Murree	6,333	23·933	+·011	?	24·016	8th	23·818	2nd	·198	55·7	65·3	+4·3	51·3	+6·3	58·3	+5·3	14·0	74·2	3 days	43·0	28th	31·2
		Poo	?	?		Not	record	ed.				?	64·5	?	38·0	?	51·4	?	26·5	68·6	7th	29·4	30th	39·2
		Simla	7,224	23·182	−·001	?	23·232	8th	23·041	30th	·221	50·7	57·7	+2·1	46·4	+2·5	52·1	+2·3	11·3	64·2	18th	39·3	30th	24·9
25	North-Western Provinces.	Chakrata	7,022	23·356	+·018	?	23·437	8th	23·197	30th	·240	48·9	61·7	+2·3	44·5	+1·0	53·1	+1·7	17·2	66·7	8th	39·2	30th	27·5
		Mussooree	6,705	23·590	?	?	23·663	8th	23·431	30th	·232	50·6	57·6	−0·6	45·6	+0·7	51·6	+0·1	12·0	62·7	8th	41·0	3 days	21·7
		Ranikhet	6,069	24·191	+·022	?	24·263	8th	24·037	30th	·226	51·8	62·4	0	48·5	+1·8	55·5	+0·9	13·9	67·6	8th	43·0	25th	24·6
		Muktesar	?	22·918	?	?	22·994	8th	22·766	30th	·228	50·6	59·5	?	44·3	?	51·9	?	15·2	66·8	18th	39·9	26th & 30th.	26·9

* Mean of 27 days.

I—*continued.*

in India, Burma, etc., in November 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 October to 30th November 1897.	Normal rainfall for period, 1st October to 30th November.	Variation from normal of period, 1st October to 30th November.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
14	...	4	5	1	...	1	3	2	3·2	3·3	− 3	74	·704	3·5	3	7·36	− 4·36	1·90	3·96	− 2·06	8·19	10·85	− 2·66	1·21	Salem	Madras (South Central).	34
...	6	...	22	...	1	...	1	...	1·7	2·6	− 35	84	·721	5·5	7	8·09	− 1·09	2·98	3·72	− 0·74	3·33	9·66	− 6·33	0·95	Coimbatore.		
14	...	9	6	1	...	...	...	...	3·8	3·7	+ 3	71	·476	3·9	1	7·20	− 6·20	0·28	3·34	− 3·06	7·45	12·94	− 5·49	0·18	Mercara	Coorg.	35
3	...	6	11	6	...	...	2	2	5·0	?	?	59	·485	2·3	0	?	?	0·09	2·42	− 2·33	2·87	7·12	− 4·25	0·69	Chitaldroog	Mysore.	36
1	1	11	13	2	1	1	...	...	5·5	3·7	+ 49	70	·525	2·6	1	6·09	− 5·09	0·47	3·59	− 3·12	5·27	10·74	− 5·47	0·39	Bangalore.		
1	1	10	13	3	..	...	...	2	2·0	?	?	63	·498	3·0	0	?	?	0	1·93	− 1·93	2·70	7·61	− 4·91	0	Hassan.		
2	3	9	8	2	1	2	2	1	6·7	?	?	66	·569	3·0	1	?	?	1·18	1·74	− 0·56	9·96	8·40	+ 1·56	1·08	Mysore.		
...	3	3	...	...	...	3	1	20	9·9	5·2	+ 90	85	·856	5·5	6	13·09	− 7·09	2·40	15·95	− 13·55	5·64	26·54	−20·90	0·35	Negapatam	Madras (East Coast, South).	56
...	12	...	...	...	..	2	4	12	2·0	?	?	83	·813	2·6	5	11·80	− 6·80	4·22	13·72	− 9·50	11·72	22·39	−10·67	1·38	Cuddalore.		
22	4	1	...	...	...	1	1	1	3·7	4·2	− 12	75	·733	4·6	7	8·45	− 1·45	1·83	5·37	− 3·54	7·05	12·86	− 5·81	0·55	Trichinopoly.		
...	12	5	..	1	3	1	...	8	6·7	6·8	− 1	80	·786	4·3	7	13·00	− 6·00	7·50	13·21	− 5·71	11·06	24·21	−13·15	3·04	Madras.		
11	...	...	...	...	..	...	8	11	4·4	?	?	80	·771	5·9	5	9·40	− 4·40	3·90	10·44	− 6·54	6·74	19·48	−12·74	1·46	Nellore	Madras (East Coast, Central).	55
1	20	6	1	...	...	...	...	2	5·0	5·5	− 9	77	·727	2·5	0	5·91	− 5·91	0	7·06	− 7·06	3·57	16·40	−12·83	0	Masulipatam		
1	...	6	2	15	...	6	..	...	?	?	?	75	·709	2·9	4	7·00	− 3·00	1·93	4·67	− 2·74	6·76	11·00	− 4·24	0·66	Cuddapah	Madras (Central)	54
30	...	...	..	...	...	...	...	...	?	?	?	62	·489	1·5	0	3·17	− 3·17	0·01	1·15	− 1·14	1·72	6·18	− 4·46	0·01	Kurnool.		
17	3	3	...	4	...	...	...	3	1·4	3·3	− 58	47	·406	3·1	1	3·82	− 2·82	0·15	2·13	− 1·98	4·12	6·42	− 2·30	0·15	Bellary.		
5	22	...	...	...	...	...	1	2	?	?	?	72	·613	3·4	4	2·80	+ 1·20	2·44	3·35	− 09·11	13·92	9·31	+ 4·61	1·85	Rajahmundry	Madras (East Coast, North).	52
...	17	9	...	...	...	...	...	4	9·8	?	?	71	·628	3·0	1	4·30	− 3·30	0·65	7·41	− 6·76	9·93	17·77	− 7·84	0·61	Cocanada.		
25	2	1	...	...	...	...	...	2	1·0	2·4	− 58	71	·652	3·5	5	7·18	− 2·18	6·54	6·90	− 0·36	13·95	17·44	− 3·49	4·23	Vizagapatam.		
...	9	14	2	...	...	...	...	5	13·7	?	?	64	·607	3·5				No	Rain	gauge.			...	...	Waltair.		
...	17	...	...	...	...	...	13	...	10·2	7·0	+ 74	88	·636	2·7	3	4·33	− 1·33	4·96	4·99	− 0·03	17·98	14·34	+ 3·64	4·13	Gopalpur.		
																									XII.—Hill Stations.		
6	...	...	3	1	...	7	13	...	6·5	?	?	27	·142	0	0	?	?	0	0·98	− 0·98	0	1·15	− 1·15	0	Sharigh	Baluchistan.	48
			Not	rec	ord	ed.			?	?	?	?	?	?	?	?	?	0	0·75	−0·75	0	0·81	−0·81	0	Pishin.		
30	...	...	...	...	...	...	...	...	1·3	2·7	− 52	53	·158	0·2	0	0·09	− 0·09	0	0·27	− 0·27	0	0·34	− 0·34	0	Quetta.		
...	...	...	2	...	16	8	3	1	?	?	?	?	?	0·3	0	?	?	0	0·35	− 0·35	0	0·42	− 0·42	0	Kalat.		
...	...	1	15	11	1	1	...	1	8·8	?	?	31	·150	0·2	0	?	?	0	0·88	− 0·88	0	0·97	− 0·97	0	Chaman.		
...	...	...	...	...	8	7	13	2	3·0	1·9	+57	77	·121	1·2	0	?	?	0·02	0·10	− 0·08	0·07	0·33	− 0·26	0·02	Leh	Punjab.	30
10	2	...	...	8	7	1	2	...	3·8	?	?	88	·186	0·4	0	?	?	0	?	?	0·10	?	?	0	Srinagar.		
26	...	1	...	...	2	...	1	...	1·5	?	?	97	·170	0·9	0	?	?	0·01	0·13	− 0·12	0·01	0·15	− 0·14	0·01	Skardu		
30	...	...	...	...	...	...	...	...	1·6	?	?	82	·113	0·9	0	?	?	0·06	2·00	− 1·91	0·72	3·64	− 2·92	0·06	Dras.		
25	...	...	...	...	...	3	2	...	1·6	?	?	35	·121	1·5	0	?	?	0	0·07	− 0·07	0·08	0·23	− 0·15	0	Gilgit.		
1	6	8	...	4	11	...	...	...	?	?	?	63	·151	0	0	?	?	0	?	?	0	?	?	0	Chitral.		
...	...	1	3	12	9	1	...	...	?	?	?	22	·098	2·1	0	?	?	0	?	?	0·53	?	?	0	Killa Drash (a)		
...	12	7	4	1	...	...	...	6	5·0	?	?	25	·082	0·2	0	?	?	0	?	?	0·07	?	?	0	Para Chinar.		
3	14	4	...	...	1	1	...	7	10·5	?	?	35	·170	0·2	0	?	?	0	0·20	− 0·20	0·02	0·30	− 0·28	0	Cherat.		
19	1	...	...	3	7	...	...	...	5·0	5·1	− 2	28	·119	0·4	0	0·73	− 0·73	0	1·08	− 1·08	0·61	2·73	− 2·12	0	Murree.		
...	...	3	5	5	1	5	8	2	?	?	?	?	?	0·5	0	?	?	0	0·78	− 0·78	0·20	1·53	− 1·33	0	Poo.*		
18	4	4	...	...	2	2	...	...	2·4	1·9	+ 26	41	·149	0·3	0	1·18	− 1·18	0	0·54	− 0·54	0·29	1·76	− 1·47	0	Simla.		
27	3	...	...	...	...	...	...	...	7·1	4·5	+ 58	63	·216	0·3	0	?	?	0	0·59	− 0·59	0	1·43	− 1·43	0	Chakrata	North-Western Provinces.	25
...	1	3	15	2	...	2	1	6	?	?	?	66	·242	0·5	0	?	?	0	0·40	− 0·40	0·05	1·44	− 1·39	0	Mussooree.		
21	2	...	4	...	...	2	...	1	2·3	1·2	+ 92	70	·267	0·9	0	1·00	− 1·00	0	0·33	− 0·33	0·06	1·81	− 1·75	0	Ranikhet.		
...	...	...	11	7	2	2	3	5	1·1	?	?	52	·182	1·2	0	?	?	0	?	?	0·85	?	?	0	Muktesar.		

* Wind observations of 29 days.

(a) Variable 4 days.

Table

Abstract of Observations taken at 8 A.M. at 214 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 of month.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
13	Bengal	Yatung	10,480?				Not	recorded.				?	51·2	?	33·1	?	42·2	?	18·1	61·0	17th	26·9	28th	34·1
		Darjeeling	7,408	23·061	−·010	?	23·115	5th	22·956	30th	·159	48·4	55·8	+1·3	42·5	+0·9	49·2	+1·1	13·3	61·7	8th	38·7	2 days	23·0
		Gantok	5,660	24·623	?	?	24·652	18th	24·538	29th	·114	53·2	61·3	?	37·9	?	49·6	?	23·4	65·9	6th	33·0	17th	32·9
	Central India	Mount Abu	3,945	26·153	−·015	?	26·200	5th	26·091	2nd	·109	65·1	72·6	−0·7	57·5	+0·4	65·1	−0·2	15·1	76·1	4 days	51·5	25th	24·6
		Pachmarhi	3,528	26·534	−·015	?	26·590	25th	26·465	13th	·125	62·8	73·4	+1·4	47·9	−3·1	60·7	−0·9	25·5	76·8	2nd, & 3rd.	39·3	28th	37·5
	South India	Wellington	6,200	24·259	−·016	?	24·303	1st	24·219	7th	·084	58·9	68·8	+2·0	49·9	−2·6	59·4	−0·3	18·9	71·7	26th & 28th	40·2	20th & 21st.	31·5
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·914	?	29·852	29·960	22nd	29·835	7th	·125	79·4	86·0	?	74·9	?	80·5	?	11·1	90·0	3rd & 11th	72·0	3 days	18·0
		Colombo	40	29·910	−·015	29·876	29·959	1st	29·833	7th	·126	80·5	89·0	?	74·4	?	81·7	?	14·6	92·0	25th & 30th	72·0	4 days	20·0
	Persia	Meshed	3,104			Not re	corded.					40·9	?	?	38·0	?	?	?	?	?	7	29·0	25th & 30th	?
		Teheran†	?	26·159* / 25·478*	? / ?	?	26·445 / 25·710	17th / 17th	25·900 / 25·300	14th / 14th	·545 / ·410	48·4	62·1	?	42·1	?	52·1	?	20·0	75·8	12th	23·0	16th	52·8
		Ispahan†	?	24·463 / 24·783	?	?	24·620 / 24·940	1st / 1st	24·300 / 24·620	14th / 14th	·320 / ·320	43·3	64·9	?	34·8	?	49·9	?	30·1	78·0	1st	23·3	21st	54·7
		Bushire	14	30·107	+·039	30·080	30·313	15th	29·958	13th	·355	66·6	75·7	−3·3	60·2	−1·9	68·0	−2·6	15·5	87·1	10th	46·3	16th	40·8
		Jask	?	30·061	?	30·013	30·109	6th & 30th	29·926	13th	·183	75·1	84·1	?	70·1	?	77·1	?	14·0	90·3	13th	64·2	18th	26·1
	Arabia	Muscat	20	30·056	?	30·024	30·110	1st	29·936	13th	·174	78·7	81·3	?	76·4	?	78·8	?	4·9	86·9	12th	72·5	30th	14·4
		Baghdad	220	30·022	+·047	30·233	30·422	15th	29·778	9th	·644	49·4	70·0	−6·6	48·0*	−4·2	58·1	−2·4	24·0	89·2	3rd	29·5	15th	59·7
		Aden	94	29·949	−·009	29·976	30·002	21st	29·871	13th	·131	78·4	84·6	−1·6	74·7	+1·4	79·6	−0·1	9·9	91·3	14th	69·9	23rd	21·4
		Perim	?	29·806	?	?	29·860	20th / 21st & 22nd	29·741	13th	·119	80·6	87·3	?	?	?	?	?	?	90·3	1st	?	?	?
	Afghanistan	Kabul	?				Not	recorded.				38·8	72·8	?	33·7	?	53·3	?	39·1	80·2	3rd	26·6	28th	53·6
	Central Asia	Kashgar*	?	25·789	?	?	26·271	10th	25·560	1st	·711	34·6	56·2	?	31·1	?	43·7	?	25·1	73·6	3rd	23·1	30th	50·5
	Arabian Sea Islands.	Amini Divi	15	29·943	?	29·886	29·978	18th	29·896	7th	·082	81·7	82·1	?	74·9	?	78·4	?	7·2	83·4	6th	69·4	18th	14·0
		Minicoy	10	29·899	?	?	29·943	25th	29·051	29th	·092	81·3	86·6	?	?	?	?	?	?	89·5	29th	?	?	?
	Africa	Zanzibar	73	29·951	?	29·951	30·006	6th	29·910	23rd & 24th	·096	81·3	85·5	?	78·6	?	82·1	?	6·9	87·5	23rd	75·2	15th	12·3

* Aneroid corrected.
† Aneroid uncorrected.

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

I—*concluded.*

in India, Burma, etc., in November 1897—concluded.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 Oct. to 30th November 1897.	Normal rainfall for period, 1st Oct. to 30th November.	Variation from normal of period, 1st Oct. to 30th November.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District
			Not	rec	ord	ed.			?	?	?	?	?	?	1	?	?	0·23	0·34	−0·11	7·56	2·83	+ 4·73	0·15	Yatung .	Bengal.	
8	1	3	6	6	...	4	...	2	2·8	1·7	+65	72	·241	2·0	1	0·61	+0·39	0·49	0·20	+0·29	13·52	6·03	+ 7·49	0·46	Darjeeling.		
28	...	1	...	...	...	...	...	...	2·8	?	?	79	·319	?	5	?	?	0·97	1·43	−0·46	12·40	8·32	+ 4·08	0·24	Gantok. (a)		
9	5	7	1	4	...	3	1	...	5·2	3·7	+41	44	·271	0	0	0·18	−0·18	0	0·27	−0·27	2·54	0·98	+ 1·56	0	Mount Abu	Central India.	
25	...	1	2	...	...	1	1	...	3·3	2·5	+32	57	·332	0·8	0	1·09	−1·09	0	0·71	−0·71	0·81	3·34	− 2·53	0	Pachmarhi.		
23	2	2	2	1	...	...	...	...	1·9	2·7	−30	82	·416	4·1	7	13·22	−6·22	2·54	8·45	−5·91	4·71	20·55	−15·84	1·08	Wellington.	South India.	
																									XIII.—Extra India.		
11	3	...	...	...	...	15	...	1	1·5	?	?	87	·874	2·9	7	?	?	4·67	12·68	−8·01	7·48	21·09	−13·61	0·96	Trincomalee	Ceylon.	
2	4	3	9	3	2	...	1	1	7·3	5·8	+26	82	·860	3·4	6	?	?	11·20	13·25	−2·05	16·00	26·76	−10·76	3·12	Colombo.		
						Not	recor	ded.	?	?	?	80	·229	3·3	0	?	?	0	0·51	−0·51	0·10	1·30	−1·20	0	Meshed .	Persia.	
9	11	6	1	...	..	...	1	1	1·0	?	?	59‡	·209‡	3·8*	1	?	?	0·58	1·04	−0·46	0·58	1·21	−0·63	0·38	Teheran. (a)		
9	4	2	4	2	...	2	4	3	3·1	?	?	59	·165	2·6	0	?	?	0	1·16	−1·16	0	1·46	−1·46	0	Ispahan.		
2	8	8	4	5	1	...	...	2	7·5	?	?	58	·401	1·7	0	?	?	0	2·16	−2·16	0	2·26	−2·26	0	Bushire.		
1	11	5	5	...	...	...	...	8	11·0	?	?	77	·675	0·3	0	?	?	0	0·63	−0·63	0	0·70	−0·70	0	Jask.		
...	...	...	2	5	2	1	8	12	4·3	?	?	70	·678	0·3	0	?	?	0	0·94	−0·94	0	0·98	−0·98	0	Muscat .	Arabia.	
6	16	1	1	1	2	1	...	2	4·0	?	?	64	·250	0·5	1	?	?	0·74	?	?	0·74	?	?	0·68	Baghdad.		
...	1	8	13	4	2	1	...	1	11·8*	11·6	+ 2	69	·667	2·9	1	?	?	0·12	0·21	−0·09	0·12	0·23	−0·11	0·12	Aden.		
1	...	14	5	2	...	...	...	...	21·8	?	?	73	·762	1·9	0	?	?	0	0·06	−0·06	0	0·15	−0·15	0	Perim.		
11	...	1	4	...	3	6	4	1	?	?	?	62	·148	0	0	?	?	0	0·91	−0·91	0	0·94	−0·94	0	Kabul .	Afghanistan.	
12	9	...	5	1	3	...	...	...	?	?	?	77††	·170††	2·6	0	?	?	0	0·04	−0·04	0	0·11	−0·11	0	Kashgar .	Central Asia.	
8	9	5	1	...	...	...	...	7	?	?	?	76	·828	2·6	1	?	?	0·19	?	?	0·19	?	?	0·19	Amini Divi	Arabian Sea Islands.	
7	6	3	1	2	1	1	3	6	3·9	?	?	77	·826	?	4	?	?	1·17	?	?	4·73	?	?	0·50	Minicoy .		
...	6	10	3	8	2	1	..	...	4·0	?	?	83	·886	3·1	7	?	?	3·34	7·87	−4·53	8·10	11·59	−3·49	1·35	Zanzibar .	Africa.	

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

* Mean of 29 days.

‡ " " 27 "

(a) Wind observations of 29 days.

†† Mean of 24 days.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 86

Meteorological Province.	Station.	Elevation of barcistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Burma Coast and Bay Islands.	Port Blair	...	29·862	29·768	·094	29·814	−·030	29·806	86·0	77·1†	8·9	89·4	74·8	14·6	83·5	82·9	80·3	− 0·3	74·9	79·3	78·6	77·6
	Rangoon	...	·932	·818	·114	·875	−·023	·853	85·9	71·4	14·5	89·6	64·5	25·1	80·6	82·6	76·7	− 1·2	70·0	75·4	75·1	73·5
	Diamond Island	...	·925	·820	·105	·872	−·025	·817	84·7	75·6	9·1	90·4	71·6	18·8	82·2	82·8	79·3	+ 0·2	73·1	76·2	76·0	75·1
	Cocos Island	111	·860§	·763‡	·097	·811	−·001	·853‡	85·2‡	77·6§	7·6	88·9	74·1	14·8	82·9§	81·7‡	80·1‡	+ 0·9	73·0§	77·0§	76·2‡	75·4
	Akyab	...	·966	·868	·098	·920	−·019	·883	84·3	72·2	12·1	88·9	64·5	24·4	79·8	81·7	78·0	+ 0·1	69·7	75·8	77·5	74·3
Assam.	Silchar	...	·911	·782	·129	·843	−·031	·899	86·0	63·1	22·9	92·5	54·4	38·1	77·0	83·3	73·2	+ 0·5	61·5	69·8	70·8	67·4
	Sibsagar	...	·723	·585	·143	·656	−·018	·953	76·9	58·5	18·4	81·9	52·6	29·3	69·0	75·5	66·4	− 1·1	58·4	66·2	68·6	64·4
	Dhubri	...	·918	·789	·129	·848	−·012	·920	79·5	63·0	16·5	84·0	53·3	25·7	72·6	78·7	69·8	− 0·2	61·7	67·7†	69·3†	66·2
Bengal and Orissa.	Chittagong	...	·902	·795	·107	·847	−·030	·883					Observations not recorded.									
	Narayanganj	...	·976	·866	·110	·917	−·027	·892	83·4	66·4	17·0	89·4	60·3	29·1	77·6	81·4	75·2	+ 0·7	64·7	70·7	71·0	68·8
	Calcutta (Alipore)	...	·993	·884	·109	·931	−·030	·898	80·8	65·4	15·4	84·0	60·2	23·8	76·1	79·7	72·7	+ 0·3	64·1	68·4	69·1	67·2
	Saugor Island	...	·972	·866	·106	·913	−·038	·883	82·2	67·5	14·7	86·7	62·5	24·2	77·9	79·5	73·8	+ 0·4	65·6	71·3	70·4	69·1
	Burdwan	...	·927	·811	·116	·862	−·020	·910	84·0	65·9	18·1	88·4	61·3	27·1	77·9	81·3	74·2	+ 0·7	64·1	70·4	69·6	68·0
	Berhampore	...	·948	·841	·107	·888	−·025	·904	81·9	65·4	16·5	86·2	61·2	25·0	76·8	81·3	73·5	+ 0·4	63·2	69·5	69·9	67·5
	False Point	...	·985	·888	·097	·936	−·036	·898	81·7	66·7	15·0	87·4	59·0	28·4	78·4	78·8	73·1	+ 0·1	65·8	71·5	70·7	69·3
	Cuttack	...	·929	·819	·110	·873	−·033	·897	83·2	66·7	16·5	89·6	60·1	29·5	76·5	80·8	74·2	− 0·5	64·9	68·2	69·1	67·4
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	27·983	27·889	·094	27·932	−·034	·912	77·4	59·0	18·4	83·8	51·1	32·7	72·5	74·2	67·1	+ 0·3	56·2	62·1	62·6	60·3
	Patna	...	29·847	29·737	·110	29·787	−·029	·925	82·4	63·5	18·9	86·5	52·4	34·1	76·7	80·3	72·0	+ 1·6	60·9	67·9	67·8	65·5
	Darbhanga	...	·864	·749	·115	·802	−·021	·924	81·8	63·3	18·5	86·1	55·5	30·6	77·1	79·5	71·6	+ 0·3	62·0	68·6	68·3	66·3
	Allahabad	...	·726	·612	·114	·659	−·026	·927	84·1	57·7	26·4	90·4	49·9	40·5	76·1	82·4	69·6	+ 0·6	55·9	66·5	68·2	63·5
	Lucknow	...	·659	·553	·106	·598	−·032	·929	86·0	55·8	30·2	93·6	50·2	43·4	77·0	81·6	69·8	+ 2·0	54·7	63·9	65·6	61·4
Upper Sub-Himalayas.	Dehra Dun	...	27·784	27·686	·098	27·724	−·020	·952	76·6	54·1	22·5	82·3	47·8	34·5	68·5	71·9	63·5	+ 1·1	50·9	58·7	60·1	56·6
	Roorkee	...	29·120	29·014	·106	29·055	−·030	·926	81·6	52·0	29·6	87·8	41·0	46·8	71·9	78·4	65·3	+ 1·4	50·9	61·5	63·4	58·6
	Meerut	...	·278	·178	·100	·219	−·028	·940	81·6	52·7	28·9	86·8	44·3	42·5	70·5	78·6	65·8	+ 1·0	51·7	59·4	62·7	57·9
	Lahore	...	·310	·212	·098	·251	−·044	·938	81·3	52·2	29·1	88·6	44·5	44·1	69·7	80·8	65·2	+ 2·8	48·8	59·6	63·7	57·4
	Ludhiana	...	·198	·101	·097	·139	−·027	·937	81·2	53·9	27·3	88·9	47·1	41·8	71·5	78·4	65·7	+ 2·7	50·1	59·0	60·9	56·7
Indus Valley and N.-W. Rajputana.	Peshawar	...	28·910	28·801	·109	28·846	−·059	·967	79·6	45·5	34·1	88·9	35·4	53·5	66·5	75·7	60·2	+ 1·6	41·5	55·0	58·7	51·7
	Mooltan	...	29·609	29·501	·108	29·545	−·041	·942	86·4	54·9	31·5	92·3	48·1	44·2	72·6	83·5	68·5	+ 2·9	51·0	59·8	63·5	58·1
	Jacobabad	...	·854	·738	·116	·786	−·030	·933	90·4	54·2	36·2	99·5	47·9	51·6	77·5	87·0	70·0	+ 4·3	50·9	63·6	67·0	60·5
	Kurrachee	...	30·028	·929	·099	·974	−·010	·955	87·5	63·7	23·8	93·3	56·5	36·8	81·8	83·5	75·2	+ 1·1	60·3	70·0	71·3	67·2
Rajputana, Central India, and Gujarat.	Jeypore	...	28·605	28·508	·097	28·547	−·015	·947	86·2	54·2	32·0	92·5	46·4	46·1	78·0	83·5	63·5	+ 0·8	48·8	61·4	63·0	57·7
	Ajmere	...	·422	·327	·095	·372	−·024	·963	84·5	51·3	33·2	88·7	42·4	46·3	72·9	83·0	66·5	+ 0·7	47·3	60·0	64·9	57·4
	Deesa	...	29·575	29·462	·113	29·511	0	·932	91·0	54·6	36·4	95·1	48·9	46·2	82·5	88·9	72·7	− 1·3	50·5	64·1	64·4	59·7
	Nowgong	...	·272	·167	·105	·213	−·018	·937	82·2	54·5	27·7	90·0	47·0	43·0	73·8	80·3	67·8	+ 1·0	51·3	62·5	64·5	59·4
	Agra	...	·469	·363	·106	·405	−·039	·928	85·9	58·4	27·5	93·1	49·1	44·0	76·8	82·3	70·9	+ 2·9	53·0	63·7	66·6	61·1
Deccan.	Belgaum	...	27·453	27·348	·105	27·396	−·003	·819	84·7	58·5	26·2	87·0	53·9	33·1	78·5	82·5	71·0	+ 0·2	54·7	61·6	62·6	59·6
	Sholapur	...	28·406	28·284	·122	28·313	−·004	·872	87·8	60·6	27·2	91·2	53·3	37·9	80·2	86·0	73·3	− 0·4	53·4	61·0	62·3	58·9
	Poona	...	·165§	·050§	·115	·109	+ ·004	·881§	87·1§	54·1	33·0	90·1	49·4	40·7	78·9§	85·1§	70·4	− 2·0	51·2	60·1§	61·9§	57·8
	Akola	...	29·099	·975	·124	29·033	+ ·001	·922	87·6	54·7	32·9	92·1	48·0	44·1	78·9	86·2	71·7	− 0·7	50·4	62·6	64·2	59·1
	Buldana	2,132	27·883	27·777	·106	27·826	−·006	·900	82·1	61·1	21·0	85·7	55·2	30·5	77·3	80·6	72·1	− 0·1	51·9	58·8	59·3	56·6
	Khandwa	...	28·975	28·863	·112	28·915	−·003	·917	87·8	52·9	34·9	91·7	45·6	46·1	80·1	86·9	70·2	− 0·3	48·6	62·1	63·5	58·1

§ Mean of 29 days. † Mean of 27 days.

II.

Stations in India, Burma, etc., in November 1897.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from										Wind steadiness.		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.		
																									%	%						
·836†	·948	·925	·903	−·020	90†	83	82	85	+3	7·6	7·9	7·8	+2·5	...	3	12	19	16	3	1	2	4	S. 89° E.	N. 81° E.	55	44	187	165	...	...	Port Blair	Burma Coast and Bay Islands.
·723	·817	·777	·772	−·010	93	78	70	80	+2	3·6	4·4	4·0	−0·2	...	8	21	18	9	3	...	1	..	N. 71° E.	N. 63° E.	68	56	93	97	...	...	Rangoon	
·786	·826	·809	·807	+·016	89	75	72	79	+1	4·8	5·6	5·2	+0·7	4	4	16	23	8	2	1	...	2	N. 78° E.	N. 60° E.	65	59	292*	222	...	...	Diamond Island.	
·755§	·850§	·831‡	·812	+·019	80§	76§	77‡	78	0	5·5§	4·6‡	5·1	+0·5	...	5	29	10	10	1	1	..	1	N. 64° E.	N. 80° E.	70	33	?	?	4·85	1·66	Cocos Island¶ Is.	
·699	·841	·893	·811	+·054	88	82	83	84	+4	5·5	5·0	5·3	+2·1	...	6	31	8	1	..	2	2	10	N. 31° E.	N. 3° E.	63	31	52	55	...	...	Akyab	
·527	·637	·591	·585	−·032	91	67	52	70	−6	3·3	3·0	3·2	−0·3	28	...	6	11	4	5	3	2	1	S. 69° E.	S. 80° E.	25	26	84*	41	...	...	Silchar	Assam.
·493	·609	·609	·570	−·017	100	86	69	85	+1	5·0	2·9	4·0	−0·1	11	...	38	4	4	1	1	...	1	N. 55° E.	N. 67° E.	67	48	55*	39	...	...	Sibsagar	
·538	·611*	·591*	·580	−·024	93	76*	60†	76	−1	0·8	1·6	1·2	−0·3	...	2	21	30	1	4	...	1	1	N. 74° E.	N. 54° E.	77	50	182*	124	...	...	Dhubri	
?	?	?	?	?	?	?	?	?	?	2·5‖	3·2‖	2·9‖	0	2	7	25	10	1	..	...	1	14	N. 27° E.	N. 19° W.	63	48	?	63	...	...	Chittagong	Bengal and Orissa.
·593	·665	·626	·628	+·007	91	68	58	72	0	2·8	2·8	2·8	+0·5	...	21	12	5	2	1	2	3	14	N. 2° E.	N. 16° W.	60	36	57	50	...	...	Narayanganj.	
·586	·594	·572	·584	0	93	66	57	72	−1	2·0	3·1	2·6	+0·1	3	27	12	2	2	...	2	1	11	N. 2° E.	N. 14° W.	67	59	36	62	...	...	Calcutta (Alipore).	
·609	·681	·626	·639	+·002	91	71	62	74	−1	3·5	4·2	3·9	+1·0	..	29	9	...	1	...	2	5	14	N. 12° W.	N. 3° E.	73	60	190	167	...	...	Saugor Island.	
·578	·617	·571	·599	+·055	90	67	53	70	+4	1·6	2·0	1·8	−0·8	42	17	1	...	...	..	..	...	..	N. 2° E.	N. 4° W.	30	64	17*	42	...	...	Burdwan.	
·554	·625	·594	·583	+·023	88	63	54	70	−3	0·8	1·0	0·9	−1·5	46	4	3	1	...	...	...	3	3	N. 14° W.	N. 20° W.	13	54	12*	39	...	...	Berhampore	
·631	·682	·616	·653	+·025	95	70	66	77	+3	3·4	4·2	3·8	+0·2	...	22	19	7	1	1	...	...	10	N. 19° E.	N. 27° E.	72	59	131*	153	...	...	False Point	
·596	·582	·557	·578	−·003	91	64	54	70	+3	2·5	3·0	2·8	+0·2	10	6	31	6	...	...	...	3	4	N. 36° E.	N. 13° E.	63	40	57	40	...	...	Cuttack	
·421	·433	·427	·427	+·067	83	51	50	62	+8	2·8	4·4	3·6	+1·1	5	17	7	7	4	4	2	3	11	N. 7° E.	N. 30° W.	37	45	108	110	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·507	·571	·517	·532	+·065	85	62	50	66	+4	0·6	1·0	0·8	−0·8	11	3	8	8	5	2	4	9	10	N. 12° W.	N. 61° W.	13	31	30*	40	...	...	Patna	
·511	·583	·546	·558	+·024	93	63	51	70	0	0·5	0·4	0·5	−0·3	12	4	4	8	5	1	2	13	11	N. 42° W.	S. 85° W.	20	40	32	41	...	...	Darbhanga	
·430	·525	·503	·487	+·075	89	58	45	64	+2	0·4	0·8	0·6	−0·6	10	5	6	8	5	2	3	11	10	N. 27° W.	N. 52° W.	17	23	62*	49	...	...	Allahabad	
·419	·426	·421	·422	+·052	93	46	39	59	+3	0·5	0·5	0·5	−0·6	29	7	4	4	1	...	..	12	3	N. 31° W	N. 40° W	22	40	14*	34	...	...	Lucknow	
·336	·376	·376	·363	+·021	80	53	48	60	−1	0·5	1·3	0·9	−0·5	31	2	1	1	1	10	8	4	2	S. 36° W.	S. 80° W.	25	17	18	34	...	...	Dehra Dun	Upper Sub-Himalayas.
·363	·410	·387	·387	+·012	93	52	40	62	+4	0·2	0	0·1	−0·9	42	...	...	...	10	3	2	...	3	S. 26° E.	N. 88° W.	17	4	9	26	...	...	Roorkee	
·375	·361	·365	·367	+·032	93	49	37	60	+4	0	0·1	0·1	−0·7	39	..	...	2	...	...	...	18	1	N. 88° W	N. 57° W.	28	40	15*	29	...	...	Meerut	
·304	·380	·361	·350	+·035	77	52	35	55	+5	0·1	0·2	0·2	−1·2	43	...	2	...	3	...	...	12	...	S. 85° W.	N. 45° W.	15	18	15	32	...	...	Lahore	
·316	·340	·306	·321	+·008	75	41	31	50	−3	0·3	0	0·2	−1·7	37	2	1	...	5	...	2	..	13	N. 45° W.	N. 45° W.	15	33	22	23	...	...	Ludhiana	
·218	·294	·238	·267	−·005	72	46	33	50	−3	0·5	0·8	0·7	−1·6	41	6	2	4	2	2	...	...	3	N. 36° E.	N. 76° E.	13	12	4*	51	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·348	·318	·324	·333	−·017	75	44	29	49	−4	0	0·1	0·1	−0·9	53	..	4	..	3	...	..	...	...	N. 82° E.	S. 27° W.	8	5	6*	30	...	...	Mooltan	
·334	·408	·396	·379	+·081	78	43	31	51	+7	0·5	0·2	0·4	−1·0	38	5	2	2	3	2	4	4	...	S. 68° W.	N. 13° W	2	11	51*	46	...	...	Jacobabad	
·492	·588	·610	·564	+·114	81	54	53	63	+9	0·4	0·3	0·4	−0·8	...	2	3	2	1	8	22	18	4	S. 61° W.	N. 85° W.	51	18	100*	193	...	...	Kurrachee	
·281	·338	·323	·314	+·017	66	35	28	43	0	0·1	0·2	0·2	−1·3	2	6	7	1	1	1	7	19	16	N. 62° W.	N. 19° W.	55	36	60	66	...	...	Jeypore	East Rajputana, Central India and Gujarat.
·283	·362	·394	·316	+·024	75	44	35	51	+4	0	0·1	0·1	−1·0	9	11	4	1	3	7	...	16	9	N 56° W.	N. 14° E.	33	7	63	38	...	...	Ajmere	
·316	·357	·281	·318	+·037	73	32	21	42	+8	0	0	0	−1·5	...	6	13	21	5	4	2	5	4	N. 70° E	N. 61° E.	43	48	158	181	...	...	Deesa	
·340	·418	·398	·385	+·036	79	50	38	56	+2	0	0·2	0·1	−1·3	3	19	4	2	...	...	8	14	10	N. 44° W.	N. 25° W.	53	33	26*	24	...	...	Nowgong	
·337	·420	·417	·401	+·074	67	45	41	51	+5	0	0·1	0·1	−0·7	..	...	4	..	2	...	5	...	49	N. 46° W.	N. 68° W.	78	43	85*	72	...	...	Agra	
·385	·341	·324	·350	−·114	78	35	29	47	−12	0·3	1·2	0·8	−2·6	..	8	21	22	4	...	1	1	3	N. 60° E.	N. 76° E.	70	64	190*	207	...	...	Belgaum	Deccan.
·326	·302	·270	·299	−·161	60	29	22	37	−16	0·9	1·2	1·1	−2·5	3	10	30	6	1	...	...	...	1	N. 53° E.	N. 77° E.	60	65	18*	190	...	...	Sholapur	
·345	·290§	·267§	·301	−·115	81	29§	22§	44	−5	0·4	0·4	0·4	−2·3	8	1	8	8	9	...	12	7	5	S. 12° E.	N. 82° E.	9	60	155*	138	...	...	Poona	
·316	·354	·311	·327	−·083	72	35	25	44	−9	0·6	0·7	0·7	−1·0	1	2	25	8	5	1	2	3	13	N. 34° E	N. 61° E.	46	49	72	93	...	...	Akola	
·277	·272	·248	·266	−·129	51	30	24	35	−15	0·5	0·4	0·5	−1·8	4	12	18	13	4	1	...	1	7	N. 41° E.	N. 64° E.	53	52	84	122	*Nil.*	*Nil.*	Buldana	
·293	·336	·297	·309	−·060	72	33	23	43	−6	0·1	0·2	0·2	−1·4	2	4	25	10	10	...	3	...	6	N. 60° E.	N. 58° E.	55	52	65	64	...	...	Khandwa	

* Corrected. ‡ Mean of 28 days. ‖ Mean of 17 days. ¶ Wind observations, 57.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 86

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L., and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature Wet-bulb. Mean minimum.	Temperature Wet-bulb. Mean 10 hours.	Temperature Wet-bulb. Mean 16 hours.	Temperature Wet-bulb. Mean daily.
Deccan—*concld.*	Hoshangabad	...	29·028	28·906	·122	29·963	−·002	29·940	84·3	55·5	28·8	88·7	48·6	40·1	75·0	82·6	69·5	−1·1	51·6	62·1	63·1	58·9
	Nagpur	...	28·987	·865	·122	·922	−·015	·908	86·7	58·7	28·0	91·1	49·2	41·9	78·3	83·6	72·8	+0·1	54·5	64·4	64·6	61·2
	Nagpur (Sanitary Commissioner's Office).	...	29·015	·896	·119	·952	?	·926	87·7	58·1	29·6	93·2	50·1	43·1	80·2	86·0	72·5	?	54·0	65·5	66·8	62·1
	Jubbulpore	...	28·681	·574	·107	·624	−·027	·921	82·2	52·0	30·2	87·3	42·7	44·6	73·8	80·5	68·7	0	50·9	62·6	63·4	59·0
	Saugor	...	·204	·103	·101	·150	−·021	·916	81·8	58·2	23·6	87·1	52·6	34·5	76·9	79·8	69·5	−0·1	51·0	59·4	59·6	56·7
	Sutna	...	·972	·863	·109	·911	−·024	·923	81·7	55·8	25·9	87·9	47·8	40·1	76·5	80·6	67·9	+1·4	52·1	61·9	62·1	58·7
	Raipur	...	29·042	·925	·117	·980	−·016	·899	83·1	60·8	22·6	88·5	53·1	35·4	75·8	81·9	72·6	+0·6	57·5	65·3	64·6	62·5
	Hyderabad (Deccan).	...	28·302	·184	·118	·241	−·034	·875	85·9	60·5	25·4	83·3	53·3	35·0	79·3	82·6	72·4	+0·4	57·2	64·9	65·2	62·4
West Coast.	Bombay	...	29·970	29·860	·110	29·909	−·001	·886	87·0	72·0	15·0	90·6	69·0	21·6	79·1	83·2	78·2	−0·9	65·3	69·5	73·7	69·5
	Ratnagiri	...	·863	·764	·099	·807	+·005	·854	91·4	67·4	24·0	95·2	63·9	31·3	83·8	84·8	77·4	−1·4	61·7	67·9	72·9	67·5
	Karwar	...	·921	·800	·112	·859	−·006	·834	89·9	66·8	23·1	93·3	62·6	30·7	80·2	87·4	77·4	−0·1	64·5	70·2	75·2	70·0
	Cochin	...	·917	·856	·091	·896	−·003	·833	89·1	74·9	14·2	91·3	72·4	18·9	84·1	86·1	81·0	+1·1	73·0	76·5	77·1	75·5
South India.	Salem	...	·041	28·916	·125	28·984	−·015	·858	90·0	69·6	20·4	94·6	63·9	30·7	82·3	85·6	78·3	+2·2	63·2	72·9	74·3	71·8
	Mercara	...	26·264	26·171	·093	26·224	−·003	?	76·9	61·2	15·7	79·7	55·5	24·2	71·1	73·1	68·1	+0·6	57·4	62·5	65·0	61·6
	Chitaldroog	...	27·580	27·469	·111	27·525	−·021	·840	84·2	63·7	20·5	89·0	59·6	29·4	78·3	81·8	73·4	+1·6	58·0	65·3	64·6	62·6
	Bangalore	...	26·984	26·880	·104	26·935	−·012	·835	82·5	61·8	20·7	87·4	56·8	30·6	76·3	79·5	71·4	+1·6	59·2	64·9	64·8	63·0
	Hassan	...	·919	·816	·103	·871	−·024	·828	82·3	57·3	25·0	86·1	50·1	36·0	77·6	80·3	69·3	−0·3	56·5	64·1	64·5	61·7
	Mysore	...	27·471	27·358	·113	27·415	−·021	·834	84·1	63·5	20·6	87·0	58·6	28·4	78·0	81·9	73·3	+0·4	61·8	66·7	66·2	64·9
	Trichinopoly	...	29·711	29·583	·128	29·652	−·009	·838	90·0	72·6	17·4	95·6	65·2	30·4	83·8	85·6	80·1	+1·7	69·6†	73·3	73·5	72·1
	Madras	...	·952	·849	·103	·900	−·021	·852	88·4	71·7	16·7	91·2	64·6	26·6	83·5	83·7	79·1	+1·0	?	75·1	74·9	74·2
	Bellary	...	28·513	28·382	·131	28·448	−·013	·857	89·7	65·0	24·7	94·8	59·1	35·7	81·9	86·6	76·2	+1·0	58·3	63·6	65·1	62·3
	Cocanada	...	29·960	29·852	·103	29·901	−·055	·863	84·1	71·0	13·1	88·1	66·3	21·8	81·4	82·1	77·1	+0·2	67·9	71·5	71·5	70·2
	Vizagapatam	...	·961	·857	·104	·904	−·028	·873	84·9	69·8	15·1	90·3	63·8	26·5	81·8	81·8	77·7	−0·5	67·4	70·9	71·7	70·0
Hill Stations, Baluchistan.	Quetta	...	24·734	24·714	·080	24·745	+·019	?	72·9	33·0	39·9	79·8	26·2	53·6	61·6	68·2	51·8	+4·4	28·2	47·3	50·3*	41·9
Hill Stations, Punjab.	Leh	...	19·852	19·768	·085	19·811	+·078	?	51·7	22·3	29·4	56·6	15·5	41·1	37·9	49·5	37·1	+4·6	21·6	33·1	38·9	31·2
	Srinagar	...	25·034	24·919	·115	24·986	−·033	?	66·3	?	?	70·3	?	?	48·1	64·4	?	?	?	43·2	59·4	?
	Murree	...	23·959	23·916	·043	23·928	+·009	?	65·0	51·5	13·5	74·3	42·9	31·4	60·4	59·3	56·6	+5·8	38·1	45·7	45·9	43·6
	Kailang	10,087	20·868	20·752	·116	20·819	−·013	?	58·7	27·4	31·3	63·3	21·5	41·8	44·3	51·9	39·4	+5·7	25·7	34·0	38·1	32·6
	Simla (Ridge)	...	23·204	23·154	·050	23·169	−·001	?	57·3	46·3	11·0	64·2	39·3	24·9	53·4	52·9	50·5	+0·8	39·1	43·4	45·4	42·6
Hill Stations, N.-W. P.	Chakrata	...	·376	·323	·053	·340	−·003	?	61·4	44·4	17·0	66·7	39·4	27·3	56·6	53·9	50·8	+0·3	40·5	47·0	46·1	44·5
	Ranikhet	...	24·210	24·137	·073	24·161	+·003	?	62·1	48·5	13·6	67·7	43·0	24·7	58·5	58·3	54·2	+0·2	44·0	49·8	50·6	48·1
	Muktesar	...	22·941	22·879	·062	22·910	?	?	59·2	44·3	14·9	66·9	39·9	27·0	54·9	54·0	50·4	?	38·3	45·3	46·8	43·5
Hill Station, Nepal.	Katmandu	4,388	25·681	25·621	·060	25·647	?	?	73·4	45·3	28·1	78·3	38·3	40·0	63·3	65·9	57·5	−0·8	44·2	55·5	56·5	52·1
Hill Station, Bengal.	Darjeeling	...	23·081	23·000‡	·081	23·037	−·006	?	55·6	42·5	13·1	61·7	38·7	23·0	52·9	52·9‡	48·4‡	+1·0	38·8	47·3	47·4‡	44·5
Hill Stations, Central India.	Mount Abu	...	26·168	26·100	·068	26·127	−·015	?	72·4	57·0	15·4	76·1	50·9	25·2	69·9	69·9	64·1	−0·6	48·3	55·0	55·9	53·1
	Pachmarhi	...	·555	·475	·080	·512	−·015	?	73·2	47·7	25·5	76·8	39·5	37·3	69·2	71·0	60·7	−1·3	45·0	55·5	56·7	52·4
	Chikalda	3,642	·445	·351	·094	·394	−·010	?	74·3	58·6	15·7	78·2	53·1	25·1	70·4	72·3	66·7	−0·2	50·6	55·9	57·5	54·7

‡ Mean of 24 days. † Mean of 25 days.

II—*continued.*

Stations in India, Burma, etc., in November 1897—continued.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity.		Rainfall.			
														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.	Station.	Meteorological Province.
																									%	%						
·338	·399	·338	·358	−·042	76	46	30	51	− 3	0·2	0·5	0·4	−1·1	26	2	21	5	1	2	1	1	1	N. 52° E.	N. 66° E.	38	48	30	49	...	...	Hoshangabad.	Deccan—*concld.*
·381	·437	·377	·398	−·033	76	45	33	51	− 4	0·9	1·3	1·1	−1·4	20	12	21	2	1	...	2	1	1	N. 31° E.	N. 54° E.	48	60	101	95	...	...	Nagpur.	
·369	·447	·420	·412	?	76	43	34	51	?	0·8	0·9	0·9	?	6	22	23	...	1	...	3	...	5	N. 16° E.	?	68	?	26*	?	...	...	Nagpur (Sanitary Commissioner's Office).	
·364	·431	·374	·390	+·012	93	51	36	60	+ 2	0·4	0·6	0·5	−1·2	9	6	13	1	2	4	5	8	12	N. 30° W.	N. 45° E.	28	25	31§	39	...	...	Jubbulpore.	
·289	·291	·264	·281	−·037	59	31	26	39	− 6	0·1	0·3	0·2	−1·1	9	11	9	11	1	1	3	8	7	N. 9° E.	N. 31° E.	32	39	101	57	...	...	Saugor.	
·348	·374	·332	·351	+·030	77	41	32	50	+ 2	0·1	0·2	0·2	−1·0	4	28	...	...	...	...	...	9	19	N. 28° W.	N. 8° W.	78	41	54*	81	...	...	Sutna.	
·436	·488	·381	·435	−·010	81	55	35	57	− 1	1·6	2·2	1·9	−0·4	12	6	23	8	2	...	2	3	4	N. 39° E.	N. 34° E.	48	54	93*	79	...	...	Raipur.	
·434	·441	·410	·428	−·104	81	44	37	54	−13	1·7	1·7	1·7	−1·5	25	1	11	13	5	2	...	1	2	N. 78° E.	S. 72° E.	37	67	76*	88	...	...	Hyderabad (Deccan).	
·537	·596	·705	·613	−·081	68	60	62	63	− 7	0	0	0	−2·1	...	2	16	12	1	...	...	2	27	N 5° E.	N. 18° E.	53	52	231	235	...	...	Bombay.	West Coast.
·479	·432	·650	·520	−·132	71	34	54	53	−10	0·1	0·2	0·2	−1·3	...	6	4	16	4	...	2	9	19	N. 7° W.	N. 5° E.	30	22	174	191	...	...	Ratnagiri.	
·581	·606	·713	·633	−·073	88	59	55	67	− 7	0·1	0·4	0·3	−2·1	9	1	7	8	...	...	...	6	29	N. 27° W.	N. 31° W.	50	46	72	60	...	...	Karwar.	
·788	·815	·813	·805	−·002	91	70	65	75	− 4	4·0	3·8	3·9	−0·5	7	12	6	...	...	...	...	18	17	N. 42° W.	S. 81° W.	63	24	96	100	...	...	Cochin.	
·675	·683	·695	·684	+·024	93	63	58	71	− 4	4·3	5·6	5·0	−0·2	16	4	15	9	2	1	4	4	5	N. 40° E.	N. 87° E.	28	24	78	74	...	...	Salem.	South India.
·433	·470	·527	·477	−·047	80	62	65	69	−11	4·2	4·8	4·5	−1·7	31	1	17	6	2	...	...	1	2	N. 52° E.	N. 66° E.	35	53	93	116	...	...	Mercara.	
·418	·466	·399	·428	−·066	70	48	37	52	−13	2·1	3·0	2·6	−2·1	...	5	21	21	5	...	...	4	4	N. 60° E.	N. 74° E.	63	72	105*	160	...	...	Chitaldroog.	
·480	·484	·446	·470	−·062	86	54	45	62	−11	2·6	3·4	3·0	−1·9	3	8	28	13	2	...	...	2	4	N. 45° E.	N. 61° E.	68	64	134*	108	...	...	Bangalore.	
·453	·445	·425	·441	−·095	95	47	41	61	−12	3·5	4·4	4·0	−2·4	..	4	26	22	5	...	...	1	2	N. 64° E.	N. 71° E.	77	77	48*	86	...	...	Hassan.	
·539	·516	·456	·502	−·068	91	54	41	62	− 6	3·7	4·3	4·0	−2·5	4	7	19	16	7	1	...	3	3	N. 61° E.	N. 78° E.	57	72	163*	219	...	...	Mysore.	
·696†	·680	·651	·677	−·057	89†	59	53	67	− 9	3·8	6·0	4·9	−2·0	26	8	17	2	2	2	1	1	1	N. 38° E.	N. 32° E.	25	54	91	93	...	...	Trichinopoly	
?	·761	·752	·783	+·012	?	67	65	79	− 2	5·0	4·6	4·8	−1·2	...	24	23	5	2	2	1	1	2	N. 27° E.	N. 24° E.	70	64	158	156	...	...	Madras.	
·412	·365	·354	·377	−·163	66	34	28	43	−19	3·8	4·7	4·3	−0·6	17	7	18	14	1	...	...	...	3	N. 50° E.	N. 81° E.	55	55	31	77	...	...	Bellary.	
·653	·640	·631	·641	−·062	84	59	58	67	− 8	3·0	2·8	2·9	−0·3	...	4	34	19	3	...	...	...	...	N. 60° E.	N 61° E.	87	76	236*	259	...	...	Cocanada.	
·642	·613	·644	·633	+·005	88	57	60	68	+ 2	4·1	3·9	4·0	+0·5	6	19	22	4	1	...	...	...	8	N. 20° E.	N. 58° E.	70	51	21	51	...	...	Vizagapatam	
·108	·180	·180	·156	+·005	58	33	26	39	− 8	0·3	0·3	0·3	−1·2	41	6	1	...	...	1	2	3	6	N. 43° W.	N. 51° W.	18	40	25*	54	...	...	Quetta.	Hill Station, Baluchistan.
·112	·151	·150	·138	+·046	94	66	44	68	+14	1·1	1·6	1·4	−2·7	...	...	...	...	...	19	15	25	1	S. 51° W.	S. 21° W.	77	34	73	44	...	...	Leh.	Hill Stations, Punjab.
?	·227	·452	?	?	?	67	75	?	?	0·4	0·4	0·4	−2·8	14	16	7	2	3	5	2	4	7	N. 4° W.	N. 16° E.	28	18	72*	66	...	...	Srinagar.	
·095	·157	·197	·150	−·008	26	30	39	32	−10	0·6	1·0	0·8	−2·2	41	8	3	...	5	1	1	...	1	N. 37° E.	S. 40° E.	12	20	120*	149	...	...	Murree.	
·124	·110	·115	·116	+·014	84	37	30	50	− 2	0·4	0·7	0·6	−3·1	...	1	...	3	9	3	21	17	6	S. 55° W.	S. 52° W.	55	61	44	33	*Nil*	*Nil*	Kailang.	
·166	·181	·228	·192	+·018	53	44	57	51	+ 3	0·5	0	0·3	−2·0	34	8	2	...	...	8	7	1	...	S. 52° W.	S. 77° W.	10	21	57	101	...	...	Simla (Ridge).	
·215	·226	·236	·226	+·027	74	51	57	61	+ 6	0·8	0·8	0·8	−0·9	11	...	...	...	2	47	...	...	...	S. 2° E.	S. 61° W.	80	30	167	115	...	...	Chakrata.	
·243	·269	·290	·267	+·017	72	56	60	63	+ 4	1·7	1·2	1·5	0	14	3	3	2	3	1	17	10	7	S. 76° W.	S. 53° W.	35	35	62*	37	...	...	Ranikhet.	Hill Station, N.-W.P.
·172	·206	·248	·209	?	60	49	60	56	?	1·5	2·1	1·8	?	...	1	3	13	10	5	4	9	15	S. 13° W.	?	2	?	33*	?	...	...	Muktesar.	
·283	·354	·349	·329	−·008	91	60	55	69	− 3	2·3	2·8	2·6	+0·1	...	...	2	22	2	...	5	25	4	S. 83° W.	N. 80° W.	10	45	138	14	0·34	0·23	Katmandu.	Hill Station, Nepal.
·200	·271	·273‡	·248	−·017	74	69	69‡	71	− 9	2·6	(a) 3·11	2·9	−1·5	4	3	13	6	6	1	2	10	9	N. 8° E.	N. 79° W.	21	12	70	64	...	...	Darjeeling.¶	Hill Station, Bengal.
·242	·264	·287	·264	+·020	52	37	39	43	+ 4	0	0	0	−1·5	...	11	10	2	11	5	7	4	10	N. 6° E.	N. 54° E.	12	21	127*	94	...	...	Mount Abu	Hill Stations, Central India.
·272	·286	·300	·286	−·027	81	40	39	53	− 2	0·8	0·7	0·8	−1·3	26	12	4	2	2	1	2	4	7	N. 16° W.	N. 46° E.	27	41	57*	63	...	...	Pachmarhi.	
·280	·283	·306	·290	−·076	57	38	38	44	−11	0·7	0·8	0·8	−1·6	21	17	6	4	2	2	1	...	7	N. 11° E.	N. 7° W.	37	19	143*	114	*Nil*	*Nil*	Chikalda.	

(a) Mean of 23 days. ¶ Wind observations 54. § Msan of 28 days. * Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 86

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Hill Station, S. India.	Wellington	...	24·263	24·200	·063	24·232	—·014	?	68·8	49·8	19·0	71·8	40·0	31·8	64·4	64·0	58·1	—0·4	49·0	59·2	59·5	55·9
Extra India.	Muscat	...	30·061	29·979	·082	30·020	—·019	29·988	81·1	76·4	4·7	86·9	72·5	14·4	80·2	80·8	78·7	+1·6	67·3	72·5	73·4	71·1
	Aden	...	29·951	·856	·095	29·908	+·002	·934	84·4	74·6	9·8	91·3	70·1	21·2	81·5	81·9	79·1	+0·2	68·3	71·6	71·6	70·5
	Perim	...	·814†	·709	·105	·766†	—·002	?	87·1	?	?	89·5	?	?	84·0†	84·0	?	?	?	75·0†	74·2†	?
	Minicoy	...	·922	·825	·097	·873	?	?	86·6	?	?	89·5	?	?	84·0	84·4	?	?	?	76·2	76·3	?
	Zanzibar	...	·958	·831	·127	·895	—·025	·894	85·6	78·6	7·0	87·5	75·2	12·3	83·0	85·4	82·1	+2·5	75·5	78·2	78·8	77·5
	Port Victoria (Seychelles).	15	·971	·889	·082	·930	—·012	·869	84·1	76·4	7·7	85·7	73·9	11·8	82·6	83·3	80·1	+1·1	72·7	75·8	76·2	74·9
	Mauritius	181	?	?	?	·853	—·045	·981	?	?	?	92·6	60·7	31·9	?	?	77·7	+2·2	?	?	?	?

† Mean of 29 days.

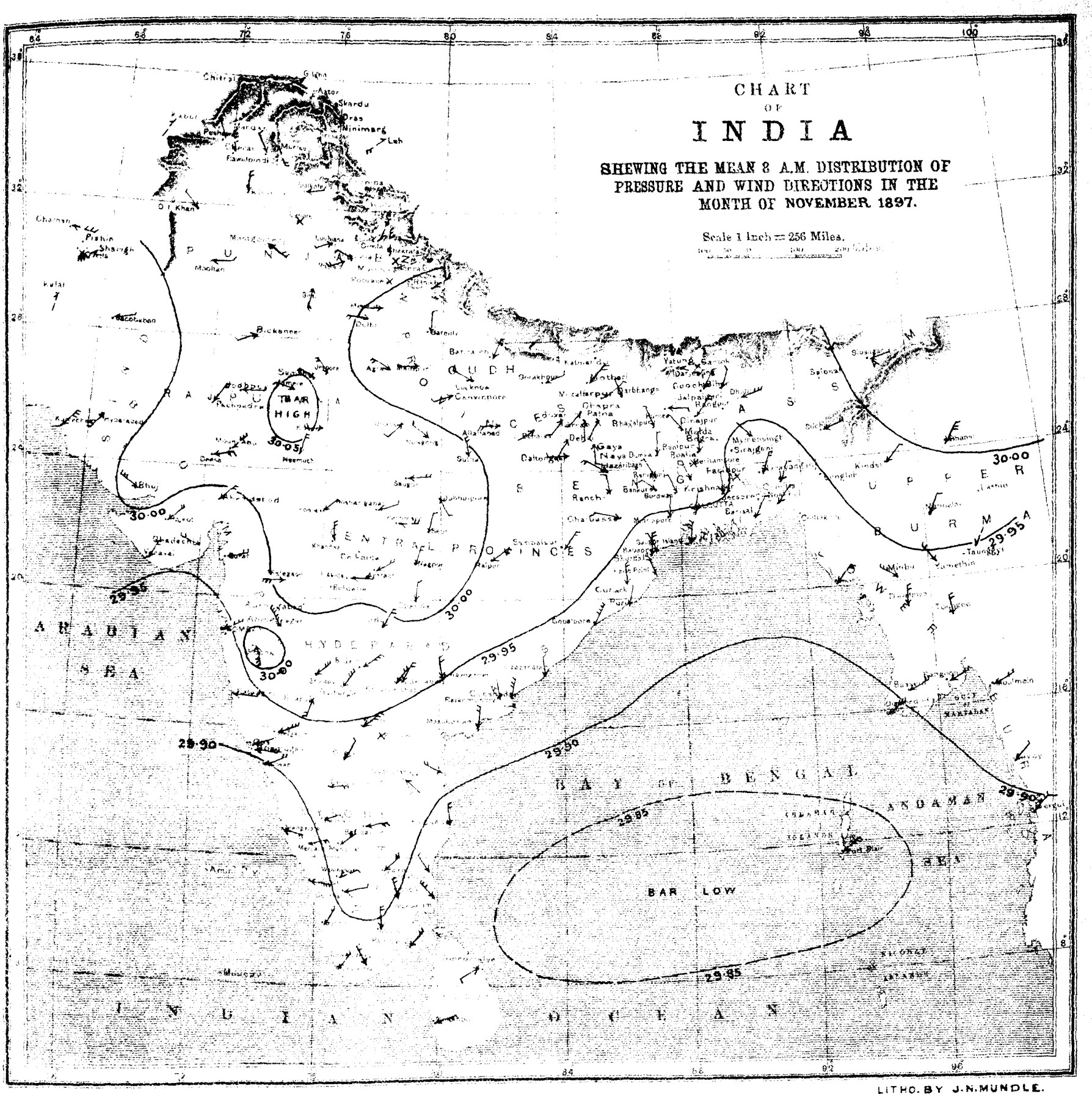
II—*concluded.*

Stations in India, Burma, etc., in November 1897—concluded.

Vapour tension.					Humidity.					Cloud.				Wind direction.											Wind steadiness.		Wind velocity.		Rainfall.			
														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.	Station.	Meteorological Provinces.
																									%	%						
·346	·453	·464	·421	+·005	95	75	78	83	0	5·7	7·5	6·6	−0·2	7	4	3	1	30	11	3	1	...	S. 42° E.	S. 41° E.	53	54	46	55	...	...	Wellington.	Hill Station, S. India.
·550	·698	·729	·659	+·017	61	68	69	66	−2	1·0	0·3	0·7	−1·1	...	2	7	10	4	...	...	3	34	N. 18° W.	N. 7° E.	50	38	100	87	...	...	Muscat.	Extra India.
·613	·641	·639	·632	−·021	71	60	58	63	−3	2·5	1·2	1·9	−0·3	...	3	8	30	11	7	1	...	...	S. 81° E.	S. 87° E.	72	66	340†	311	...	...	Aden.	
?	·749†	·718†	?	?	?	64†	61†	?	?	1·8	0·8	1·3	−0·5	1	...	4	8	26	...	1	...	...	S. 60° E.	S. 62° E.	56	82	523	491	...	...	Perim.	
?	·801	·798	?	?	?	68	68	?	?	?	?	?	?	3	14	6	4	3	2	2	11	15	N. 24° W.	?	42	?	92*	?	...	...	Minicoy.	
·843	·900	·898	·880	+·061	86	80	74	80	−1	3·8	1·9	2·9	−2·8	...	12	16	5	11	9	5	...	2	N. 77° E.	S. 31° E.	33	29	98*	115	...	...	Zanzibar.	
·756	·804	·809	·790	−·029	83	72	71	75	−7	6·1	5·2	5·7	−1·2	13	2	3	4	2	5	1	2	28	N. 42° W.	S. 70° E.	38	30	110	140	5·46	1·48	Port Victoria (Seychelles).	
?	?	?	·634	?	?	?	?	72	0	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	217	259	1·05	0·38	Mauritius.	

* Corrected.

G. I. C. P. O.—No. 116 Meteor—10-3-98.—385.—K.N.C.



Explanation.

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

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

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

LITHO. BY J. N. MUNDLE.

Explanation.

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

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

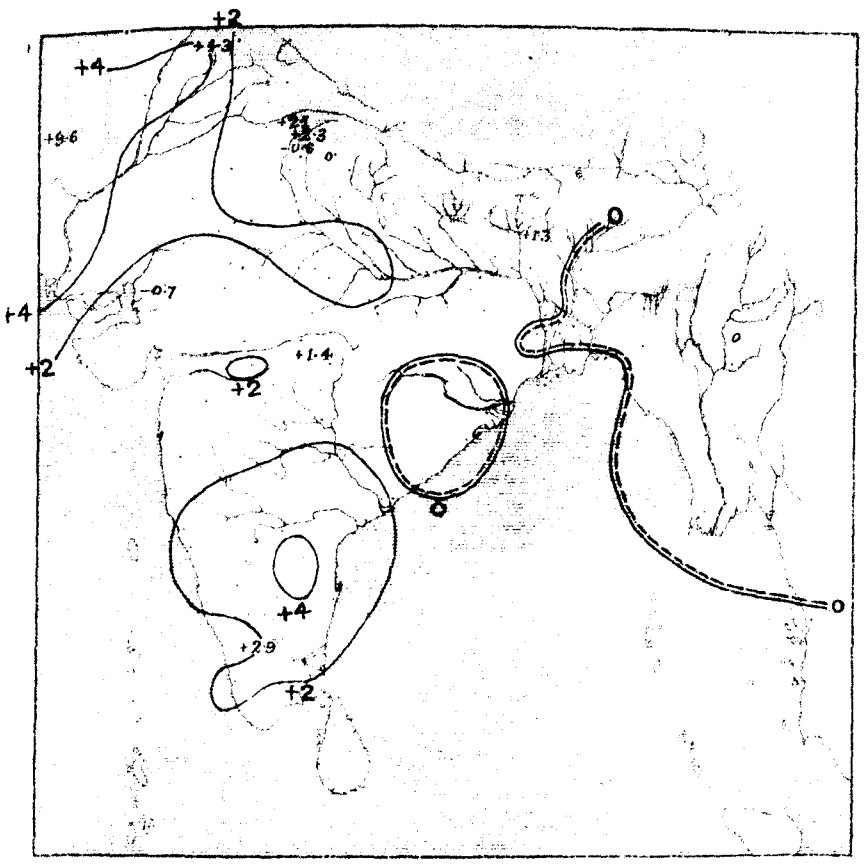
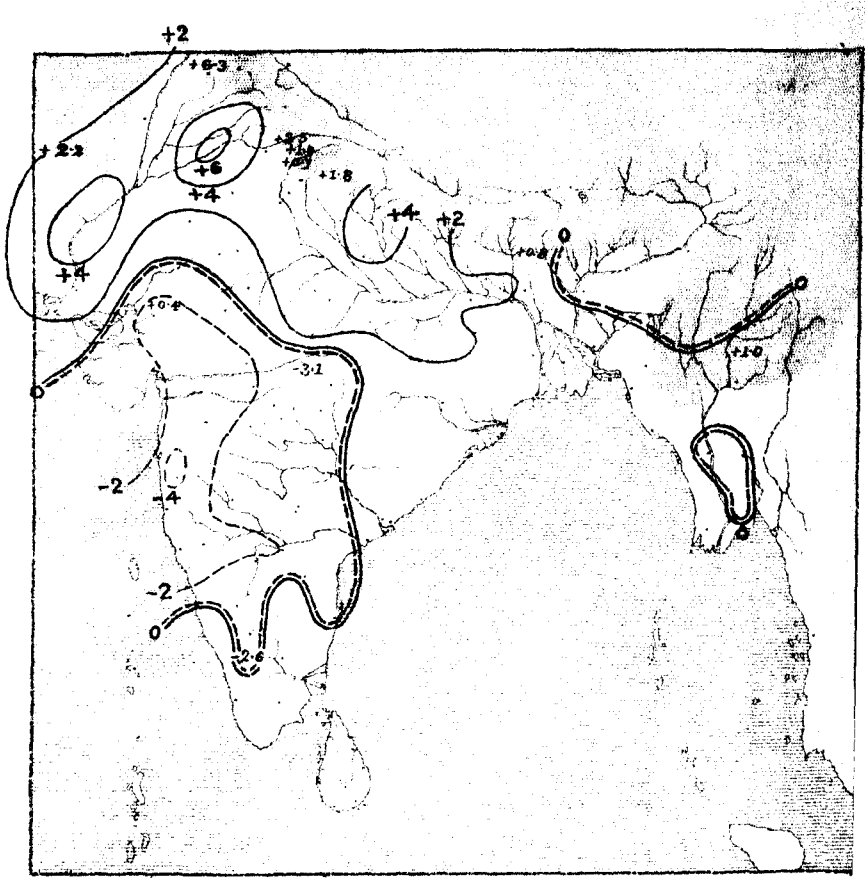


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

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

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

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

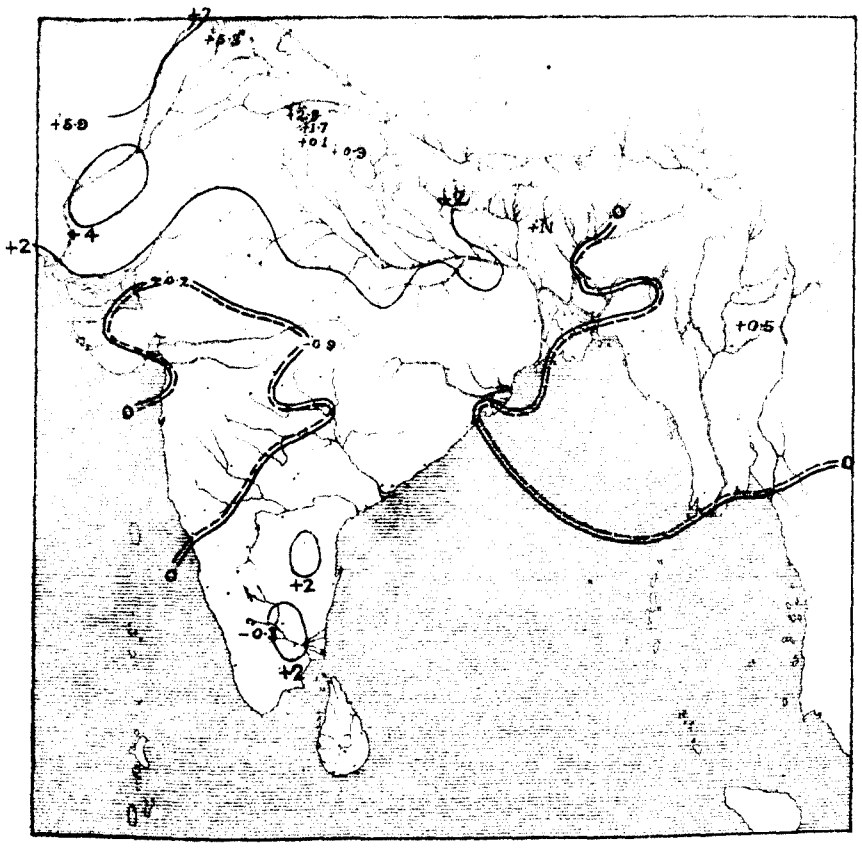
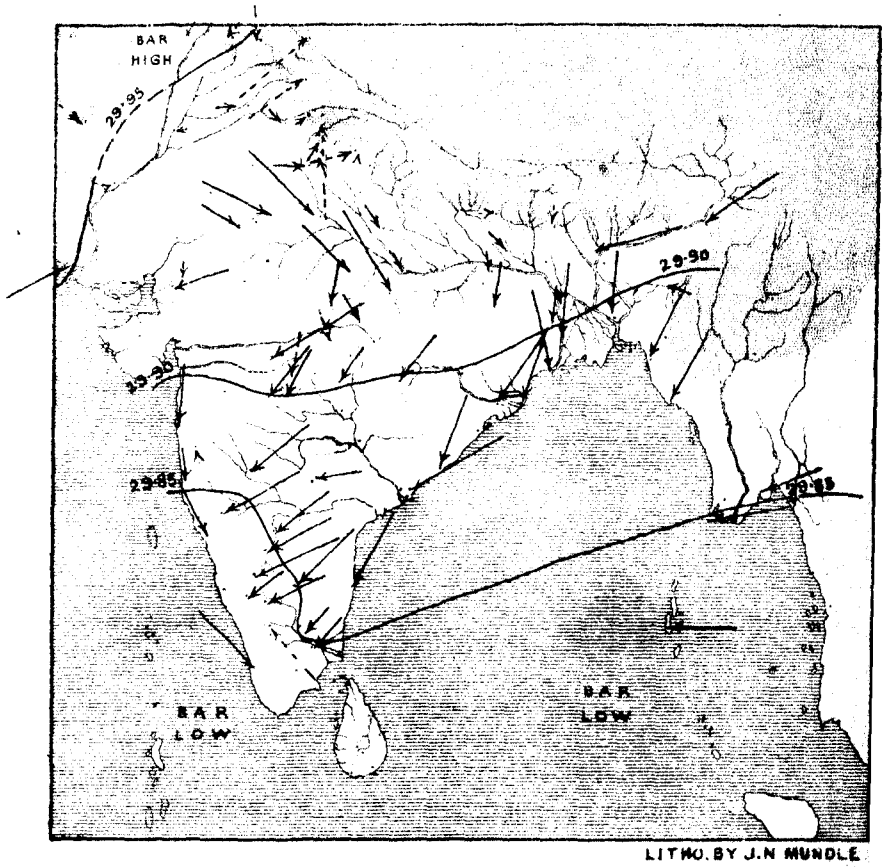


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF NOVEMBER 1897.



LITHO. BY J.N MUNDLE

Explanation.

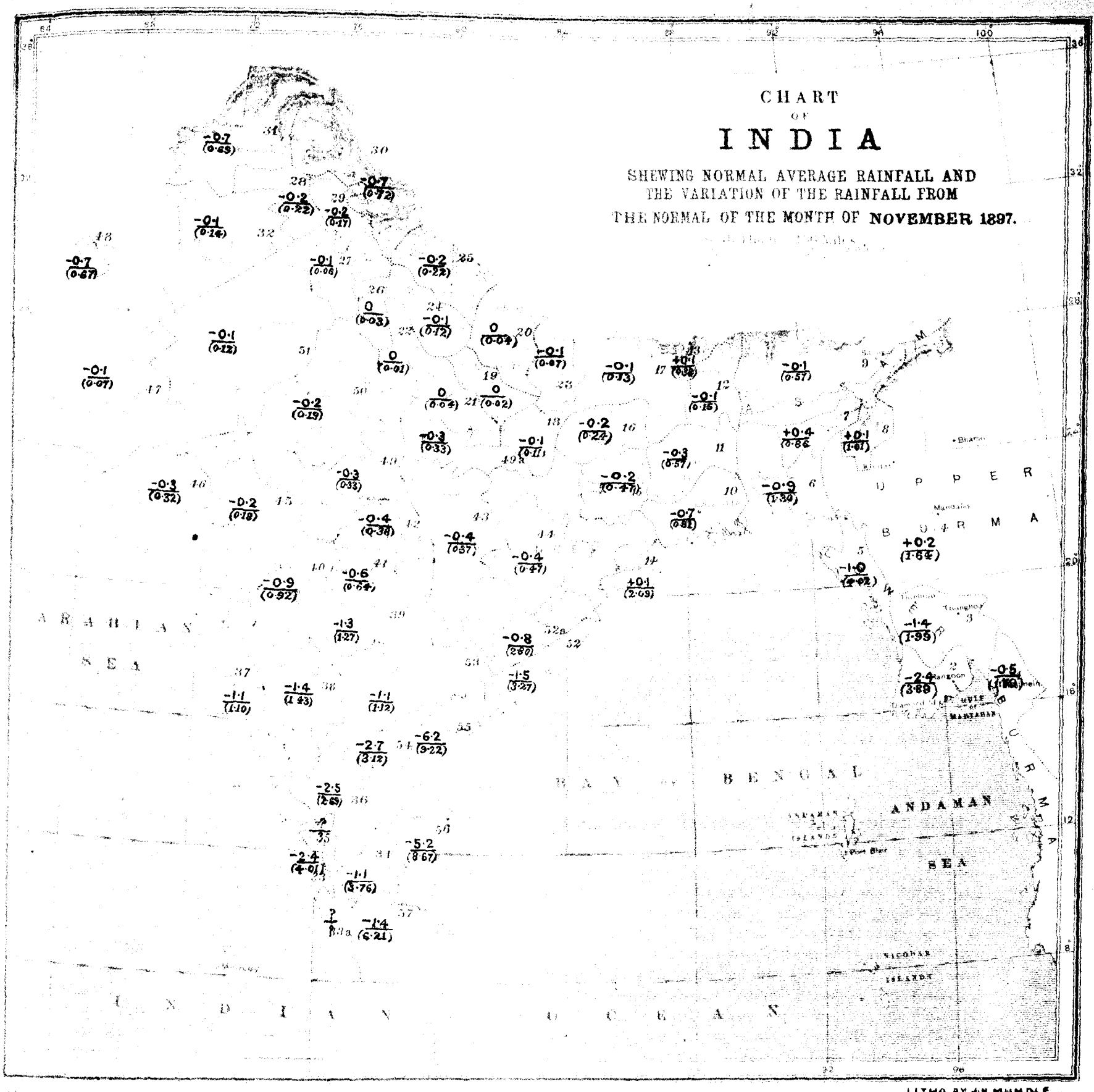
Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of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

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{1}{8}$th of an inch being equal to 100 per cent.

LITHO. BY J.N. BUNDLE.

Explanation.

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



Explanation.

The Chart gives the variations of the rainfall of the month (in tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which normal data have not been obtained for a sufficient number of years to furnish reliable and useful means. The country is divided into 57 areas, over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both actual and normal for the month) have been calculated, and the numbers given in the centre of each division (usually with + 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 variations can be easily 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 Delta
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. North Western Provinces, East
19. South Oudh
20. North do.
21. North Western Provinces, Central
22. Do. do., West
23. Do. do., East Submontane
24. Do. do., West do.
25. Do. do., Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malwa
33a. Gwalior
34. Madras, South Central
35. Coorg
36. Mysore
37. Konkan
38. Bombay Deccan
39. Hyderabad, North
40. Khandesh
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
49a Do. do.
50. Rajputana East, Central India West
51. West Rajputana
52. East Coast, North
52(a). Do. do. (a)
53. Hyderabad, South
54. Madras, Central
55. East Coast, Central
56. 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, 1897.

INTRODUCTION.

THIS Review of the weather in India during the month of December 1897 is based on observations taken daily at 8 A.M. at 217 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 86 stations. The rainfall summary is based on the rainfall data of the meteorological observatories and on the weekly rainfall telegrams received during the month from the District Officers throughout India, and the rainfall statements of the month published by the Provincial Governments which 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 December, 1897.

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 and Coimbatore districts. They occasionally give excessive cyclonic rain to the South Coromandel Coast districts.

Another important feature is the occasional appearance of shallow depressions in Upper India. These depressions originate sometimes in Baluchistan and Persia and sometimes in North-Western India. They generally give very little rain if they occur during the early part of December. In the latter part of December and in January and February, these depressions and storms of the cold weather frequently give moderate general rain to Northern India and moderate to heavy snow to the hill districts. They usually march in an easterly direction across Northern India. When they enter India from Baluchistan they frequently give rise to the formation of secondary or subsidiary depressions in the Punjab. These subsidiary storms are usually much deeper and more intense than the primary storms and give heavy rain in the Punjab, and stormy weather and heavy snow in the hills.

At the commencement of the month pressure was more or less considerably below the normal in Northern and Central India. Temperature was higher than usual in Upper India and Sind. Elsewhere the temperature conditions varied little from the normal. Fine weather prevailed generally.

Temperature fell rapidly in Burma during the next 48 hours and was steadily below the normal in that area from the 2nd to the 7th, as is shown by the following data :—

Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	2nd Dec.	3rd Dec.	4th Dec.	5th Dec.	6th Dec.	7th Dec.
	°	°	°	°	°	°
Burma Lower	−3·1	−8·5	−5·4	−3·3	−2·1	−1·0
„ Central	−0·1	−1·9	−3·3	−4·2	−3·1	−2·7
„ Upper	+2·1	−0·9	−2·3	−1·5	−0·6	−1·1

These low temperature conditions extended across the Bay into Bengal and Madras on the 3rd and 4th, and temperature was below the normal to a slight or moderate extent from the 4th to the 7th in these provinces. Temperature was above the normal to a moderate extent in Baluchistan, Sind, the Punjab and Rajputana during the same period, as is shown by the following data :—

Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	2nd Dec.	3rd Dec.	4th Dec.	5th Dec.	6th Dec.	7th Dec.
	°	°	°	°	°	°
Baluchistan (Quetta)	+1·0	+0·3	−0·1	+0·8	+4·4	+4·4
Sind	+5·3	+3·9	+1·7	+2·1	+3·4	+1·8
Punjab	+1·8	+1·2	+1·0	+1·5	+1·1	+0·6
Rajputana	+2·0	+3·1	+2·6	+2·8	+2·6	+1·5

Weather became feebly unsettled in Baluchistan and Upper India on the 8th. Pressure gave way generally and the distribution was practically normal on the 9th in India. A depression which gave showery weather in Persia on the 8th and 9th passed through Baluchistan on the 10th and was in Upper Sind on the morning of the 11th. This depression advanced rapidly eastwards across Northern India during the next three days. A deepish secondary depression formed in the North Punjab on the 11th and filled up again during the next 24 hours. The double disturbance gave light to moderate rain in Baluchistan, Sind and the Punjab and general snow on the higher elevations of the Punjab and Kashmir Himalayas.

The cool wave in the rear of the storm appeared on the frontier on the 11th and spread slowly over Northern India. The following variation data show its progress :—

Political Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	11th Dec.	12th Dec.	13th Dec.	14th Dec.	15th Dec.	16th Dec.	17th Dec.
	°	°	°	°	°	°	°
Baluchistan (Quetta)	−1·1	−5·4	−5·8	−2·9	−0·6	−1·5	+2·1
Punjab	+1·4	−4·6	−4·5	−4·1	−2·4	−2·0	−2·1
Sind	+2·9	−2·9	−3·4	−7·5	−5·0	−1·7	+0·3
Rajputana	+2·0	+4·7	−3·4	−6·2	−6·3	−5·0	−3·1
North-Western Provinces and Oudh.	+1·3	+1·6	+2·8	+0·4	−2·4	−4·0	−3·9
Bihar	0	+1·2	+1·3	+1·9	−0·6	−2·7	−4·5
Chota Nagpur	−0·2	+0·3	+1·4	+0·6	−1·5	−4·9	−6·5
Bengal	−0·7	0	+0·4	+0·6	+0·1	−1·7	−3·8
Central India	+1·2	+2·9	+2·1	+0·4	−5·5	−7·0	−6·3
Central Provinces and Berar	−0·1	+0·2	+1·6	+1·4	−1·0	−3·3	−5·9
Deccan	−2·5	−2·5	−2·4	−1·7	−1·9	−3·3	−4·2

The lowest night temperatures of the month were generally recorded in Northern and Central India during the advance of this cool wave and at many stations the night temperature was reduced 10° or 11° below the normal of the period. The minimum temperatures of the month were, however, by no means so low as have been occasionally registered in December.

The most noteworthy were the following :—

Station.	Lowest minimum temperature recorded in December 1897.	Date on which recorded.	Lowest minimum temperature recorded in December previous to 1897.	Year in which recorded.
	°		°	
Leh	6·0	17th	−9·5	1894
Minimarg	0·5	16th	3·0	1895 and 1896.
Dras	−18·5	16th and 17th.	−24·0	1896
Srinagar	22·9	17th	18·1	1896
Simla	32·2	12th	21·0	1877
Jacobabad	39·0	14th	31·6	1885
Jodhpur	37·1	15th	38·4	1896
Roorkee	35·3	16th	29·7	1871
Sirsa	37·2	17th	29·9	1878
Lucknow	40·6	18th	34·2	1868
Hazaribagh	42·2	17th	39·2	1878
Jubbulpore	35·9	17th	32·0	1878
Sutna	35·0	17th	34·8	1878
Khandwa	39·2	18th	35·9	1878
Ahmednagar	39·4	18th	39·4	1893 and 1895.
Poona	43·0	18th	42·9	1879 and 1883.

Humidity fell to a moderate extent in the plains during the advance of the cool wave and the accompanying westerly winds. The air was very dry at the hill stations in Upper and Central India from the 14th to the 18th.

The chief feature at the end of this period (on the 17th) was the low temperature, more especially at night, over the whole area including Northern and Central India and the Deccan.

Temperature increased rapidly in Burma on the 12th and 13th and was in moderate to considerable excess from the 14th to the 17th, as is shown by the following data :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	12th Dec.	13th Dec.	14th Dec.	15th Dec.	16th Dec.	17th Dec.
	°	°	°	°	°	°
Burma	−0·5	+0·8	+2·9	+4·0	+3·5	+3·3

Weather was showery in South Madras and Ceylon from the 15th to the 20th, due apparently to the strong north-east winds blowing across the centre and south of the Bay at that time. Temperature increased over the whole Indian area during the three days from the 17th to the 20th, and was generally above the average on the 20th. The following gives data illustrating this change :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		Mean increase of temperature from 17th to 20th December.
	17th December.	20th December.	
	°	°	°
Baluchistan (Quetta) . . .	+2·1	+5·2	+3·1
Punjab	−2·1	+2·1	+4·2
Sind and Rajputana . . .	−1·3	+4·0	+5·3
North-Western Provinces and Oudh	−3·9	+1·9	+5·8
Central India and Gujarat . .	−6·3	+1·7	+8·0
Central Provinces and Berar . .	−5·9	+0·9	+6·8
Bengal and Assam	−4·3	−1·2	+3·1
Deccan	−4·2	+1·1	+5·3
Madras Coast	−2·9	−1·9	+1·0

Pressure increased rapidly in Northern India on the 23rd and 24th and was in large excess on the latter day. The belt of minimum pressure lay over the south of the Bay and a depression formed in the south-west of that area on the 25th. It advanced slowly northwards with a slight easting on the 26th and 27th, increasing rapidly in intensity. H. M. S. *Melpomene* experienced winds of force 10 to the west of the storm centre on the 26th, the S.S. *Bombay* of force 9 on the 27th, and the S.S. *Bancoora* of force 8 to 9 on the 28th. The storm centre advanced from a position in Lat. 13¼° N. and Long. 85° E. on the 26th to Lat. 16° N. and Long. 86¼° E. on the 28th. The storm began to fill up on the 28th and disappeared within the next 36 hours. It failed to reach land, but gave cloudy showery weather in the Circars and Orissa during its later stages.

Temperature was in large excess in Madras, Bengal and Burma during the existence of this storm, as is shown by the following data :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	25th Dec.	26th Dec.	27th Dec.	28th Dec.	29th Dec.
	°	°	°	°	°
Madras	+1·3	+3·0	+4·6	+4·2	+4·0
Bengal	+2·4	+2·8	+3·9	+0·3	+4·6
Burma	+3·1	+3·1	+4·1	+3·6	+2·0

Temperature was also throughout this period in moderate to large excess in Baluchistan and Upper India, and was below the normal in Rajputana, Central India and the Central Provinces. The following gives data :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	25th Dec.	26th Dec.	27th Dec.	28th Dec.	29th Dec.	30th Dec.
	°	°	°	°	°	°
Baluchistan (Quetta) .	+4·5	+8·7	+6·3	+4·0	+6·2	+9·7
Sind	+4·4	+1·7	+2·0	+1·1	+4·8	+3·6
Punjab	+1·3	+2·7	+1·9	+3·3	+2·5	+1·1
Rajputana . . .	−1·0	−2·6	−2·5	−1·4	−0·6	+1·9
Central India . .	0	−2·4	−3·2	−2·8	−1·0	−0·9
Central Provinces . .	−0·7	−1·7	−1·5	−0·5	+0·7	+0·1

A shallow depression appeared off the Madras Coast on the 30th. It moved westwards during the day across the coast and filled up, but gave moderate rain during the next 24 hours to the greater part of Southern India.

Weather was unsettled in the last week of the month in Baluchistan and the Upper India hill districts due to the approach of a cold weather storm from Persia. The depression affected that area from the 27th to the 29th when moderate rain or snow fell. The depression drifted more slowly eastwards than usual, but began to give showers in Baluchistan and light snow on the North-West Himalayas on the 29th. The storm was followed in Persia by a reduction of temperature averaging 15°.

Pressure.—The mean pressure of the Indian land area was ·003″ above the normal. Pressure was locally in slight defect in North-Eastern India, Burma and Southern India (*i e.*, the Peninsula to the south of the 16° parallel of latitude). The anomalies were less than ·02″ at all stations in these areas except perhaps Tavoy (—·02″), Calicut (—·023″), Cuddapah (—·022″) and Kurnool (—·022″). Pressure was in relative excess over the remainder of India and in Baluchistan. The excess was marked in the area defined by the following stations :— Neemuch, Indore, Khandwa, Akola, Amraoti, Bhuj and Rajkot, at each of which stations it slightly exceeded ·02″.

Pressure was more largely in excess at the hill stations in Northern India than at the neighbouring plains stations.

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 December 1897.	Pressure anomaly, December 1897.
	″	″
Burma Coast and Bay Islands	—·009	—·012
Burma Inland	—·008	—·011
Assam	—·001	—·004
Bengal and Orissa	—·001	—·004
Gangetic Plain and Chota Nagpur	—·002	—·005
Upper Sub-Himalayas	+·011	+·008
Indus Valley and North-West Rajputana	+·009	+·006
East Rajputana, Central India and Gujarat	+·017	+·014
Deccan	+·015	+·012
West Coast	—·001	—·004
South India	—·006	—·009

Temperature.—The mean day temperature of the month was in slight excess over nearly the whole of India. The variations were nowhere large or of importance. The mean minimum or night temperature of the month was in moderate to considerable defect in the Deccan area including the Central Provinces, Berar, Khandesh, the Deccan and Hyderabad. The deficiency exceeded 3° in amount at Poona (—4·°7) and Kurnool (—3·°6). The night temperature was in considerable excess in Baluchistan, the Indus Valley and the greater part of Burma. It was more than 3° above the normal at Lahore (+4·°6), Jacobabad (+4·°2), Mooltan (+3·°6), Quetta (+3·°5) and perhaps Rawalpindi (+3·8°). The excess averaged 2·°5 in the Indus Valley and North-West Rajputana, and 2·°2 in Burma Inland.

The mean temperature was in general excess in Northern and Central India, Burma and Southern India, and in defect in the northern half of the Peninsula and South Bengal. The departures from the normal were generally small in amount. They averaged +2·°5 for Baluchistan, +2° for Burma Inland and +1·°4 for the Indus Valley and North-West Rajputana.

The following table gives temperature variation data of the month for the eleven meteorological provinces of India :—

METEOROLOGICAL PROVINCE	VARIATION FROM NORMAL OF		
	Mean maximum temperature, December 1897.	Mean minimum temperature, December 1897.	Mean daily temperature, December 1897.
	°	°	°
Burma Coast and Bay Islands	—0·2	+1·6	+0·7
Burma Inland	+1·8	+2·2	+2·0
Assam	+0·8	—0·8	—0·1
Bengal and Orissa	—0·2	—0·2	—0·2
Gangetic Plain and Chota Nagpur	+0·4	—0·3	+0·1
Upper Sub-Himalayas	—0·4	+0·9	+0·3
Indus Valley and North-West Rajputana.	+0·4	+2·5	+1·4′
East Rajputana, Central India and Gujarat.	+1·2	+0·3	+0·7
Deccan	+0·8	—2·2	—0·7
West Coast	+0·9	—0·8	0
South India	+0·9	—0·8	0

Winds—Were steadier than usual in Lower Burma. They were more northerly in Bengal, practically normal in direction in the Gangetic Plain and very unsteady in the North and West Punjab. Winds were very abnormal in direction in Sind and South-West Rajputana. For instance, the mean wind direction of the month at Kurrachee was S. 29° E., the normal being N. 41° E. The mean wind directions of the month contained a strong westerly component in Central India and a northerly component in the Central Provinces, Berar, the Deccan and Madras. Winds were considerably above their normal strength at the majority of the hill stations in Northern India and were from northerly instead of from southerly directions.

Humidity and Cloud.—The air was drier than usual over the whole area excepting Burma, Upper India and Baluchistan. It was abnormally dry over the whole of the interior of the Peninsula and in Central India. The mean humidity of the month was more than 10 below the normal in the area defined by the stations of Khandwa, Hyderabad, Bangalore, Mercara and Belgaum. The deficiency was absolutely greatest at Bellary (—18), Sholapur (—16) and Buldana (—15).

The great dryness of the air in this area was due to the early retreat of the south-west monsoon and the scanty rainfall in the Deccan in November and December.

The air was slightly damper at Port Blair and in the Burma Coast districts and considerably damper in Sind and the South Punjab. The increased humidity was most marked at Jacobabad (+11) and Mooltan and Lahore (each +8).

Cloud was in large excess at Port Blair and in slight to moderate excess in Lower Burma and Madras, and also in Baluchistan and the Indus Valley. It was below the normal in the remainder of India. The deficiency exceeded 1·0 in amount in two meteorological provinces, *viz.*, the Deccan (—1·3) and the Gangetic Plain (—1·1). Skies were practically cloudless throughout the month at the majority of stations in the Gangetic Plain, Central India the Deccan and the West Coast.

The following table gives variation data of the mean aqueous vapour pressure, mean humidity and mean cloud amount of ten meteorological provinces for the month of December 1897:—

Meteorological Province.	Variation from normal of		
	Mean aqueous vapour pressure.	Mean humidity.	Mean cloud amount.
	"	%	
Burma Coast and Bay Islands	+·033	+2	+1·0
Assam	—·014	—3	—0·1
Bengal and Orissa	—·017	—2	+0·2
Gangetic Plain and Chota Nagpur	+·011	+1	—1·1
Upper Sub-Himalayas	—·011	—1	—0·6
Indus Valley and North-West Rajputana.	+·044	+6	+0·3
East Rajputana, Central India and Gujarat.	—·014	—2	—1·0
Deccan	—·076	—8	—1·3
West Coast	—·071	—7	—0·5
South India	—·068	—8	+0·4

Rainfall.—The rainfall of the month was less than the small amount of the period. No rain fell over the greater part of India, including the five divisions of Assam, Bengal and Orissa, the Gangetic Plain, Central India and Gujarat and the Deccan. The pressure conditions in the Peninsula were almost as unfavourable to rainfall from the retreating south-west monsoon in December as in November. Southern India received light to moderate showers between the 14th and 20th and again on the 30th and 31st. The rainfall in that area was, however, in large defect. On the average of the whole area it received only 33 per cent. of the normal.

Two cold-weather storms affected Baluchistan and Upper India during the month, *viz.*, from the 7th to the 12th and again from the 27th to the 30th. The precipitation of the month was hence in moderate excess in the Indus Valley division.

The rainfall of the month was in defect in eight, provinces, normal in one and in excess in two only, *viz.*, Burma Coast and Bay Islands and the Indus Valley and North-West Rajputana.

The following gives rainfall data of the month for the eleven meteorological provinces:—

Meteorological Province.	Rainfall.		
	Mean actual, December 1897.	Mean normal, December.	Variation from normal, December 1897.
	Inches.	Inches.	Inches.
Burma Coast and Bay Islands	2·28	0·98	+0·47*
Burma Inland	0·32	0·56	—0·23*
Assam	0·01	0·40	—0·38
Bengal and Orissa	0·07	0·24	—0·18
Gangetic Plain and Chota Nagpur	0	0·23	—0·23
Upper Sub-Himalayas	0·29	0·45	—0·13*
Indus Valley and North-West Rajputana	0·39	0·16	+0·22
East Rajputana, Central India and Gujarat.	0	0·16	—0·16
Deccan	0	0·46	—0·46
West Coast	0·75	0·72	+0·03
South India	0·83	2·48	—1·65

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

Atmospheric Pressure.

The mean pressure of the Indian land area for the month of December 1897 was ·003" above the normal and was hence approximately normal.

The local anomalies in December 1897 were generally small and on the whole similar to those of December 1895; and on the contrary they differed considerably from those of December 1896 and 1894. In the month under review the local anomalies were positive over Baluchistan, Sind, the Punjab, hte Gangetic Plain, Rajputana, Central India, Bombay, Berar, the Central Provinces and Hyderabad,

while they were negative over North-Eastern India, Burma and the south of the Peninsula.

The positive anomalies were in almost every case small and only exceeded 0·020″ at the following stations :—

STATION.	Variation of mean 8 A.M. pressure of December 1897 from normal.	Pressure anomaly, December 1897.
	″	″
Neemuch	+·039	+·036
Akola	+·037	+·034
Khandwa	+·029	+·026
Indore	+·028	+·025
Bhuj	+·025	+·022
Amraoti	+·024	+·021

Pressure was hence locally in moderate excess in Cutch, Kathiawar, South-West Rajputana, the western states of Central India, Berar and the western districts of the Central Provinces. This was the continuation of a feature which was initiated on the termination of the south-west monsoon rains proper, *i.e.*, at the end of September 1897.

The negative anomalies were generally small in amount, but were slight to moderate in Lower Burma, the south of the Peninsula, the south-east of the Bay and Ceylon, where pressure, relatively to the general condition, was in somewhat larger defect than elsewhere.

The pressure anomalies were negative and more than 0·019″ in amount at the following stations :—

STATION.	Variation of mean 8 A.M. pressure of December 1897 from normal.	Pressure anomaly, December 1897.
	″	″
Calicut	—·020	—·023
Kurnool	—·019	—·022
Cuddapah	—·019	—·022
Tavoy	—·017	—·020

The deficiency of pressure with respect to the normal condition, in the south and south-east of the Bay was due to persistent abnormal conditions throughout the month in that area.

The mean pressure of the month was in slight defect at Zanzibar and in large defect at Mauritius, where it was, however, due chiefly to the influence of a cyclonic storm in the first week of the month.

Pressure at the level of the hill stations in India was generally in excess. At Quetta the abnormal excess was moderate, and at Murree and Ranikhet it was nearly as large as at Quetta, but at Simla, Chakrata, Mount Abu and Pachmarhi the excess was slight. At Wellington there was, on the other hand, a largish deficiency. The variations generally differed little in amount from the pressure variations recorded at the neighbouring plains stations; but, on the whole, pressure was in slightly greater excess at the higher than at the lower elevations in Northern India, this being particularly the case at Quetta, Murree and Ranikhet. The following data illustrate this feature :—

HILL STATION.	Variation of pressure from normal. (*a*)	Neighbouring plain station.	Variation of pressure from normal. (*b*)	Vertical pressure anomaly or (*a*)—(*b*).
	″		″	″
Leh	—·012	Lahore	+·010	—·022
Quetta	+·020	Jacobabad	+·010	+·010
Simla	+·002	Ludhiana	+·009	—·007
Murree	+·017	Peshawar	+·006	+·011
Chakrata	+·009	Roorkee	+·002	+·007
Ranikhet	+·015	Bareilly	+·008	+·007
Darjeeling	—·005	Jalpaiguri	+·003	—·008
Mount Abu	+·011	Deesa	+·024	—·013
Pachmarhi	+·006	Hoshangabad	+·014	—·008
Wellington	—·026	Coimbatore	—·003	—·023

The vertical anomalies were hence generally small and of little significance.

Barometric depressions and cyclonic storms of the month.

At the commencement of the month pressure was below the normal over the whole Indian area by amounts increasing from ·02″ in Southern India to ·18″ in Upper Sind. Pressure increased considerably on the 2nd and changed slightly and irregularly on the 3rd and 4th. Light showers fell in parts of Upper and Lower Burma on the 2nd and 3rd. Pressure increased largely on the 5th and 6th and was in general moderate to large excess on the 6th. It gave way equally generally during the next 48 hours and differed little from the normal on the 8th. Pressure was, however, falling very rapidly in the Persian area and a cold-weather storm formed during the next 24 hours.

The following gives a history of this storm :—

Cold-weather storm of the 8th to the 14th December.—The pressure conditions in Europe during the inception of this storm were noteworthy. Pressure was remarkably high in Northern Europe, more especially in North Russia, where it exceeded 31·00″. It was low in Southern Europe and the Mediterranean and the area of lowest perssure shifted about irregularly from day to day. It lay over the Black Sea and Asia Minor on the 8th.

The following table gives the changes of pressure in Asiatic Turkey, Persia and Baluchistan from the 8th to the 11th :—

STATION.	PRESSURE CHANGE IN 24 HOURS PRECEDING 8 A.M, OF			
	8th December.	9th December.	10th December.	11th December.
	"	"	"	"
Baghdad	—·316	—·061	+·193	+·079
Teheran	—·060	—·200	+·050	+·145
Ispahan	—·120	—·140	+·090	+·080
Bushire	—·102	—·148	+·105	+·066
Jask	—·061	—·038	+·023	—·003
Quetta	—·052	+·046	—·065	—·060

The preceding data indicate that a depression was transmitted eastwards affecting Baghdad chiefly on the 8th, Teheran, Ispahan and Bushire on the 9th and Quetta on the 10th. They also show that the depression diminished in intensity as it marched eastwards. Weather was cloudy and disturbed in Persia on the 8th and 9th and much rain and snow fell.

The disturbance also gave light showers to the Baluchistan plateau on the 7th and 8th. Pressure gave way briskly to rapidly in Baluchistan on the 9th, and on the morning of the 10th a very shallow depression was passing through that area. Light showers had fallen on the plateau during the previous 24 hours.

11th December.—The depression had advanced through Baluchistan during the previous 24 hours and was at 8 A.M. of the 11th in Upper Sind where pressure had given way rapidly. The depression had intensified slightly during the previous 24 hours and had also given rise to a secondary depression in the North Punjab. The following gives 8 A.M. data of stations in that 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.			
	"	"	"				Ins.	
Cherat	...	—·104	?	N	9	10	0·42	Raining.
Peshawar	29·869	—·244	—·219	Calm	3	10	0·22	Raining.
Rawalpindi	·948	—·166	—·113	NNW	2	10	...	
Murree	...	—·168	—·100	SE	14	10	...	
Srinagar	...	—·137	?	Calm	3	10	...	
Minimarg	...	—·155	?	Calm	4	10	3·55	
Skardu	...	+·070?	?	W	2	10	0·01	Snowing.
Leh	...	—·066	?	SW	1	10	...	Dull.
Gilgit	...	—·162	?	W	2	10		

The data indicate that a depression had formed in the North Punjab where pressure was upwards of two-tenths of an inch below the normal. Moderately strong winds and overcast skies with rain or snow prevailed in the Kashmir and Punjab hill districts.

Light to moderate and fairly general rain had also fallen in Baluchistan, Upper Sind and the North-West and West Punjab.

12th December.—The primary depression had drifted eastwards during the past 24 hours, and was at 8 A.M. in East Rajputana and the adjoining districts of the North-Western Provinces.

The following gives data for stations in the depression area :—

STATION.	PRESSURE.			WIND.		CLOUD.	RAINFALL.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"						
Ajmere	30·059	—·002	—·037	N	...	0	...	Clear.
Jeypore	·060	—·026	—·036	NNW	3	0	...	Clear.
Agra	·021	—·011	—·046	SE	6	1	...	Fine.
Cawnpore	·052	+·003	—·026	Calm	1	0	...	Clear.
Jhansi	·044	—·015	—·022	Calm	1	0	...	Clear.

The primary depression had almost filled up and was now of very slight importance, as skies were clear or very lightly clouded and weather fine with light winds in the depression area.

Pressure had increased as rapidly in the North Punjab during the preceding 24 hours as it had fallen during the previous day, and the secondary depression had hence filled up as quickly as it formed. Prsssure had, however, fallen rapidly at the higher level stations in Kashmir where weather was disturbed with much snow. The following gives 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.			
	"	"	"				Ins.	
Peshawar	30·081	+·212	—·027	S	1	2	0·76	Showery.
Cherat	...	+·035	?	N	10	9	1·75	Continuous rain.
Rawalpindi	·072	+·124	—·011	Calm	2	10	1·32	Raining.
Quetta	...	+·072	—·024	Calm	3	0	0·10	Frosty.
Minimarg	...	—·169	?	Calm	5	10	0·26	Snow storm.
Astor	...	—·134	?	Calm	4	10	0·08	Snow storm.
Dras	...	—·140	?	Calm	0	10	0·22	Snow storm.
Skardu	...	—·173	?	W	1	10	0·05	Snow storm.
Leh	...	—·098	?	SW	1	10	0·01	Dull.
Gilgit	...	—·095	?	Calm	1	10	0·05	

A well-marked cool wave followed in the rear of the storm which reduced temperature largely in North-Western India for some days.

Light to moderate showers had been received during the previous 24 hours in Baluchistan and the Punjab, and moderate to heavy snow in the Kashmir Himalayas.

13th December.—Pressure had again increased in North-Western India. The increase was large in amount at the Kashmir hill stations, and the abnormal conditions in that area had passed away. Skies were rapidly clearing and fine dry and cool weather now prevailed generally in the hills as well as in the plains districts of Upper India.

The primary depression drifted eastwards through Bihar and West Bengal on the 13th, and East Bengal and Upper Burma on the 14th, but was very feeble and exercised no influence on the weather.

The storm apparently formed in the Persian area at the end of the first week of the month. Strongly marked anticyclonic conditions prevailed at that time in North and East Russia. The depression marched eastwards through Persia on the 8th and 9th, Baluchistan on the 10th, Upper Sind on the 11th, Rajputana on the 12th, Bihar on the 13th, and Bengal and Upper Burma on the 14th. A secondary depression formed in the North Punjab on the 10th and filled up on the 12th. The double disturbance gave moderate general rain in Baluchistan, the Punjab and the Kashmir valley, and moderate snow in the Kashmir and Punjab Himalayas.

Pressure was on the 13th, 14th and 15th in moderate to considerable excess in Upper India, and in moderate defect in North-Eastern India and Burma. Gradients were steeper than usual, and strong westerly winds prevailed in Northern India. Winds were also slightly above their normal strength in the Bay of Bengal and the Arabian Sea.

The pressure changes during the next four days were irregular and of little importance, so that on the 19th the abnormal features of the pressure distribution were similar to those which obtained on the 14th and 15th, but were less strongly marked. The pressure changes during the following three days, from the 20th to the 22nd, were also of little significance. Pressure on the 22nd was in slight defect in Northern India, and practically normal over the remainder of India and in Burma.

Pressure increased briskly to rapidly in the Gangetic Plain on the 23rd, and in North-Western India on the 24th, and on the morning of the latter day was in considerable to large excess over the whole of Northern India and was normal in Southern India and the south of the Bay. Steep gradients hence obtained in the Bay. A storm originated in the south of that area during the next 24 hours, of which the following is an account:—***Cyclonic storm of the 24th to the 29th December.***—As stated above, pressure had increased very considerably in Northern India during the 48 hours preceding 8 A.M. of the 24th and was in large excess. The range of pressure in the Bay on that day was nearly a quarter of an inch and gradients were about 50 per cent. steeper than usual Fine clear weather prevailed over the whole of India, except South Madras, where skies were heavily clouded. Light to strong north-east winds prevailed in the Bay area, except in the extreme south where winds were variable with much rain. The following data illustrate the conditions obtaining in the extreme south of the Bay on this day:—

Name of vessel or Station.	8 A.M. position				Barometer corrected.	Wind.		State of sea.	Weather.
	Lat. N.		Long. E			Direction.	Force.		
	°	′	°	′	″				
S.S. *Mirzapore*.	5	44	96	37*	29·897	Var.	1	...	Noon, heavy rain.
S.S. *Nuddea*	6	33	81	40	·889	NW	4	...	Cloudy.
S.S. *Scindia*	7	36	85	44	...	SE	2	...	Cloudy, 4 A.M. constant rain.
S.S. *Pemba*	7	53	81	41	·863	N	4	N.E. swell.	Rainy.
S.S. *Clan Macleod*	11	3	82	43	·957	NNE	5	Rising	Cloudy, 4 A.M. occasional rain squalls.
R.I.M.S. *Clive*	12	45	90	3	·959	E by S	4		
Port Blair	...		...		·923	ENE	7†	...	Overcast.

* Noon position.
† Velocity of wind.

25th December.—Pressure had given way over the Indian area generally. It had decreased briskly in the west and south-west of the Bay where there was evidently a tendency to the establishment of a low pressure area in about Lat. 13°N and Long. 85°E. Strong north-east winds prevailed to the west of this area whilst winds were shifting to south east and south-west in the extreme south-east of the Bay. The data for fixing the position of the incipient depression at 8 A.M. are very scanty and are given below:—

Name of vessel or Station.	Position.				Barometer corrected.	Wind.		State of sea.	Weather.
	Lat. N.		Long. E.			Direction.	Force.		
	°	′	°	′	″				
Port Blair					29·935	ESE	20†	...	Strong wind.
Car Nicobars	...		...		·894	SSE	9†	...	Overcast.
S.S. *Mirzapore*.	6	12	92	26	·905				
S.S. *Pemba*	9	20	80	45	·835	N	7	High cross.	Squally.
S. *Cheshire*	12	13	89	58*	?	E	5	SE swell increasing.	Passing rain squalls.
S.S *Clan Macleod*	14	22	82	38	·907	NNE	5	Heavy	Noon, squally.
S.S. *Nisam*	15	53	81	45	·974	NNE	4	...	Midnight, squally and dirty.

* Noon position.
† Velocity of wind in miles per hour.

A comparison of the marine data of the 24th and 25th shows that squally weather was extending rapidly northwards up the Bay. Weather was more or less squally to the south of Lat. 14°N on the afternoon of the 25th.

26th December.—The barometric changes were small, except in the area of disturbance in the Bay where pressure was falling briskly to rapidly. A well-defined low pressure area the centre of which at 8 A.M. was in about Lat. 13° 15′N and Long. 84¾° to 85°E. lay over the southwest of the Bay. The following table gives data showing the character of the weather in the area of disturbance at 8 A.M. :—

Name of vessel or Station.	8 A.M. Position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction.	Force.	State of Sea.	Weather.
	° ′	° ′	″				
Car Nicobar	...	...	29·865?	ESE	12†	...	Cloudy.
Port Blair	...	...	·899	ESE	18†	...	Cloudy.
S. S. *Merkara*	5 54	80 58	·914	N	4	...	Fine.
S. S. *Mirzapore*	6 14	87 51	·911	SW	4	...	4 A.M. cloudy.
S. S. *Senator*	7 8	82 16	?	W	4	Head swell.	Midnight-showery.
S. *Cheshire*	9 35	86 33*	?	S	8	High confused	Frequent heavy squalls.
S. S. *Bombay*	14 59	85 59	·891	ESE	6	High.	Overcast, 4 P. M. rain squalls rather fierce.
S. S. *Clan Macleod.*	16 7	82 52	·907	NNE	6	Heavy.	Cloudy.
S. S. *Nizam*	16 43	82 17	·904	NE	6	...	Cloudy.
H. M. S. *Melpomene.*	13 55	84 18	·72	NE	3 to 7	...	2 A. M. heavy rain squalls.

* Noon position.
† Velocity of wind in miles per hour.

The data show that there was a well-defined cyclonic circulation in the low pressure area and that weather was stormy and squally in the Bay generally to the south of Lat. 15° N.

H. M. S. *Melpomene* which was proceeding from Calcutta to Trincomalee passed to the west of the centre during the afternoon. The following gives observations recorded on board that vessel during the day :—

Hour.	Position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction.	Force.	Weather.
	° ′	° ′	″			
4 A.M.	...	...	29·68	E	...	Rainy.
6 „	...	...	·72	NE	3 to 7	Rainy.
10 „	...	...	·70	NNE	...	Heavy sea.
Noon.	13 50	84 15	·62	N	5 to 8	Rainy.
1 P.M.	...	...	·55	NE by N	...	Heavy N. sea.
2 P.M.	...	...	29·51	NNE	6 to 8	Swell from S. E.
3 „	...	...	·50	N by W	6 to 8	Swell from S. E.
4 „	...	...	·47	NW by N	7 to 10	Rainy.
5 „	...	...	·51	NW by W	Do.	Swell from S. E. and rainy.
6 „	...	...	·54	NW by N	Do.	Rainy.
8 „	...	...	·61	NNW	6 to 8	Sea moderate.
10 „	...	...	·72	NW	5 to 7	Gloomy.
Midnight	...	...	·75	NW by W	3 to 5	Moderating sea.

The preceding data show that the *Melpomene* was nearest to the centre and probably west of it at a distance of not more than 50 or 60 miles about 4 P. M. As the position of the *Melpomene* at that hour was Lat. 13° 32′ N. and Long. 84° 5′ E. the position of the centre at 4 P. M. was in about Lat. 13° 30′ N. and Long. 85° E. The storm was now of considerable intensity, as pressure was about four-tenths of an inch below the normal near the centre, and cyclonic winds of force 10 were experienced by the *Melpomene*. The storm was hence increasing rapidly in intensity and severity at this time.

27th December.—Pressure had risen briskly in the south of the Bay and fallen more or less rapidly in the north. The low pressure area had advanced about 130 miles during the previous 24 hours, and was probably central in about Lat. 14¾° N. and Long. 85¼° E. at 8 A. M. The depression had continued to intensify during the previous 24 hours, and weather was more or less disturbed over the whole of the north and centre of the Bay. Skies had clouded over in the North Madras and Orissa coast districts, and light rain had been received in South Orissa, Ganjam and Vizagapatam.

The following gives 8 A. M. data of vessels in the Bay. They show the character and extent of the disturbance at that hour : –

Name of vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer corrected.	Wind. Direction.	Force.	State of sea.	Weather.
	° ′	° ′	″				
S. S. *Mirzapore*	5 38	83 9	29·926	NW	1	...	Cloudy.
S. S. *Hoseinee*	6 4	80 10	·916	Variable	1	...	Fine.
S. S. *Baron Glamis.*	6 4	80 21	·917	Variable	1	Smooth.	„
S. *Cheshire*	6 29	82 22*	?	W	3	Slight head.	Clear.

* Noon position.

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer corrected.	WIND. Direction.	Force.	State of sea.	WEATHER.
	° ′	° ′	″				
S. S. *Merkara* .	7 40	82 40	29·915	NNW	4	Heavy swell.	
S. S. *Senator* .	10 10	83 55	?	W	5	High confused	Cloudy. Midnight, showery.
S. S. *Bombay* .	14 7	86 28	·201	S	8	...	Frequent violent squalls.
S. S. *Rajpootana*	17 20	82 50*	·883	NE	7	High.	
S. S. *Clan Macleod.*	17 22	83 4	·887	NE	5	Moderate.	Cloudy.
S. S. *Kangra* .	19 44	86 10	·985	NE	6	High.	Continuous rain.
S. S. *Bancoora* .	20 12	87 54*	·984	ESE	2	...	Noon, continuous rain, Midnight, fierce squalls very high sea force of wind.
S. S. *Okhla* .	20 15	87 51*	·982	ENE	4	...	4 P.M. continuous rain.

*Noon position.

The S. S. *Bombay* was nearest the centre during the morning. The following gives the observations recorded on board that vessel during the storm :—

Date.	Hour.	POSITION. Lat. N.	Long. E.	Barometer corrected.	WIND. Direction.	Force.	WEATHER.
		° ′	° ′	″			
26th.	8 A.M. . . .	14 59	85 59	29·821	ESE	6	Overcast and High sea. Ship labouring heavily.
,,	Noon. . .	14 24	85 49	·731	E	6	,, ,,
,,	4 P.M. . .	...	...	·571	E	7	Overcast confused sea and rain squalls rather fierce.
,,	8 ,, . .	...	...	·551	E	7	Confused sea and rain squalls rather fierce.
,,	Midnight. . .	...	...	·501	SE	8	
27th.	2 A.M. . .	...	...	·421	...	...	Ship labouring heavily the whole day. Confused sea, Port companion ladder struck by sea, and washed away; also hen coop, hose box and mail boat washed away. Strong gale with frequent violent squalls and high sea.
,,	4 ,, . .	...	...	·321	SE	9	
,,	6 ,, . .	...	...	·271	...	...	
,,	8 ,, . .	...	...	·201	S	8	
,,	9 ,, . .	...	...	·201	...	...	
,,	10 ,, . .	...	...	·231	...	...	
,,	Noon. . .	...	...	·271	SSW	9	
,,	4 P.M. . .	...	...	·471	SWby W	8	Hard squalls, wind and sea hauling towards S. W.
,,	8 ,, . .	...	...	·731	SSW	6	

The wind and barometric data indicate that the vessel was nearest the centre at 9 A.M., and that she was to the south-east of the centre at that hour. The position of the vessel at 8 A.M., was Lat. 14°7′N. and Long. 86°28′E. The available data indicate that the centre of the storm at that hour was in about Lat. 14¾°N and Long. 85¼°E. If the barometric readings taken on board the *Bombay* be correct, the depression at the centre was considerably greater than on the previous day, and the storm area had increased considerably in extent. The strongest winds reported by the S.S. *Bombay* were of force 9, the weather being described as a strong gale with frequent violent squalls and a high sea.

28th December.—The 8 A.M. observations of this day indicate that the disturbance in the Bay had continued to advance northwards during the previous 24 hours. Pressure had given way slightly at the head of the Bay. The following gives meteorological data for 8 A.M. taken from the logs of vessels in the Bay :—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer corrected.	WIND. Direction.	Force.	State of sea.	WEATHER.
	° ′	° ′	″				
S.S. *Bombay* .	12 28	85 54	29·904	W	4	...	...
S.S. *Senator* .	13 9	84 58*	...	NW	5	Very high.	4 A.M. passing showers.
S.S. *Warora* .	11 37	89 17	·905	S	4	...	...
S.S. *Bancoora*	18 12	86 11	·769	NNE	9	Very high.	8 P.M., hard squalls.
S.S. *Okhla* .	19 26	87 29	·861	NE	7	...	4 A.M., continuous rain.
S.S. *Kangra* .	20 14	87 26	·968	NE	8	High.	4 A.M. squally with rain.
S.S. *Jupiter* .	21 5	87 53	·983	...	...	...	8 P.M., ugly.
S.S. *Kasara* .	21 22	90 8	·942	ENE	6	Confused.	Dull, overcast.

* Noon position.

The position of the centre at 8 A.M. is doubtful, as there was no vessel within 100 miles. It is probable it was in about Lat. 16°N. and Long. 86¼°E. The S.S. *Bancoora*, about 150 miles to the north of the centre at that hour, had winds of force 9 with very hard squalls, and the S.S. *Kangra* about 300 miles to the north-north-east had winds of force 8. The storm area was hence considerabely larger than on the previous day. The S.S. *Bancoora* passed to the west of the storm centre during the afternoon. The following extracts are taken from her log of the day :—

HOUR.	NAME OF VESSEL.	POSITION. Lat. N.	Long. E.	Barometer corrected.	WIND. Direction.	Force.	WEATHER.
		° ′	° ′	″			
4 A.M.	S.S. *Bancoora*	...	...	29·71	NE	8	Strong gale and heavy sea. Shipping heavy water fore and aft.

Hour.	Name of vessel.	Position. Lat. N.	Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′	″			
8 A.M.	S.S *Bancoora*	18 12	86 11	29·77	NNE	9	Strong gale and very high sea. Shipping water fore and aft, starboard side of deck constantly flooded, all starboard cabins washed out.
10 ,,	,,	...	...	...	...	9	Sky clear enough for observations,
Noon .	,,	17 48	85 51	·76	N by E	9	Strong gale and very high sea. Shipping heavy seas fore and aft, starboard life-boat chocks knocked away by a sea.
2 P.M.	,,	...	...	·69	NNW	8	.....
4 ,,	,,	...	...	·67	...	8	Strong gale and heavy sea. Shipping heavy water fore and aft, starboard coal bunker, shoots and hatches and starboard cabins and bath rooms flooded out.
6 ,,	,,	...	...	...	...	8	Dirty appearance to the N.W., drizzling.
8 ,,	,,	...	...	·76	...	8	Strong gale and heavy sea. Shipping heavy water fore and aft, and on bridge deck; sea moderating slightly; hard squalls, drizzling.
10 ,,	,,	...	...	·77	...	8	Continuous drizzling rain and hard squalls.
Midnight.	,,	...	...	·77	...	8	Strong gale and heavy sea, hard squalls with continuous drizzling rain, shipping water fore and aft.

The wind observations suggest that the *Bancoora* was nearest to the centre in the afternoon, but the very slight fall of the barometer indicated that she was at a considerable distance (at least 130 miles) to the west of the centre at that time. The position of the centre at 4 P.M. determined from her data was about Lat. 16¾°N. and Long 87½°E. The storm was hence now recurving to east.

29th December.—Pressure had increased generally in India. Skies were clearing in North Madras and Orissa and were lightly clouded in South Bengal. The following gives data of the depression in the Bay:—

Name of vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	State of sea.	Weather.
	° ′	° ′	″				
S.S. *Merkara* .	12 30	85 1	29·910	N	2	Heavy swell.	Noon, overcast.
S.S. *Bancoora* .	15 7	84 58	820?	NW by N	8		Hard squalls and dirty weather, 4 A.M., very heavy rain squalls.
S.S. *Senator* .	15 39	85 53	?	SE	1 to 0		Gloomy and thick mist.
S.S. *Nisam* .	17 50	84 48	914	NNE	6	High.	Overcast; noon, rainy.
S.S. *Jupiter* .	18 45	85 37	973	NE	6	High.	Drizzling.
S.S. *Okhla* .	18 47	88 40	927	ENE	4		4 A.M., squally with rain.
S.S. *Madura* .	19 26	89 48	930	E by N	6	High, head.	Overcast.
S.S. *Malda* .	19 45	89 33	970	Variable.	2	Heavy swell.	Rainy.

The data indicate that the storm was much less intense than on the 27th and 28th, and that it was filling up rapidly. The centre was now in about Lat. 17½° N. and Long. 88½° or 89° E. Weather was squally over the northern half of the Bay, but was improving.

30th December.—The observations of the day show that the depression which was approaching the head of the Bay on the previous day had completely filled up. Light irregular winds obtained generally in the Bay area, as is shown by the data of the following table, which give observations taken on board vessels in the Bay area at 8 A.M.:—

Name of vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer corrected.	Wind. Direction.	Wind. Force.	State of sea.	Weather.
	° ′	° ′	″				
S.S. *Warora* .	7 23	83 43*	29·958	S	2	...	
S.S. *Fort Salisbury*	7 40	82 38	·930	Calm	0	Slight N. swell	
S.S. *Rheinfels* .	8 34	81 24	·919	NNW	2 to 3	...	
S.S. *Janeta*. .	8 36	82 55	?	Calm	0	...	
S.S. *Bancoora* .	11 30	84 4	·892	SSE	4	...	
S.S. *Hoseinee* .	12 30	84 50	·886	NE	2	Moderate NNW swell.	
R.I.M.S. *Canning*	13 29	87 25	·910	E	1	...	
S.S. *Baron Glamis*	13 34	85 13	·877	E	4	Moderate.	
S.S. *Pemba* . .	Madras		·868	...	...	...	
S.S. *Merkara* .	15 22	86 31	·916	NE	4	...	
S.S. *Jupiter* .	16 28	83 46	·973	NE by E	4	S swell.	Squally.

* Noon position.

The following table gives the position and rate of movement of the storm centre from the 26th to the 29th :—

Date and Hour.	Position of Centre.		Distance travelled during interval.	Average hourly rate of motion during interval.
	Lat. N.	Long. E.		
	° ′	° ′	Miles.	Miles.
26th 8 A.M. . . .	13 15	85 0	.....	.....
,, 4 P.M. . . .	13 30	85 0	30	4
27th 8 A.M. . . .	14 50	85 15	100	6
28th ,, . . .	16 0	86 20	110	5
29th ,, . . .	17 30	88 30	185	8

The storm was remarkable in several respects. It originated in the south-west of the Bay during a period when unusually strong north-east monsoon winds obtained in the north and centre. Pressure was at the time excessive over the Peninsula, whilst it was relatively low in the north-east of the Bay. The storm followed the line of the axis of least pressure in the Bay at the time, and advanced in a general northerly direction, curving slightly to east as it advanced. It filled up rapidly on the 29th when approaching the head of the Bay. It resembled in its chief features the storm of December 1883, which gave a general burst of rain to South Bengal, on the opening day of the Calcutta Exhibition, and also even more closely the storm of the 5th to the 16th December 1894, which advanced northwards up the centre of the Bay, giving very severe weather in its progress until it approached the head of the Bay when it filled up without reaching land.

A depression of small extent appears to have formed in the Bay off the Madras Coast on the 29th and 30th. It advanced westwards across the coast and filled up during the next 24 hours giving light to moderate rain in the southern half of the Peninsula.

The pressure conditions obtaining at the end of the month were very abnormal. Pressure was in considerable to large defect in the Gangetic Plain, Bengal, Assam and Upper Burma and was in moderate to considerable excess in Baluchistan, Sind, Rajputana and the Deccan.

Pressure gave way rapidly on the 24th and 25th at Baghdad. The depression thus formed moved slowly through Persia during the next three days. The barometer fell ·37″ at Ispahan, and ·39″ at Teheran during the 24 hours preceding 8 A.M. of the 27th. Pressure was unusually low on the 28th and 29th over West Persia and increased very rapidly above its normal value on the 30th and 31st. This storm gave much rain and snow in Persia from the 28th to the end of the month. Temperature was slightly above the normal on the 26th but fell rapidly on the 27th, and was largely below it during the remainder of the month. The following ngives the mean dailytemperature at four stations in the Persian area from the 26th to the 31st :—

Station.	Mean Daily Temperature Recorded on					
	26th Dec.	27th Dec.	28th Dec.	29th Dec.	30th Dec.	31st Dec.
	°	°	°	°	°	°
Bushire . . .	65·9	63·0	54·3	44·3	48·8	60·0
Baghdad . . .	53·5	47·6	32·7	36·5	29·6	40·9
Teheran . . .	?	35·1	25·8	27·0	28·3	30·7
Ispahan . . .	37·5	43·1	34·5	29·4	30·5	31·3

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

I.—Afghan Mountain Districts.

(1) *Hills bordering the Dera Ismail Khan District (Kulachi border).*—The following report has been received from the Deputy Commissioner :—

"Snow fell 6 feet deep on the Nawa Tiza, Marmaz, Margaza, Oshla, Choka and Shoryala peaks on the 12th, 13th and 14th December. The general character of the weather at the time of snowfall was cold. The total snowfall up to the end of December 1897 amounted to 6 feet on the higher peaks. The snow, however, melted rapidly. The air was dry, and there were some clouds about. The general condition of the crops was of average amount."

(2) *Wanu (Waziristan).*—The following account of the snowfall during the month of December 1897 has been received from the Political Officer, Wanu :—

"Snow fell slightly during the month on the Marwattai Hills (10,000 feet), Janconda (9,400 feet), Inzar and Kohkan (7,900 feet) on the following dates—7th, 8th, 9th, 10th and 11th. The fall was between 3 and 6 inches. It melted soon after falling except in ravines and on the north side. Heavy snow (between 1 and 2 feet) fell on the Marwattai Hills (10,000 feet) between the 26th and 29th."

"On each occasion, the snow on the hills was accompanied by rain on the Wanu plain and the storms extended over the whole neighbourhood."

"On the 31st December 1897, about 6 inches of snow were remaining on the hills from 8,000 feet upwards, on the northern slopes."

"The snowfall of the present year was much less than that of the past year."

(3) *Kurram.*—"Snow fell on the 11th, 19th, 26th, 27th, 28th and 29th. On these dates the snow line descended as low as 4,000 feet. Observing natives say that it is rather unusual to have so heavy a fall so early in the winter."

"On the 31st December the snow was melting fast."

"The observer telegraphing from Parachinar on the 11th December reported that the snowfall was heavy on the higher hills."

(4) *Chitral.*—The Officer Commanding in Chitral, telegraphing from Drosh on the 13th December, says "during the last three days a good deal of snow has fallen on the Lowarai range. Snow fell in Drosh on the 11th. Weather has now cleared."

(5) *Kabul (Afghanistan).*—The following statement of the snowfall at Kabul and in the neighbouring districts has been received from the British Agent:—

Month.	Date.	Snowfall.	
		Foot.	Inches.
December 1897	8th	Slight.	
"	9th	Slight.	
"	11th	0	4
"	12th	0	5
"	18th	0	½
"	26th	0	6
"	27th	1	0
"	28th	1	0
"	29th	Slight.	
	Total	3	3½

"The hills adjoining Kabul were covered with snow at the end of the month. From information received it appears that the snowfall of the above dates extended to about 50 miles towards Peshawar and 100 miles towards Kandahar.

"It is stated by the inhabitants of Kabul that the fall of snow commenced earlier in the present year than usual."

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Chamba.*—The Deputy Conservator of Forests of the Chamba State writes as follows:—

"From the 4th to the 6th September 1897, snow fell on the higher ranges, and there was a heavy storm on the 25th and 26th September, which brought the snow line down to about 10,000 feet on the inner ranges. Then followed a long drought which lasted up to the 9th December. After threatening weather for two or three days snow fell generally over the state on the 11th and 12th December, down to about 6,000 feet on the outer ranges, and to 5,500 feet in the Bhandal valley.

"The following gives the amounts measured at different elevations:—

Date.	Kalatop 8,000 feet.	Chitrari 6,000 feet.	Ulansa 7,000 feet.	Barmaur 8,000 feet.	Langora 7,000 feet.	Bhandal 6,000 feet.
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
11th and 12th December	0 6	0 1	0 6	1 4	0 6	...
12th December	...	...	...	...	...	0 1

"The snowstorm of the 11th and 12th December was general over the state and good rain fell at low elevations. The weather was bright and clear again on the 13th.

"The snowstorm referred to above was not preceded by rainy weather as is commonly the case before the first fall of snow in December.

"Prior to the storm of the 11th and 12th, the temperature was generally much higher than usual for this time of the year, particularly at night.

"The weather was very clear and dry up to the 9th December, and there were practically no clouds whatever for a very long period.

"The prolonged drought was unfavourable to the crops, but the snowstorm of 11th and 12th December restored them to good condition".

(2) *Simla Hill Districts (Kilba).*—The following information relating to the snowfall in these districts has been supplied by the Deputy Conservator of Forests, Bashahr Division:—

"On the 12th and 13th December 1897, a slight fall of snow occurred down to 7,000 feet. On the higher passes including the Rupin and Buldar, the depth of snow was reported to be about 2 feet.

"The snowfalls of the above dates were apparently general over the hills of Bashahr, but the snow did not come down lower than 7,000 feet. Previous to the storm a northerly wind set in, but there was nothing particularly abnormal in the weather.

"The depth of snow up to 21st December on the higher passes was only 2 feet, while on the lower slopes a rainfall of 0·82 inch was measured in two days (*i. e.*, 12th and 13th).

"On the 13th December the weather cleared in the afternoon and the wind shifted, and on the 16th a slight local snowstorm occurred at the higher altitudes."

"The rainfall was most beneficial for crops and raised the hopes of the people".

III.—NORTH-WESTERN PROVINCES HIMALAYAS.

Almora District.—The following account of the snowfall for the period, 16th November to 15th December, has been received from the Commissioner of Kumaon:—

Malla Danpur.—Snow fell on the following occasions: 21st November and 3rd and 4th December. The total fall averaged 1½ feet.

Malla Johar.—Snow fell to a depth of 3 feet on the peaks of Uttamdhara and Ralamdhara on the 30th November.

Malla Byans, Chandans and Darma.—No snow fell in these sub-divisions during this period.

Summary of special Storm Reports.

Hailstorms and thunderstorms are of occasional occurrence in Northern and Central India during the cold weather. December 1897 was, however, finer than usual and no local storms were reported during the month.

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

Arabian Sea.—Unusually steady north-east monsoon winds obtained over the Arabian Sea throughout the month. They were, as is generally the case in December, lightest in the north of the sea where they were of force 2 to 6 and strongest in the south-east where they ranged in force between 2 and 9. The mean air movement over the Arabian Sea varied in force between daily averages of 2·0 and 4·2 during the month, the normal force being 3·3.

Weather was throughout the month fine, skies clear and sea smooth, except in the south-east where it was showery with occasional squalls on the 1st, 2nd, 7th, 8th, 10th and the 14th to the 17th. The weather in the Arabian Sea was hence of the ordinary character and the mean air movement of the month almost identical with the normal.

Bay of Bengal.—Except in the extreme south where winds were more or less unsteady, ordinary north-east monsoon winds obtained over the whole Bay area during the first three weeks of the month. Weather was fine throughout the period in the northern half of the Bay but was feebly disturbed with occasional showers and squalls over the southern half, more especially near the Ceylon coast. The mean intensity of the air movement over the Bay during this period varied from 2·8 on the 1st to 4·0 on the 7th, and was more or less above the normal of the month on the great majority of days.

Conditions were practically unchanged on the 22nd over the Bay. Important changes were, however, in progress over the land area which tended to give steep baric gradients over the Bay. Winds hence strengthened and averaged 3·9 at 8 A.M. of the 23rd as compared with 3·2 on the preceding day. On the morning of the 24th north-east winds (force 2 to 6) obtained generally over the Bay, except in the extreme south where they were variable in direction and light to moderate in force. Weather was on this day feebly disturbed over the area of irregular winds and fine over the remainder of the Bay. A depression formed over the south-west of the Bay during the day and the winds hence became cyclonic in direction in the southern half of the Bay. The storm developed considerably during the next three days and advanced in a north-by-east direction up the Bay as far as Lat. 17½° N. and broke up rapidly during the 29th. It occasioned strong winds and rough weather over the greater part of the Bay during its existence. The strongest winds experienced by vessels near the centre of the disturbance were of force 10 on the 26th, at 8 A.M. of which day the average force for the whole Bay area was 5·0. Winds fell off rapidly on the last three days of the month over the Bay and fine weather obtained generally except in the south-west where a slight depression formed on the 30th and after drifting westwards passed inland across the Madras coast during the succeeding 24 hours.

The mean intensity of the air movement over the Bay on the 30th and 31st was only 2·5 or 0·7 below the normal of the month.

Equatorial Belt.—There are no data available for the eastern half of this region. The western half of the belt was occupied on most days by a belt of calms and light variable airs, the northern limits of which were approximately defined by the parallel of 5° S. during the first half of the month and by Lat. 8° or 9° S. during the second half. At the Seychelles steady north-westerly winds held from the 3rd to the 28th. Weather was much more rainy at that station than usual, as a total of 20·10 inches fell as compared with a fall of 12·83 inches during the corresponding period of the previous three years.

Temperature of the Air.

The temperature conditions in December 1897 differed from the normal to a slight extent only and the chief features of the variations were similar to those of the preceding month.

The mean maximum or day temperature was above the normal over the whole area, with the exception of the Punjab, the greater part of Bengal and Lower Burma. The variations in these local areas were small, except at Lahore, Peshawar and Cuttack. The deficiency at Lahore was 3°·2, at Cuttack 2°·9, and at Peshawar 2°·0. Tem-

perature was 2° or upwards locally in excess in the area represented by the stations for which data are given below :—

PROVINCE.	STATION.	MEAN MAXIMUM TEMPERATURE.		
		Actual, December 1897.	Normal, December.	Variation of actual from normal.
		°	°	°
BURMA.	Kindat	78·5	75·7	+2·8
	Yamethin	87·0	84·5	+2·5
SIND	Hyderabad	80·9	78·6	+2·3
MADRAS	Masulipatam	84·6	82·5	+2·1
	Trichinopoly	86·6	84·5	+2·1
ASSAM	Silchar	81·5	79·5	+2·0
RAJPUTANA	Sambhar	77·3	75·3	+2·0

The chief feature of the mean day temperature of the month was that it was practically normal (*i.e.*, differed by less than 2° from the normal) over nearly the whole Indian area.

The mean night temperature differed much more from the normal than the day temperature. The chief feature was the low minimum temperature over the greater part of the Peninsula and Central India. The night temperature was more than 2° below the normal in the large area defined by the stations for which comparative data are given below :—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, December 1897.	Normal, December.	Variation of actual from normal.
	°	°	°
Poona	49·1	53·8	—4·7
Kurnoo	55·8	59·4	—3·6
Sambalpur	51·0	53·8	—2·8
Chanda	48·3	51·1	—2·8
Malegaon	47·6	50·3	—2·7
Akola	47·4	50·0	—2·6
Rajahmundry	62·6	65·0	—2·4
Seoni	46·7	49·0	—2·3
Jubbulpore	42·9	45·2	—2·3
Hyderabad (Deccan)	54·4	56·6	—2·2
Sholapur	54·8	56·9	—2·1

and also at Karwar (—2°·8).

The mean minimum temperature of the month was in slight defect in Assam and North Bengal and was in excess over the remainder of India. The excess was more than 2° in amount over Upper Sind and also in part of the Punjab and Burma Data for these areas are given below :—

PROVINCE.	STATION.	MEAN MINIMUM TEMPERATURE.		
		Actual, December 1897.	Normal, December.	Variation of actual from normal.
		°	°	°
SIND AND PUNJAB	Lahore	45·2	40·6	+4·6
	Jacobabad	47·6	43·4	+4·2
	Rawalpindi	40·1	36·3	+3·8
	Mooltan	47·1	43·5	+3·6
	Peshawar	41·1	38·2	+2·9
	Dera Ismail Khan	42·7	40·6	+2·1
NORTH-WESTERN PROVINCES.	Jhansi	52·9	50·6	+2·3
BURMA	Yamethin	59·4	56·4	+3·0
	Minbu	62·6	59·7	+2·9
	Bassein	68·1	65·3	+2·8
	Mandalay	61·5	58·8	+2·7
	Tavoy	67·1	64·6	+2·5
	Bhamo	52·8	50·4	+2·4
	Moulmein	68·6	66·5	+2·1

The mean night temperature was also considerably above the normal in Baluchistan as represented by Quetta (+3°·5). It was practically normal at the Western Himalayan hill stations and in considerable defect at Wellington (—3°·0) and Pachmarhi (—3°·0).

The variations of the mean temperature of the month were generally small in amount. Temperature was on the mean of the month below the normal over the greater part of the Peninsula (except the southern districts) and in South Bengal and Chota Nagpur. The variations were less than 2° in amount, except locally at Poona and Cuttack (each —2°·0).

Temperature was above the normal generally in Northern India, Burma and Southern India. The variations were less than 2° in amount, except in the case of the following stations :—

PROVINCE.	STATION.	MEAN DAILY TEMPERATURE.		
		Actual, December 1897.	Normal, December.	Variation of actual from normal.
		°	°	°
BURMA	Yamethin	73·2	70·4	+2·8
	Kindat	68·1	65·7	+2·4
BALUCHISTAN	Quetta	45·5	43·0	+2·5
SIND	Jacobabad	62·5	60·0	+2·5
	Hyderabad	67·6	65·5	+2·1

The mean temperature of the month was in slight defect at the Himalayan stations, but in considerable excess at Srinagar and Leh. The following gives comparative data for six stations:—

Station.	Mean daily temperature. Actual, December 1897.	Normal, December.	Variation of actual from normal.
	°	°	°
Leh	26·8	23·6	+3·2
Srinagar	39·7	37·2	+2·5
Murree	45·4	45·9	—1·5
Simla	44·5	45·7	—1·2
Ranikhet	49·7	50·4	—0·7
Darjeeling	41·7	42·9	—1·2

The following summarizes the chief abnormal features of the temperature conditions of the month.

(1) Temperature was above the normal to a slight or moderate extent, both by day and night, in Baluchistan and the greater part of Upper India and in Burma.

(2) Temperature was below the normal to a slight or moderate extent in Central India and the north and centre of the Peninsula, chiefly due to unusually low night temperature.

(3) Elsewhere the variations were small and unimportant.

The following table gives temperature data for each of the 56 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 Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	86·6	68·4	77·6	18·2	29·0	—1·1	+2·3	—3·4
	Lower Burma (Deltaic)	85·6	69·9	77·8	15·6	25·5	+0·7	+2·2	—1·5
	Central do.	85·4	61·2	73·3	24·2	35·8	+1·2	+0·4	+0·8
	Upper do.	81·7	58·8	70·3	22·9	34·6	+1·7	+2·7	—1·0
	Arakan	81·4	64·5	73·0	16·9	26·6	—0·5	+0·1	—0·6
Bengal and Assam	Eastern Bengal	75·6	54·8	65·2	20·8	30·2	—0·2	+0·1	—0·3
	Assam (Surma)	81·5	55·2	68·4	26·3	36·1	+2·0	0	+2·0
	Do. (Brahmaputra)	73·3	52·0	62·7	21·4	27·1	+0·2	—1·3	+1·5
	Deltaic Bengal	76·8	55·2	66·0	21·6	32·7	—0·3	—0·5	+0·2
	Central do.	76·4	53·9	65·2	22·5	32·0	0	+0·5	—0·5
	North do.	76·6	52·2	64·4	24·5	31·0	+1·0	—0·5	+1·5
	Bengal Hills	46·8	30·4	38·6	16·4	28·9	—1·1	—1·2	+0·1
	Orissa	78·0	58·8	68·4	19·2	31·7	—1·2	—1·1	—0·1
	Chota Nagpur	74·3	48·2	61·2	26·1	37·0	0	—1·1	+1·1
	Bihar (South)	75·5	51·2	63·4	24·3	33·6	+0·3	+0·8	—0·5
	Do. (North)	75·2	50·6	62·9	24·6	32·7	+0·3	+0·3	0
North-Western Provinces and Oudh.	North-Western Provinces (East)	75·2	47·1	61·2	28·2	37·9	+0·3	—0·6	+0·9
	Oudh (South)	77·2	45·5	61·4	31·7	40·1	+1·7	—0·1	+1·8
	Do. (North)	75·4	47·6	61·5	27·8	36·4	?	?	?
	North-Western Provinces (Central)	77·4	48·5	63·0	29·0	38·2	+1·3	+2·3	—1·0
	Do. do. (West)	75·3	47·4	61·4	27·9	38·4	+0·8	+1·4	—0·6
	Do. do. (Submontane East)	74·7	50·8	62·8	23·9	32·2	+0·3	+0·6	—0·3
	Do. do. (do. West)	71·4	44·3	57·9	27·1	36·5	+0·3	—0·5	+0·8
	Do. do. (Hills)	54·3	40·2	47·3	14·2	24·8	—0·9	—0·4	—0·5
Punjab	Punjab (South-East)	73·5	48·6	61·1	24·9	36·3	—0·8?	+0·1?	—0·9?
	Do. (South)	73·3	43·8	58·6	29·5	41·5	0	+1·1	—1·1
	Do. (Central)	68·3	45·2	56·8	23·1	36·9	?	?	?
	Do. (Submontane)	70·8	43·6	57·2	27·2	38·2	—1·0	+1·5	—2·5
	Do. (Hills)	47·0	28·3	37·6	18·7	40·0	—2·5	—0·2	—2·3
	Do. (North)	65·8	40·6	53·3	25·2	42·4	—1·9	+3·4	—5·3
	Do. (West)	72·5	44·4	58·5	28·2	42·6	—0·2	+2·3	—2·5
Bombay and Malabar Coast Districts (Madras).	Malabar	87·2	71·9	79·6	15·4	23·1	+0·7	+0·1	+0·6
	Madras (South Central)	86·4	66·2	76·3	20·3	32·1	+1·1	+0·5	+0·6
	Coorg	75·3	58·2	66·8	17·1	25·8	+0·8	+0·6	+0·2
	Mysore	80·5	57·7	69·1	22·9	31·9	+1·3	—0·4	+1·7
	Konkan	87·2	66·7	77·0	20·6	28·4	+1·0	—1·6	+2·6
	Bombay Deccan	84·0	53·0	68·5	31·0	42·0	+0·8	—2·1	+2·9
	Hyderabad (North)	8[illegible]·3	54·6	67·5	25·7	36·8	?	?	?
	Khandesh	82·5	47·3	64·9	35·2	47·5	+0·4	—2·7	+3·1

Province.	Division.	Actual Temperature.					Variation from normal of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Central Provinces and Berar.	Berar	83·4	51·2	67·3	32·2	41·5	+1·7	—2·6	+4·3
	Central Provinces (West)	81·6	49·4	65·5	32·2	44·0	+1·2	—1·6	+2·8
	Do. (Central)	78·6	46·0	62·3	32·6	43·2	+0·6	—2·3	+2·9
	Do. (East)	78·8	51·7	65·3	27·1	36·9	—0·7	—2·8	+2·1
Bombay (North)	Gujarat	87·5	57·5	72·6	30·0	40·3	+2·0	+0·1	+1·9
	Kathiawar & Cutch	84·8	55·4	70·1	29·5	45·1	?	?	?
	Sind	80·4	53·1	66·8	27·3	44·4	+1·5	+2·5	—1·0
	Baluchistan Hills	60·8	32·0	46·5	28·8	47·9	+1·5	+3·5	—2·0
Rajputana and Central India.	Central India (East)	77·2	46·7	61·9	30·5	43·3	+0·6	—0·4	+1·0
	Rajputana (East), Central India (West)	79·9	48·2	64·1	31·6	44·8	+1·2	—0·2	+1·4
	Do. (West)	79·9	48·5	64·3	31·5	47·3	?	?	?
Madras	East Coast (North)	81·2	63·0	72·1	18·2	30·3	+0·5	—1·7	+2·2
	Hyderabad (South)	83·8	56·0	69·9	27·8	38·8	+1·3	—2·2	+3·5
	Madras (Central)	86·2	60·1	73·2	26·2	36·6	+1·1	—2·0	+3·1
	East Coast (Central)	84·2	65·9	75·1	18·3	28·7	+2·1	—1·9	+4·0
	Do. (South)	83·2	69·5	76·4	13·7	24·5	+0·3	—0·4	+0·7
	Madras (South)	84·9	72·7	78·8	12·2	22·2	+0·9	+0·4	+0·5

At the commencement of the month temperature was higher than usual in North-Western India and Upper Burma, and was in moderate defect in North Bengal, Lower Burma and the Bay area generally. Temperature was more or less in excess in North-Western and Central India from the 1st to the 11th, as is shown by the following data:—

Political Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	1st Dec.	3rd Dec.	5th Dec.	7th Dec.	9th Dec.	11th Dec.
	°	°	°	°	°	°
Baluchistan (Quetta)	+0·1	+0·3	+0·8	+4·4	—3·6	—1·1
Punjab	+0·9	+1·2	+1·5	+0·6	+1·2	+1·4
Sind and Rajputana	+2·5	+3·4	+2·5	+1·7	+3·0	+2·2
Central India and Gujarat.	+0·8	+0·8	+2·1	+1·0	+1·2	+1·8

Temperature varied slightly and irregularly from the normal during this period in the North-Western Provinces and Bengal. It was, on the other hand, in slight to moderate defect throughout the period in Madras and Burma, as is shown by the following data:—

Political Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	1st Dec.	3rd Dec.	5th Dec.	7th Dec.	9th Dec.	11th Dec.
	°	°	°	°	°	°
Burma	—0·1	—3·6	—2·4	—1·4	—1·3	—1·2
Madras	+0·5	0	—1·6	—0·8	—1·4	—1·4

The diminished temperature in Burma was chiefly due to the occurrence of local thunderstorms during the period and in Madras chiefly to the low night temperature accompanying abnormal dryness and stillness of the air. The following variation data for the 4th illustrate the conditions of the whole period:—

Political Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature	Mean temperature.
	°	°	°
Burma	—4·9	—2·7	—3·8
Bengal and Assam	—0·7	—1·7	—1·2
North-Western Provinces and Oudh	+0·3	—0·5	—0·1
Punjab	+1·0	+1·0	+1·0
Sind and Rajputana	+2·6	+1·8	+2·2
Central India and Gujarat	+2·2	+1·8	+2·0
Central Provinces and Berar	+1·8	—1·0	+0·4
Bombay	+2·2	0	+1·1
Madras	+0·8	—3·4	—1·3

The feeble cold-weather disturbance of the 10th to the 12th was followed by the slow advance of a cold-wave across Northern India. The following table giving varia-

tions of the mean daily temperature from the normal illustrates the progress of the wave:—

Political Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of								
	11th Dec.	12th Dec.	13th Dec.	14th Dec.	15th Dec.	16th Dec.	17th Dec.	18th Dec.	19th Dec.
	°	°	°	°	°	°	°	°	°
Baluchistan (Quetta).	—1·1	—5·4	—5·8	—2·9	—0·6	—1·5	+2·1	+9·4	+5·5
Punjab	+1·4	—4·6	—4·5	—4·1	—2·4	—2·0	—2·1	—0·2	+1·2
Sind	+2·9	—1·1	—3·4	—7·5	—5·0	—1·7	+0·3	+2·2	+2·5
Rajputana	+2·0	+4·7	—3·4	—6·2	—6·3	—5·0	—3·1	0	+2·0
N.-W. Provinces and Oudh.	+1·3	+1·6	+2·8	+0·4	—2·4	—4·0	—3·9	—2·6	—0·5
Central India	+1·2	+2·9	+2·1	+0·4	—5·5	—7·0	—6·3	—3·7	—0·5
Bihar	0	+1·2	+1·3	+1·9	—0·6	—2·7	—4·5	—3·1	—1·7
Chota Nagpur	—0·2	+0·3	+1·4	+0·6	—1·5	—4·9	—6·5	—4·9	—2·3
Bengal	—0·7	0	+0·4	+0·6	+0·1	—1·7	—3·8	—3·2	—1·8

The preceding data indicate that the depression of temperature below the normal was greatest on the 12th, 13th and 14th in Baluchistan, Sind and the Punjab, on the 15th in Rajputana and Central India, on the 16th in Central India, the North-Western Provinces and Chota Nagpur, on the 17th in the Central Provinces, Central India, Chota Nagpur and Bihar and on the 18th in South Bengal, Chota Nagpur, the Central Provinces and North Deccan. As usual, the depression due to the advance of the wave was much greater in the night than the day temperature, as is shown by the following variation data for the 17th:—

Political Province.	Variation from normal of		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+2·9	+3·6	+3·3
Bengal and Assam	—3·5	—5·1	—4·3
N.-W. Provinces and Oudh	—3·3	—4·4	—3·9
Punjab	—1·9	—2·2	—2·1
Sind and Rajputana	+0·3	—2·8	—1·3
Central India and Gujarat	—3·6	—9·0	—6·3
Central Provinces and Berar	—3·9	—7·8	—5·9
Bombay	—0·3	—4·7	—2·5
Madras	—0·4	—3·8	—2·1

The lowest minimum temperatures of the month in Northern and Central India were recorded during the progress of the cool dry wave. The following gives the more noteworthy:—

District.	Station.	Lowest minimum temperature recorded in December 1897.	Date on which recorded.	Lowest minimum temperature recorded in December previous to 1897.	Year in which recorded.
		°		°	
Hill Station.	Leh	6·0	17th	—9·5	1894
	Minimarg	0·5	16th	3·0	1895 & 1896
	Dras	—18·5	16th & 17th	—24·0	1896
	Srinagar	22·9	17th	18·1	1896
	Simla	32·2	12th	21·0	1877
Plain Station.	Jacobabad	39·0	14th	31·6	1885
	Jodhpur	37·1	15th	38·4	1896
	Roorkee	35·3	16th	29·7	1871
	Sirsa	37·2	17th	29·9	1878
	Lucknow	40·6	18th	34·2	1868
	Hazaribagh	42·2	17th	39·2	1878
	Jubbulpore	35·9	17th	32·0	1878
	Sutna	35·0	17th	34·8	1878
	Khandwa	39·2	18th	35·9	1878
	Ahmednagar	39·4	18th	39·4	1893 & 1895
	Poona	43·0	18th	42·9	1879 & 1883

The preceding data indicate that the night temperatures were not so low as are occasionally recorded in December during the advance of the cold waves of the period.

The general effect of the cool wave in reducing temperature is shown more fully by the following data:—

Political Province.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		Change.
	10th Dec.	17th Dec.	
	°	°	°
Sind and Rajputana	+3·5	—1·3	—4·8
Punjab	+1·8	—2·1	—3·9
North-Western Provinces and Oudh	+2·0	—3·9	—5·9
Central India and Gujarat	+1·5	—6·3	—7·8
Bengal and Assam	0	—4·3	—4·3
Central Provinces and Berar	—0·6	—5·9	—5·3

Temperature increased above the normal in Burma on the 12th and was in moderate to considerable excess

during the period from the 13th to the 19th, as is shown by the following data:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	13th Dec.	14th Dec.	15th Dec.	16th Dec.	17th Dec.	18th Dec.	19th Dec.
	°	°	°	°	°	°	°
Burma	+0·8	+2·9	+4·0	+3·5	+3·3	+3·1	+2·6

Temperature increased rapidly in India on the 19th and 20th, and was in excess over nearly the whole area on the latter day, as is shown by the following comparative data for that day:—

POLITICAL PROVINCE.	VARIATION FROM NORMAL OF		
	Mean maximum temperature.	Mean minimum temperature.	Mean temperature.
	°	°	°
Burma	+2·1	+0·8	+1·5
Bengal and Assam	—0·2	—2·1	—1·2
N.-W. Provinces and Oudh . .	+2·4	+1·4	+1·9
Punjab	+1·5	+2·6	+2·1
Sind and Rajputana	+4·2	+3·7	+4·0
Central India and Gujarat . . .	+3·0	+0·4	+1·7
Central Provinces and Berar . .	+2·8	—1·0	+0·9
Bombay	+2·2	+1·9	+2·1
Madras	—0·9	—0·3	—0·6

During the next four days temperature was in moderate excess in Baluchistan, Upper India and Burma. Elsewhere the conditions were practically normal. The following table gives data of the variation of temperature from the normal in Burma and Upper India from the 20th to the 24th:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	20th Dec.	21st Dec.	22nd Dec.	23rd Dec.	24th Dec.
	°	°	°	°	°
Baluchistan (Quetta) . .	+5·2	+5·1	—0·2	+6·2	+1·6
Sind	+3·6	+4·8	+5·5	+3·4	+4·5
Punjab	+2·1	+2·2	+2·2	+1·3	+0·6
Rajputana	+4·2	+4·9	+4·8	0	+2·4
Burma	+1·5	+0·6	+1·0	+2·6	+3·3

Temperature increased in North-Eastern India and Madras on the 25th and 26th and was considerably above the normal during the remainder of the month over Burma, North-Eastern India and Madras, as is shown by the following data:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	25th Dec.	26th Dec.	27th Dec.	28th Dec.	29th Dec.	30th Dec.	31st Dec.
	°	°	°	°	°	°	°
Burma	+3·1	+3·1	+4·1	+3·6	+2·0	+4·4	+6·1
Bengal	+2·4	+2·8	+3·9	+0·3	+4·6	+3·1	0
Bihar	+3·6	+1·8	+2·4	+1·2	+2·2	+1·7	+1·6
Chota Nagpur . . .	+0·2	—0·3	+1·6	—0·6	+2·6	+1·9	+3·3
Orissa	+0·2	+4·1	+3·6	+0·6	+4·5	+4·5	+1·2
Madras	+1·3	+3·0	+4·6	+4·2	+4·0	+5·4	+3·6

Temperature was excessive in Baluchistan and Upper India from the 25th to the 30th, as is shown by the data in the following table:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A. M. OF						
	25th Dec.	26th Dec.	27th Dec.	28th Dec.	29th Dec.	30th Dec.	31st. Dec.
	°	°	°	°	°	°	°
Baluchistan (Quetta) . .	+4·5	+8·7	+6·3	+4·0	+6·2	+9·7	+1·8
Sind	+4·4	+1·7	+2·0	+1·1	+4·8	+3·6	+2·6
Punjab	+1·3	+2·7	+1·9	+3·3	+2·5	+1·1	+2·2

In the intermediate area between these two regions of high temperature, including Rajputana, Central India, Berar, the Central Provinces and the Bombay Deccan, temperature was, throughout this period from the 25th to the 30th, more or less below the normal, chiefly due to

unusually low night temperature. The following gives data :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	25th Dec.	26th Dec.	27th Dec.	28th Dec.	29th Dec.	30th Dec.	31st Dec.
	°	°	°	°	°	°	°
Rajputana .	—1·0	—2·6	—2·5	—1·4	—0·6	+1·9	+3·5
Central India .	0	—2·4	—3·2	—2·8	—1·0	—0·9	+1·1
Berar . .	—0·9	—1·9	—1·4	+0·3	+0·6	+0·9	—1·1
Central Provinces.	—0·7	—1·7	—1·5	—0·5	+0·7	+0·1	—0·9
Bombay Deccan	—2·1	—1·6	—2·1	—0·6	+1·6	+1·6	+1·7

The following table gives the variations of the mean temperature week by week during the month and also for the whole month :—

POLITICAL AREA OR PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF WEEK ENDING					Variation from normal of mean temperature, Dec. 1897.
	4th December 1897.	11th December 1897.	18th December 1897.	25th December 1897.	1st January 1898.	
	°	°	°	°	°	°
Burma	—1·4	—1·6	+2·4	+2·1	+3·7	+1·2
Bengal and Assam .	0	—0·6	—1·4	—0·2	+2·0	—0·2
North-Western Provinces and Oudh.	+0·5	+0·7	—1·2	+1·1	+1·5	+0·4
Punjab . . .	+1·3	+1·4	—2·8	+1·0	+2·2	+0·6
Sind and Rajputana .	+2·1	+2·8	—2·6	+3·2	+1·2	+1·4
Central India and Guiarat.	+0·3	+1·6	—2·7	+1·4	—0·8	0
Central Provinces and Berar.	—0·7	—0·4	—1·7	+0·7	—0·6	—0·4
Bombay . . .	+0·9	—0·7	—1·3	+0·3	+0·1	—0·2
Madras . . .	+1·0	—1·3	—1·8	—0·6	+3·8	—0·1

Winds.

Winds were on the mean of the month normal in direction and intensity at Port Blair and in Lower Burma, but were steadier than usual. Thus the mean percentage of steadiness was 20 above the normal (63) at Rangoon and 16 above the normal (48) at Diamond Island.

Winds were more northerly and less westerly than usual at the interior and east coast stations in Bengal. They were, on the other hand, more westerly at Saugor Island and False Point. The northerly deflection of the mean air movement averaged 12° in the interior of Bengal.

The air movement was, on the whole, normal in strength and steadiness in the Gangetic Plain and Chota Nagpur. Its mean direction varied very slightly, but somewhat irregularly, from the normal in different parts of that area.

Winds were remarkably light and unsteady in the North and West Punjab, as is shown by the following comparison :—

STATION.	VELOCITY IN MILES PER DIEM.			STEADINESS.		
	Mean actual, December 1897.	Mean normal, December.	Variation from normal.	Mean actual percentage, December 1897.	Mean normal percentage, December.	Variation from normal.
Peshawar . . .	45	61	—16	2	8	—6
Mooltan . .	8	27	—19	6	8	—2

The mean direction of the air movement of the month was abnormal in Sind and West and Central Rajputana, *e. g.* :—

STATION.	WIND DIRECTION.		STEADINESS.		
	Mean actual, December 1897.	Mean normal, December.	Mean actual percentage, December 1897.	Mean normal percentage, December.	Variation from normal.
Jacobabad . .	N 17° E	N 15° W	22	18	+ 4
Kurrachee . .	S 29° E	N 41° E	35	23	+12
Deesa . . .	N 80° E	N 44° E	66	50	+16
Ajmere . .	S 58° W	S 84° E	10	9	+ 1

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The air movement was even more unsteady and abnormal at Quetta than at the stations named above. The following data illustrate this feature :—

STATION.	WIND DIRECTION.		STEADINESS.		
	Mean actual, December 1897.	Mean normal, December.	Mean actual percentage, December 1897.	Mean normal percentage, December.	Variation from normal.
Quetta . .	S 82° W	N 61° W	5	29	—24

Winds were, on the whole, more westerly than usual in East Rajputana and Central India.

The following gives comparative data of the mean air movement in Northern and Central India.—

PROVINCE.	VELOCITY IN MILES PER DIEM.			
	Mean actual, December 1897.	Mean normal, December.	Variation from normal.	Percentage variation from normal.
Punjab	31	37	— 6	—16
Rajputana	95	101	— 6	— 6
Central India	49	56	— 7	—13
North-Western Provinces and Oudh	57	45	+12	+27
Bihar	39	47	— 8	—17
Chota Nagpur	120	119	+ 1	+ 1
Bengal Inland	30	47	—17	—36
„ Coast	157	160	— 3	— 2

Winds were on the mean of the month more northerly and less easterly in Berar, the Central Provinces and the Deccan. They were also as a rule steadier and stronger except in Berar where they were feebler than usual.

The following gives data for five representative stations illustrating these features:—

STATION.	WIND DIRECTION.		VELOCITY IN MILES PER DIEM.			STEADINESS.		
	Mean actual, December 1897.	Mean normal, December.	Mean actual, December 1897.	Mean normal, December.	Variation from normal.	Mean actual percentage, Dec. 1897.	Mean normal percentage, December.	Variation from normal.
Buldana	N 64° E	N 82° E	89	132	—43	58	43	+15
Nagpur	N 32° E	N 57° E	98	83	+15	61	54	+ 7
Saugor	N 24° E	N 48° E	108	60	+48	32	34	— 2
Hyderabad (Deccan).	N 58° E	S 72° E	87	81	+ 6	63	65	— 2
Sholapur	N 83° E	S 83° E	208	182	+26	7	66	+ 5

In the South Deccan and Madras winds on the mean of the month were, almost without exception, more northerly and less easterly than usual, as is shown by the following data:—

STATION.	WIND DIRECTION.	
	Mean actual, December 1897.	Mean normal, December.
Madras	N 9° E	N 25° E
Trichinopoly	N 18° E	N 36° E
Bellary	N 71° E	S 86° E
Bangalore	N 59° E	N 70° E

The northerly deflection of the mean direction of the air movement averaged nearly 15° and was remarkably uniform over the whole of the area. Winds in this area were practically normal in intensity.

The following gives comparative data of the mean velocity of the air movement during the month in the Peninsula:—

DIVISION.	VELOCITY IN MILES PER DIEM.			
	Mean actual, December 1897.	Mean normal, December	Variation from normal.	Percentage variation from normal.
Central Provinces	69	62	+ 7	+11
Berar	78	106	—28	—26
Bombay Deccan	237	205	+32	+16
Madras „	39	76	—37	—49
Bombay Coast	158	152	+ 6	+ 4
Madras Coast	150	156	— 6	— 4
Mysore	158	168	—10	— 6

Winds were generally much stronger than usual at the hill stations in Northern India, as is shown by the following data:—

STATION.	VELOCITY IN MILES PER DIEM.			
	Average actual, December 1897.	Average normal, December.	Variation from normal.	Percentage variation from normal.
Leh	51	28	+23	+82
Simla	137	98	+39	+40
Ranikhet	62	37	+25	+68
Mount Abu	101	93	+ 8	+ 9

The most noteworthy feature of the winds at these stations was the unusual preponderance of northerly winds. This is illustrated by the following data:—

STATION.	WIND DIRECTION.	
	Mean actual, December 1897.	Mean normal, December.
Srinagar	N 12° E	S 84° E
Murree	N 5° W	S 56° E
Simla	N 20° E	S 64° W
Ranikhet	N 71° W	S 51° W

Winds were very unsteady at the hill stations, more especially at Mount Abu (7 per cent.), Darjeeling (9 per cent.) and Chikalda (10 per cent.).

North-easterly winds prevailed over the Arabian Sea and extended as far south as Zanzibar.

The most noteworthy abnormal features of the air movement of the month were as follows :—

(1) Increased northing and diminished westing (averaging 12°) in the interior of Bengal.

(2) Increased northing and decreased easting in Madras and Mysore averaging 15° in amount.

(3) Increased northing and decreased easting in the Central Provinces, Berar and the Deccan.

Humidity and Cloud.

The amount of aqueous vapour, as measured by its pressure, was somewhat greater than usual at Port Blair and the relative humidity was above the normal. In Lower Burma both the aqueous vapour and the relative humidity were practically normal, whilst, on the contrary, at Akyab both were in excess. The following gives data for the Burma coast stations:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, December 1897.	Normal, December.	Variation from normal.	Actual, December 1897.	Normal, December.	Variation from normal.
	"	"	"	%	%	
Rangoon	·638	·651	—·013	70	72	—2
Diamond Island	·726	·683	+·043	74	73	+1
Akyab	·647	·588	+·059	81	75	+6

The air was damper than usual in Baluchistan, Sind, the greater part of the Punjab, Cutch and West Rajputana. The mean humidity of the month was largely in excess at Jacobabad (+11) and Mooltan (+8). The following gives comparative data for this area:—

Province.	Absolute Humidity.			Relative Humidity.		
	Average actual, December 1897.	Average normal, December.	Variation from normal.	Average actual, December. 1897.	Average normal, December.	Variation from normal.
	"	"	"	%	%	
Baluchistan (Quetta)	·170	·151	+·019	60	57	+3
Punjab	·275	·261	+·014	62	59	+3
West Rajputana	·238	·254	—·016	37	36	+1
Sind	·362	·303	+·059	57	50	+7

Over the remainder of India the air was drier on the mean of the month than usual.

The variations of the mean relative humidity of the month from the normal were small in the Gangetic Plain, North-Eastern India and the Madras Coast districts, but were large in Central India and the interior and west of the Peninsula. The following gives comparative data for this area:—

Province.	Absolute Humidity.			Relative Humidity.		
	Average actual, December 1897.	Average normal, December.	Variation from normal.	Average actual, December 1897.	Average normal, December.	Variation from normal.
	"	"	"	%	%	
North-Western Provinces and Oudh.	·300	·297	+·003	61	62	—1
Bengal	·437	·446	—·009	67	69	—2
Central India	·260	·284	—·024	50	55	—5
Central Provinces	·270	·321	—·051	47	53	—6
Berar	·231	·328	—·097	37	50	—13
Bombay	·416	·508	—·092	49	58	—9
Madras	·527	·587	—·060	63	69	—6
Mysore	·369	·445	—·076	54	63	—9

The abnormal dryness of the air was most strongly exhibited in the Deccan and Mysore. The following gives comparative data for stations at which the mean relative humidity of the month was 10 or upwards below the normal:—

Station.	Relative Humidity.			Absolute Humidity.		
	Actual, December 1897.	Normal, December.	Variation from normal.	Actual, December 1897.	Normal December, ber.	Variation from normal.
	%	%		"	"	"
Bellary	40	58	—18	·295	·467	—·172
Sholapur	32	48	—16	·223	·372	—·149
Buldana	32	47	—15	·211	·324	—·113
Mercara	60	74	—14	·373	·455	—·082
Hyderabad (Deccan)	49	62	—13	·331	·438	—·107
Belgaum	38	50	—12	·251	·372	—·121
Hassan	54	65	—11	·342	·452	—·110
Saugor	36	47	—11	·215	·272	—·057
Bangalore	58	68	—10	·388	·455	—·067
Akola	41	51	—10	·250	·331	—·081
Chikalda	41	51	—10	·234	·303	—·069
Khandwa	40	50	—10	·246	·319	—·073
Trichinopoly	63	73	—10	·593	·660	—·067

The persistent increased dryness of the air in this region was a result of the failure of the retreating south-west monsoon rains in the Peninsula in the latter half of October and in November and December. It is noteworthy that the abnormal dryness of the air was almost as marked at the west coast stations as in the Deccan, as is indicated by the following data:—

STATION.	RELATIVE HUMIDITY.			ABSOLUTE HUMIDITY.		
	Actual, December 1897.	Normal, December.	Variation from normal.	Actual, December 1897.	Normal, December.	Variation from normal.
	%	%		"	"	"
Karwar	58	67	−9	·492	·603	−·111
Bombay	62	69	−7	·539	·615	−·076
Ratnagiri	49	56	−7	·460	·546	−·086
Cochin	68	73	−5	·717	·727	−·010

The following gives the lowest humidities recorded at stations in the area of abnormal dryness during the month:—

STATION.	RELATIVE HUMIDITY.			ABSOLUTE HUMIDITY.		
	Lowest recorded during December 1897.	Date.	Hour.	Lowest recorded during December 1897.	Date.	Hour.
	%			"		
Sholapur	9	17th & 19th.	4 P.M.	·099	18th	4 P.M.
Buldana	10	18th	"	·101	"	"
Bellary	10	"	"	·108	"	"
Akola	10	"	"	·111	"	"
Deesa	10	19th	"	·133	19th	"
Pachmarhi	13	18th	10 A.M	·083	18th	10 A.M.
Poona	12	28th	4 P.M.	·128	"	"
Mount Abu	14	15th	10 A.M.	·079	15th	"
Khandwa	14	17th	4 P.M.	·155	17th	4 P.M.
Chikalda	17	19th	10 A.M.	·123	19th	10 A.M.
Jeypore	17	17th	4 P.M.	·143	16th	4 P.M.

The lowest humidities of the month were recorded during the progress and extension of the cool dry wave from the Persian area across Northern and Central India and the Deccan.

The chief abnormal features of the mean hygrometric conditions of the month were:—

(1) Considerable excess of aqueous vapour and humidity in Baluchistan, Sind and the West Punjab.

(2) Large deficiency in the Peninsula, greatest in the Deccan and Mysore, over the greater part of which area the mean humidity of the month was from 10 to 18 below the normal.

The mean cloud amount of the month was more or less in excess in two areas. The first and larger area included the Bay and neighbouring coast districts and Southern India. The excess was more than 1·0 at stations for which data are given below:—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, December 1897.	Normal, December.	Variation from normal.
Port Blair	7·3	4·7	+2·6
False Point	3·7	2·5	+1·2
Madras	6·5	5·4	+1·1

The second area included Baluchistan, Upper Sind and the West Punjab. The excess was largest at Quetta (+1·0) and Jacobabad (+1·4), and was small in amount in the West Punjab.

There was less cloud than usual over the remainder of India. The deficiency was large and marked over the area including Central India, South Rajputana, the Central Provinces, Berar, North Bombay and the Deccan. The following gives comparative data for the stations in this area at which the excess was more than 1·0 in amount:—

PROVINCE.	STATION.	MEAN CLOUD AMOUNT.		
		Actual, December 1897.	Normal, December.	Variation from normal.
BOMBAY	Sholapur	0·8	2·9	−2·1
	Belgaum	0·9	2·6	−1·7
	Poona	0·9	2·5	−1·6
	Bombay	0·5	1·8	−1·3
BERAR	Buldana	0·6	2·4	−1·8
	Akola	0·6	1·7	−1·1
CENTRAL PROVINCES.	Khandwa	0·4	1·8	−1·4
	Jubbulpore	0·4	1·8	−1·4
	Nagpur	1·1	2·3	−1·2
	Hoshangabad	0·5	1·6	−1·1
RAJPUTANA	Deesa	0·4	1·7	−1·3
CENTRAL INDIA	Nowgong	0·7	1·9	−1·2
	Sutna	0·3	1·5	−1·2

The following gives comparative data for the larger provinces:—

Province or area.	Mean cloud amount.		
	Actual, December 1897.	Normal, December.	Variation from normal.
(Andamans) Port Blair	7·3	4·7	+2·6
Burma	3·4	2·9	+0·5
Assam	2·5	2·6	—0·1
Bengal	1·9	2·0	—0·1
Orissa	3·0	2·2	+0·8
Chota Nagpur	1·3	2·1	—0·8
Bihar	0·1	1·3	—1·2
North-Western Provinces and Oudh	1·0	1·9	—0·9
Punjab	2·6	2·8	—0·2
Sind	2·3	2·0	+0·3
Rajputana	0·8	1·8	—1·0
Central India	0·5	1·7	—1·2
Central Provinces	0·7	1·7	—1·0
Berar	0·6	2·1	—1·5
Bombay	1·2	2·2	—1·0
Madras	4·6	3·9	+0·7
Mysore	4·0	3·7	+0·3

There was also less cloud than usual at the hill stations more especially those in the Central Himalayas and the Central Provinces and Berar. The following gives data for seven stations:—

Station.	Mean cloud amount.		
	Actual, December 1897.	Normal, December.	Variation from normal.
Leh	5·4	5·6	—0·2
Simla	3·0	3·9	—0·9
Darjeeling	6·1	4·3	+1·8
Pachmarhi	0·9	2·1	—1·2
Mount Abu	0·5	1·7	—1·2
Chikalda	0·6	2·4	—1·8
Wellington	4·9	5·4	—0·5

The average amount of cloud during the month was less than 0·6 (and hence practically *nil*) at stations fo which data are given below:—

Station.	Actual cloud amount, December 1897.
Patna	0·1
Darbhanga	0·1
Agra	0·3
Sutna	0·3
Deesa	0·4
Khandwa	0·4
Jubbulpore	0·4
Allahabad	0·5
Hoshangabad	0·5
Mount Abu	0·5
Bombay	0·5

The chief abnormal features of the distribution of cloud during the month were:—

(1) Cloud was in marked excess in the Bay area, more especially in the south-east of the Bay.

(2) Cloud was in moderate excess in Upper Sind and Baluchistan.

(3) Cloud was in moderate to largish defect in Central India, the Gangetic Plain and the northern half of the Peninsula.

Rainfall.

December is usually the month of least rainfall in India. The normal rainfall of the month is less than an inch in amount over the whole of India, with the exception of the coast districts of South Madras. The average rainfall of the month slighly exceeds 10 inches at the South Coromandel Coast stations, but diminishes rapidly inland and northwards, and is less than one inch in amount to the west of a line joining Madura, Coimbatore, Salem, Cuddapah and Ongole, and is less than three or four-tenths of an inch over the whole of Northern and Central India and the Deccan and also in Burma.

The chief periods of disturbance and of rainfall in December 1897 were as follows:—

1st.—The 7th to the 12th, when moderate rain fell over Baluchistan, Sind, Kashmir and the Punjab.

2nd.—The 14th to the 20th, when frequent showers were received in Southern India.

3rd.—The 27th to the 30th, when light to moderate showers fell over the Baluchistan plateau and the North Punjab.

4th.—The 30th and 31st, when light to moderate showers were received in the coast and southern districts of Southern India.

No rain fell over the North-Western Provinces, Rajputana, Central India, Berar, the Central Provinces, Bihar, Chota Nagpur and practically over the whole of Bengal, (excepting Sikkim), Assam, the Deccan, Mysore, Coorg and the Bombay Presidency (except Sind).

The chief abnormal features of the rainfall of the month were :—

(1) Scanty rainfall in Southern India.

(2) Slightly heavier rain than usual in the West, North and Central Punjab.

(3) Absence of rain over by far the greater part of the Indian area and hence general slight deficiency in Northern and Central India and the Deccan where the rainfall of the month is usually small in amount.

The following table gives comparative rainfall data for 57 meteorological divisions of the Empire :—

Province.	Division.	Rainy days. Average actual, December 1897.	Rainy days. Average normal, December.	Rainfall. Average actual, December 1897.	Rainfall. Average normal, December.	Rainfall. Variation from normal.
				Inches.	Inches.	Inches.
Burma	Tenasserim*	?	?	0·37	0	+ 0·37
	Lower Burma (Deltaic)*	?	?	0·09	0·25	− 0·16
	Central do.*	?	?	0	0·16	− 0·16
	Upper do.*	?	?	0·25	0·68	− 0·43
	Arakan*	?	?	0	0·38	− 0·38
Bengal and Assam	Eastern Bengal	0·3	0·4	0·08	0·28	− 0·20
	Assam (Surma)	0	0·6	0	0·73	− 0·73
	Do. (Hills)	0	0·7	0·01	0·57	− 0·56
	Do. (Brahmaputra)	0·1	1·1	0·05	0·44	− 0·39
	Deltaic Bengal	0	0·3	0	0·18	− 0·18
	Central do.	0	0·2	0	0·11	− 0·11
	North do.	0	0·2	0	0·10	− 0·10
	Bengal Hills	0·7	0·8	0·21	0·25	− 0·04
	Orissa	0·6	0·5	0·12	0·32	− 0·20
	Chota Nagpur	0	0·3	0	0·23	− 0·23
	Bihar (South)	0	0·2	0	0·15	− 0·15
	Do. (North)	0	0·3	0	0·10	− 0·10
North-Western Provinces and Oudh.	North-Western Provinces (East)	0	0·4	0	0·26	− 0·26
	Oudh (South)	0	0·6	0	0·41	− 0·41
	Do. (North)	0	0·6	0	0·38	− 0·38
	North-Western Provinces (Central)	0	0·5	0	0·35	− 0·35
	Do. do. (West)	0	0·5	0	0·34	− 0·34
	Do. do. (Submontane, East)	0	0·4	0	0·20	− 0·20
	Do. do. (do. West)	0·1	0·8	0·03	0·48	− 0·45
	Do. do. (Hills)	0	1·1	0	0·51	− 0·51
Punjab	Punjab (South-East)	0	0·6	0·01	0·30	− 0·29
	Do. (South)	0·3	0·5	0·08	0·27	− 0·19
	Do. (Central)	1·3	0·5	1·06	0·30	+ 0·76
	Do. (Submontane)	0·9	0·8	0·31	0·57	− 0·26
	Do. (Hills)	1·3	1·3	0·67	0·88	− 0·21
	Do. (North)	2·2	0·9	1·14	0·52	+ 0·62
	Do. (West)	1·3	0·2	0·69	0·11	+ 0·58
Bombay and Malabar Coast Districts, Madras.	Malabar	0·2	1·4	0·16	0·80	− 0·64
	Travancore	1·9	?	0·99	?	?
	Madras (South Central)	0·8	2·6	0·28	1·40	− 1·12
	Coorg	0	?	0·02	?	?
	Mysore*	?	?	0·09	0·70	− 0·61
	Konkan	0	0·3	0	0·14	− 0·14
	Bombay Deccan	0	0·7	0	0·41	− 0·41
	Hyderabad North	0	?	0	0·64	− 0·64
	Khandesh	0	0·8	0	0·56	− 0·56
	Berar*	?	?	0	0·78	− 0·78
Central Provinces and Berar.	Central Provinces (West)	0	0·5	0	0·52	− 0·52
	Do. do. (Central)	0	0·5	0	0·33	− 0·33
	Do. do. (East)	0	0·5	0	0·30	− 0·30
Bombay (North)	Gujarat	0	0·1	0	0·06	− 0·06
	Kathiawar	0	0·1	0	0·05	− 0·05
	Sind	0·4	?	0·12	0·13	− 0·01
	Baluchistan Hills	2·2	?	0·69	0·99	− 0·30
Rajputana and Central India.	Central India (East)	0	?	0	0·39	− 0·39
	Rajputana (East) and Central India (West)	0	?	0	0·30	− 0·30
	Rajputana (West)	0	?	0	0·13	− 0·13
Madras	East Coast (North)	0·2	0·8	0·04	1·00	− 0·96
	Do. (do.) (a)	0	0·7	0·02	0·34	− 0·32
	Hyderabad (South)	0	?	0	0·32	− 0·32
	Madras (Central)	0·3	0·9	0·17	0·46	− 0·29
	East Coast (Central)	0·9	2·9	0·39	2·72	− 2·33
	Do. (South)	2·9	5·2	1·70	5·13	− 3·43
	Madras (South)	2·3	4·8	0·86	3·93	− 3·07

* NOTE.—The figures entered against divisions marked with an asterisk have been obtained from the weekly telegraphic reports.

The month was practically rainless in Bengal except in Orissa and Sikkim. Orissa received light showers on the 27th and 28th which gave it an average of 0·12 inch.

No rain fell in the North-Western Provinces, Central India and Rajputana.

Baluchistan received light showers on the 7th and 8th and moderate rain from the 10th to the 12th. The second period was from the 27th to the 30th, when however, the rainfall was restricted to the plateau. The rainfall of the month was in moderate defect, as is shown by the following statement :—

PROVINCE.	NUMBER OF RAINY DAYS.		RAINFALL.		
	Average actual, December 1897.	Average normal, December.	Average actual, December 1897.	Average normal, December.	Variation from normal.
			Inch.	Inch.	Inch.
Baluchistan Hills .	2·2	?	0·69	0·99	—0·30

Kashmir received light to moderate showers between the 11th and 14th and a few light local showers on the 29th and 30th. The rainfall of the month was not large in amount and was probably below the normal to a moderate extent.

There were two periods of rainfall in the Punjab during the month. The first period was from the 11th to the 13th. Little or no rain fell in the southern districts. The central districts received light to moderate showers and the northern and north-western districts moderate to heavy rain. Falls exceeding one inch in 24 hours in amount were registered at the majority of stations in the Gujarat, Jhelum, Rawalpindi and Peshawar districts. The Jhelum district received an average of 1·43 inches, Gujarat of 1·29 inches and Rawalpindi of 1·23 inches on the 12th. The heaviest reported fall was 3·14 inches at Sakesar in the Shahpur district.

The second period of rainfall extended from the 28th to the 30th when light showers were received in the Rawalpindi, Peshawar, Hazara and Kohat districts.

The rainfall of the month was in slight to moderate defect in the submontane, south-east, south and hill divisions, and in considerable excess in the central, northern and western divisions, as is shown by the data of the following table :—

DIVISION.	NUMBER OF RAINY DAYS			RAINFALL.		
	Average actual, December 1897.	Average normal, December.	Variation of actual from normal, December 1897.	Average actual, December 1897.	Average normal, December.	Variation of actual from normal, December.
				Inches.	Inch.	Inch.
South-East Punjab .	0	0·6	—0·6	0·01	0·30	—0·29
South Punjab . .	0·3	0·5	—0·2	0·08	0·27	—0·19
Central „ . .	1·3	0·5	+0·8	1·06	0·30	+0·76
Punjab (Submontane) .	0·9	0·8	+0·1	0·31	0·57	—0·26
„ Hills . .	1·3	1·3	0	0·67	0·88	—0·21
North Punjab .	2·2	0·9	+1·3	1·14	0·52	+0·62
West „ . .	1·3	0·2	+1·1	0·69	0·11	+0·58

Sind received light showers on the 10th and 11th averaging ·12 inch in amount for the division. With this exception no rain fell in the Bombay Presidency during the month.

The Central Provinces, Berar and Hyderabad were also without rain during the month.

The rainfall in the Madras Presidency was unusually scanty. There were two periods of light but fairly general rain. The first period extended from the 14th to the 20th. The east coast south of Nellore, the southern districts of Madura and Tinnevelly and the native state of Travancore received light to moderate showers during this period.

The Ganjam district obtained light local showers on the 27th and 28th. The second period included the 30th and 31st. Light showers fell in the coast districts from Nellore southwards to Tanjore and in the Coimbatore, Salem and Cuddapah districts.

The following comparative data for eight divisions of the Presidency show that the rainfall was everywhere in large defect. The deficiency was large in actual amount in the east coast central and south divisions and the south division which usually receive moderately heavy rain during the month.

PROVINCE.	DIVISION.	RAINY DAYS.		RAINFALL.		
		Average actual, December 1897.	Average normal, December.	Average actual, December 1897.	Average normal, December.	Variation from normal.
				Inches.	Inches.	Inches.
MADRAS.	Malabar	0·2	1·4	0·16	0·80	—0·64
	Travancore . .	1·9	?	0·99	?	?
	Madras, South Central .	0·8	2·6	0·28	1·40	—1·12
	East Coast, North . .	0·2	0·8	0·04	1·00	—0·96
	Do. do. (a) .	0	0·7	0·02	0·34	—0·32
	Madras, Central . .	0·3	0·9	0·17	0·46	—0·29
	East Coast, Central . .	0·9	2·9	0·39	2·72	—2·33
	„ South . .	2·9	5·2	1·70	5·13	—3·43
	Madras. South . . .	2·3	4·8	0·86	3·93	—3·07

The actual distribution of the rainfall of the month is shown more clearly by the following statement giving the comparative data for each of the 22 collectorates of the Presidency based on the rainfall statement of the month published in the *Madras Gazette*:—

DISTRICT.	NUMBER OF RAINY DAYS.		RAINFALL.			Percentage variation.
	Actual, December 1897.	Normal, December.	Actual, December 1897.	Normal, December.	Variation from normal.	
			Inches.	Inches.	Inches.	
Ganjam . . .	0·1	1·1	0·16	1·43	—1·27	— 89
Vizagapatam . .	0·1	0·8	0·01	1·10	—1·09	— 99
Godavari . . .	0	0·6	0	0·70	—0·70	—100
Kistna . . .	0	0·7	0	0·53	—0·53	—100
Nellore . . .	0·9	2·9	0·39	2·72	—2·33	— 86
Chingleput . . .	3·3	4·7	1·69	5·03	—3·34	— 66
Madras . . .	5·0	5·2	1·69	5·28	—3·59	— 68
North Arcot . .	0·9	3·3	0·34	2·83	—2·49	— 88
South Arcot . .	3·1	5·4	1·24	5·64	—4·40	— 78
Tanjore . . .	5·1	7·3	4·04	8·02	—3·98	— 50
Trichinopoly . .	1·3	5·2	0·39	3·69	—3·30	— 90
Madura . . .	2·5	4·9	0·89	4·03	—3·14	— 78
Tinnevelly . . .	1·9	4·6	0·82	3·80	—2·98	— 78
Malabar . . .	0·3	1·8	0·25	1·02	—0·77	— 76
South Canara . .	0	0·9	0	0·48	—0·48	—100
Salem	0·9	2·7	0·36	1·47	—1·11	— 76
Coimbatore . . .	0·6	2·5	0·16	1·31	—1·15	— 88
Nilgiris . . .	2·4	4·5	1·27	2·95	—1·68	— 57
Cuddapah . . .	0·6	1·7	0·44	1·06	—0·62	— 58
Anantapur . . .	0·4	0·7	0·18	0·24	—0·06	— 25
Bellary . . .	0	0·4	0	0·17	—0·17	—100
Kurnool . . .	0	0·6	0	0·25	—0·25	—100

Table

Abstract of Observations taken at 8 A.M. at 217

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	I.—Burma Coast and Bay Islands.		...	...	−·009	...	...	...	...	...	...	...	85·1	−0·2	69·6	+1·6	77·4	+0·7	15·5	...	...	...	...	24·8
1	Tenasserim and Bay Islands.	Car-Nicobars	25	29·913	?	29·866	30·016	31st	29·828	2nd	·188	79·0	83·7	?	75·9	?	79·8	?	7·8	87·1	3rd	72·7	11th	14·4
		Port Blair	61	29·893	?	29·835	29·971	31st	29·769	1st	·202	80·2	85·3	?	77·6	?	81·4	?	7·7	88·7	18th	74·6	31st	14·1
		Mergui	96	29·895	?	29·925	29·970	24th	29·819	16th	·151	76·7	87·0	?	69·5	?	78·3	?	17·5	91·9	24th	63·0	1st	28·9
		Tavoy	26	29·987	−·017	29·944	30·043	25th	29·910	16th	·133	74·0	85·6	−1·3	67·1	+2·5	76·9	+0·6	19·5	91·2	15th	62·2	1st	29·0
		Moulmein	94	29·937	−·005	29·969	30·018	25th	29·823	15th	·195	73·0	86·3	−0·9	68·6	+2·1	77·5	+0·6	17·7	91·5	16th	62·4	12th	29·1
2	Lower Burma	Rangoon	41	29·986	−·010	29·965	30·076	24th	29·876	15th	·200	71·9	86·6	−0·7?	68·1	+0·4?	77·4	−0·2?	18·5	90·7	17th	61·8	10th	28·9
		Bassein	27	30·002	−·007	29·965	30·083	24th	29·893	16th	·190	71·1	85·3	+0·9	68·1	+2·8	76·7	+1·9	17·2	89·2	15th	62·8	11th	26·4
		Diamond Island.	41	29·973	−·007	29·951	30·058	6th	29·882	16th	·176	77·3	81·8	+0·5	73·6	+1·6	79·2	+1·1	11·2	89·6	3 days	68·4	2 days	21·2
5	Arakan	Akyab	20	30·016	−·013	29·979	30·125	6th	29·912	16th	·213	67·6	81·4	−0·5	64·5	+0·1	73·0	−0·2	16·9	85·8	30th	59·2	2 days	26·6
3	Central Burma	Toungoo	183	29·848	−·007	29·979	29·942	24th	29·738	16th	·204	67·4	84·4	+0·4	63·1	+0·5	73·8	+0·5	21·3	87·8	31st	58·1	11th	29·7
	II.—Burma Inland.		...	...	−·008	...	...	...	...	...	...	...	82·5	+1·8	58·9	+2·2	70·7	+2·0	23·6	...	...	...	...	35·8
3	Central Burma	Thayetmyo	134	29·921	−·003	30·002	30·033	24th	29·814	16th	·219	68·2	86·3	+1·9	59·2	+0·3	72·8	+1·1	27·1	94·1	31st	52·2	21st	41·9
4	Upper Burma	Minbu	?	29·904	?	?	30·027	24th	29·768	31st	·259	68·1	84·7	+0·8	62·6	+2·9	73·7	+1·9	22·1	92·6	31st	56·0	21st	36·6
		Yamethin	657	29·392?	−·018	30·013?	29·491	6th	29·275	31st	·216	66·4	87·0	+2·5	59·4	+3·0	73·2	+2·8	27·6	93·0	2nd	52·2	21st	40·8
		Mandalay	250	29·798	?	30·007	29·923	24th	29·671	31st	·253	65·8	82·9	+0·8	61·5	+2·7	72·2	+1·8	21·4	88·5	1st	56·7	23rd	31·8
		Kindat	?	29·720	−·011	?	29·894	24th	29·630	11th	·264	60·0	78·5	+2·8	57·6	+2·0	68·1	+2·4	20·9	84·8	17th	54·0	3 days	30·8
		Bhamo	?	29·712	+·002	?	29·832	24th	29·545	31st	·287	57·2	75·5	?	52·8	+2·4	64·2	?	22·7	80·0	31st	46·9	19th	33·1
4(a)	Burma Hill Stations.	Taunggyi	?				Not recorded.					58·5	71·9	?	47·6	?	59·8	?	24·3	75·2	3 days	40·1	10th	35·1
		Lashio	?	27·252	−·021	?	27·349	24th	27·188	16th	·161	55·1	74·1	+1·0	49·9	+2·6	62·0	+1·8	24·2	77·6	16th	44·0	6th	33·6
	III.—Assam.		...	...	−·001	...	...	...	...	...	...	...	76·0	+0·8	53·0	−0·8	64·6	−0·1	23·0	...	...	...	...	30·1
7	Surma	Silchar	104	29·976	+·001	30·038	30·068	24th	29·888	31st	·180	60·4	81·5	+2·0	55·2	0	68·4	+1·0	26·3	86·5	30th	50·4	17th	36·1
9	Brahmaputra	Sibsagar	333	29·777	−·003	30·091	29·885	23rd	29·655	31st	·230	52·9	72·0	+0·3	49·3	−1·2	60·7	−0·5	22·7	73·8	3rd	45·4	4 days	28·4
		Dhubri	115	29·973	?	30·051	30·086	24th	29·878	31st	·208	59·2	74·6	0	54·6	−1·3	64·6	−0·7	20·0	77·6	1st	51·8	29th	25·8
	IV.—Bengal and Orissa.		...	...	−·001	...	...	...	...	...	...	...	76·6	−0·2	54·8	−0·2	65·7	−0·2	21·8	...	...	...	...	31·6
6	East Bengal	Chittagong	87	29·968	−·008	30·006	30·053	6th	29·890	16th	·163		Observations not recorded.											
		Lungleh	?				Not recorded.					56·8	65·7	?	52·7	?	59·2	?	13·0	71·9	26th	48·0	5th	23·9
		Noakhali	43	30·017	?	30·008	30·093	24th	29·954	16th	·139	63·5	78·0	?	54·6	?	66·3	?	23·4	83·9	30th	49·0	18th	34·9
		Comilla	36	30·025	?	30·010	30·095	6th	29·952	16th	·143	62·9	79·4	?	54·0	?	66·7	?	25·4	85·4	3rd	49·1	18th	36·3
		Sirajganj	49	20·027	?	30·028	30·106	6th	29·959	2nd	·147	59·2	75·1	?	54·7	?	64·9	?	20·4	78·3	30th	50·9	4th	27·4
		Narayanganj	26	30·040	0	30·015	30·117	6th	29·978	2 days	·139	62·7	77·5	−0·9	57·7	+0·4	67·6	−0·3	19·8	81·6	30th	53·3	17th	28·3
		Barisal	13	30·042	−·007	30·001	30·122	6th	29·983	1st	·139	64·5	77·5	+0·3	54·6	−1·6	66·1	−0·7	22·9	81·8	29th	50·2	3 days	31·6
		Mymensingh	59	30·006	+·002	30·020	30·089	23rd	29·934	16th	·155	60·4	76·5	0	55·4	+1·4	65·9	+0·7	21·1	80·4	30th	50·5	31st	29·9
10	Deltaic Bengal	Faridpur	46	30·025	?	30·021	30·107	23rd	29·961	1st	·146	59·8	76·0	?	54·9	?	65·5	?	21·1	80·2	30th	50·5	17th & 31st	29·7
		Jessore	33	30·047	0	30·027	30·131	6th	29·976	1st	·155	61·5	76·8	−1·0	55·2	0	66·0	−0·5	21·6	81·6	29th	47·1	17th	34·5
		Calcutta	21	30·070	−·001	30·038	30·155	6th	30·001	1st	·154	61·0	75·7	−0·4	55·7	−0·4	65·7	−0·4	20·0	78·8	2 days	49·2	2 days	29·6
		Saugor Island	25	30·054	−·012	30·025	30·140	6th	29·973	1st	·167	62·9	76·3	+0·5	58·1	−1·0	67·2	−0·3	18·2	80·0	1st	51·7	21st	28·3
		Krishnagar	47	30·049	?	30·048	30·136	6th	29·975	1st	·161	60·8	77·5	?	52·9	?	65·3	?	24·6	81·5	1st	44·3	17th & 18th	37·2
		Midnapore	149	29·935	?	30·010	30·016	6th & 24th	29·863	1st	·153	60·4	78·4	?	54·3	?	66·4	?	24·1	83·8	31st	47·1		36·7

I.

stations in India, Burma, etc., in December, 1897.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 October to 31st December 1897.	Normal rainfall for period, 1st October to 31st December.	Variation from normal of period, 1st October to 31st December.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	..	...	...	..	...	...	..	...	...	...	...	...	...	...	...	...	2·28	0·98	+ 0·47	...	...	...	...	I.—Burma Coast and Bay Islands.		
1	...	6	7	6	3	1	...	2	7·5	?	?	87	·858	8·0	11	?	?	9·77	?	?	43·72	?	?	3·13	Car-Nicobars	Tenasserim and Bay Islands.	1
1	8	12	6	3	1	...	...	...	8·0	7·2	+ 11	85	·874	6·8	9	?	?	11·71	5·94	+5·77	42·42	27·08	+15·34	3·68	Port Blair .		
..	13	7	1	1	...	...	...	·9	1·0	1·8	− 44	73	·677	3·6	0	?	?	0	0·57	−0·57	19·32	17·74	+ 1·58	0	Mergui.		
23	3	4	..	...	1	...	...	...	1·4	?	?	80	·676	1·3	0	?	?	0	0·06	−0·06	16·49	12·32	+ 4·17	0	Tavoy.		
...	12	1	3	1	2	4	3	5	3·1	2·6	+ 19	81	·658	3·7	1	0·18	+0·82	0·64	0·05	+0·59	11·79	10·47	+ 1·32	0·61	Moulmein.		
...	8	15	6	1	...	...	1	...	4·7	4·9	− 4	83	·650	2·9	1	0·45	+0·55	0·38	0·09	+0·29	13·32	9·81	+ 3·51	0·32	Rangoon .	Lower Burma.	2
3	1	20	6	...	...	...	...	1	4·7	2·7	+ 71	83	·637	3·2	0	0·55	−0·55	0·05	0·14	−0·09	12·41	12·56	− 0·15	0·05	Bassein.		
1	7	15	8	...	...	...	...	...	13·3	7·4	+ 80	75	·715	4·8	1	0·90	+0·10	0·28	0·87	−0·59	9·60	17·30	− 7·70	0·26	Diamond Island.		
1	8	19	1	1	1	...	...	1	2·2	2·2	0	88	·597	3·3	0	1·27	−1·27	0	0·88	−0·88	21·05	14·26	+ 6·79	0	Akyab. .	Arakan.	5
1	13	2	...	1	...	...	1	13	2·8	2·3	+ 22	88	·603	1·3	0	0·36	−0·36	0	0·20	−0·20	7·70	8·33	− 0·63	0	Toungoo .	Central Burma.	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·32	0·56	−0·23	...	...	...	...	II.—Burma Inland.		
...	13	16	...	...	1	...	...	1	2·5	3·2	− 22	68	·459	1·9	0	0·36	−0·36	0	0·10	−0·10	10·66	6·50	+ 4·16	0	Thayetmyo .	Central Burma.	3
2	1	...	...	...	...	1	11	16	7·9	?	?	72	·503	3·2	0	?	?	0·06	1·09	−1·03	8·96	5·31	+ 3·65	0·06	Minbu .	Upper Burma.	4
8	9	...	...	1	1	...	..	12	4·2	?	?	79	·512	1·9	0	?	?	0	0·87	−0·87	4·00	6·74	− 2·74	0	Yamethin.		
23	2	2	...	...	2	1	...	1	1·6	?	?	90	·573	2·8	2	?	?	0·78	0·26	+0·52	6·33	6·62	− 0·29	0·50	Mandalay.		
14	9	5	1	1	...	...	...	1	1·0	?	?	90	·499	1·2	2	?	?	0·41	0·54	−0·13	8·02	8·42	− 0·40	0·30	Kindat.		
9	6	8	..	4	...	...	...	4	3·0	?	?	95	·445	4·5	3	?	?	0·69	0·48	+0·21	6·13	5·11	+ 1·02	0·24	Bhamo.		
6	1	...	...	9	11	3	...	1	?	?	?	81	·398	4·2	1	?	?	0·29	?	?	8·66	?	?	0·29	Taunggyi.	Burma Hill Stations.	4(a)
			Not recorded.						?	?	?	94	·416	7·7	2	?	?	1·53	0·82	+0·71	8·69	5·25	+ 3·44	1·19	Lashio.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·01	0·40	−0·38	...	...	...	...	III.—Assam.		
24	...	...	4	2	...	...	1	...	1·7	1·9	− 11	89	·475	2·6	0	0·71	−0·71	0	0·52	−0·52	5·46	8·48	− 3·02	0	Silchar .	Surma.	7
20	...	5	2	3	..	...	...	1	1·4	1·6	− 13	99	·401	7·8	0	1·81	−1·81	0·04	0·57	−0·53	13·97	6·39	+ 7·58	0·04	Sibsagar .	Brahmaputra.	9
...	5	11	12	...	...	1	1	1	4·8	4·5	+ 7	88	·441	0	0	0·13	−0·13	0	0·10	−0·10	5·84	3·86	+ 1·98	0	Dhubri.		
...	...	...	..	...	..	...	...	...	...	...	...	..	...	...	...	...	...	0·07	0·24	−0·18	...	...	...	...	IV.—Bengal and Orissa.		
1	6	13	10	...	...	...	...	1	?	3·2	?	?	?	2·2	1	0·92	+0·08	0·24	0·77	−0·53	13·79	8·54	+5·25	0·19	Chittagong .	East Bengal.	6
			Not recorded.						?	?	?	85	·390	?	1	?	?	0·65	0·91	−0·26	15·63	13·99	+ 1·64	0·65	Lungleh.		
...	18	8	1	...	...	...	1	3	2·0	?	?	87	·510	1·3	0	0·58	−0·58	0·05	0·60	−0·55	6·29	10·11	− 3·82	0·05	Noakhali.		
23	8	..	..	...	...	..	...	...	1·0	?	?	74	·426	0·7*	0	0·54	−0·54	0	0·36	−0·36	1·80	6·70	− 4·90	0	Comilla.		
			Not recorded.						?	?	?	91	·459	0·4	0	0·46	−0·46	0	0·13	−0·13	10·27	4·96	+ 5·31	0	Sirajganj.		
14	7	4	1	...	...	...	...	5	1·9	1·9	0	86	·494	2·9	0	0·54	−0·54	0	0·25	−0·25	6·13	6·41	− 0·28	0	Narayanganj.		
18	4	5	1	...	...	...	..	3	1·2	?	?	82	·502	2·4	0	0·54	−0·54	0·02	0·39	−0·37	11·18	7·27	+ 3·91	0·02	Barisal.		
23	...	1	3	...	...	...	1	3	?	?	?	89	·471	?	0	0·31	−0·31	0	0·13	−0·13	4·20	6·36	− 2·16	0	Mymensingh.		
26	5	...	...	...	...	...	...	...	1·1	?	?	91	·473	1·0	0	0·31	−0·31	0	0·11	−0·11	4·76	5·38	− 0·62	0	Faridpur .	Deltaic Bengal.	10
14	10	1	...	...	...	...	...	6	0·9	1·7	− 47	84	·459	1·4	0	0·35	−0·35	0	0·18	−0·18	8·60	5·95	+ 2·65	0	Jessore.		
12	15	1	...	...	...	...	...	3	1·4	3·0	− 53	80	·430	1·5	0	0·46	−0·46	0	0·24	−0·24	8·61	5·29	+ 3·32	0	Calcutta.		
...	21	7	...	...	...	...	...	3	8·2	6·0	+ 37	86	498	2·6	0	0·65	−0·65	0·09	0·28	−0·19	15·01	10·94	+ 4·07	0·09	Saugor Island.		
...	10	2	1	...	...	1	7	10	2·3	?	?	82	·442	1·6	0	0·19	−0·19	0	0·08	−0·08	4·14	5·24	− 1·10	0	Krishnagar.		
10	17	...	...	...	...	...	...	4	0·9	?	?	68	·359	1·2	0	0·31	−0·31	0	0·26	−0·26	7·09	5·19	+ 1·90	0	Midnapore.		

* Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 217

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.
11	Central Bengal	Bankura	298	29·767	?	30·036	29·857	6th	29·692	31st	·165	59·0	77·0	?	53·9	?	65·5	?	23·1	80·4	1st	46·3	17th	34·1
		Raniganj	334	29·757	?	30·064	29·856	6th	29·668	31st	·188	57·5	76·8	?	52·5	?	64·7	?	24·3	80·3	1st	46·3	17th	34·0
		Burdwan	99	29·995	−·002	30·017	30·092	6th	29·923	1st	169	60·5	78·4	+0·7	56·2	+0·3	67·3	+0·5	22·2	82·3	1st	50·8	2 days	31·5
		Naya Dumka	489	29·587	?	30·067	29·688	6th	29·490	31st	·198	58·2	74·7	?	51·6	?	63·2	?	23·1	78·1	1st	45·0	17th	33·1
		Berhampore	67	30·018	−·011	30·037	30·104	6th	29·941	31st	·163	58·7	76·1	−0·4	55·6	+0·3	65·9	−0·1	20·5	79·2	1st	49·1	17th	30·1
		Rampur Boalia.	70	30·010	?	30·033	30·099	23rd	29·928	31st	·161	60·9	75·4	?	54·9	?	65·2	?	20·5	78·1	3 days	49·6	18th	28·5
		Malda	72	30·007	?	30·036	30·104	6th	29·907	31st	·197	58·1	76·0	?	51·7	?	63·9	?	24·3	79·2	29th	45·2	17th	34·0
		Bogra	61	30·011	?	30·028	30·093	23rd	29·938	31st	·155	59·7	76·6	−0·3	54·5	+0·9	65·6	+0·3	22·1	80·3	29th	49·5	17th	30·8
12	North Bengal	Dinajpur	123	29·961	+·003	30·048	30·049	6th	29·865	31st	·184	57·8	77·1	+0·5	51·4	+0·1	64·3	+0·3	25·7	79·3	29th	47·5	31st	31·8
		Rangpur	123	29·960	?	30·045	30·046	6th	29·875	31st	·171	58·6	76·3	?	53·4	?	64·9	?	22·9	78·2	29th	48·9	17th	29·3
		Jalpaiguri	284	29·798	+·003	30·058	29·907	6th	29·695	31st	·212	57·2	76·8	+1·5	51·3	−1·1	64·1	+0·2	25·5	79·4	29th	46·6	30th	32·8
		Cooch Behar	156	29·924*	?	30·030*	30·080	24th	29·836	16th	·244	57·2	76·3	?	52·5	?	64·4	?	23·8	78·4	8th & 9th.	48·3	29th	30·1
17	North Bihar	Purnea	125	29·973	+·011	30·062	30·072	23rd	29·869	31st	·203	52·9	75·5	−0·4	50·7	+1·3	63·2	+0·5	24·8	77·8	12th	45·3	17th	32·5
14	Orissa	Balasore	46	30·052	+·010	30·048	30·148	24th	29·978	1st	·170	59·3	78·7	−0·1	53·4	−1·0	66·1	−0·6	25·3	81·8	30th	44·4	17th	37·4
		False Point.	21	30·069	0	30·032	30·168	6th	29·990	28th	·178	62·5	76·7	−0·6	56·1	−1·2	66·4	−0·9	20·6	81·4	1st	46·9	2 days	34·5
		Cuttack	80	30·014	+·001	30·041	30·120	6th	29·931	1st	·189	60·2	79·1	−2·9	57·3	−1·0	68·2	−2·0	21·8	84·4	31st	51·1	2 days	33·3
		Shortt's Island.	?	30·067	?	?	30·152	24th	29·972	1st	·180	70·7	76·0	?	67·1	?	71·5	?	8·9	80·0	1st	61·4	20th	18·6
		Puri	20	30·071	?	30·035	30·189	6th	29·980	28th	·209	61·9	79·6	?	60·2	?	69·9	?	19·4	88·2	2nd	53·6	17th	34·6
	V.—Gangetic Plain and Chota Nagpur.		...	...	−·002	...	...	...	...	...	...	...	75·3	+0·4	49·1	−0·3	62·2	+0·1	26·1	...	...	...	...	35·3
15	Chota Nagpur	Hazaribagh.	2,007	28·021	−·005	30·080	28·111	6th	27·928	31st	·183	55·6	71·1	−0·5	49·1	−1·1	60·1	−0·8	22·0	74·2	13th	42·2	17th	32·0
		Ranchi	2,128	27·900	+·007	30·074	27·995	6th	27·815	1st	·180	56·6	72·0	0	49·4	−0·2	60·7	−0·1	22·6	75·4	30th	40·9	17th	34·5
		Daltonganj	730?	29·378?	?	30·117?	29·475	24th	29·283	31st	·192	54·0	75·5	?	44·2	?	59·8	?	31·3	79·0	23rd	37·0	17th	42·0
		Chaibassa	760	29·314	?	30·075	29·404	6th	29·237	1st	·167	54·1	78·5	+0·4	50·1	−1·9	64·3	−0·8	28·4	82·5	31st	42·9	17th	39·6
16	South Bihar	Gaya	375	29·724	+·005	30·079	29·828	6th	29·614	31st	·214	56·8	76·3	+0·5	51·3	+0·2	63·8	+0·4	25·0	79·4	12th	46·9	2 days	32·5
		Dehri	351	29·748	?	30·078	29·848	6th	29·629	31st	·219	58·2	75·7	?	52·9	?	64·3	?	22·8	79·3	2nd	48·1	3 days	31·2
		Patna	183	29·916	−·024	30·064	30·027	6th	29·793	31st	·234	57·2	74·2	+0·1	52·5	+1·4	63·5	+0·8	21·7	77·2	28th	45·0	17th	32·2
		Arrah	190	29·906	?	30·062	30·014	6th	29·785	31st	·229	54·9	75·5	?	49·0	?	62·3	?	26·5	79·1	3rd	43·8	18th	35·3
		Buxar	239	29·867	?	30·077	29·977	24th	29·736	31st	·241	58·8	75·7	?	50·4	?	63·0	?	25·3	79·4	2nd	42·6	17th	36·8
17	North Bihar	Bhagalpur	160	29·933	?	30·054	30·034	23rd	29·816	31st	·218	59·1	75·8	?	51·0	?	63·4	?	24·8	77·8	4th	45·0	18th	32·8
		Darbhanga	166	29·921	−·012	30·052	30·018	23rd	29·800	31st	·218	57·7	75·1	+1·0	53·2	−0·8	64·2	+0·1	21·9	78·0	25th	48·3	2 days	29·7
		Muzaffarpur	178	29·919	?	30·063	30·018	6th & 24th.	29·787	31st	·231	56·7	74·2	?	50·3	?	62·3	?	23·9	77·2	28th	44·8	18th	32·4
		Motihari	224	29·868	?	30·068	29·984	23rd	29·737	31st	·247	54·9	75·3	?	47·5	?	61·4	?	27·8	78·0	25th & 29th.	42·9	17th	35·1
		Chapra	181	29·925	?	30·072	30·036	6th	29·793	31st	·243	55·9	75·3	?	50·7	?	63·0	?	24·6	78·7	4th	45·0	17th	33·7
18	N. W. Provinces (East).	Benares	267	29·842	+·010	30·086	29·934	24th	29·726	31st	·208	52·1	74·3	−0·6	47·0	−0·8	60·7	−0·7	27·3	78·1	2nd	41·1	18th	37·0
		Allahabad	309	29·799	+·007	30·086	29·897	6th & 24th	29·691	1st & 31st.	·206	53·8	76·1	+1·1	47·1	−0·3	61·6	+0·4	29·0	80·2	2nd	41·4	18th	38·8
23	N.-W. Provinces (East Sub-montane).	Gorakhpur	256	29·820	−·010	30·054	29·931	6th	29·677	31st.	·254	54·7	74·7	+0·3	50·8	+0·6	62·8	+0·5	23·9	76·5	8 days	44·3	17th	32·2
19	South Oudh	Lucknow	368	29·727	+·006	30·084	29·843	6th	29·596	31st	·247	50·7	77·2	+1·7	45·5	−0·1	61·4	+0·8	31·7	80·7	2nd	40·6	18th	40·1
20	North Oudh	Bahraich	403	29·674	?	30·068	29·798	6th	29·536	31st	·262	53·6	75·4	?	47·6	?	61·5	?	27·8	78·4	9th & 13th.	42·0	16th	36·4
21	N.-W. Provinces (Central).	Cawnpore	416	29·681	−·001	30·085	29·799	6th	29·573	1st	·226	52·9	76·7	+1·0?	46·1	−1·1?	61·4	−0·1?	30·6	80·7	2nd	41·5	18th	39·2
		Mainpuri	516	29·573	?	30·089	29·684	6th	29·456	1st	·228	51·4	76·1	?	46·4	?	61·3	?	29·7	81·3	3rd	42·6	24th	38·7

* Mean of 28 days.

I—*continued.*

stations in India, Burma, etc., in December, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 October to 31st December 1897.	Normal rainfall for period, 1st October to 31st December.	Variation from normal of period, 1st October to 31st December.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
18	...	...	...	...	.	...	11	2	2·3	?	?	73	·368	1·3	0	0·38	−0·38	0·06	0·15	−0·09	5·20	4·49	+0·71	0·06	Bankura .	Central Bengal.	11
2	3	1	...	...	...	...	5	20	2·1	?	?	78	·374	0·9	0	0·31	−0·31	0	0·09	−0·09	7·93	3·90	+4·03	0	Raniganj.		
21	4	...	...	...	...	...	...	6	0·7	1·9	−63	77	·409	1·2	0	0·19	−0·19	0	0·15	−0·15	6·63	4·43	+2·20	0	Burdwan.		
6	8	1	...	...	...	1	1	14	0·7	?	?	71	·316	0·7	0	0·36	−0·36	0	0·17	−0·17	8·34	4·76	+3·58	0	Naya Dumka.		
16	7	...	...	...	1	...	1	6	0·8	1·6	−50	85	·423	0·6	0	0·42	−0·42	0	0·12	−0·12	6·21	4·51	+1·70	0	Berhampore.		
2	22	...	...	..	1	...	1	5	2·2	?	?	81	·437	0·5	0	0·23	−0·23	0	0·07	−0·07	4·90	4·49	+0·41	0	Rampore Boalia.		
...	6	...	...	..	...	2	10	13	1·9	?	?	85	·413	0·4	0	0·23	−0·23	0	0·13	−0·13	7·86	4·75	+3·11	0	Malda.		
			Not	re	cord	ed.			?	?	?	84	·433	?	0	0·23	−0·23	0	0·10	−0·10	8·16	4·48	+3·68	0	Bogra.		
...	13	5	...	...	1	1	7	4	3·0	?	?	83	·400	0·7	0	0·23	−0·23	0	0·08	−0·08	8·64	4·71	+3·93	0	Dinajpur .	North Bengal.	12
			Not	re	cord	ed.			?	?	?	88	·435	1·5	0	0·23	−0·23	0	0·08	−0·08	8·35	5·65	+2·70	0	Rangpur.		
...	6	5	3	1	2	2	5	7	1·4	?	?	87	·410	0·4	0	0·27	−0·27	0	0·09	−0·09	5·18	5·57	−0·39	0	Jalpaiguri.		
15	3	8	3	2	...	...	...	...	0·9	?	?	89	·419	0·7§	0	?	?	0	0·11	−0·11	6·86	6·16	+0·70	0	Cooch Behar		
18	...	1	...	..	1	6	5	...	1·5	1·3	+15	91	·367	1·2	0	0·23	−0·23	0	0·11	−0·11	10·43	16·93	−6·50	0	Purnea .	North Bihar.	17
6	11	1	...	...	...	2	2	9	0·9	?	?	83	·426	0·8	0	0·58	−0·58	0·09	0·28	−0·19	14·81	7·73	+7·08	0·09	Balasore .	Orissa.	14
...	9	1	1	...	...	...	...	20	4·9	6·3	−22	84	·478	3·5	1	0·73	+0·27	0·40	0·59	−0·19	15·24	13·01	+2·23	0·37	False Point.		
15	2	3	...	...	...	2	8	1	1·9	1·3	+46	78	·403	2·3	1	0·62	+0·38	0·20	0·25	−0·05	8·31	7·62	+0·69	0·15	Cuttack.		
...	20	3	...	...	...	...	3	5	9·9	?	?	66	·495	1·9	1	?	?	0·20	0·01	+0·19	12·52	6·25	+6·27	0·20	Shortt's Island.		
1	25	3	1	...	...	...	..	1	8·9	?	?	71	·460	1·9	1	0·73	+0·27	0·14	0·50	−0·36	15·89	12·88	+3·01	0·11	Puri.		
...	..	...	...	...	...	...	..	...	...	...	...	...	...	..	...	...	...	0	0·23	−0·23	...	...	...	...	**V.—Gangetic Plain and Chota Nagpur.**		
8	2	...	...	...	...	5	9	7	4·9	4·6	+7	68	·302	1·5	0	0·46	−0·46	0	0·22	−0·22	5·51	3·92	+1·59	0	Hazaribagh	Chota Nagpur.	15
6	2	1	...	...	...	2	7	13	4·2	?	?	64	·295	0·7	0	0·42	−0·42	0	0·21	−0·21	5·91	3·59	+2·32	0	Ranchi.		
...	7	...	1	2	6	13	2	...	1·3	?	?	71	·298	0·4	0	0·42	−0·42	0	0·21	−0·21	6·84	3·08	+3·76	0	Daltonganj.		
27	...	...	...	...	...	2	1	1	0·5	?	?	80	·341	0·8	0	0·65	−0·65	0	0·23	−0·28	2·62	3·45	−0·83	0	Chaibassa.		
10	...	1	...	4	7	7	2	...	2·2	1·3	+69	72	·335	0·8	0	0·31	−0·31	0	0·18	−0·18	6·79	2·83	+3·96	0	Gaya . .	South Bihar.	16
...	...	...	...	...	6	23	2	...	3·1	?	?	75	·357	0·3	0	0·38	−0·38	0	0·32	−0·32	4·24	3·23	+1·01	0	Dehri.		
10	...	...	1	2	1	2	13	2	1·2	1·7	−29	79	·372	0	0	0·31	−0·31	0	0·13	−0·13	7·13	3·55	+3·58	0	Patna.		
1	...	1	4	3	3	12	6	1	1·5	?	?	84	·366	0	0	0·27	−0·27	0	0·16	−0·16	4·48	3·35	+1·13	0	Arrah.		
7	1	...	1	...	2	4	15	1	2·9	?	?	71	·356	0·4	0	0·38	−0·38	0	0·18	−0·18	4·20	3·90	+0·30	0	Buxar.		
25	...	...	...	...	...	1	4	1	0·8	?	?	77	·391	1·0	0	0·27	−0·27	0	0·07	−0·07	7·59	3·08	+4·51	0	Bhagalpur.	North Bihar.	17
7	1	1	1	...	...	5	12	4	2·0	2·0	0	85	·406	0·1	0	0·27	−0·27	0	0·12	−0·12	7·19	3·03	+4·16		Darbhanga.		
23	...	...	...	...	...	3	4	1	1·7	?	?	89	·411	0·5†	0	0·19	−0·19	0	0·10	−0·10	12·28	3·38	+8·90	0	Muzaffarpur.		
...	2	2	3	1	2	5	4	12	3·0	?	?	93	·404	0	0	0·46	−0·46	0	0·14	−0·14	6·73	3·66	+3·07	0	Motihari.		
20	1	..	...	...	...	7	2	1	1·0	?	?	84	·377	0·1‡	0	0·31	−0·31	0	0·14	−0·14	4·32	3·60	+0·72	0	Chapra.		
14	...	...	..	...	2	9	6	...	2·5	2·4	+4	83	·323	0·3	0	0·45	−0·45	0	0·24	−0·24	6·87	2·90	+3·97	0	Benares .	N.-W. Provinces (East).	18
7	2	1	...	1	3	3	8	6	3·7	2·5	+48	80	·331	0·5	0	0·64	−0·64	0	0·32	−0·32	4·33	2·32	+2·01	0	Allahabad.		
8	3	2	1	2	3	5	2	5	1·2	0·9	+33	87	·376	0·5	0	0·45	−0·45	0	0·17	−0·17	9·23	4·04	+5·19	0	Gorakhpur .	N.-W. Provinces (East Submontane).	23
23	...	...	...	...	...	...	8	...	1·2	1·7	−29	89	·330	0·4	0	0·82	−0·82	0	0·35	−0·35	0·01	1·23	−1·22	0	Lucknow .	South Oudh.	19
15	2	2	1	...	...	2	3	6	1·2	?	?	81	·337	0·1	0	?	?	0	0·45	−0·45	0·52	2·14	−1·62	0	Bahraich .	North Oudh.	20
19	1	...	...	...	...	3	6	2	1·9	?	?	70	·283	0·2	0	0·50	−0·50	0	0·30	−0·30	0·10	1·75	−1·65	0	Cawnpore .	N.-W. Provinces (Central) .	21
12	5	...	2	...	2	1	8	1	2·4	?	?	72	·274	1·4	0	?	?	0	0·48	−0·48	0	1·30	−1·30	0	Mainpuri.		

§ Mean of 29 days.
† ,, 22 ,,
‡ ,, 30 ,,

Table

Abstract of Observations taken at 8 A.M. at 217

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	VI.—Upper Sub-Himalayas		...	...	+·011	...	...	...	...	...	...	...	71·2	−0·4	44·2	+0·9	57·7	+0·3	27·0	...	...	...	...	38·3
24	N.-W. Provinces (West, Submontane).	Bareilly	568	29·506	+·008	30·084	29·643	6th	29·352	31st	·291	50·6	72·8	+0·1	46·0	+0·6	59·4	+0·4	26·8	75·8	11th	40·2	17th	35·6
		Dehra Dun	2,233	27·784	?	30·102	27·926	24th	27·648	31st	·278	48·8	68·8	+0·5	45·1	−0·4	57·0	+0·1	23·7	73·0	31st	40·5	17th	32·5
		Roorkee	887	29·168	+·002	30·099	29·305	24th	29·033	31st	·272	46·3	72·7	+0·2	41·8	−1·6	57·3	−0·7	30·9	76·8	27th	35·3	16th	41·5
22	N.-W. P. (West)	Meerut	738	29·334	+·009	30·101	29·468	24th	29·218	1st	·250	48·1	73·2	+0·1	44·8	+0·9	59·0	+0·5	28·4	76·7	1st	39·0	16th	37·7
26	South-East Punjab.	Delhi	718	29·356	0	30·093	29·472	6th	29·232	1st	·240	52·3	73·5	−0·8?	48·6	+0·1?	61·1	−0·4?	24·9	79·7	5th	43·4	4 days	36·3
28	Central Punjab.	Lahore	702	29·383	+·010	30·118	29·517	24th	29·226	1st	·291	47·2	68·3	−3·2	45·2	?	56·8	?	23·1	77·6	1st	40·7	24th	36·5
27	South Punjab	Sirsa	662	29·437	+·022	30·123	29·549	6th	29·299	1st	·250	47·8	74·9	0	43·4	+1·1	59·2	+0·6	31·5	83·3	2nd	37·2	17th	46·1
		Patiala	818	29·252	?	30·104	29·384	24th	29·124	1st	·260	49·4	71·7	?	44·2	?	58·0	?	27·5	76·8	1st	40·0	3 days	36·8
29	Punjab (Submontane).	Ludhiana	812	29·256	+·009	30·107	29·384	24th	29·126	1st	·258	47·1	70·6	−0·7	44·8	+1·5	57·7	+0·4	25·8	75·1	1st	38·6	17th	36·5
		Sialkot	830	29·249	+·029	30·123	29·382	24th	29·113	1st	·269	47·0	69·0	−1·2	43·4	+1·4	56·2	+0·1	25·6	74·5	3 days	36·0	16th	38·5
		Umballa	892	29·170	?	30·104	29·300	24th	29·055	1st	·245	45·6	72·7	?	42·5	?	57·6	?	30·2	77·5	1st	36·5	23rd	41·0
31	North Punjab	Rawalpindi	1,643	28·386	+·011	30·142	28·527	24th	28·243	11th	·284	44·2	65·8	−1·8	40·1	+3·8	53·0	+1·0	25·7	74·5	1st	34·9	16th & 17th	39·6
	VII.—Indus Valley and North-West Rajputana.		...	...	+·009	...	...	...	...	...	...	...	76·1	+0·4	47·6	+2·5	61·9	+1·4	28·5	...	...	...	...	44·6
31	North Punjab	Peshawar	1,110	29·003	+·006	30·143	29·151	30th	28·815	1st	·336	44·1	65·8	−2·0	41·1	+2·9	53·5	+0·5	24·7	81·1	1st	35·9	24th	45·2
32	West Punjab	Khushab	612	29·503	?	30·141	29·635	24th	29·341	1st	·294	47·9	71·0	?	43·7	?	57·4	?	27·3	81·2	1st	40·0	4 days	41·2
		Montgomery	558	29·543	?	30·117	29·666	24th	29·377	1st	·289	48·8	73·0	+0·4	44·0	+1·3	58·5	+0·9	29·0	83·5	2nd & 3rd.	39·5	16th	44·0
		D. I. Khan	594	29·546	+·012	30·140	29·680	30th	29·357	1st	·323	46·	72·8	−0·5	42·7	+2·1	57·8	+0·8	30·1	81·3	1st	38·0	17th & 22nd	43·3
		Mooltan	420	29·702	+·003	30·127	29·838	30th	29·505	1st	·333	50·9	73·3	−0·4	47·1	+3·6	60·2	+1·6	26·2	84·8	1st	42·9	3 days	41·9
47	Sind	Jacobabad	186	29·940	+·010	30·103	30·094	30th	29·736	1st	·358	52·2	77·3	+0·7	47·6	+4·2	62·5	+2·5	29·7	87·5	1st & 2nd	39·0	14th	48·5
		Hyderabad	96	30·036	+·012	30·091	30·168	14th	29·870	1st	·298	59·8	80·9	+2·3	54·2	+1·9	67·6	+2·1	26·7	91·6	1st	41·5	15th	47·1
		Kurrachee	30	30·100	+·009	30·082	30·228	14th	29·954	1st	·274	63·3	83·0	+1·4	57·5	+1·3	70·3	+1·4	25·5	88·4	6th	50·9	16th	37·5
51	West Rajputana	Bickaneer	771	29·328	?	30·122	29·437	30th	29·189	1st	·248	54·3	76·5	+1·3	49·5	?	63·3	?	27·0	84·7	2nd	42·6	13th	42·1
		Pachpadra	380	29·720	?	30·091	29·841	14th	29·558	1st	·283	50·1	82·9	?	45·7	?	64·3	?	37·2	88·1	2nd	36·8	15th	51·3
		Jodhpore	782	29·313	?	30·110	29·408	30th	29·197	1st	·211	56·6	80·4	?	50·2	?	65·3	?	30·2	85·6	2nd	37·1	15th	48·5
	VIII.—East Rajputana, Central India and Gujarat.		...	...	+·017	...	...	...	...	...	...	...	81·5	+1·2	51·3	+0·3	66·4	+0·7	30·2	...	...	...	...	43·1
50	East Rajputana	Jeypore	1,431	28·657	+·012	30·141	28·760	24th	28·549	1st	·211	53·6	78·8	+1·2	48·2	+0·1	63·5	+0·7	30·6	83·5	22nd	37·7	15th	45·8
		Kotah	?	29·[illegible]69	?	?	29·352	6th	29·188	4th	·174	56·5	80·3	?	51·9	?	66·1	?	28·4	[illegible]	4 vs	46·5	16th	38·5
		Sambhar	1,254	28·829	+·008	30·136	28·925	24th	28·713	1st	·212	50·4	77·3	+2·0	46·3	+0·6	61·8	+1·3	31·0	82·4	3rd & 4th	37·4	16th	45·0
		Ajmere	1,611	28·479	+·008	30·170	28·574	6th	28·376	1st	·198	48·6	77·2	+1·0	44·3	0	60·8	+0·5	32·9	81·9	2nd	36·9	16th & 17th	45·0
		Deesa	466	29·623	?	30·075	29·720	30th	29·523	1st	·197	58·4	85·8	+0·7	50·5	−1·5	68·2	−0·4	35·3	91·3	21st	41·6	1[illegible]th	49·7
46	Kathiawar and Cutch.	Bhuj	395	29·709	+·025	30·078	29·807	30th	29·598	1st	·209	64·3	83·1	+1·1	56·4	+0·8	69·8	+1·0	26·7	89·4	2nd	46·5	17th	42·9
		Rajkot	429	29·660	+·023	30·062	29·744	30th	29·564	1st	·180	63·7	84·5	?	52·6	+0·5	68·6	?	31·9	88·9	21st	42·0	17th	46·9
		Veraval	?	30·044	?	30·004	30·131	30th	29·965	1st	·166	67·3	86·4	?	60·4	?	73·5	?	26·0	93·1	21st	49·3	17th	43·8
		Ghadechi	35	30·047	?	30·029	30·130	6th	29·954	1st	·176	59·7	85·2	?	52·0	?	68·6	?	33·2	90·1	5th	43·2	17th	46·9
49	Central India	Nowgong	757	29·352	+·013	30·125	29·456	6th	29·249	1st	·207	51·5	75·4	+0·2	46·2	+0·5	60·8	+0·4	29·2	79·0	2nd & 13th,	40·5	17th	38·5
		Indore	1,823	28·252	+·026	30·121	28·339	6th	28·165	1st	·174	56·3	79·1	+0·6	46·9	−2·0	63·0	−0·7	32·2	82·3	4 days	37·6	16th	44·7
		Neemuch	1,630	28·470	+·039	30·142	28·560	30th	28·379	1st	·181	58·4	78·3	+0·4?	47·1	−1·9	62·8	−0·8	31·2	82·8	3rd	36·5	17th	46·3
4[illegible]	Gujarat	Surat	39	30·042	+·016	30·025	30·134	6th	29·951	1st	·183	63·4	88·7	+2·0	56·9	+0·1	72·9	+1·1	31·8	92·6	3rd	50·1	17th	42·5
		Ahmedabad	164	29·938	?	30·058	30·033	30th	29·842	1st	·191	64·2	86·3	?	58·1	?	72·2	?	28·2	89·7	22nd	51·7	17th	38·0
22	N.-W. P. (West)	Agra	555	29·542	−·001	30·098	29·660	6th	29·415	1st	·245	54·1	77·5	+1·5	50·0	+1·8	63·8	+1·7	27·5	83·0	2nd & 4th	43·9	16th	39·1
21	N.-W.P. (Central)	Jhansi	858	29·247	+·021	30·113	29·356	6th	29·136	1st	·220	59·5	79·5	+1·3	52·9	+2·3	66·2	+1·8	26·6	85·1	3rd & 13th	48·4	26th	36·7

I—*continued.*

stations in India, Burma, etc., in December, 197—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity: Mean velocity in miles per hour.	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 October to 31st December 1897.	Normal rainfall for period, 1st October to 31st December.	Variation from normal of period, 1st October to 31st December.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	0·29	0·45	−0·13	...	...	...	...	VI.—Upper Sub-Himalayas.		
25	...	...	...	...	..	1	1	4	1·0	2·2	− 55	83	·308	0·4	0	0·64	− 0·64	0	0·31	−0·31	0	1·59	−1·59	0	Bareilly .	N.-W. Provinces (West, Sub-montane.)	24
26	...	1	...	...	1	1	2	...	0·9	1·7	− 47	71	·258	2·8	0	1·10	− 1·10	0·08	0·62	−0·54	0·08	1·98	−1·90	0·08	Dehra Dun.		
24	1	1	...	1	..	...	...	4	1·3	1·3	0	83	·265	0·2	0	0·91	−0·91	0·02	0·33	−0·31	0·02	0·92	−0·90	0·02	Roorkee.		
21	...	...	...	.	...	1	9	...	1·2	1·6	− 25	74	·249	1·2	0	1·00	−1·00	0	0·32	−0·32	0	0·82	−0·82	0	Meerut. .	N.-W. P. (West).	22
9	..	...	...	2	...	2	7	11	3·9	2·7	+ 44	61	·241	1·6	0	0·55	− 0·55	0	0·30	−0·30	0	0·45	−0·45	0	Delhi . .	South-East Punjab.	26
26	..	..	1	1	...	...	3	...	1·0	1·5	− 33	82	·265	2·4	1	0·55	+ 0·45	1·23	0·38	+0·85	1·23	0·74	+0·49	1·18	Lahore .	Central Punjab.	28
...	4	4	4	4	4	2	4	5	4·6	2·2	+109	68	·228	1·2	0	0·73	− 0·73	0·01	0·35	−0·34	0·16	0·50	−0·34	0·01	Sirsa .	South Punjab.	27
11	...	...	...	...	2	18	..	...	4·4	?	?	81	·288	2·7	0	?	?	0	?	?	0	?	?	0	Patiala		
18	...	3	...	1	1	...	1	7	2·0	0·8	+150	78	·254	3·3	0	1·27	− 1·27	0	0·53	−0·53	0·06	1·02	−0·96	0	Ludhiana	Punjab (Submontane).	29
25	...	2	1	1	...	...	...	2	0·6	1·1	− 45	78	·252	2·2	1	0·82	+ 0·18	0·45	0·63	−0·18	0·55	1·03	−0·48	0·41	Sialkot.		
21	...	...	...	1	...	...	1	8	1·7	?	?	90	·279	1·9	1	?	?	0·19	0·44	−0·25	0·19	0·93	−0·74	0·17	Umballa.		
25	1	...	1	...	...	...	4	...	1·6	1·1	+ 45	71	·208	3·5	2	1·27	+ 0·73	1·52	0·76	+0·76	1.59	1·66	−0·07	1·32	Rawalpindi.	North Punjab.	31
..	..	.	...	...	..	...	..	...	...	...	...	...	...	...	...	...	...	0·39	0·16	+0·22	...	...	...	...	VII.—Indus Valley and North-West Rajputana.		
21	...	3	...	...	6	1	...	...	1·9	2·4	− 21	77	·224	3·8	3	0·64	+ 2·36	1·25	0·34	+0·91	1·25	1·02	+0·23	0·76	Peshawar .	North Punjab.	31
18	4	4	2	...	1	1	1	...	2·6	?	?	71	·237	2·6	2	0·20	+ 1·80	1·35	0·16	+1·19	1·35	0·56	+0·79	1·12	Khushab .	West Punjab.	32
9	1	1	10	3	1	1	2	3	3·2	?	?	73	·251	2·7	1	0·40	+ 0·60	0·46	0·28	+0·18	0·46	0·50	−0·04	0·46	Montgomery.		
26	1	1	...	...	...	...	2	1	1·0	0·8	+ 25	81	·262	2·2	1	0·27	+ 0·73	0·23	0·24	−0·01	0·23	0·50	−0·27	0·11	D. I. Khan		
26	1	2	...	1	1	...	...	...	0·3	1·3	− 77	77	·292	1·7	2	0·18	+ 1·82	0·61	0·20	+0·41	0·61	0·30	+0·31	0·42	Mooltan.		
16	7	5	1	1	...	...	...	1	2·5	1·6	+ 56	75	·294	2·6	1	0·09	+ 0·91	0·36	0·10	+0·26	0·36	0·26	+0·10	0·36	Jacobabad .	Sind . .	47
8	10	...	...	...	1	2	..	10	7·8	6·5	+ 20	62	·318	1·2	0	0	0	0	0	0	0	0·06	−0·06	0	Hyderabad.		
...	3	13	13	2	...	...	...	...	5·1	9·2	− 45	65	·382	1·2	0	0·10	− 0·10	0	0·16	−0·16	0	0·25	−0·25	0	Kurrachee.		
13	4	1	1	...	2	4	1	5	1·6	2·4	− 33	60	·257	1·8	0	?	?	0	0·16	−0·16	0·16	0·34	−0·18	0	Bickaneer .	West Rajputana	51
...	8	13	6	1	...	..	1	2	2·6	2·1	+ 24	55	·203	0·4	0	?	?	0	0·03	−0·03	0·35	0·08	+0·27	0	Pachpadra.		
12	4	11	3	1	...	...	..	...	1·8	?	?	50	·232	1·0	0	?	?	0	0·13	−0·13	1·97	0·38	+1·59	0	Jodhpore.		
...	...	...	..	..	...	...	..	...	...	...	...	...	...	...	...	.	...	0	0·16	−0·16	...	...	...	...	VIII.—East Rajputana, Central India and Gujarat.		
8	6	5	2	...	1	4	1	4	2·6	3·4	− 24	60	·246	0·7	0	0·30	−0·30	0	0·08	−0·08	0·07	0·62	−0·62	0	Jeypore .	East Rajputana	50
17	1	...	2	3	...	3	3	2	1·8	?	?	54	·246	0·5	0	?	?	0	0·29	−0·29	0·07	0·82	−0·75	0	Kotah .		
19	7	...	1	1	2	...	...	1	2·3	3·7	− 38	61	·227	0·8	0	0·60	− 0·60	0	0·19	−0·19	0·45	0·55	−0·10	0	Sambhar.		
25	2	...	..	...	1	...	...	3	1·5	1·4	+ 7	75	·258	0·8	0	0·45	− 0·45	0	0·15	−0·15	0·97	0·65	+0·32	0	Ajmere.		
...	...	8	19	2	1	...	1	...	7·2	8·1	− 11	51	·257	0·3	0	0·09	− 0·09	0	0·06	−0·06	0·54	0·57	−0·03	0	Deesa.		
12	3	2	1	4	4	1	2	2	6·1	5·1	+ 20	43	·274	0·5	0	?	?	0	0·08	−0·08	[illegible]	0·45	−0·28	0	Bhuj . .	Kathiawar and Cutch.	46
12	1	6	10	2	...	...	...	...	3·7	4·8	− 23	45	·273	0·3	0	0	0	0	0·04	−0·04	1·49	0·85	+0·64	0	Rajkot.		
...	7	23	1	...	..	...	...	...	4·5	?	?	46	·305	0·3	0	?	?	0	0·09	−0·09	0·13	2·04	−1·91	0	Veraval.		
...	2	...	...	..	2	8	10	9	4·6	?	?	47	·245	0·7	0	?	?	0	?	?	0·42	?	?	0	Ghadechi.		
10	1	...	5	1	1	9	2	2	2·6	1·2	+117	63	·282	0·4	0	0·64	− 0·64	0	0·55	−0·55	0	1·97	−1·97	0	Nowgong .	Central India.	49
21	...	4	5	...	...	1	...	...	0·9	2·1	− 57	59	·270	0·6	0	0·55	− 0·55	0	0·21	−0·21	0·39	2·11	−1·72	0	Indore.		
3	10	14	4	...	...	...	...	...	4·9	8·1	− 40	43	·213	0·5	0	0·73	− 0·73	0	0·25	−0·25	0·20	0·95	−0·75	0	Neemuch.		
4	1	8	16	2	...	...	...	...	3·3	5·0	− 34	51	·396	0	0	0·18	− 0·18	0	0·02	−0·02	1·33	1·72	−0·39	0	Surat . .	Gujarat	45
...	...	17	11	1	...	...	...	1	4·9	?	?	43	·261	0·2	0	?	?	0	0·03	−0·03	0·02	0·86	−0·84	0	Ahmedabad.		
5	...	2	...	3	...	5	...	16	4·3	2·6	+ 65	67	·283	0·4	0	0·55	−0·55	0	0·19	−0·19	0·05	0·71	−0·66	0	Agra . .	N.-W. P. (West).	22
28	...	...	...	...	...	1	1	1	1·0	2·3	− 57	50	·254	0·3	0	0·36	−0·36	0	0·13	−0·13	0·14	0·95	−0·81	0	Jhansi . .	N.-W.P. (Central)	21

Table

Abstract of Observations taken at 8 A.M. at 217 stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
	IX.—Deccan	...	...	...	+·015	...	...	...	...	...	...	...	81·7	+0·8	51·3	-2·2	66·6	-0·7	30·2	...	...	...	...	41·1
38	Bombay Deccan	Belgaum	2,524	27·492	+·008	29·995	27·563	6th	27·440	16th	·123	66·5	82·4	+1·2	56·6	-1·4	69·5	-0·1	25·8	85·7	1st & 31st.	52·9	4 days	32·8
		Sholapur	1,590	28·467	+·019	30·059	28·552	6th	28·410	1st	·142	65·5	85·4	+0·5	54·8	-2·1	70·1	-0·8	30·6	88·7	1st & 2nd.	45·0	18th	43·7
		Poona	1,840	28·221	+·014	30·086	28·312	6th	28·149	1st	·163	59·4	84·2	+0·8	49·1	-4·7	66·7	-2·0	35·1	90·0	1st	43·0	18th	47·0
		Bijapur	1,946	28·096	?	30·045	28·169	6th	28·042	1st	·127	64·2	83·9	?	51·3	?	67·6	?	32·6	88·2	31st	43·6	18th	44·6
40	Khandesh	Malegaon	1,430	28·626	+·003	30·092	28·693	31st	28·539	1st	·154	54·6	83·6	+0·4	47·6	-2·7	65·6	-1·2	36·0	87·9	2nd & 3rd.	39·8	17th	48·1
		Ahmednagar	2,152	27·906	?	30·079	27·991	6th	27·834	1st	·157	60·8	81·4	?	47·0	?	64·2	?	34·4	86·3	1st	39·4	18th	46·9
41	Berar	Akola	930	29·172	+·037	30·106	29·268	6th	29·095	1st	·173	58·6	83·7	+1·7	47·4	-2·6	65·6	-0·5	36·3	86·0	3 days.	40·7	18th	45·3
		Amraoti	1,215	28·868	+·024	30·092	28·959	6th	28·797	1st	·162	62·9	83·0	+1·3	55·0?	?	69·0	?	28·0	85·1	4 days	47·4	17th	37·7
42	Central Provinces (West).	Khandwa	1,044	29·041	+·029	30·105	29·120	30th	28·964	1st	·156	56·1	83·6	+1·9	47·4	-1·5	65·5	+0·2	36·2	86·2	5 days	39·2	18th	47·0
		Hoshangabad	1,006	29·083	+·014	30·118	29·170	6th	28·998	1st	·172	52·9	79·3	+0·5	49·1	-1·6	64·2	-0·6	30·2	82·2	22nd & 23rd	40·8	17th	41·4
		Nagpur	1,025	29·051?	?	30·085?	29·126	7th	28·980	1st	·146	60·1	82·0	?	51·8	?	66·9	?	30·2	85·6	3rd	42·1	17th	43·5
43	Central Provinces (Central).	Chanda	634	29·481	?	30·099	29·556	7th	29·423	1st	·133	57·6	81·4	?	48·3	-2·8	64·9	?	33·1	85·1	1st & 28th.	41·1	17th & 18th	44·0
		Seoni	2,033	28·033	+·020	30·106	28·098	24th	27·965	1st	·133	57·1	77·2	0	46·7	-2·3	62·0	-1·2	30·5	80·0	4 days	39·0	17th	41·0
		Jubbulpur	1,327	28·757	+·016	30·126	28·850	6th	28·671	1st	·179	53·1	77·1	+1·1	42·9	-2·3	60·0	-0·6	31·2	80·4	23rd	35·9	17th	44·5
		Saugor	1,807	28·261?	+·020?	30·100?	28·351	6th	28·167	1st	·184	59·9?	76·7	+0·8	52·8?	+1·8?	64·8	+1·3?	23·9	80·7	6th	46·1	16th	34·6
49	Central India	Sutna	1,040	29·046	+·008	30·118	29·137	6th	28·947	1st	·190	52·7	75·8	+1·1	46·7	+0·5	61·3	+0·8	29·1	78·8	3 days	40·1	17th	38·7
44	Central Provinces (East).	Raipur	970	29·119	+·020	30·098	29·212	6th	29·051	1st	·161	57·2	78·9	+0·6	52·4	?	65·7	?	26·5	82·3	30th	47·4	17th	34·9
		Sambalpur	486	29·614	+·007	30·080	29·717	6th	29·533	1st	·184	57·8	78·6	-0·7	51·0	-2·8	64·8	-1·8	27·6	83·1	31st	44·2	17th & 18th.	38·9
39	Hyderabad (North).	Aurangabad	1,865	28·209	?	30·181	28·278	7th	28·138	19th	·140	65·1	84·9	?	50·9	?	67·9	?	34·0	87·9	1st	41·1	17th	46·8
		Indur	?	...		Not re	corded.					64·0	81·1	?	48·8	?	64·9	?	32·3	84·1	28th & 31st.	40·2	17th	43·9
		Bidar	2,165	27·890?	?	30·034?	27·973	6th	27·812	1st	·161	69·7	79·5	?	60·4	?	70·0	?	19·1	84·1	1st	54·4	17th	29·7
53	Hyderabad (South).	Gulbarga	1,502	28·552?	?	30·054	28·666	6th	28·477	27th	·189	65·1	84·4	?	54·4	?	69·4	?	30·0	87·7	1st	46·3	18th	41·4
		Raichur	1,309	28·728	?	30·026?	28·816	6th	28·667	1st & 27th	·149	67·7	83·5	?	60·3	?	71·9	?	23·2	88·1	28th	52·7	18th	35·4
		Hyderabad (Deccan).	1,690	28·361	+·016	30·064	28·462	6th	28·302	27th	·160	61·9	82·9	+1·3	54·4	-2·2	68·7	-0·5	28·5	86·4	1st & 28th	50·3	3 days	36·1
		Secunderabad	1,787	28·258	-·005	30·061	28·353	6th	28·203	16th	·150	61·2	83·4	+1·8	55·4	?	69·4	?	28·0	89·1	28th	49·7	18th	39·4
		Khamamet	373	29·702	?	30·038	29·811	6th	29·604	27th	·207	63·6	85·0	?	55·5	?	70·3	?	29·5	90·5	31st	48·6	18th	41·9
	X.—West Coast	...	...	...	-·001	...	...	...	...	...	...	...	87·2	+0·9	69·0	-0·8	78·1	0	18·3	...	...	...	...	26·0
37	Konkan	Bombay	37	30·019	+·015	29·997	30·104	6th	29·921	1st	·183	71·0	84·4	+0·3	68·8	-0·7	76·6	-0·2	15·6	89·0	21st	66·0	19th & 29th.	23·0
		Ratnagiri	110	29·915	+·018	29·966	29·985	30th	29·837	1st	·148	73·7	90·1	+0·8	65·5	-1·3	77·8	-0·3	24·6	94·9	21st	61·9	8th & 17th	33·0
		Mormugao	60	29·974	?	29·970	30·067	6th	29·904	1st	·163	71·1	86·4	?	68·1	?	77·3	?	18·3	90·0	21st	65·3	12th	24·7
		Goa	199	29·819	+·012	29·959	29·921	6th	29·747	1st	·174	72·7	86·3	?	67·3	?	76·8	?	19·0	91·0	21st	64·5	17th	26·5
		Karwar	44	29·962	-·002	29·939	30·035	6th	29·889	17th	·146	67·3	89·0	+1·8	63·6	-2·8	76·3	-0·5	25·4	93·3	21st	53·5	14th	34·8
33	Malabar	Cochin	10	29·962	-·013	29·899	30·029	7th	29·889	17th	·140	76·5	89·0	+1·1	73·2	+0·5	81·1	+0·8	15·8	93·8	21st	68·7	23rd	25·1
		Calicut	27	29·952	-·020	29·909	30·026	6th	29·874	16th	·152	75·8	87·6	+0·1	70·9	+0·5	79·3	+0·3	16·7	89·3	3 days	65·0	8th	24·3
		Mangalore	65	29·928	-·015	29·926	30·006	6th	29·853	17th	·153	75·1	89·5	+1·0	69·7	-0·8	79·6	+0·1	19·8	93·8	20th	65·5	22nd	28·3
		Trivandrum	198	29·748	?	29·879	29·818	30th	29·680	16th	·138	76·1	82·8	?	73·6	?	78·2	?	9·2	84·5	4 days	70·0	23rd & 24th.	14·5
	XI.—South India	...	...	...	-·006	...	...	...	...	...	...	...	82·9	+0·9	64·3	-0·8	73·7	0	18·6	...	...	...	...	29·2
57	Madras (South).	Pamban	37	29·952	?	29·917	30·063	6th	29·871	16th	·192	76·5	81·1	?	72·9	?	77·5	?	7·2	87·3	27th	70·7	17th & 18th.	16·6
		Tinnevelly	168	29·836	?	29·936	29·912	6th	29·741	16th	·171	76·4	86·7	?	73·3	?	80·0	?	13·4	93·7	27th	68·9	4th	24·8
		Madura	447	29·547	-·003	29·938	29·624	6th	29·453	16th	·171	75·9	86·9	+0·9	70·8	+0·4	78·9	+0·7	16·1	92·4	26th & 27th.	67·1	3 days	25·3

I—*continued.*

in India, Burma, etc., in December, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 October to 31st December 1897.	Normal rainfall for period, from 1st October to 31st December.	Variation from normal of period, 1st October to 31st December.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0·46	−0·46	...	...	...	...	**IX.—Deccan.**		
9	...	5	13	4	...	...	...	...	11·3	12·3	−8	41	·267	0·7	0	0·18	−0·18	0	0·13	−0·13	3·53	8·63	−5·13	0	Belgaum .	Bombay Deccan.	38
4	...	10	4	13	...	...	...	...	11·2	6·8	+65	34	·216	1·0	0	0·91	−0·91	0	0·60	−0·60	2·94	6·85	−3·91	0	Sholapur.		
13	1	...	8	7	...	...	...	2	7·2	5·7	+26	49	·251	0·8	0	0·82	−0·82	0	0·26	−0·26	6·31	6·37	−0·06	0	Poona.		
3	...	2	10	5	...	5	6	...	3·9	?	?	78	·475	1·0	0	0·09	−0·09	0	0·63	−0·63	6·34	6·54	−0·20	0	Bijapur.		
9	...	...	...	...	...	3	12	7	5·9	3·5	+69	48	·210	0·3	0	0·82	−0·82	0	0·37	−0·37	2·59	3·85	−1·26	0	Malegaon .	Khandesh.	40
5	4	1	1	2	1	6	3	8	9·0	?	?	52	·285	0·5	0	?	?	0	0·48	−0·48	2·62	4·79	−2·17	0	Ahmednagar.		
17	...	2	7	4	...	...	..	1	2·7	3·1	−13	49	·245	0·5	0	0·95	−0·95	0	0·96	−0·96	0·04	5·21	−5·17	0	Akola . .	Berar.	41
...	2	10	17	2	...	...	...	...	3·8	3·1	+23	54	·315	0·6	0	1·09	−1·09	0	0·73	−0·73	0·76	4·23	−3·47	0	Amraoti.		
21	...	2	3	5	...	...	...	...	2·8	2·4	+17	52	·234	0·5	0	0·64	−0·64	0	0·56	−0·56	0·49	2·60	−2·11	0	Khandwa .	Central Provinces (West).	42
13	...	16	2	...	...	...	...	...	1·4	2·4	−42	67	·270	0·6	0	1·00	−1·00	0	0·63	−0·63	0·19	3·06	−2·87	0	Hoshangabad		
21	7	2	...	...	...	...	1	...	4·0	3·5	+14	57	·299	1·0	0	1·00	−1·00	0	0·64	−0·64	0·91	4·49	−3·58	0	Nagpur.		
14	9	5	2	...	...	...	...	1	1·6	1·6	0	73	·354	0·7	0	?	?	0	0·46	−0·46	3·43	3·82	−0·39	0	Chanda .	Central Provinces (Central).	43
1	6	10	4	3	...	3	1	3	1·7	2·5	−32	64	·302	0·3	0	0·91	−0·91	0	0·67	−0·67	0·80	3·63	−2·83	0	Seoni.		
7	1	...	1	12	7	1	1	1	1·3	1·8	−28	71	·290	0·4	0	0·91	−0·91	0	0·38	−0·38	0·62	2·95	−2·33	0	Jubbulpore.		
1	5	3	7	6	4	2	2	1	4·5	2·5	+80	46	·235	0·5	0	0·73	−0·73	0	0·76	−0·76	0·98	2·66	−1·68	0	Saugor.		
9	4	1	2	...	...	...	5	10	3·4	3·6	−6	64	·255	0·3	0	0·91	−0·91	0	0·42	−0·42	1·99	3·09	−1·10	0	Sutna . .	Central India.	49
28	...	...	1	...	1	...	...	1	3·1	2·6	+19	54	·300	1·4	0	1·07	−1·07	0	0·35	−0·35	2·87	3·16	−0·29	0	Raipur .	Central Provinces (East).	44
...	14	14	1	2	...	...	...	...	3·7	1·4	+164	77	·367	1·1	0	?	?	0	0·34	−0·34	3·65	3·03	+0·62	0	Sambalpur.		
15	...	13	2	1	...	...	...	...	3·0	?	?	43	·265	0·2	0	?	?	0	?	?	0·27	?	?	0	Aurangabad.	Hyderabad (North).	39
27	1	1	2	...	...	...	...	...	2·6	?	?	64	·385	1·8	0	?	?	0	0·40	−0·40	2·19	4·09	−1·90	0	Indur.		
...	...	10	17	4	...	...	...	...	6·7	?	?	57	·412	0·5	0	?	?	0	0·61	−0·61	0·82	5·41	−4·59	0	Bidar.		
18	...	10	...	2	...	...	...	...	9·2	?	?	47	·297	0·6	0	?	?	0	0·40	−0·40	4·09	4·10	−0·01	0	Gulbarga(a).	Hyderabad (South).	53
...	4	7	19	1	...	...	...	...	6·6	?	?	58	·402	1·0	0	?	?	0	0·09	−0·09	6·18	5·67	+0·51	0	Raichur.		
27	1	1	...	...	...	...	...	2	3·7	?	?	64	·362	1·0	0	?	?	0	0·27	−0·27	4·73	5·11	−0·38	0	Hyderabad (Deccan).		
19	...	12	...	...	...	...	...	...	4·0	3·3	+21	61	·329	1·2	0	?	?	0	0·27	−0·27	2·08	5·11	−3·03	0	Secunderabad		
4	20	...	...	...	...	...	1	6	4·3	?	?	74	·443	0·5	0	?	?	0	0·01	−0·01	5·82	4·89	+0·93	0	Khamamet.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·75	0·72	+0·03	...	...	...	...	**X.—West Coast.**		
...	...	12	18	1	...	...	...	...	10·0	10·0	0	71	·547	0·4	0	0·18	−0·18	0	0·09	−0·09	2·62	3·22	−0·60	0	Bombay .	Konkan.	37
6	...	1	18	6	...	...	...	...	5·3	9·9	−46	45	·371	0·8	0	0·27	−0·27	0	0·08	−0·08	14·32	4·86	+9·46	0	Ratnagiri.		
..	...	...	19	12	...	...	...	...	7·8	?	?	68	·524	0·9	0	?	?	0	0	0	5·07	8·67	−3·60	0	Mormugao.		
...	2	7	21	1	...	...	...	...	?	?	?	55	·440	1·7	0	?	?	0	0·09	−0·09	2·42	7·51	−5·09	0	Goa.		
1	1	10	17	2	...	...	...	...	3·2	?	?	68	·442	1·6	0	0·18	−0·18	0	0·09	−0·09	10·75	10·40	+0·35	0	Karwar.		
11	6	12	2	...	...	...	...	...	4·2	?	?	77	·710	2·6	3	3·36	−0·36	3·15	1·81	+1·34	15·51	22·59	−7·08	1·36	Cochin .	Malabar.	33
1	...	3	16	10	1	...	...	...	9·9	?	?	78	·696	3·0	0	2·11	−2·11	0	1·31	−1·31	10·57	16·54	−5·97	0	Calicut.		
2	...	..	15	13	1	...	...	...	2·7	3·5	−23	62	·538	2·3	0	1·10	−1·10	0	0·48	−0·48	6·45	11·39	−4·94	0	Mangalore.		
17	1	6	5	1	...	...	...	1	3·0	?	?	81	·730	5·1	7	?	?	3·57	2·52	+1·05	17·14	19·52	−2·38	1·38	Trivandrum.		
...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	0·83	2·48	−1·65	...	...	...	...	**XI.—South India.**		
...	11	10	2	...	...	1	...	7	12·3	?	?	88	·804	3·7	6	7·00	−1·00	3·80	9·11	−5·31	13·15	25·52	−12·37	0·96	Pamban .	Madras (South)	5
...	13	4	...	...	...	...	3	11	3·6	?	?	74	·677	5·9	4	6·50	−2·50	1·05	3·53	−2·48	8·17	19·53	−11·36	0·47	Tinnevelly.		
3	14	9	...	1	...	...	...	4	5·2	4·9	+6	72	·657	4·5	0	4·36	−4·36	0·09	1·81	−1·72	11·14	14·68	−3·54	0·05	Madura.		

(a) One variable.

Table

Abstract of Observations taken at 8 A.M. at 217 stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. 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.	Temperature of air. 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.
34	Madras, South Central.	Salem	940	29·089	−·009	29·989	29·174	6th	29·009	16th	·165	72·7	86·4	+0·4	66·1	+1·0	76·2	+0·7	20·3	92·4	27th & 28th.	58·9	23rd	33·5
		Coimbatore	1,348	28·656	−·003	29·973	28·736	7th	28·595	16th	·141	72·0	86·4	+1·7	66·2	−0·1	76·4	+0·8	20·2	90·9	3 days	60·3	22nd	30·6
35	Coorg	Mercara	3,781	26·280	−·004	?	26·336	6th	26·207	17th	·129	61·9	75·3	+0·8	58·2	+0·6	66·8	+0·7	17·1	79·5	21st	53·7	6th	25·8
36	Mysore	Chitaldroog	2,405	27·621?	?	29·991?	27·699	6th	27·560	17th	·139	67·5	81·2	?	59·2	?	70·2	?	22·0	85·6	2nd	54·9	23rd	30·7
		Bangalore	3,021	27·016	−·014	29·992	27·085	7th	26·952	16th & 17th.	·133	64·2	78·8	+1·3	58·2	−0·4	68·5	+0·5	20·6	83·8	28th	53·4	8th & 23rd.	30·4
		Hassan	3,091	26·950?	?	30·040?	27·015	6th	26·895	17th	·120	67·5	80·0	?	53·5	?	66·8	?	26·5	83·5	2nd & 21st.	47·9	12th	35·6
		Mysore	2,518	27·509	?	29·985	27·577	6th & 7th.	27·456	16th & 17th.	·121	68·3	82·1	?	59·8	?	71·0	?	22·3	85·9	28th	54·9	5th & 23rd.	31·0
56	Madras, East Coast, South.	Negapatam	31	29·961	−·016	29·921	30·049	6th	29·871	16th	·178	75·5	81·2	+0·2	71·4	−0·4	76·4	−0·1	9·8	89·7	31st	68·0	22nd & 23rd.	21·7
		Cuddalore	12	29·999	?	29·941	30·087	6th	29·919	16th	·168	73·9	82·5	?	68·3	?	75·5	?	14·2	87·3	27th	63·3	23rd	24·0
		Trichinopoly	255	29·752	−·013	29·915	29·827	6th	29·665	16th	·162	74·9	86·6	+2·1	70·0	+1·0	78·3	+1·6	16·6	94·0	27th	63·9	22nd	30·1
		Madras	22	30·006	−·016	29·959	30·094	6th	29·911	30th	·183	73·5	82·3	−1·3	68·1	−1·7	75·2	−1·5	14·2	86·5	29th & 30th	64·5	22nd	22·0
55	Madras, East Coast, Central.	Nellore	71	29·969	?	29·975	30·061	6th	29·889	26th	·172	71·7	83·7	?	67·2	?	75·5	?	16·5	88·7	28th	62·1	23rd	26·6
		Masulipatam	15	30·051	+·011	30·001	30·155	6th	29·953	27th	·202	70·8	84·6	+2·1	64·6	−1·9	74·6	+0·1	20·0	90·0	28th	59·2	18th & 22nd.	30·8
54	Madras, Central	Cuddapah	433	29·610	−·019	29·996	29·695	6th & 7th.	29·535	27th	·160	71·2	86·7	+1·9	64·9	−1·1	75·8	+0·4	21·8	93·1	3 days	59·3	23rd	33·8
		Kurnool	923	29·119	−·019	30·025	29·207	6th	29·047	27th	·160	64·2	86·1	+0·7	55·8	−3·6	71·0	−1·5	30·3	89·7	28th	47·7	22nd	42·0
		Bellary	1,475	28·565	+·009	30·026	28·645	6th	28·513	1st & 16th.	·132	68·0	85·9	+0·6	59·5	−1·2	72·7	−0·3	26·4	89·2	4 days	55·1	17th & 24th.	34·1
52	Madras, East Coast, North.	Rajahmundry	112			Not	record	ed.				67·3	85·6	+0·1	62·6	−2·4	74·1	−1·2	23·0	90·2	29th	55·9	18th & 19th.	34·3
		Cocanada	26	30·035	+·002	29·996	30·149	6th	29·928	27th	·221	69·9	80·3	+1·2	64·3	−1·7	72·3	−0·3	16·0	86·1	29th	57·0	18th	29·1
		Vizagapatam	31	30·041	+·004	30·011	30·148	6th	29·910	27th	·238	70·6	81·7	+0·1	62·6	−1·0	72·2	−0·5	19·1	87·3	29th	54·9	20th	32·4
		Waltair	?			Not	record	ed.				72·6	80·3	?	67·3	?	73·6	?	13·0	86·6	29th	61·9	22nd	24·7
		Gopalpur	21	30·071	?	30·033	30·181	6th	29·988	28th	·193	62·7	78·0	?	58·2	?	68·1	?	19·8	82·2	1st & 2nd	51·1	17th	31·1
	XII.—Hill Stations.																							
48	Baluchistan	Sharigh	?	25·982	?	?	26·100	30th	25·836	11th	·270	46·4	66·0	?	(c) 37·3	?	(c) 51·9	?	28·7	78·4	2nd	30·0	13th	48·4
		Pishin	?				Not rec	orded.				?	59·6	?	24·4	?	42·1	?	35·2	69·0	2nd	17·1	9th	51·9
		Quetta	5,5021	24·761	+·020	?	24·867	15th	24·639	11th	·228	36·5 (b)	58·5	+1·5	32·4	+3·5	45·5	+2·5	26·1	67·2	6th	25·8	13th & 24th	41·4
		Kalat	?				Not rec	orded				40·5	58·4	?	27·4	?	43·0	?	31·0	72·2	2nd	19·9	13th	52·3
		Chaman	4,311	25·821	?	?	25·929	31st	25·658	11th	·271	46·1	61·6	?	38·6	?	50·1	?	23·0	68·8	1st & 2nd	23·1	13th & 15th.	45·7
30	Punjab	Leh	11,503	19·727	?	?	19·878	7th	19·580	12th	·298	18·0	38·6	?	15·9	?	27·2	?	22·7	45·6	3rd	6·0	17th	39·6
		Srinagar	5,204	25·032	?	?	25·160	6th	24·826	12th	·334	31·0	51·2	?	29·4	?	40·3	?	21·8	59·9	4th	22·9	17th	37·0
		Astor (Kashmir.)	?	22·332	?	?	22·479	22nd	22·083	12th	·396	27·2	41·6	?	23·6	?	32·6	?	18·0	52·4	4th	11·0	16th	41·4
		Minimarg	?	21·412	?	?	21·522	6th	21·165	12th	·357	21·1	39·8	?	13·8	?	26·8	?	26·0	61·4	3rd	0·5	16th	60·9
		Skardu	?	23·011	?	?	23·178	6th	22·760	12th	·418	27·0	43·1	?	23·5	?	33·3	?	19·6	51·5	1st	15·2	17th & 18th.	36·3
		Dras	?	20·839	?	?	21·010	6th	20·589	12th	·421	9·9	31·1	?	2·4	?	16·8	?	28·7	47·8	4th	−18·5	16th & 17th.	66·3
		Gilgit	?	25·324	?	?	25·511	25th	25·081	12th	·430	37·5	48·2	?	35·1	?	41·6	?	13·1	55·3	1st & 4th	27·1	17th	28·2
		Chitral	?	(a) 25·047	?	?	25·200	3 days	25·000	19 days	·200	35·6	52·6	?	32·6	?	42·6	?	20·0	64·5	1st	26·4	17th	38·1
		Killa Drosh	?				Not rec	orded.				42·8	56·5	?	36·2	?	46·4	?	20·3	65·3	1st & 22nd.	30·8	30th	34·5
		Para Chinar	6,000	24·549	?	?	24·670	24th	24·413	11th	·257	36·4	53·1	?	32·6	?	42·9	?	20·5	66·8	2nd	23·9	12th	42·9
		Cherat	?	25·833	?	?	25·960	24th	25·719	11th	·241	46·1	54·6	?	42·6	?	48·6	?	12·0	69·8	2nd	36·0	12th	33·8
		Murree	6,333	23·925	+·017	?	24·049	6th	23·798	12th	·251	43·2	50·6	−3·1	40·1	+0·1	45·4	−1·5	10·5	63·2	2nd	30·0	12th	33·2
		Poo	?				Not rec	orded.				?	51·0	?	29·0	?	40.0	?	22·0	58·6	6th	22.1	16th	36·5
25	N.-W. Provinces.	Simla	7,223	23·170	+·002	?	23·284	6th	23·061	16th	·223	42·7	49·4	−1·9	39·7	−0·5	44·5	−1·2	9·7	59·4	8th	32·2	12th	27·2
		Chakrata	7,022	23·339	+·009	?	23·436	24th	23·226	16th	·210	43·4	55·9	+0·9	39·0	−0·6	47·5	+0·2	16·9	61·3	2 days	32·6	12th	28·7
		Mussoorie	6,705	23·596	?	?	23·694	25th	23·462	16th	·232	44·0	50·5	−2·1	39·8	−0·8	45·2	−1·5	10·7	56·7	31st	35·0	12th	21·7

(a) Aneroid. (b) Mean of 30 days. (c) Mean of 27 days.

I—*continued.*

in India, Burma, etc., in December, 1897—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Velocity. Mean velocity in miles per hour.	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 October to 31st December 1897.	Normal rainfall for period, 1st October to 31st December.	Variation from normal of period, 1st October to 31st December.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
13	1	8	5	...	...	1	2	1	3·7	4·0	−8	74	·606	4·2	1	3·18	−2·18	0·42	1·39	−0·97	8·61	12·24	−3·63	0·41	Salem	Madras, (South Central)	34
...	...	...	31	...	...	...	...	...	2·9	3·0	−3	82	·651	4·2	1	3·45	−2·45	0·13	1·21	−1·08	3·46	10·87	−7·41	0·13	Coimbatore.		
5	...	15	9	2	...	...	...	...	7·1	4·7	+51	70	·394	4·1	0	1·50	−1·50	0·05	0·70	−0·65	7·50	13·64	−6·14	0·03	Mercara	Coorg.	35
1	1	5	15	9	..	...	...	...	7·5	?	?	59	·405	3·5	0	?	?	0·07	0·41	−0·34	2·94	7·53	−4·59	0·07	Chitaldroog	Mysore	33
...	1	19	7	1	1	...	1	1	8·0	3·9	+105	71	·431	3·2	0	1·36	−1·36	0·03	0·55	−0·52	5·30	11·29	−5·99	0·03	Bangalore.		
1	1	12	14	2	...	...	..	1	2·9	?	?	60	·403	4·2	0	?	?	0·11	0·65	−0·54	2·81	8·26	−5·45	0·09	Hassan.		
2	2	16	8	1	..	...	1	1	9·8	?	?	66	·466	4·6	0	?	?	0·02	0·44	−0·42	9·98	8·84	+1·14	0·02	Mysore.		
3	4	5	...	...	...	...	...	19	12·5	6·3	+84	84	·738	6·3	6	11·00	−5·00	6·64	12·41	−5·77	12·28	38·95	−26·67	2·95	Negapatam	Madras, East Coast, South.	56
...	16	1	...	...		...	2	12	2·3	?	?	85	·713	4·4	3	6·90	−3·90	1·65	6·48	−4·83	13·37	28·87	−15·50	0·68	Cuddalore.		
9	12	6	1	...	1	...	...	2	5·0	5·0	0	72	·622	5·5	3	5·64	−2·64	0·58	2·55	−1·97	7·63	15·41	−7·78	0·23	Trichinopoly.		
1	23	...	...	...	...	...	...	7	8·0	7·6	+5	83	·690	5·3	5	5·73	−0·73	1·69	5·28	−3·59	12·75	29·49	−16·74	0·72	Madras.		
4	...	...	...	...	...	...	13	14	4·9	?	?	82	·639	7·1	2	3·80	−1·80	0·93	3·36	−2·43	7·67	22·84	−15·17	0·80	Nellore	Madras, East-Coast, Central.	55
...	26	5	...	...	...	...	...	...	5·7	5·7	0	72	·545	3·1	0	1·45	−1·45	0	1·06	−1·06	3·57	17·46	−13·89	0	Masulipatam.		
...	...	3	..	16	2	8	...	2	?	?	?	80	·609	4·3	1	1·50	−0·50	1·46	1·19	+0·27	8·22	12·19	−3·97	1·46	Cuddapah	Madras, Central.	54
30	...	...	1	...	...	...	...	...	?	?	?	64	·392	1·9	0	1·00	−1·00	0	0·20	−0·20	1·72	6·38	−4·66	0	Kurnool.		
20	2	...	5	1	...	...	...	3	1·8	3·1	−42	49	·338	4·6	0	0·45	−0·45	0	0·14	−0·14	4·12	6·56	−2·44	0	Bellary.		
2	29	...	...	...	...	...	...	...	?	?	?	65	·443	3·8	0	0·03	−0·03	0	0·38	−0·38	13·92	9·69	+4·23	0	Rajahmundry	Madras, East Coast, North.	52
...	22	6	...	...	...	...	...	3	10·2	?	?	65	·472	2·8	0	1·00	−1·00	0	0·76	−0·76	9·93	18·53	−8·60	0	Cocanada.		
20	7	3	...	...	...	...	...	1	1·0	2·1	−52	66	·491	3·5	0	1·82	−1·82	0·08	2·49	−2·41	14·03	19·93	−5·90	0·08	Vizagapatam.		
...	11	10	1	...	...	...	...	8	13·8	?	?	57	·446	3·5				No Rain gauge.							Waltair.*		
..	16	1	...	...	..	...	...	14	10·6	6·9	+54	81	·448	2·0	2	1·18	+0·82	0·36	0·91	−0·55	18·34	15·04	+3·30	0·23	Gopalpur.		
XII.—Hill Stations.																											
7	...	...	...	3	...	3	4	7	3·6	?	?	55	·173	1·5	1	?	?	0·30	1·05	−0·75	0·30	2·20	−1·90	0·20	Sharigh†	Baluchistan.	48
Not recorded.									?	?	?	?	?	?	3	?	?	2·12	1·37	+0·75	2·12?	2·18	−0·06	1·22	Pishin.		
24	...	...	1	4	2	...	...	...	3·0	2·7	+11	81	·176	3·6	3	0·91	+2·09	1·24	0·73	+0·51	1·24	1·07	+0·17	0·61	Quetta.		
...	...	...	5	...	9	9	8	...	?	?	?	72*	·183*	2·8	3	?	?	1·02	0·60	+0·42	1·02	1·02	0	0·63	Kalat.		
...	1	...	12	12	3	2	1	...	9·1	?	?	57	·180	2·0	1	?	?	1·03	0·81	+0·22	1·03	1·78	−0·75	0·77	Chaman.		
...	...	..	...	...	1	11	19	...	2·1	1·3	+62	55	·056	4·9	0	?	?	0·02	0·16	−0·14	0·09	0·49	−0·40	0·01	Leh	Punjab.	30
7	2	1	2	9	4	2	...	4	5·7	?	?	86	·149	5·6	2	?	?	0·35	0·84	−0·49	0·45	1·72	−1·27	0·22	Srinagar.		
9	1	..	...	...	6	15	...	...	3·7	?	?	71	·107	5·9	2	?	?	0·35	?	?	0·35§	?	?	0·12	Astor (Kashmir).		
11	1	4	9	6	...	...	...	...	5·9	?	?	81	·097	5·5	7	?	?	1·89	?	?	1·89§	?	?	0·35	Minimarg.		
16	...	3	2	...	2	1	7	...	2·7	?	?	100	·154	7·4	0	?	?	0·12	0·88	−0·76	0·13	1·03	−0·90	0·06	Skardu.		
31	...	...	...	...	...	...	...	...	0·9	?	?	69	·064	5·5	3	?	?	0·76	1·50	−0·74	1·48	5·14	−3·66	0·22	Dras.		
20	...	...	...	...	...	3	8	...	1·0	?	?	53	·120	6·9	0	?	?	0·09	0·07	+0·02	0·17	0·30	−0·13	0·05	Gilgit.		
15	1	5	1	4	4	...	...	1	2·4	?	?	76	·157	1·9	4	?	?	1·68	?	?	1·68	?	?	0·60	Chitral		
2	...	1	2	15	1	3	4	...	?	?	?	50	·131	7·0	5(a)	?	?	1·98	?	?	2·51	?	?	0·79	Killa Drosh.		
...	11	6	1	...	2	1	2	8	4·3	?	?	61	·130	3·4	7	?	?	2·13	?	?	2·20	?	?	0·80	Para Chinar.		
6	15	4	...	...	...	...	..	6	13·1‡	?	?	51	·153	3·5	3	?	?	2·51	0·57	+1·94	2·53	0·87	+1·66	1·75	Cherat.		
18	3	1	...	4	1	...	...	4	8·1	6·1	+33	46	·124	4·7	2	1·55	+0·45	1·30	1·20	+0·10	1·91	3·93	−2·02	1·00	Murree.		
3	1	2	1	9	2	3	4	6	?	?	?	?	?	0·3	1	?	?	0·14	1·05	−0·91	0·34	2·58	−2·24	0·11	Poo.		
2	8	11	1	1	4	2	...	1	5·7	1·8	+217	36	·094	3·2	2	1·45	+0·55	0·74	0·74	0	1·03	2·50	−1·47	0·40	Simla.		
17	10	1	...	...	...	...	...	3	7·4	4·2	+76	47	·125	2·5	2	?	?	0·48	0·66	−0·18	0·48	2·09	−1·61	0·26	Chakrata.	North-Western Provinces.	25
...	1	1	8	4	...	1	2	14	?	?	?	53	·148	1·7	1	1·50	−0·50	0·23	1·06	−0·83	0·28	2·50	−2·22	0·19	Mussooree.		

* Wind observations of 30 days. † Wind observation of 24 days. ‡ Mean of 19 days. § Total Rainfall commences from 1st December 1897. (a) 3 variable.

Table

Abstract of Observations taken at 8 A.M. at 217 stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches. Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest recorded pressure during month.	Date.	Lowest recorded pressure during month.	Date.	Total range of pressure during month.	Temperature of air. 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.
		Ranikhet	6,069	24·180	+·015	?	24·291	24th	24·071	31st	·220	46·2	56·6	−1·6	42·7	+0·2	49·7	−0·7	13·9	63·2	31st	40·0	3 days	23·2
		Muktesar	?	22·900	?	?	23·003	24th	22·797	16th	·206	44·3	54·2	?	39·1	?	46·7	?	15·1	59·5	11th	33·9	22nd	25·6
13	Bengal	Yatung	10,480?				Not recorded.					?	45·8	?	25·2	?	35·5	?	20·6	56·9	12th	20·9	17th & 22nd	36·0
		Darjeeling	7,408	23·040	−·005	?	23·147	6th	22·912	31st	·235	40·2	47·8	−1·1	35·6	−1·2	41·7	−1·2	12·2	53·1	2 days	31·3	26th	21·8
		Gantok	5,660	24·619	?	?	24·657	11th & 13th.	24·448	1st	·209	46·5	59·4	?	29·7	?	44·6	?	29·7	62·3	25th	28·6	19th	33·7
	Central India.	Mount Abu.	3,945	26·178	+·011	?	26·258	6th & 30th	26·100	1st	·158	59·7	67·5	−1·4	52·9	+0·4	60·2	−0·5	14·6	72·1	20th	45·6	15th	26·5
		Pachmarhi	3,528	26·585	+·006	?	26·672	6th	26·510	1st	·162	55·5	70·3	+1·1	42·0	−3·0	56·2	−1·0	28·3	72·3	3rd & 24th	35·8	18th	36·5
	South India	Wellington	6,200	24·276	−·026	?	24·329	7th	24·209	16th	·120	55·8	69·5	+3·9	46·1	−3·0	57·8	+0·5	23·4	72·7	7th & 16th.	36·2	13th	36·5
	XIII.—Extra India.																							
	Ceylon	Trincomalee.	12	29·935	?	29·873	30·022	31st	29·822	15th	·200	76·4	81·6	?	73·2	?	77·4	?	8·4	86·0	1st	71·0	3 days	15·0
		Colombo	40	29·925	−·008	29·891	30·005	31st	29·850	10th	·155	77·3	86·1	?	73·2	?	79·7	?	12·9	90·0	3 days	71·5	5th & 8th	18·5
	Persia	Meshed	3,104				Not recorded.					35·0	Not recorded	?	32·0	?	?	?	?	?	?	17·0	31st	?
		Resht¶	?	30·2687	?	?	30·881	30th	29·987	9th	·894	43·4	50·0	?	38·0	?	44·0	?	12·0	60·5	3rd	13·0	28th	47·5
		Teheran	?	*26·170†	?	?	26·450	31st	25·810	27th	·640	32·2	(a) 47·4	?	(a) 32·3	?	(a) 39·9	?	15·1	62·5	4th	15·8	28th	46·7
				*25·486†	?	?	25·720	31st	25·190	27th	·530													
		Ispahan	?	*24·419	?	?	24·540	20th	24·150	27th	·390	32·8	50·4	?	27·4	?	38·9	?	23·0	62·9	2nd	16·2	29th	46·7
				*24·724	?	?	24·850	20th & 14th	24·450	27th	·400													
		Bushire	14	30·157	+·030	30·130	30·280	30th	29·994	9th	·286	59·8	67·3	−2·4	55·5	0	61·4	−1·2	11·8	77·1	16th	39·4	29th & 30th	37·7
		Jask	?	30·124	?	30·076	30·261	14th	30·003	28th	·258	70·4	79·5	?	65·8	?	72·7	?	13·7	84·3	3rd	59·3	13th	25·0
	Arabia	Muscat	20	30·119	?	30·087	30·234	30th	30·001	28th	·233	74·5	76·8	?	72·9	?	74·8	?	3·9	80·4	2nd	70·7	20th	9·7
		Baghdad	220	30·030	+·019	30·245	30·196	22nd	29·795	9th	·401	44·1	58·9	−5·4	40·8	−2·4	49·9	3·0	18·1	67·1	15th	23·8	28th	43·2
		Aden	94	29·999	−·002	30·027	30·056	24th	29·917	5th	·139	75·8	82·2	−0·4	73·0	+0·4	77·6	0	9·2	85·3	17th	70·9	17th & 21st.	14·4
		Perim	?	29·862	?	?	29·916	24th	29·784	1st	·132	78·4	84·3	?	75·2	?	79·9	?	9·1	85·9	4th & 8th	73·6	28th	12·3
	Afghanistan	Kabul	?				Not recorded.					29·8	50·6	?	26·3	?	38·5	?	24·3	68·2	2nd	10·4	31st	57·8
	Central Asia	Kashgar	?	25·827‡	?	?	26·140	22nd	25·534	8th	·606	19·8	37·2	?	17·2	?	27·2	?	20·0	46·7	8th	11·5	21st & 25th.	35·2
	Arabian Sea Islands.	Amini Devi.	15	29·973	?	29·916	30·033	6th	29·904	17th	·129	82·0	82·1	?	74·4	?	78·3	?	7·7	84·4	19th	69·5	28th	14·9
		Minicoy	10	29·933	?	?	29·868	29th	29·856	17th	·141	80·2	85·6	?	?	?	?	?	?	88·5	2nd	?	?	?
	Africa	Zanzibar	73	29·931	?	?	29·931	30th	29·857	5th	·127	82·7	87·6	?	80·7	?	84·1	?	6·9	89·0	26th	78·8	1st	10·2

¶ Barometer uncorrected.

* Aneroid uncorrected.
† Mean of 28 days.

‡ Aneroid corrected.
(a) Mean of 29 days.

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

I—*concluded.*

in India, Burma, etc., in December, 1897—concluded.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind velocity. Mean velocity in miles per hour.	Normal.	Percentage variations.	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 October to 31st December 1897.	Normal rainfall for period, 1st October to 31st December.	Variation from normal of period, 1st October to 31st December.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
19	1	1	4	1	1	3	1	...	2·2	1·3	+69	63	·193	2·0	0	1·00	−1·00	0	0·53	−0·53	0·06	2·34	−2·28	0	Ranikhet.		
...	1	...	4	7	2	...	5	12	1·8	?	?	44	·126	2·0	0	?	?	0	?	?	0·85	?	?	0	Muktesar.		
			Not	recorded.					?	?	?	?	?	?	0	?	?	0	0·06	−0·06	7·56	2·89	+4·67	0	Yatung .	Bengal.	13
4	1	2	18	5	...	...	1	...	2·6	1·9	+37	78	·192	1·9	1	0·62	+0·38	0·10	0·22	−0·22	13·62	6·25	+7·37	0·10	Darjeeling.		
29	...	2	...	...	...	...	...	...	3·0	?	?	75	·237	?	3	?	?	0·71	0·54	+0·17	13·11	8·86	+4·25	0·28	Gantok.		
15	3	8	1	...	...	2	...	2	4·2	3·6	+17	41	·209	0·3	0	0·18	−0·18	0	0·10	−0·10	2·54	1·03	+1·46	0	Mount Abu.	Central India.	
28	...	1	1	...	...	...	...	1	2·6	2·6	0	64	·284	0·8	0	0·91	−0·91	0	0·52	−0·52	0·81	3·86	−3·05	0	Pachmarhi.		
24	...	1	2	4	...	...	...	...	2·3	2·5	− 8	71	·324	4·1	3	6·78	−3·78	1·32	4·16	−2·84	6·03	24·71	−18·68	0·59	Wellington .	South India.	
																									XIII.—Extra India.		
7	6	2	...	1	...	7	...	8	1·6	?	?	90	·825	5·0	22	?	?	29·22	13·48	+15·74	36·70	34·57	+2·13	4·42	Trincomalee	Ceylon.	
...	11	14	1	4	1	...	...	...	9·8	7·9	+24	87	·817	7·0	9	?	?	9·34	6·70	+2·64	25·34	33·46	−8·12	3·61	Colombo .		
				Not	recorded.					?	?	83	·171	7·7	3	?	?	0·62	0·38	+0·24	0·72	1·68	−0·96	0·19	Meshed .	Persia.	
..	...	...	...	Not	recorded.		...	...	?	?	?	92††	·278††	?	14	?	?	10·82	?	?	(m)10·82	?	?	2·40	Resht .		
10	9	7	...	...	1	1	...	...	3·0	?	?	(b) 64	(b) ·158	(a) 4·7	4	?	?	2·20	1·31	+0·89	2·78	2·52	+0·26	0·85	Teheran.*		
17	...	2	...	...	...	6	5	1	3·0	?	?	70	·133	3·1	2	?	?	0·89	0·45	+0·44	0·89	1·91	−1·02	0·64	Ispahan.		
...	7	5	7	3	2	..	...	7	8·4	6·6	+27	75	390	4·3	3	?	?	0·92	3·71	−2·79	0·92	5·97	−5·05	0·33	Bushire.		
...	20	1	4	...	...	...	1	5	10·4	?	?	79	·593	2·2	1	?	?	0·11	0·43	−0·32	0·11	1·13	−1·02	0·11	Jask.		
...	...	1	2	5	3	4	10	6	4·1	?	?	69	·589	0·8	0	?	?	0	0·44	−0·44	0	1·42	−1·42	0	Muscat .	Arabia.	
15	5	1	...	1	1	1	2	5	2·3	?	?	87	·260	1·0	5	?	?	1·46	1·95	−0·49	2·20	3·02	−0·82	0·56	Baghdad.		
4	2	10	8	6	...	...	1	...	11·9†	12·4	− 4	78	·690	5·7	0	?	?	0·13	0·49	−0·36	0·25	0·72	−0·47	0·08	Aden.		
...	...	1	26	3	...	...	1	...	19·0	?	?	75	·723	5·6	0	?	?	0	0·10	−0·10	0	0·25	−0·25	0	Perim.		
18	...	2	3	...	1	1	6	...	?	?	?	?	?	0·4	0	?	?	0·05	0·43	−0·38	0·05	1·37	−1·32	0·05	Kabul .	Afghanistan.	
5	6	1	7	...	2	...	8	2	?	?	?	?	?	4·1	0	?	?	0	0·27	−0·27	0	0·38	−0·38	0	Kashgar .	Central Asia.	
4	9	9	2	...	...	...	1	6	?	?	?	68	·749	1·9	1	?	?	0·23	?	?	0·42‡	?	?	0·23	Amini Devi.	Arabian Sea Islands.	
8	6	9	1	2	...	...	...	5	5·0	?	?	78	·802	1·3	5	?	?	4·98	?	?	9·71	?	?	4·03	Minicoy .		
...	11	18	2	...	...	...	...	...	7·0	?	?	79	·885	4·5	2	?	?	0·44	5·20	−4·76	8·54	16·79	−8·25	0·17	Zanzibar .	Africa.	

that station are not utilized in calculating the provincial variations. † Mean of 30 days. * Wind observations of 28 days. ‡ For November and December. (m) For December only.
†† Mean of 29 days. (b) Mean of 20 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. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L. and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Temperature of Air. Mean minimum.	Temperature of Air. Mean daily range.	Temperature of Air. Highest maximum.	Temperature of Air. Lowest minimum.	Temperature of Air. Absolute range.	Temperature of Air. Mean 10 hours.	Temperature of Air. Mean 16 hours.	Temperature of Air. Mean daily.	Temperature of Air. Variation from normal.	Temperature, wet-bulb. Mean minimum.	Temperature, wet-bulb. Mean 10 hours.	Temperature, wet-bulb. Mean 16 hours.	Temperature, wet-bulb. Mean daily.
Burma Coast and Bay Islands.	Port Blair	...	29·907	29·808	·099	29·854	−·020	29·845	85·5	77·6‡	7·9	88·7	74·6	14·1	82·8	82·9	80.6‡	+0·8	74·6	78·2	78·0	76·9
	Rangoon	...	·998	·871	·127	·933	−·010	·910	86·9	67·9	19·0	91·2	61·8	29·4	79·4	84·1	75·7	+0·3	66·0	71·3	72·2	69·8
	Diamond Island	...	·988	·880	·108	·929	−·016	·905	84·8	73·5	11·3	89·7	68·2	21·5	81·0	82·5	78·2	+1·4	70·4	73·5	74·3	72·7
	Cocos Island	111	·886‡	·786‡	·100	·831	−·040	·874‡	82·9‡	77·0‡	5·9	84·4	73·5	10·9	81·2‡	79·9‡	78·8‡	+2·0	71·8‡	75·2‡	74·2‡	73·7
	Akyab	...	30·030	·925	·105	·976	−·017	·939	81·4	64·5	16·9	85·8	59·2	26·6	74·3	78·4	72·6	+0·4	62·3	69·6	72·8	68·2
Assam.	Silchar	...	29·992	·857	·135	·921	−·014	·978	81·5	55·2	26·3	86·2	50·4	35·8	70·2	78·9	67·1	+1·3	54·2	64·6	65·3	61·4
	Sibsagar	...	·799	·642	·157	·719	−·014	30·022	72·0	49·3	22·7	73·7	45·3	28·4	61·9	70·6	59·5	+0·7	49·3	59·7	62·7	57·2
	Dhubri	...	·991	·856	·135	·917	−·008	29·990	74·5	54·6	19·9	77·0	51·6	25·4	65·9	73·8	64·0	−0·2	53·6	60·5**	63·1**	59·1
Bengal and Orissa.	Chittagong	...	·985	·871	·114	·924	−·015	·961											Not recorded, the thermometer			
	Narayanganj	...	30·057	·943	·114	·995	−·012	·970	77·4	57·7	19·7	81·8	53·3	28·5	70·7	75·6	67·8	+0·3	56·1	63·9	65·4	61·8
	Calcutta (Alipore)	...	·087	·964	·123	30·016	−·008	·983	75·7	55·8	19·9	78·9	49·0	29·9	68·9	74·8	65·1	−0·2	54·7	61·0	62·0	59·2
	Saugor Island	...	·068	·948	·120	·000	−·019	·970	76·2	58·0	18·2	79·0	51·7	27·3	70·7	73·5	66·0	−0·5	56·2	63·9	63·2	61·1
	Burdwan	...	·015	·883	·132	29·939	−·008	·989	78·5	56·2	22·3	81·3	50·8	30·5	70·1	76·5	66·8	0	54·0	62·1	62·9	59·7
	Berhampore	...	·034	·921	·113	·968	−·007	·984	76·0	55·6	20·4	78·8	49·1	29·7	69·0	75·3	65·6	−0·3	53·6	61·5	63·1	59·4
	False Point	..	·083	·971	·112	30·025	−·013	·988	76·7	56·1	20·6	80·9	46·9	34·0	71·8	74·0	65·3	−1·3	55·2	63·9	64·0	61·0
	Cuttack	...	·031	·904†	·127	29·965	−·003	·990**	79·1	57·3	21·8	84·4	50·9	33·5	69·3	77·1	67·4	−2·0	55·8	60·2	62·6	59·5
Gangetic Plain and Chota Nagpur.	Hazaribagh	...	28·044	27·949	·095	27·986	−·013	·997	71·1	49·1	22·0	74·2	42·2	32·0	61·0	69·0	59·3	−1·2	45·9	53·8	55·5	51·7
	Patna	...	29·938	29·828	·110	29·877	−·006	30·020	74·0	52·5	21·5	77·2	45·0	32·2	66·6	72·5	62·8	+0·3	50·1	59·5	61·6	57·1
	Darbhanga	...	·947	·835	·112	·885	−·007	·011	75·1	53·2	21·9	78·0	48·3	29·7	63·0	72·7	63·4	−0·2	52·1	60·7	61·6	58·1
	Allahabad	...	·827	·706	·121	·754	+·001	·029	76·1	47·1	29·0	80·0	41·4	38·6	66·1	74·7	60·2	−0·5	45·6	57·2	60·1	54·3
	Lucknow	...	·756	·641	·115	·688	−·002	·027	77·3	45·5	31·8	80·5	40·7	39·8	66·7	73·8	60·2	+0·6	44·9	58·9	63·0	55·6
Upper Sub-Himalayas.	Dehra Dun	...	27·828	27·739	·089	27·773	−·003	·041	68·9	45·2	23·7	72·8	40·4	32·4	59·7	64·5	55·0	−1·1	42·1	51·3	53·6	49·0
	Roorkee	...	29·203	29·098	·105	29·138	−·001	·031	72·8	41·7	31·1	76·6	35·4	41·2	60·0	69·7	55·6	−0·9	41·2	52·5	55·6	49·8
	Meerut	...	·369	·265	·104	·308	+·003	·045	73·1	44·8	28·3	76·1	39·0	37·1	60·2	70·6	57·7	+0·5	43·6	51·6	55·5	50·2
	Lahore	...	·416	·330	·086	·361	+·006	·071	68·0	45·2	22·8	73·6	40·6	33·0	56·9	67·6	55·2	+2·0	43·2	51·4	56·8	50·4
	Ludhiana	...	·295	·202	·093	·237	+·010	·057	70·5	44·8	25·7	74·5	38·7	35·8	59·2	68·3	55·9	+1·3	42·4	51·5	54·4	49·4
Indus Valley and N.-W. Rajputana.	Peshawar	...	·032	28·949	·083	28·979	+·011	·133	65·3	41·4	23·9	71·0	36·1	34·9	55·5	61·9	51·2	+0·3	38·7	48·3	51·3	46·1
	Mooltan	...	·724	29·632	·092	29·666	+·014	·077	72·9	47·1	25·8	81·3	42·9	38·4	61·3	70·1	58·0	+1·5	44·6	53·7	59·4	52·6
	Jacobabad	...	·974	·852	·122	·901	+·006	·053	76·9	47·8	29·1	87·3	38·9	48·4	65·0	74·9	60·5	+2·6	45·4	55·5	60·1	53·7
	Kurrachee	...	30·117	30·006	·111	30·056	+·004	·037	82·9	57·5	25·4	88·5	50·7	37·8	75·4	79·2	68·9	+1·9	52·3	63·7	66·4	60·8
E. Rajputana, Central India, and Gujarat.	Jeypore	...	28·638	28·536	·102	28·626	+·015	·054	78·6	48·1	30·5	83·3	37·5	45·8	69·2	75·9	61·4	+1·4	43·5	54·8	57·4	51·9
	Ajmere	...	·499	·398	·101	·443	+·004	·064	77·0	44·5	32·5	82·0	36·8	45·2	64·0	75·5	59·8	+0·6	41·4	53·4	59·3	51·4
	Deesa	...	29·616	29·530	·116	29·580	+·024	·008	85·7	50·5	35·2	91·5	41·3	50·2	75·7	83·6	67·4	−0·6	45·2	58·1	60·7	54·7
	Nowgong	...	·368	·254	·114	·301	+·012	·042	75·3	46·1	29·2	79·0	40·4	38·6	64·7	73·8	60·0	+0·1	43·3	58·0	58·0	53·1
	Agra	...	·569	·458	·111	·504	−·004	·037	77·5	50·0	27·5	83·1	43·9	39·2	67·1	75·0	63·0	+2·6	45·7	56·7	60·6	54·3
Deccan.	Belgaum	...	27·496	27·384	·112	27·437	0	29·879	82·4	56·6	25·8	85·8	52·7	33·1	74·3	80·7	69·1	−0·3	50·6	56·6	58·3	55·2
	Sholapur	...	28·474	28·336	·139	28·403	+·008	·946	85·3	54.8	30·5	88·5	45·1	43·4	75·7	81·2	69·4	−1·3	46·8	56·9	59·6	54·4
	Poona	...	·222	·100	·122	·162	+·016	·954	81·1	49·1	35·0	88·0	43·2	44·8	74·0	82·3	66·5	−2·3	44·6	56·1	59·2	53·3
	Akola	...	29·181	29·048	·133	29·107	+·029	30·004	83·7	47·4	36·3	85·9	40·9	45·0	73·6	82·4	64·6	−1·7	43·1	58·2	60·6	54·0
	Buldana	2,132	27·946	27·832	·114	27·882	+·018	29·976	78·8	55·7	23·1	82·3	50·5	31·8	73·1	77·4	66·3	−1·1	47·2	55·3	56·2	52·9
	Khandwa	...	29·017	28·928	·119	28·981	+·021	·994	83·5	47·4	36·1	86·2	39·1	47·1	74·6	82·8	64·7	−0·7	42·9	57·5	60·3	53·6

** Mean of 27 days. ‡ " 29 " † Mean of 26 days.

II.

86 stations in India, Burma, etc., for December, 1897.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from											Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
																									%	%						
·815‡	·904	·895	·871	+·044	86‡	80	80	82	+3	7·1	7·5	7·3	+2·6	...	16	24	14	7	1	...	...	...	N. 53° E.	N. 58° E.	72	66	187	181	...	...	Port Blair	Burma Coast and Bay Islands.
·619	·661	·633	·638	−·013	90	66	55	70	−2	2·5	4·1	3·3	+0·4	...	11	32	13	2	...	...	...	1	N. 48° E.	N. 41° E.	83	63	124†	117	...	...	Rangoon	
·706	·729	·742	·726	+·043	85	69	67	74	+1	4·3	4·3	4·3	+0·9	3	11	22	16	4	1	...	1	4	N. 50° E.	N. 58° E.	64	48	351*	212	...	...	Diamond Island,	
·711‡	·794‡	·770‡	·758	+·076	76‡	75‡	75‡	75	+4	4·4	3·5	4·0	+0·5	...	8	41	8	4	...	...	...	...	N. 49° E.	N. 34° E.	83	85	?	?	...	...	Cocos Island	
·538	·6.5	·734	·646	+·058	88	78	75	80	+5	2·5	2·5	2·5	+0·2	1	4	27	2	1	...	3		19	N. 2° E.	N. 8° W.	55	41	54	57	...	...	Akyab	
·412	·536	·451	·466	−·003	94	73	46	71	−4	2·6	2·8	2·7	−0·3	38	...	1	5	6	8	2	2	...	S. 27° E.	S. 56° E.	23	29	69*	38	...	...	Silchar	Assam.
·355	·482	·468	·435	−·011	100	87	63	83	−2	4·2	3·3	3·8	+0·1	15	1	37	4	4	...	1	...	...	N. 54° E.	N. 63° E.	64	57	44*	38	...	...	Sibsagar	
·399	·460**	·439**	·433	−·029	93	72**	53**	73	−4	1·0	0·9	1·0	−0·2	4	1	21	27	2	2	1	4	...	N. 73° E.	N. 60° E.	64	49	118*	116	...	...	Dhubri	
shed	being	under	constr	uction.						1·7	1·8	1·8	−0·4	2	3	26	14	...	...	...	4	13	N. 32° E.	N. 24° W.	58	53	?	66	...	...	Chittagong	Bengal and Orissa.
·433	·506	·491	·477	+·004	90	67	56	71	+1	2·4	3·3	2·9	+1·3	...	16	10	1	4	1	3	7	20	N. 21° W.	N. 36° W.	55	44	48	51	...	...	Narayanganj	
·417	·434	·388	·413	−·019	93	61	45	66	−4	1·7	1·7	1·7	0	1	34	8	...	...	...	...	4	15	N. 10° W.	N. 23° W	82	62	35	61	...	...	Calcutta (Alipore),	
431	·507	·446	·461	−·035	88	67	54	70	−3	2·5	2·9	2·7	+0·4	...	42	6	...	...	1	1	1	11	N. 6° W.	N. 3° E.	85	59	196	169	...	...	Saugor Island	
·393	·456	·395	·415	+·013	86	61	43	63	+1	1·3	1·1	1·2	−0·7	28	27	1	...	...	..	...	2	4	N. 8° W.	N. 20° W.	50	65	16*	40	...	...	Burdwan	
·384	·449	·419	·417	−·010	87	63	48	66	−5	0·7	1·0	0·9	−0·9	31	13	4	...	...	...	1	4	9	N. 21° W.	N. 27° W.	37	61	20*	37	...	...	Berhampore	
·434	·491	·467	·464	−·032	95	62	55	71	−3	3·6	3·7	3·7	+1·2	...	19	19	9	2	...	...	...	13	N. 20° E.	N. 32° E.	69	58	117*	151	...	...	False Point	
·431	·404	·377	·404	−·043	91	56	41	63	−1	1·9	2·5	2·2	+0·4	8	19	20	3	...	...	1	6	5	N. 11° E.	N. 21° E.	60	33	48	30	...	...	Cuttack	
·273	·292	·275	·280	+·006	78	49	39	55	+3	1·3	1·2	1·3	−0·8	1	19	6	5	1	...	4	3	23	N. 18° W.	N. 44° W.	61	56	120	119	...	...	Hazaribagh	Gangetic Plain and Chota Nagpur.
·333	·418	·405	·385	+·010	83	63	50	65	0	0	0·1	0·1	−1·6	25	...	...	...	1	1	5	25	5	S. 87° W	N. 82° W.	52	51	28*	44	...	...	Patna	
·378	·437	·405	·407	−·015	93	63	50	69	−4	0·1	0·1	0·1	−0·8	9	1	2	2	2	4	13	25	4	S. 74° W.	S. 81° W.	55	53	50	49	...	...	Darbhanga	
·288	·356	·327	·324	−·016	89	55	38	61	−5	0·5	0·5	0·5	−1·0	5	9	5	2	3	4	2	15	17	N. 51° W.	N. 47° W.	43	25	107*	60	...	...	Allahabad	
·293	·397	·437	·376	+·070	96	61	52	70	+11	0·6	0·6	0·6	−1·2	28	...	...	...	2	1	2	24	5	S. 89° W.	N. 51° W.	43	41	25*	41	...	...	Lucknow	
·231	·276	·280	·262	−·014	77	54	47	59	−4	2·8	1·8	2·3	−0·3	22	...	...	6	8	9	8	6	3	S. 7° W.	S. 75° W.	29	17	20	31	...	...	Dehra Dun	Upper Sub-Himalayas.
·253	·299	·257	·270	−·019	95	58	36	63	−1	1·6	1·3	1·5	−0·7	32	...	2	...	4	...	3	...	21	N. 48° W.	N. 67° W.	27	15	31	32	...	...	Roorkee	
·271	·270	·245	·262	−·022	91	51	33	58	−4	0·9	0·8	0·9	−0·9	31	...	...	2	1	...	4	23	1	S. 83° W.	N. 61° W.	39	44	34*	37	...	...	Meerut	
·255	·308	·319	·294	+·020	84	67	48	66	+8	1·5	1·7	1·6	−0·8	35	4	...	4	1	...	..	7	11	N. 42° W.	N. 35° W.	24	20	22	33	...	...	Lahore	
·242	·281	·241	·255	−·022	81	56	35	57	−5	3·2	2·1	2·7	−0·5	23	5	2	...	6	...	...	5	21	N. 40° W.	N. 43° W.	37	27	47	27	...	...	Ludhiana	
·206	·252	·246	·235	+·008	78	59	47	61	+1	3·5	4·5	4·0	+0·5	38	2	2	5	2	3	3	1	6	N. 29° E.	S. 4° E.	2	8	45*	61	...	...	Peshawar	Indus Valley and N.-W. Rajputana.
·264	·315	·366	·315	+·048	82	59	51	64	+8	1·9	2·3	2·1	+0·1	52	...	6	...	2	...	2	...	...	N. 70° E.	N. 5° E.	6	8	8*	27	...	...	Mooltan	
·276	·320	·323	·306	+·069	82	53	37	58	+11	3·8	3·3	3·6	+1·4	28	12	9	3	...	4	2	4	...	N. 17° E.	N. 15° W.	22	18	61*	39	...	...	Jacobabad	
·328	·443	·482	·417	+·049	69	51	48	56	+3	0·8	1·0	0·9	−0·9	...	...	8	17	6	11	13	7	...	S. 29° E.	N. 41° E.	35	23	153*	217	...	...	Kurrachee	
·230	·253	·245	·243	−·028	68	35	27	43	−6	0·9	1·3	1·1	−1·0	3	6	7	5	2	5	8	11	15	N. 58° W.	N. 19° W.	29	24	64	71	...	...	Jeypore	
·227	·282	·307	·272	−·011	76	47	35	53	0	0·6	1·4	1·0	−0·6	9	6	7	2	6	12	5	7	8	S. 58° W.	S. 84° E.	10	9	42‡‡	38	...	...	Ajmere	E. Rajputana, Central India, and Gujarat.
·236	·254	·228	·238	−·016	63	28	20	37	+1	0·4	0·4	0·4	−1·3	...	3	18	28	4	5	2	1	1	N. 80° E.	N. 44° E.	66	50	178	194	...	...	Deesa	
·247	·299	·274	·273	−·032	79	48	33	53	−6	0·4	0·9	0·7	−1·2	3	6	4	12	1	4	9	19	4	N. 87° W.	N. 42° W.	21	32	29*	26	...	...	Nowgong	
·255	·324	·341	·307	+·018	70	49	39	52	−1	0·3	0·2	0·3	−1·1	...	...	5	...	6	...	12	...	38	N. 57° W.	N. 56° W.	55	36	123*	66	..	...	Agra	
·297	·242	·263	·251	−·121	65	29	20	38	−12	0·4	1·3	0·9	−1·7	...	...	14	26	10	1	1	...	...	N. 88° E.	N. 88° E.	81	67	309	299	...	...	Belgaum	Deccan.
·224	·235	·210	·223	−·149	52	26	18	32	−16	0·7	0·9	0·8	−2·1	1	1	28	10	20	2	...	...	...	N. 83° E.	S. 83° E.	71	66	208*	182	...	...	Sholapur	
·242	·231	·218	·231	−·093	68	27	20	38	−5	0·9	0·8	0·9	−1·6	3	...	3	19	22	1	7	2	4	S. 58° E.	N. 86° E.	52	54	194*	133	...	...	Poona	
·225	·283	·242	·250	−·081	68	34	22	41	−10	0·4	0·7	0·6	−1·1	6	1	32	13	7	...	...	...	3	N. 61° E.	N. 61° E.	70	57	66	80	...	...	Akola	
·222	·221	·190	·211	−·113	50	27	20	32	−15	0·7	0·5	0·6	−1·8	3	13	18	14	9	4	...	...	1	N. 64° E.	N. 82° E.	58	43	89	132	*Nil*	*Nil*	Buldana	
·225	·266	·246	·246	−·073	68	31	22	40	−10	0·4	0·3	0·4	−1·4	2	3	25	10	11	4	1	...	6	N. 68° E	N. 62 E.	53	42	67	62	...	...	Khandwa	

* Corrected.

‡‡ Mean of 30 days.

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.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S.L. and for gravity 45° Lat.	Temperature of air. Mean maximum.	Temperature of air. Mean minimum.	Temperature of air. Mean daily range.	Temperature of air. Highest maximum.	Temperature of air. Lowest minimum.	Temperature of air. Absolute range.	Temperature of air. Mean 10 hours.	Temperature of air. Mean 16 hours.	Temperature of air. Mean daily.	Temperature of air. Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Temperature, Wet-bulb. Mean 10 hours.	Temperature, Wet-bulb. Mean 16 hours.	Temperature, Wet-bulb. Mean daily.
Deccan—concld.	Hoshangabad	...	29·108	28·979	·129	29·037	+·021	30·030	79·3	49·1	30·2	82·3	40·8	41·5	66·2	77·8	63·2	−2·1	44·9	55·4	59·7	53·3
	Nagpur	...	·076	·944	·132	·003	+·019	·003	82·1	51·8	30·3	85·8	41·9	43·9	70·8	80·2	65·9	−0·9	47·8	58·1	61·2	55·7
	Do. (Sanitary Commr.'s Office).	...	·100	·969	·131	·028	?	·017	83·0	51·9	31·1	85·7	42·8	42·9	72·3	81·8	67·1	?	47·9	59·2	63·1	56·7
	Jubbulpore	...	28·763	28·647	·116	28·658	+·007	·016	77·2	42·9	34·3	80·5	36·0	44·5	65·8	75·3	59·0	−1·7	42·1	55·5	58·9	52·2
	Saugor	...	·285	·178	·107	·225	+·009	·018	76·6	53·0	23·6	80·5	46·1	34·4	69·4	75·3	63·9	+0·5	45·7	53·7	55·8	51·7
	Sutna	...	29·057	·946	·111	·992	+·003	·024	75·6	46·7	28·9	78·8	40·1	38·7	67·4	71·3	59·8	+0·1	42·7	54·4	56·8	51·3
	Raipur	...	·142	29·012	·130	29·070	+·023	·004	78·9	52·3	26·6	82·3	47·2	35·1	69·0	77·6	64·7	−1·1	48·1	57·0	59·1	54·7
	Hyderabad (Deccan.)	...	28·371	28·248	·123	28·306	−·017	29·955	83·0	54·4	28·6	86·3	50·1	36·2	71·7	79·8	67·9	−1·0	50·6	60·7	61·0	57·4
West Coast.	Bombay	...	30·028	29·912	·116	29·963	+·013	·940	84·6	68·7	15·9	89·1	66·0	23·1	75·5	80·8	75·1	−0·9	62·2	66·2	70·7	66·4
	Ratnagiri	...	29·921	·805	·116	·856	+·011	·904	90·4	65·1	25·3	95·1	61·1	34·0	84·0	83·6	75·4	−1·2	57·4	65·7	71·3	64·8
	Karwar	...	·970	·847	·123	·901	−·004	·877	89·3	63·2	26·1	93·3	58·8	34·5	76·4	86·7	75·0	−0·8	59·3	65·4	70·7	65·1
	Cochin	...	·967	·876	·091	·915	−·002	·852	89·1	73·2	15·9	93·8	68·9	24·9	83·4	86·0	79·8	+0·6	70·3	74·2	75·0	73·2
South India.	Salem	...	·093	28·962	·131	·027	−·013	·909	86·1	66·0	20·1	92·5	59·0	33·5	78·4	82·8	75·1	+0·9	64·3	69·5	71·2	68·3
	Mercara	...	26·288	26·196	·092	26·241	−·006	?	75·3	58·2	17·1	79·3	53·9	25·4	67·9	72·3	66·0	+0·5	53·3	59·0	59·5	57·3
	Chitaldroog	...	27·631	27·513	·118	27·571	−·011	·909	81·2	59·2	22·0	85·5	55·1	30·4	73·0	78·8	69·6	−0·7	53·2	61·1	61·1	58·5
	Bangalore	...	·026	26·913	·113	26·969	−·013	·895	79·0	58·1	20·9	84·0	53·3	30·7	71·5	76·6	67·9	+0·5	55·2	60·2	61·2	58·9
	Hassan	...	26·956	·849	·107	·902	−·017	·881	80·1	53·5	26·6	83·5	47·9	35·6	73·6	78·3	66·3	−0·9	51·7	59·8	59·8	57·1
	Mysore	...	27·511	27·391	·120	27·451	−·013	·887	82·2	59·9	22·3	85·1	55·0	31·1	74·5	80·0	70·5	+0·1	56·7	62·1	62·8	60·5
	Trichinopoly	...	29·759	29·630	·129	29·694	−·011	·882	86·6	70·0	16·6	94·1	64·0	30·1	80·5	84·1	77·5	+1·2	66·4	69·7	71·2	69·1
	Madras	...	30·017	·913	·104	·964	−·013	·916	82·2	67·9	14·3	86·5	64·4	22·1	78·5	78·9	74·4	−1·6	?	71·6	71·6	70·7
	Bellary	...	28·570	28·437	·133	28·503	−·004	·927	85·8	59·4	26·4	89·2	55·1	34·1	77·1	83·3	71·6	−0·7	53·5	59·2	60·9	57·9
	Cocanada	...	30·050	29·936	·114	29·986	−·023	·949	80·3	64·3	16·0	86·1	57·0	29·1	77·3	78·3	71·8	−1·0	60·5	66·3	67·1	64·6
	Vizagapatam	...	·051	·940	·111	·989	−·008	·958	81·7	62·7	19·0	87·5	54·9	32·6	78·0	78·5	73·1	−0·9	59·8	64·5	66·4	63·6
Hill Station, Baluchistan.	Quetta	...	24·780	24·700	·080	24·728	+·014	?	58·2	32·4	25·8	67·3	25·7	41·6	49·2	53·5	44·1	+1·9	29·8	41·8	43·5	38·4
Hill Stations, Punjab.	Leh	...	19·739	19·655	·084	19·693	−·012	?	38·5	15·9	22·6	45·6	6·0	39·6	27·6	36·0	26·8	+3·2	13·8	22·2	30·2	22·1
	Srinagar	...	25·065	24·969	·096	25·005	−·026	?	50·9	29·5	21·4	59·7	23·0	36·7	37·8	48·9	39·7	+2·5	27·2	35·2	45·4	35·9
	Murree	...	23·959	23·911	·048	23·923	+·033	?	50·2	40·0	10·2	63·2	30·1	33·1	46·4	46·0	43·8	−0·5	32·4	37·8	38·9	36·4
	Kailang	10,087	20·835	20·753	·082	20·796	−·031	?	42·6	18·8	23·8	53·7	7·0	46·7	29·4	35·1	26·7	+2·1	17·5	23·2	27·1	22·6
	Simla (Ridge)	...	23·200	23·149	·051	23·163	+·009	?	49·5	39·5	10·0	59·4	32·2	27·2	45·8	45·7	43·3	−1·8	32·1	35·6	37·7	35·1
Hill Stations, N.-W.P.	Chakrata	...	·368	·312	·056	·328	−·007	?	56·2	39·0	17·2	66·8	32·4	34·4	48·9	48·8	45·5	0	33·5	39·8	40·3	37·9
	Ranikhet	...	24·212	24·139	·073	24·161	+·012	?	56·8	42·7	14·1	64·5	39·9	24·6	51·6	53·0	48·5	−0·8	38·2	44·5	45·7	42·8
Hill Station, Nepal.	Muktesar	...	22·927	22·867	·060	22·897	?	?	54·4	39·1	15·3	62·3	33·9	28·4	48·6	49·0	45·4	?	33·4	39·8	40·5	37·9
	Katmandu	4,388	25·729	25·655	·074	25·690	−·020	?	66·5	37·6	28·9	70·1	31·0	39·1	52·5	61·0	50·7	−2·8	36·5	47·3	51·8	45·2
Hill Station, Bengal.	Darjeeling	...	(a) 23·064	(b) 22·984	·080	(c) 23·025	+·007	?	(g) 47·9	35·6	12·3	53·1	31·3	21·8	(d) 45·6	(f) 45·8	(e) 41·3	−0·6	(g) 34·2	(d) 41·0	(a) 42·0	39·1
Hill Stations, Central India.	Mount Abu	...	26·202	26·127	·075	26·156	+·006	?	67·5	52·9	14·6	72·1	45·1	27·0	64·9	64·7	59·5	−0·1	44·6	50·4	51·0	48·7
	Pachmarhi	...	·609	·524	·085	·560	+·010	?	70·2	42·0	28·2	72·3	35·8	36·5	65·4	67·6	55·6	−1·7	39·5	51·6	53·4	48·2
	Chikalda	3,642	·493	·400	·093	·439	+·009	?	71·9	54·2	17·7	74·1	47·7	26·4	65·9	70·6	62·8	−0·4	46·8	52·1	54·2	51·0

(a) Mean of 26 days. (b) Mean of 21 days. (c) Mean of 18 days. (d) Mean of 27 days. (e) Mean of 22 days. (f) Mean of 23 days. (g) Mean of 30 days.

II—*continued.*

at 86 stations in India, Burma, etc., for December, 1897—continued.

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.		
																										%	%						
·249	·309	·289	·282	−·057	71	48	30	50	− 5	0·3	0·7	0·5	+1·1	22	...	34	5	...	1	..	...	...	N. 52° E.	N. 64° E.	60	59	32	62	...	...	Hoshangabad	Deccan—*concld.*
·284	·329	·305	·306	−·043	74	43	30	49	− 3	1·0	1·1	1·1	+1·2	19	16	23	4	...	...	...	...	...	N. 32° E.	N. 57° E.	61	54	98	83	...	...	Nagpur	
·286	·343	·349	·326	?	74	43	32	50	?	0·8	0·6	0·7	?	10	27	20	5	...	.	...	...	...	N. 25° E.	?	72	?	26*	?	...	...	Do. (Sanitary Commr.'s Office).	
·260	·315	·295	·290	−·017	93	49	33	58	− 1	0·4	0·4	0·4	−1·4	7	7	9	2	6	4	6	3	18	N. 30° W.	N. 24° E.	24	17	35	39	...	...	Jubbulpore	
·220	·221	·205	·215	−·057	55	31	23	36	−11	0·5	0·6	0·6	−0·7	9	15	9	6	8	3	...	4		N. 24° E.	N. 48° E.	32	34	108	60	...	...	Saugor	
·223	·266	·248	·246	−·016	71	40	29	47	− 3	0·3	0·2	0·3	−1·2	...	5	8	3	...	...	...	13	33	N. 39° W.	N. 24° W	71	46	68*	85	...	...	Sutna	
·282	·309	·257	·283	−·058	71	43	27	47	− 6	1·2	1·5	1·4	−0·4	22	7	15	10	5	...	1	2	...	N. 58° E.	N. 33° E.	40	47	75*	64	...	...	Raipur	
·327	·359	·307	·331	−·107	77	41	30	49	−13	1·2	1·5	1·4	−1·0	14	8	21	16	3	...	...	..	...	N. 58° E.	S. 72° E.	63	65	87*	81	...	...	Hyderabad (Deccan).	
·476	·523	·617	·539	−·076	68	59	59	62	− 7	0·5	0·5	0·5	−1·3	...	4	14	18	1	..	...	8	17	N. 19° E.	N. 16° E.	43	58	242	236	...	...	Bombay	West Coast
379	·396	·606	·450	−·036	61	34	53	49	− 7	0·7	0·9	0·8	−0·3	1	7	2	21	5	...	...	3	23	N. 17° E.	N. 6° E.	36	30	209	206	...	...	Ratnagiri	
·455	·484	·537	·492	−·111	78	53	43	58	− 9	1·3	1·1	1·2	−0·2	5	4	8	10	...	...	...	8	27	N. 21° W.	N. 6° W.	50	54	79	66	...	...	Karwar	
·705	·726	·721	·717	−·010	86	60	58	68	− 5	2·9	3·3	3·1	0	6	12	14	...	...	1	...	20	9	N. 31° W.	N. 79° W.	52	16	101	101	...	...	Cochin	
·584	·605	·612	·600	+·011	91	62	56	70	− 1	4·6	5·7	5·2	+0·9	12	2	17	20	2	...	3	5	1	N. 66° E	N. 77° E.	45	50	87	92	...	...	Salem	South India.
·353	·400	·366	·373	−·082	73	59	47	60	−14	3·5	4·2	3·9	−1·0	31	1	18	10	1	...	...	1	...	N. 60° E.	N. 73° E.	42	77	185	147	...	...	Mercara	
·335	·392	·323	·350	−·069	66	48	33	49	− 7	2·7	4·2	3·5	+0·4	1	2	24	28	7	...	...	...	...	N. 74° E.	N. 83° E.	84	82	153*	199	...	...	Chitaldroog	
·405	·394	·366	·388	−·067	84	51	40	58	−10	3·0	3·6	3·3	−0·6	...	3	33	18	4	...	1	...	3	N. 59° E.	N. 70° E.	77	84	173*	116	...	...	Bangalore	
·366	·356	·303	·312	−·110	89	43	31	54	−11	4·0	4·5	4·3	+0·3	...	3	35	21	3	...	...	...	...	N. 62° E.	N. 76° E.	87	82	70*	95	...	...	Hassan	
·421	·407	·361	·397	−·057	82	43	36	55	− 7	4·4	4·9	4·7	+0·9	...	7	25	23	4	1	...	1	1	N. 63° E.	N. 80° E.	76	84	237	261	...	...	Mysore	
·601	·582	·593	·593	−·067	82	57	51	63	−10	5·1	6·5	5·8	−0·1	11	28	21	...	...	1	...	...	1	N. 18° E.	N. 36° E.	72	67	122*	114	...	...	Trichinopoly	
?	·638	·680	·703	−·001	?	71	69	83	+ 4	5·9	7·0	6·5	+1·1	...	42	13	1	1	1	...	...	4	N. 9° E.	N. 25° E.	85	79	185	178	...	...	Madras	
·340	·285	·259	·295	−·172	67	30	23	40	−18	4·4	5·1	4·3	+1·1	4	9	11	36	2	...	...	...	...	N. 71° E.	S. 86° E.	77	69	39	76	...	...	Bellary	
·484	·506	·517	·502	−·078	79	53	53	62	− 8	1·9	2·0	2·0	−0·1	...	3	35	18	5	...	...	...	1	N. 61° E.	N. 69° E.	84	82	246	241	...	..	Cocanada	
·482	·432	·493	·469	−·053	85	45	50	60	− 3	3·4	3·5	3·5	+1·0	2	22	26	3	1	...	...	...	8	N. 20° E.	N. 64 E.	77	51	(r) 19	49	...	...	Vizagapatam.	Hill Station, Baluchistan.
·142	·188	·181	·170	+·019	77	56	46	60	+ 3	3·6	4·1	3·9	+1·0	35	7	...	..	5	6	2	2	5	S. 82° W.	N. 61° W.	5	29	53*	59	...	...	Quetta	
·068	·075	·123	·089	+·009	73	52	58	61	− 2	4·9	5·9	5·4	−0·2	...	...	...	...	...	3	28	30	1	S. 66° W.	S. 14° W.	89	38	51	28	...	...	Leh.	Hill Station Punjab.
·125	·179	·267	·190	+·015	76	78	77	77	− 3	5·4	4·8	5·1	−0·2	8	8	10	3	9	5	3	2	14	N. 12° E.	S. 84° E.	19	6	97*	66	...	...	Srinagar.	
·109	·141	·167	·139	+·002	46	46	55	49	0	4·5	4·4	4·5	−0·1	38	10	2	...	3	3	1	...	5	N. 5° W.	S. 56° E.	14	39	193*	175	...	...	Murree.	
·090	·078	·086	·085	−·005	87	50	45	61	− 4	4·1	4·8	4·5	−1·0	...	1	...	3	11	7	18	15	7	S. 45° W.	S. 47° W.	50	48	34	21	0·43	0·42	Kailang.	
·109	·106	·146	·120	−·017	46	35	48	43	− 2	3·5	2·4	3·0	−0·9	15	18	9	1	2	9	6	...	1	N. 20° E.	S. 64° W	18	12	137	98	...	...	Simla (Ridge).	
·139	·154	·163	·152	+·001	59	46	49	51	0	2·8	1·6	2·2	−0·9	12	2	4	...	6	36	1	...	1	S. 9° E.	S. 61° W.	58	15	165	106	...	...	Chakrata.	Hill Station, Stations N.W.P.
·186	·220	·231	·212	+·011	68	58	58	61	+ 3	1·7	1·2	1·5	−1·1	20	5	2	3	1	...	4	20	7	N. 71° W.	S. 51° W.	39	23	62*	37	...	...	Ranikhet.	
·137	·160	·170	·156	?	57	46	48	50	?	2·0	2·3	2·2	?	...	1	1	6	12	4	9	8	21	S 80° W.	?	23	?	44*	?	...	...	Muktesar.	Hill Station, Nepal.
·206	·270	·280	·252	−·015	90	68	52	70	− 3	2·3	3·4	2·9	+0·1	2	...	3	14	7	1	7	23	5	S. 63° W.	N. 67° W.	19	47	16	22	0·07	0·07	Katmandu.	
(d) ·180	(d) ·210	(f) ·229	·206	+·005	(d) 86	(d) 70	(f) 75	77	+ 1	(k) 5·0	(l) 7·1	6·1	+1·8	...	3	2	9	6	1	2	16	3	S. 89° W.	N. 55° W.	9	3	(m) 62	72	...	...	Darjeeling.	Hill Station, Bengal.
·202	·203	·220	·208	−·007	50	33	36	40	− 2	0·5	0·4	0·5	−1·2	2	4	12	...	13	2	13	4	12	N. 81° W.	N. 13° E.	7	13	101*	93	...	...	Mount Abu.	Hill Stations, Central India.
·216	·229	·249	·231	−·044	80	36	37	51	− 4	0·8	1·0	0·9	−1·2	27	12	7	2	1	1	1	3	8	N. 5° W.	N. 31° E.	32	21	48*	64	...	...	Pachmarhi.	
·238	·232	·233	·234	−·069	56	37	31	41	−10	0·6	0·6	0·6	−1·8	34	10	3	...	2	5	4	...	4	N. 20° W.	S. 74° W.	10	8	121*	117	*Nil*	*Nil*	Chikalda.	

(k) Mean of 16 days. (l) Mean of 26 days. (m) Mean of 25 days. *Corrected. (r) Mean of 17 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. 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.
Hill Station, S. India.	Wellington	...	24·285	24·216	·069	24·250	−·017	?	69·5	46·2	23·3	72·9	36·3	36·6	65·5	64·3	56·5	+0·6	43·8	55·4	57·4	52·2
Extra India.	Muscat	...	30·128	30·037	·091	30·083	−·007	30·051	76·8	72·9	3·9	80·0	70·7	9·3	73·0	76·6	74·8	+2·3	65·3	69·1	69·8	68·1
	Aden	...	·006	29·905	·101	29·959	+·008	29·985	82·1	72·9	9·2	85·1	70·9	14·2	78·5†	80·4	77·3	+0·5	68·8	71·5‡	70·7‡	70·4
	Perim	...	29·867	·764	·103	·818	+·019	?	84·6	75·7¶	8·9	85·9	73·6	12·3	81·6	81·5	79·4	+0·9	70·1	73·0	72·4	71·8
	Minicoy	...	·955	·853	·102	·899	?	·834	85·6	?	?	88·5	?	?	83·6	82·7	?	?	?	75·9	75·5	?
	Zanzibar	...	·935	·797	·138	·866	−·011	·865	87·6	80·7	6·9	89·0	78·8	10·2	84·1	87·2	84·1	+1·8	76·4	78·1	78·1	77·5
	Port Victor (Seychelles).	15	·968	·890	·078	·929	−·007	·868	83·2	76·4	6·8	85·5	74·8	10·7	81·7	81·8	79·4	+0·4	72·8	76·1	76·1	75·0
	Mauritius	181	?	?	?	29·769	−·061	·896	?	?	?	92·3	68·4	23·9	?	?	80·2	+2·0	?	?	?	?

† Mean of 30 days. ‡ Mean of 24 days. ¶ Mean of 28 days.

II—*concluded.*

86 stations in India, Burma, etc., for December, 1897—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.		
																									%	%						
·271	·338	·404	·338	−·014	83	56	67	69	−8	4·7	5·0	4·9	−0·5	2	6	1	2	35	14	2	..	..	S. 38° E.	S. 41° E.	68	61	55	55	...	...	Wellington.	Hill Station, S. India.
·525	·614	·640	·593	+·019	65	68	70	68	−2	0·8	0·9	0·9	−0·7	...	4	6	18	2	2	1	2	27	N. 5° E.	N. 1° W.	37	33	99	83	...	...	Muscat.	Extra India.
·649	·673‡	·622‡	·648	+·014	80	68‡	59‡	69	0	5·5	1·1	3·3	−0·1	2	3	8	26	15	5	2	..	1	S. 79° E.	S. 87° E.	66	71	283†	313	...	...	Aden.	
·664¶	·698	·671	·679	+·018	74¶	65	63	67	+3	4·7	2·8	3·8	+2·2	...	...	...	26	32	...	2	2	...	S. 62° E.	S. 60° E.	82	83	455	458	...	...	Perim.	
?	·796	·788	?	?	?	69	70	?	?	1·0	1·6	1·3	?	2	16	18	8	4	...	1	..	12	N. 23° E.	?	61	?	117*	?	...	...	Minicoy.††	
·855	·882	·838	·858	+·001	82	75	65	74	−4	3·5	1·3	2·4	−1·5	...	21	27	8	1	2	...	1	2	N. 33° E.	N. 35° E.	74	62	172*	152	...	...	Zanzibar.	
·759	·828	·826	·804	−·007	84	77	76	79	−2	6·6	6·8	6·7	−0·1	10	2	1	1	2	3	2	12	29	N. 61° W.	N. 44° W.	56	61	150	156	20·10	2·95	Port Victoria (Seychelles).	
?	?	?	·766	?	?	?	?	78	+3	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	274	262	4·53	2·05	Mauritius.	

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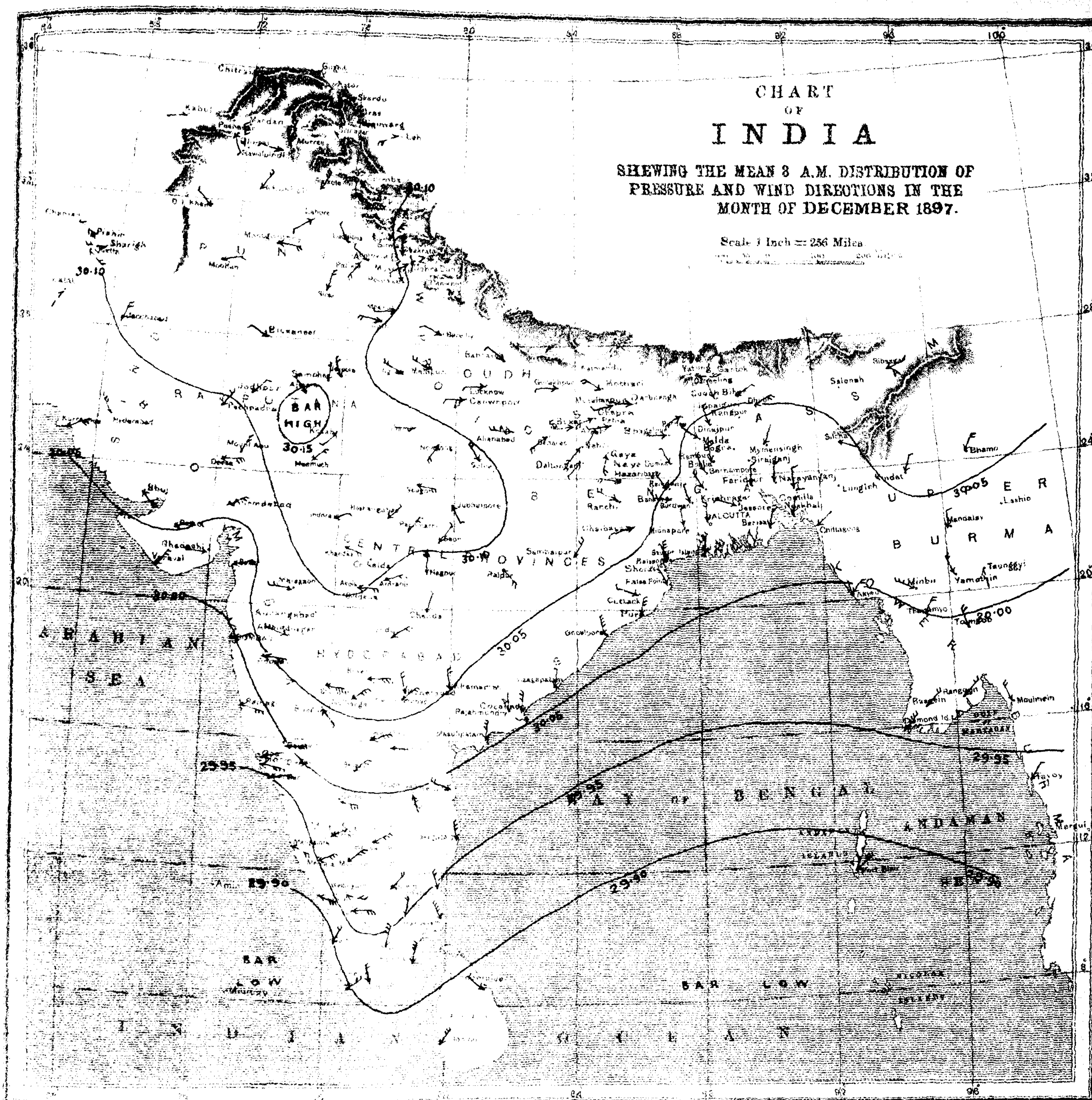
* Corrected.

†† 16 Wind observations.



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.

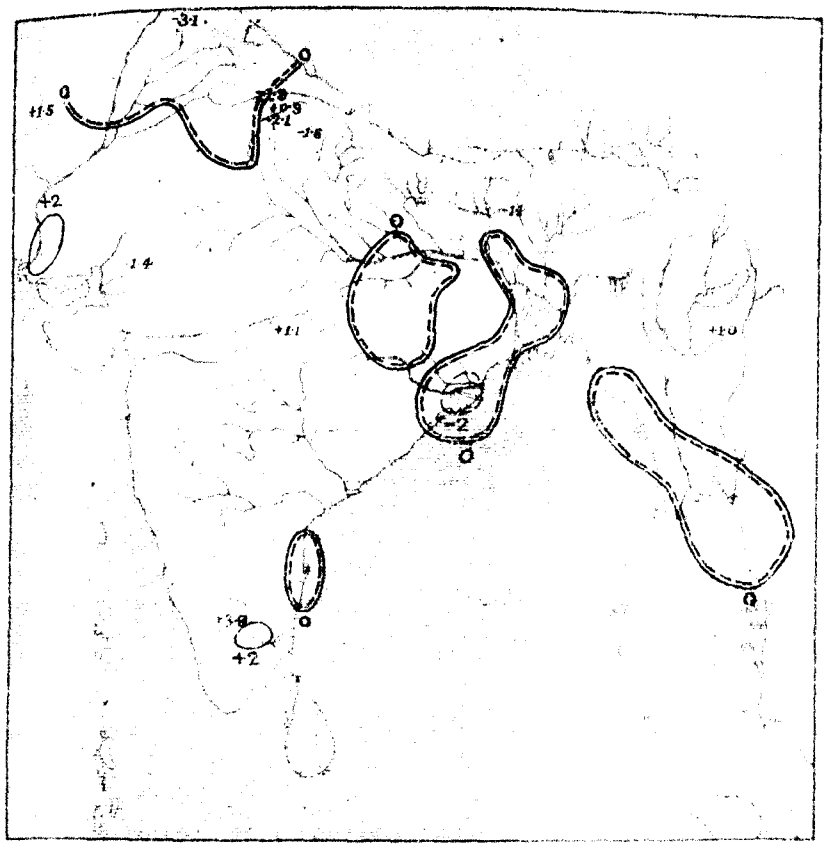
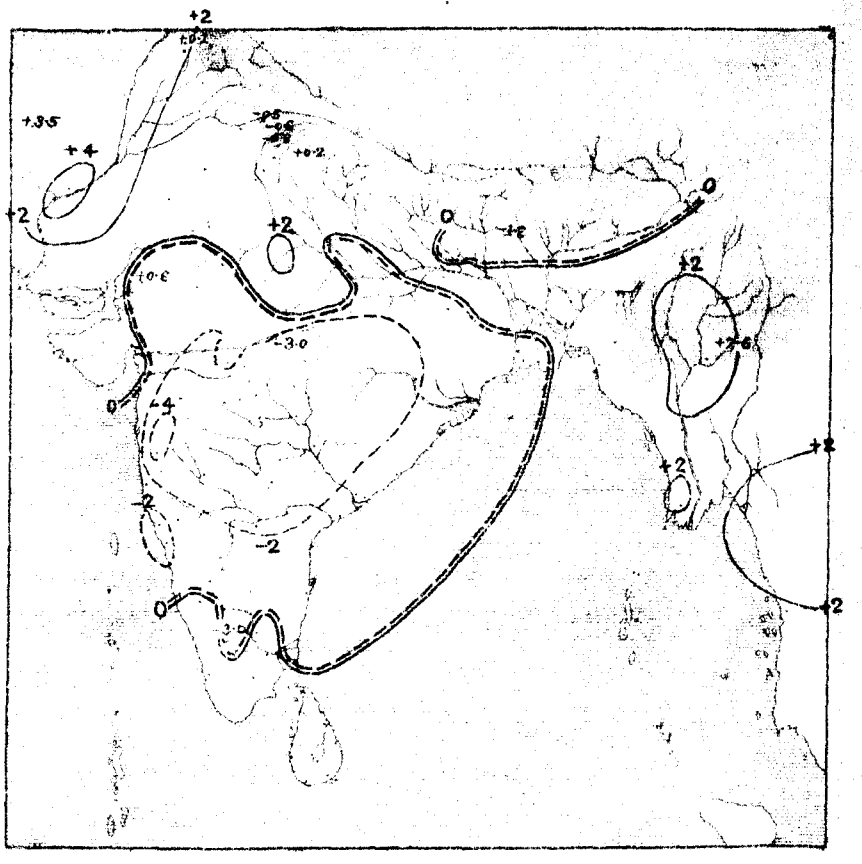


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



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 the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

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

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

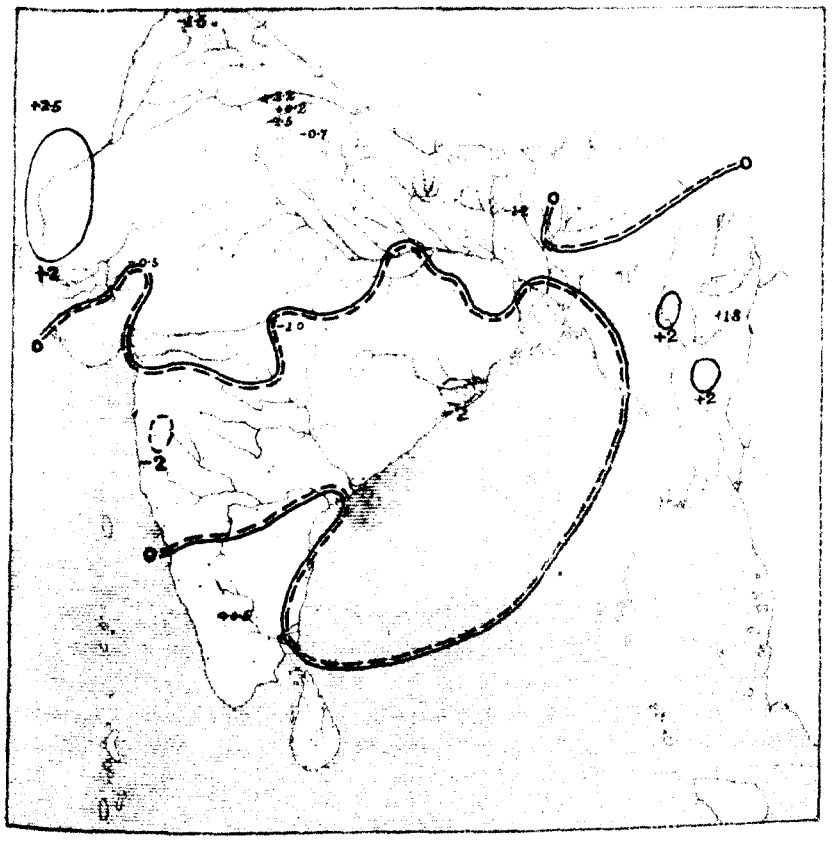
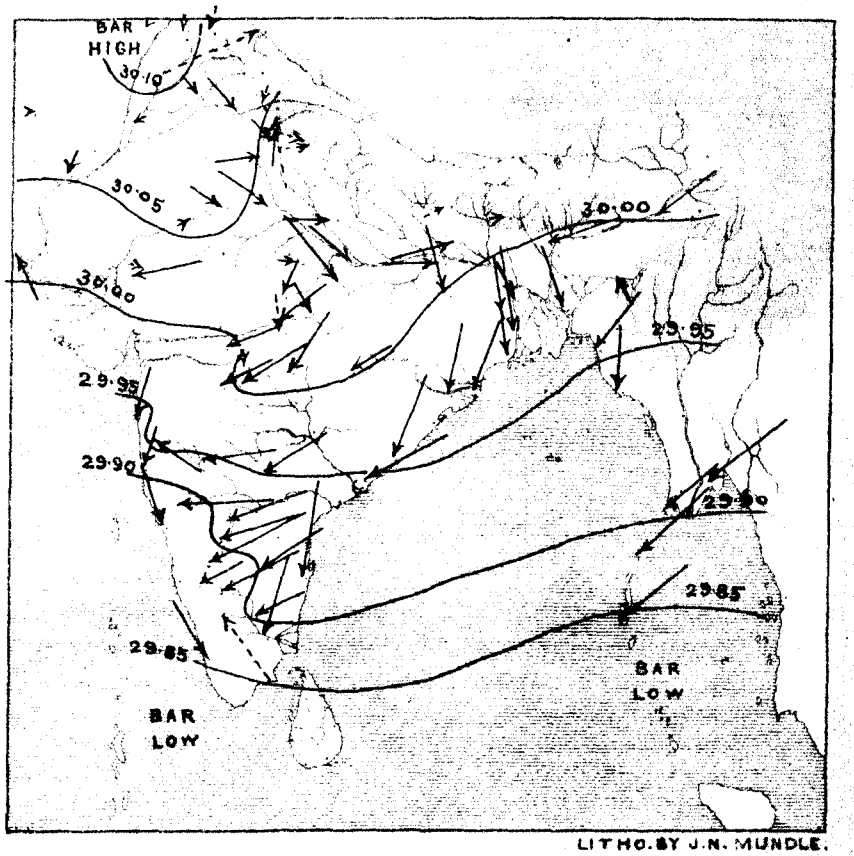


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF DECEMBER 1897.



LITHO. BY J.N. MUNDLE.

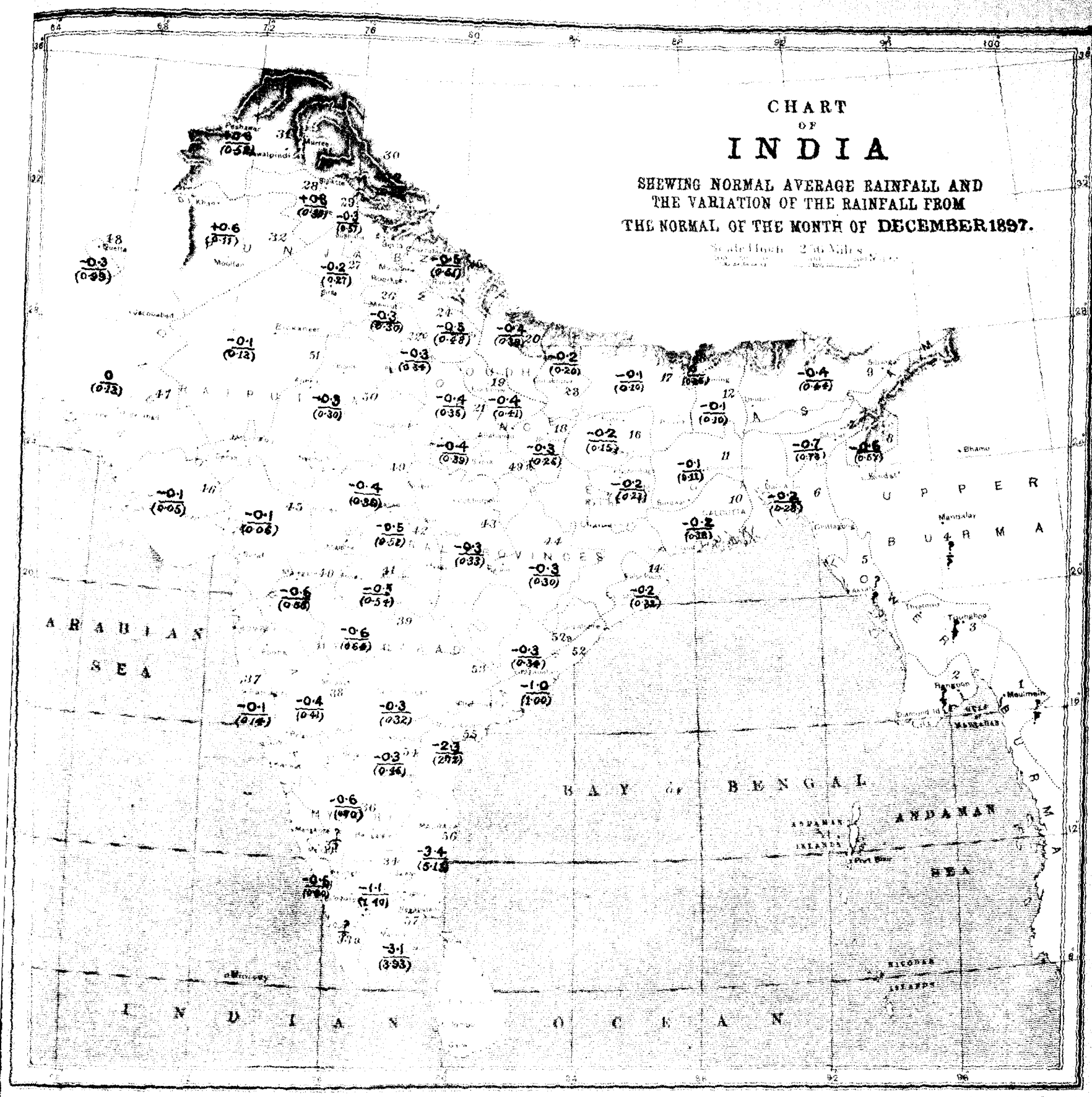
Explanation.

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

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value

Explanation.

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



Explanation.

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

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

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